

Early Childhood



A Guide to Early Childhood Program Development

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DEPARTMENT OF EDUCATION**

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**A GUIDE TO
EARLY CHILDHOOD
PROGRAM DEVELOPMENT**

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A special thanks for the incredible contributions over time that so many in the early childhood field have given. This is truly their document.

FOREWORD

Each year Connecticut's families enroll excited children in early childhood programs to embark on a wonderful learning opportunity. Recent compelling research about how preschoolers learn has led educators to recognize how influential quality instruction can affect children's development. This *Guide to Early Childhood Program Development* has been developed to help stimulate this dynamic and essential experience for children.

A number of basic learning tenets provide the central focus of this guide.

- All children are capable of learning.
- Children learn best through methods and in environments that respect their individual development and personal interests.
- The process of learning is dynamic and its outcomes are integrated into the lives of the young learner.
- The innate desire to learn can be heightened by caring and sensitive adults in the lives of children.
- Children who enjoy school are more likely to attain the skills and knowledge appropriate for their ages and developmental levels.

This guide is intended to bring useful information to those who are charged with creating developmentally appropriate programs in all settings. It encourages teachers and curriculum specialists to create programs that model the enthusiasm young children have for learning. It will be an invaluable resource to all who are responsible for the education of young children. Content has been aligned with *A Superior Education for Connecticut's 21st Century Learners*, the Connecticut State Board of Education's 2006 – 2011 Comprehensive Plan. High-quality preschool education for all students is one of these priorities identified by the Board.

The importance of high-quality early childhood education to later school success has never been more clear. Our challenge has been to remove the barrier of access to preschool and to institute a system of quality preschool education and services that support success in preschool and the subsequent primary grades. I am confident that the creativity and commitment of Connecticut teachers, administrators and parents will ensure the best possible early childhood programs for all the young children of our state.



Mark K. McQuillan
Commissioner of Education

INTRODUCTION

This *Guide to Early Childhood Program Development* is meant to serve as a tool for developing high-quality early childhood programs. Along with a brief review of the relevant research, each chapter of the guide provides guidance in the process of curriculum development, suggestions for appropriate and engaging content in key subject areas, ideas for successful teaching strategies, examples of appropriate contexts for learning and suggested best practices. Each chapter is designed to stand on its own as a resource to help overcome challenges that arise, or for use as a training tool.

Examples in the guide are intended to make performance standards found in *Connecticut's Preschool Curriculum Framework* (1999) come alive and help teachers plan with the standards in mind. The guide pulls materials from the best research and resources available and paints a strong, clear vision for excellence for the early education of Connecticut's children.

Experience, Culture And Responsive Adults

Early childhood educators have always relied upon their knowledge of child development and maturational theories. More recently, it has become equally important to understand the vital roles that experience, culture and responsive adults play in the emergence in children of skills and abilities in each developmental domain. In the last 30 years numerous studies have demonstrated that children are more able to learn and develop lasting relationships when they have learning experiences with individuals who are knowledgeable and responsive to their individual capacities. Vygotsky (1978) describes how children's problem-solving abilities can be strengthened when they are guided through tasks under adult supervision. Gobbo and Chi (1986) demonstrate that when teachers provide children with knowledge in a content area or about a specific topic, the children are better able to use this new information, act on it and continue in the learning process. Such research shows how capable children are of learning a great deal when they are in environments that provide stimulating **experiences** and **responsive adults** to support their development.

Responsive adults influence not only cognitive learning, but also children's social-emotional competence (peer relations and teacher/child relations). Howe and Smith (1995) have written about how children who are emotionally secure in their relationships with their teachers will use this base to explore the classroom, engage in pretend play, anticipate learning and promote their own self-regulation behaviors and peer relations.

The importance of children's cultural knowledge has become a major theme in the study of children's learning. Because culture supports children's thinking, the activities, toys, materials and social events introduced to children in their home environments shape their thought processes and performances. Culturally competent teachers can better prepare environments for learning, choose materials, and plan experiences that are respectful, stimulating and valuable for all.

Developmental continuums and profiles are excellent tools for planning curriculum and experiences that fit children's developmental strengths and abilities. Numerous profiles are available to early childhood professionals. Each program should use the tool preferred by teachers and staff members. Presenting characteristics of children's growth, development and learning profiles suggest some predictable ways that young children interact with and make sense of their world. Although children follow predictable patterns of development, the rate, pace and actual manifestation are unique to each child. Ages and stages information are guidelines, not fixed facts. Research continues to reveal new information regarding children's responsiveness to environments and adult behaviors.

This guide serves as a reminder of the importance of individual differences. Gender, temperament, learning styles, native languages, special needs and culturally diverse backgrounds contribute to variability in the attainment of developmental milestones. The theory of differentiated instruction is an important educational strategy for young children. When teachers use information from developmental profiles, observations and information obtained from the family, they are able to:

- create environments that meet individual needs;
- provide varied materials for different skill levels so all learners can achieve success;
- plan so time is flexible, and individual children's needs are a priority;
- offer learning experiences in a variety of group settings, large, small and individual;
- screen and assess learning in multiple ways over time;
- identify when there is an exception to the normal pattern of development; and
- foster active, two-way communication with parents that develops partnerships and shared goals.

The complexity of teaching preschool children requires the ability to be reflective, active and enthusiastic in providing a setting that is cognitively challenging, engaging and appropriate. This guide is the third of three tools the Connecticut State Department of Education has created to support the work of early childhood professionals in Connecticut. Released earlier were:

- *Connecticut's Preschool Curriculum Framework*, which provides information on appropriate curricular goals and performance standards for the range of skills and knowledge of 3- or 4-year-old children; and
- *Connecticut's Preschool Assessment Framework*, which provides a curriculum-embedded tool for assessing children's performance in order to inform teaching.

Connecticut's Preschool Curriculum Framework should be used as an important guidepost when planning for children's learning. It incorporates information and perspectives from a wide array of resources, including:

- national reports and consultation with experts;
- federal standards, e.g., Head Start program performance standards, British Columbia standards, and standards from other states, including Minnesota and Maryland;
- nationally recognized assessment protocols, e.g., work-sampling system, child observation record; and
- Connecticut Department of Education curriculum frameworks.

Planned intentional curriculum and appropriate teaching strategies can lead children to achievement of the performance standards identified in *Connecticut's Preschool Curriculum Framework*. Consonant with principles promoted by the National Research Council, its teaching implications include the following:

- Early learning and development are multidimensional.
- Developmental domains are interrelated.
- Young children are capable and competent.
- There are individual differences in rates of development among children.
- Children will exhibit a range of skills and competencies in any domain of development.
- Knowledge of child growth and development, and consistent expectations are essential to maximizing educational experiences for children, and to developing and implementing programs.
- Families are the primary caregivers and educators of their young children.
- Young children learn through active exploration of their environments, through child-initiated and teacher-selected activities.

The performance standards are organized within four domains:

- personal and social development;
- physical development;
- cognitive development; and
- creative expression and aesthetic development.

This *Guide to Early Childhood Program Development* provides direction and support for using the performance standards. *Connecticut's Preschool Curriculum Framework* provides examples to assist in interpreting each performance standard. And *Connecticut's Preschool Assessment Framework* provides methods for monitoring progress and improving practice. Together, these three resources will support early childhood professionals in the continual process of planning and implementing challenging and engaging programs that build strong foundations for Connecticut's children.

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PROFESSIONAL ROOTS AND CURRENT RESEARCH

1

OUR PROFESSIONAL ROOTS
Current Research



OUR PROFESSIONAL ROOTS

Discussion of current practice and theory in early childhood education would not be complete without recognizing the foundation built from the outstanding work of those who came before us. A tremendous debt of gratitude is owed to pioneers in the field of early childhood education, who with dedication and passion contributed ideas that are still influential today. Four of these educators have been particularly significant in their influence on early childhood settings and practices in Connecticut.

Maria Montessori (1870-1952) created one of the earliest curriculums for early childhood education. Her work has stood the test of time and is still used in many early childhood settings. Her theory focused on the relationship between the child and the environment as a framework when developing her materials and teaching strategies. She believed that teachers should carefully observe children at work and play to determine what teaching and materials are appropriate for their next phase of learning. Montessori materials were designed to be didactic, self-correcting and appealing to the senses as the basis for intellectual development. She considered children's needs with regard to furniture and materials, even constructing tables and chairs to better accommodate young children (Goffin and Wilson, 2001).

John Dewey (1859-1952) believed that education should contribute to children's personal, social and intellectual growth, and that learning occurs by creating an environment based on shared experiences. Dewey viewed children as active beings, eager to interact and explore their world. This type of learning, according to Dewey, occurs best in the context of problem solving and investigation within experiences that are meaningful to children. He saw knowledge and growth as ongoing – as one question is answered another springs forward – and identified three levels of activity:

- developing sensory abilities and physical coordination;
- using materials that stimulate creative and constructive interests; and
- discovering new ideas.

Dewey believed the ideal school to be one where administrators, teachers and children planned the curriculum together (Ornstein, 2000). His contributions can be witnessed in early childhood settings which focus on providing direct experience with materials and peers, and encouraging the pursuit of individual interests and questions.

Jean Piaget (1896-1980) also believed in the need of children to explore their environments. Piaget organized growth and intelligence into four stages of sequential development. Each of these stages depends and builds on the preceding. His work guides the practice of providing stimulating, informal learning experiences with multiple opportunities for children to grow and develop. Piaget believed that appropriately planned learning experiences encourage children to explore and experiment at their own levels in environments where they can use objects to construct relationships and understandings. According to Piaget, the major impact of carefully chosen materials and a well-prepared environment is to enable the child to gather physical and logico-mathematical knowledge.

Although Piaget emphasized that children must make discoveries independently, he did not suggest that children can be left on their own in a carefully planned environment. According to Piaget, the teacher plays an integral role in modeling, providing examples and carefully developing questions that engage and support the learning process (Kamii and DeVries, 1993). He also recognized that social interaction, like the environment and materials, provide impetus to learn (Sowers, 2000).

Lev Vygotsky (1896-1934) emphasized the power of social interaction and the value of authentic cultural experiences for children. According to his theory of development, children's growth is influenced by biological growth patterns, culture and important individuals within their experiences. Vygotsky theorized that cognitive development does not occur in isolation for the child. He described three levels of learning:

- Level 1: unable to do the task without an adult or mature learner;
- Level 2: able to do the task but needs assistance from an adult or mature learner; and
- Level 3: able to complete the task independently.

Vygotsky's "Zone of Proximal Development" theory suggests that teachers observe and are prepared to assist the child's learning experience at Levels 1 and 2, so he or she can become independent at that particular task or learning experience (Sowers, 2000; Berk and Winsler, 1997).

Quality early childhood programs are "highly organized and structured environments that teachers have carefully prepared and in which teachers are in control" (Bredenkamp & Rosegrant, 1995). Teachers do teach in early childhood environments. They employ a

variety of teaching strategies, modifying and adjusting tasks, setting expectations, demonstrating, assisting and facilitating (Berk and Winsler, 1997). Sometimes all of these teacher behaviors occur within the same learning experience (Bredenkamp and Rosegrant, 1995).

Stressing that educators should focus on the strengths and capabilities of children, Vygotsky suggested that all children be educated in group settings. Social interaction and discourse with peers has a powerful effect on a child's development, and mixed age groups provide learners with additional resources beside the teacher and environment.

These educational pioneers shared a belief that the child constructs knowledge through interactions with the physical and social environments. This model of interaction and construction provides a solid framework for decisions about teaching strategies, content, performance standards, environment and materials. Based on a foundation built by these educators, this guide serves to support knowledgeable teachers who seek to create early childhood settings where play-based learning is viewed as paramount in children's experiences; problem-solving opportunities occur within the context of genuine questions and investigations; interactions are cultivated; and appropriate and rich materials are selected and provided according to the individual interests of children.

Current Research

From this foundation, new research is reshaping early childhood education. Scientific understanding of early childhood development and of children's learning and behavior in preschool and child-care settings has grown enormously over the past 30 years. Research compiled by the National Research Council (2001) indicates that 2- to 5-year-old children are more capable learners than had been imagined. This research provides many reasons for developing new educational goals. Seven of these goal statements follow.

An expanding body of knowledge demonstrates that young children profit from quality early childhood educational settings. While it is important to be sensitive to individual characteristics and development, research indicates that children are capable of more cognitively challenging and stimulating experiences than previously believed. The evidence also indicates that children who develop strong cognitive and social skills are most likely to succeed in later school experiences (National Research Council, 2001).

The needs of children and their families are rapidly changing. According to *Greater Expectations:*

Connecticut's Comprehensive Plan for Education for 2001-2005, "the goal is to ensure that all Connecticut students achieve standards of excellence, no matter what community they reside in or what challenges they face." This plan acknowledges the growing challenges of the 21st century, such as rapid growth in technology, changing demographics of Connecticut schools and families, and greater demands on citizens to develop special skills in order to achieve success.

The number of children who are English language learners continues to grow. Children and families benefit when classroom approaches take language differences into account. Including children's home languages in curriculum experiences builds a sense of partnership and allows children to display strengths and interests that may otherwise be neglected. Research shows that children benefit from teaching practices that support their home languages while encouraging the development of English (Tabors and Snow, 2001).

Research demonstrates the value of inclusive programs where all children are given opportunities to thrive and grow. Inclusive learning environments acknowledge the value that comes from the diversity of each person's strengths and contributions. Teaching and curriculum decisions that are based on needs, abilities and skill levels build on such strengths. Adaptations and modifications allow each child the opportunity to experience success and growth in a differentiated setting (Hull, 2002).

Research highlights the need to be responsive to the various cultural environments in which children live. Social-emotional competence provides a necessary framework for learning. Making connections between family and home helps children to build bridges between their cultural heritage and their school environment. The resulting feelings of pride, enthusiasm and success are essential for future learning (National Research Council, 2001).

New discoveries change our understanding of the forces of nature and nurture. New technologies in neuroscience, for example, demonstrate the powerful interaction of nature and nurture in the optimal development of young children (Shore, 1997). These findings confirm what early childhood educators have been advocating for years. Early care and education with caring adults in high-quality environments that collaborate and support parents make a difference.

Successful practices around the world influence our development of model early learning environments. International programs, such as those found in Reggio Emilia, Italy, where teachers

work in partnership with parents to create classroom environments that cultivate communication, reflection and inquiry (Cadwell, 1997), impact successful practice in the United States.

Eager to Learn: Educating Our Preschoolers (National Research Council, 2001), is an excellent resource which presents a synthesis of the theory and research relevant to early childhood education. It develops an integrated picture of early learning and what it should look like in programs and classrooms. It successfully contrasts the traditional beliefs of early childhood educators with current research.

The National Association for the Education of Young Children (NAEYC), the nation's largest professional organization of early childhood educators, *Childhood Programs* states, "among the most frequent themes ...[is] the need to move beyond the either/or polarizing debates in the early childhood field ... to more both/and thinking that better reflects the complexity of the decisions inherent in the work of the early childhood education" (Bredenkamp and Copple, 1997).

Early childhood programs need to create settings where cognitively challenging curriculum is embedded within appropriate experiences, and delivered by professionals who are caring, understand development, and stay current with research and best practice (Shore, 1997). Teachers should be reflective and involved in decision making around curriculum and teaching strategies. Professionals have an obligation to participate in the dialogue that strives to link past theories and practice with current research. The past and the present serve as guideposts in the ongoing efforts to strengthen the vision for the implementation of successful early childhood education programs.

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- Child Care Action Campaign – <http://www.usakids.org/sites/ccac.html>
- Children’s Defense Fund – <http://www.childrensdefense.org/>
- Council for Early Childhood Professional Recognition – <http://www.edacouncil.org/index.html>
- Division for Early Childhood of the Council for Exceptional Children – <http://www.dec-sped.org>
- ERIC Clearinghouse on Disabilities and Gifted Education – <http://ericec.org/>
- Families and Work Institute – <http://www.familiesandworkinst.org/>
- High/Scope Educational Research Foundation – <http://www.highscope.org/>
- National Association for the Education of Young Children – <http://www.naeyc.org/>

National Center for Family Literacy – <http://www.familit.org/index.html>

National Safe Kids Campaign – <http://www.safekids.org>

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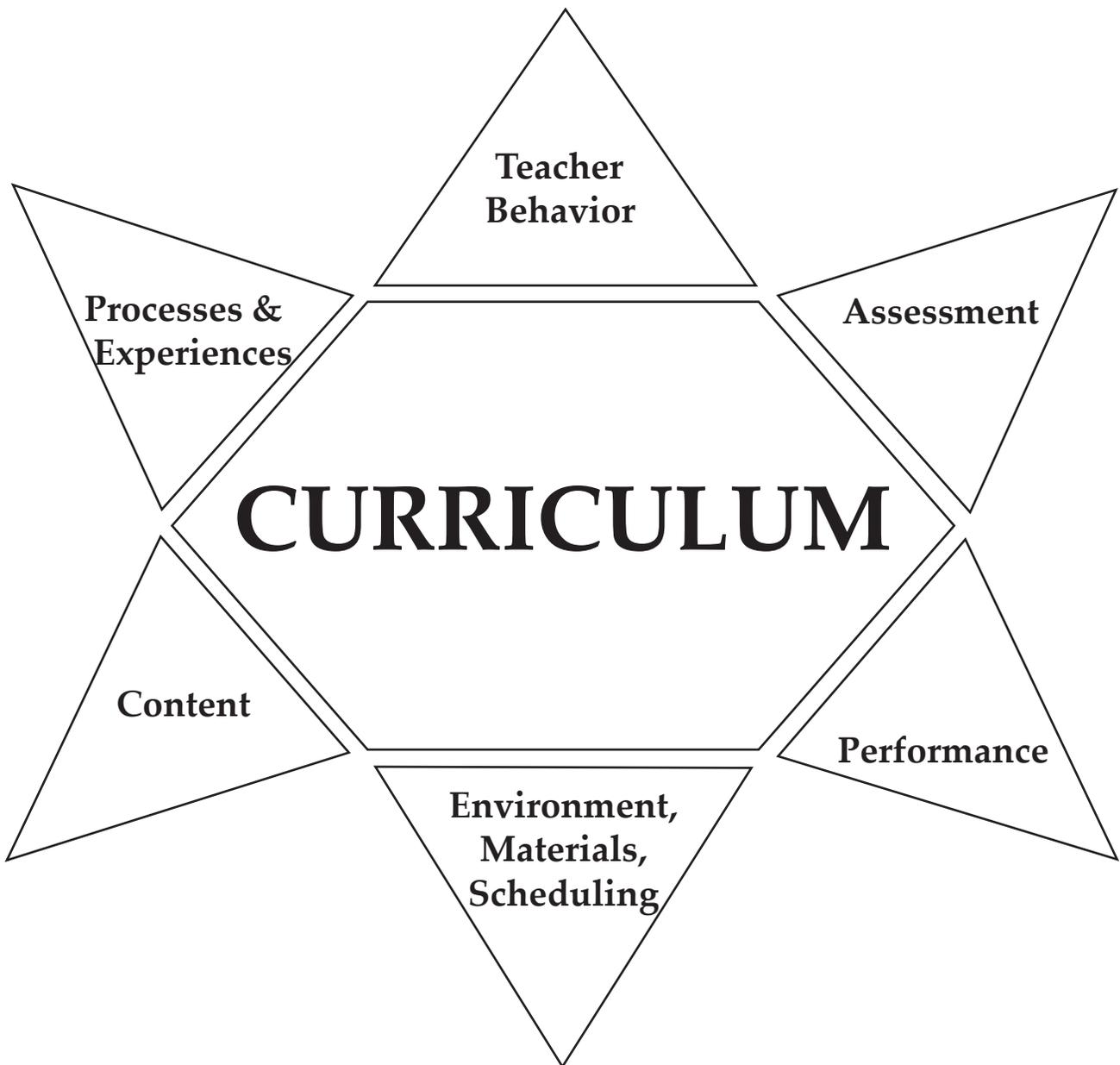
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The Dynamic Role of the Teacher

"Teachers begin to see themselves in new ways and in different roles. These varied and complex roles include: observer, listener, planner, communicator, provoker, interpreter, scaffolder, researcher, risk taker, creative problem solver, collaborator, documenter, facilitator and learning partner."

(Trepanier-Street, Hong and Donegan, 2001)

CURRICULUM PLANNING
HOW PLAY CONTRIBUTES TO DEVELOPMENT
TYPES OF PLAY
THE PROJECT APPROACH FRAMEWORK
TEACHER BEHAVIORS
TEACHING STRATEGIES
PLAY-BASED LEARNING CENTERS
THEMATIC/PROJECT APPROACH
BEST PRACTICES
EARLY CHILDHOOD CURRICULUM MODELS



HELPFUL TERMS

Early Childhood Curriculum Models	An organized approach incorporating specific theory into a design for interactions with children and families, teacher planning, assessment and classroom experiences
Emergent Curriculum	An alternative to theme-based curriculum where topics are developed based on the interests of children
Integrated Curriculum	Learning experiences that are planned to encourage learning in more than one content area, and across several domains of learning (personal, social, cognitive, physical)
Learning Goals	<p>Four categories of learning defined in Katz-Chard, 1989</p> <p>Knowledge: facts, concepts, ideas, vocabulary, stories and other aspects of children’s culture</p> <p>Skills: small units of action, such as physical, social, verbal, counting and drawing skills</p> <p>Dispositions: habits of mind or tendencies to respond to certain situations in certain ways</p> <p>Feelings: emotional states, some are innate (e.g., fear), while others are learned (e.g., flexibility or perseverance)</p>
Project	An in-depth study of a topic that one or several children are interested in investigating
Scaffolding	Providing support and challenging the child to try something a little more difficult by breaking it down into smaller components. For example, a child is trying to tell a story using puppets. The teacher listens and provides ideas and questions that support the child’s efforts. “So why is the monster angry? What will he do next? How will you end this story?”
Seeding the Environment/ Provocation of Ideas	The teacher provides materials, equipment and questions to encourage and sustain children during problem solving and inquiry.
Thematic Units	Integrating projects and experiences that develop skills and content knowledge around a unifying topic, such as “investigation of birds around our school”

CURRICULUM PLANNING

Teachers use curriculum to intentionally plan ways for children to construct knowledge in order to make sense of their experiences. Appropriate curriculum content focuses on all four developmental domains: *cognitive* (language and literacy, mathematical, and scientific thinking); *physical*; *social and emotional*; and *creative aesthetic expression*.

A meaningful curriculum is integrated so that learning experiences encompass many content areas. It must be based on children's interests and presented in a context that stimulates children to invest in their work. Learning takes time. Children need to interact with the curriculum – to explore it, utilize it, question it and evaluate it in their own way of learning. Children's engagement ensures purposeful and sustained learning. Curriculum also must provide opportunities for children to see and explore who they are within the context of their family life and culture (Curtis and Carter, 2006). Family involvement must be promoted and encouraged, with respect and appreciation for the value of the home culture. This enhances children's self-esteem.

Essential Curriculum Planning Components

1. **Performance standards** or objectives for children
2. **Ongoing assessment** of children's skills, development and abilities
3. **Content** in language and literacy, mathematical concepts, and scientific inquiry
4. **Processes and experiences in a learning context** that capture the energy of the children's curiosity
5. **Teacher interaction** that balances teacher-directed and child-initiated behaviors and strategies
6. Organization of the **environment, schedule and materials**

There are four aspects of curriculum when it is created to be challenging and achievable:

- content worth knowing;
- specific indicators for children's performance;
- attention to developmental characteristics; and
- meaningful experiences built on children's natural curiosity (Katz and Chard, 1989).

In addition, ongoing daily interactions where

teachers observe and assess children's thinking and progress help teachers set learning goals and plan instruction. Observation, reflection and assessment provide information for adjusting the teaching environment to individual as well as group needs. When assessment focuses on performance standards the teacher can provide a scaffold within each learning experience appropriate to the child's emerging abilities.

Educators define curriculum as "an organized framework that delineates the content that children are to learn, the processes through which children achieve the identified curricular goals, what teachers do to achieve these goals, and the contexts in which teaching and learning occur" (Bredekamp and Rosegrant, eds., 1995).

A report from the National Research Council (2001) describes three principles of learning that are directly applicable to teaching:

- **Children develop ideas and concepts early on.** Therefore, teaching strategies must foster connections between new learning and existing ideas.
- **The learning environment must foster both skills and conceptual understanding to make knowledge usable.** Therefore, planning must take performance standards into account, providing both content knowledge and experiences that use the information gained in meaningful ways.
- **Children need guidance to learn how to monitor their thinking, to be able to understand what it means to learn and how to do it.** Planning must include strategies that promote the development of thinking skills, attitudes and dispositions (National Research Council, 2001). Early childhood teachers know that young children need environments that are active and social, and include caring teachers. Time for exploration and play is not enough. Teachers also must support children's growth and learning to help them reach new levels of competence (Bredekamp and Rosegrant, 1995). Keeping in mind Vygotsky's theory on teaching and learning, the teacher plays an integral role in scaffolding a child's learning by using varied teaching behaviors and strategies to nudge the child toward discovery and understanding. No one teacher behavior or strategy is best or used all the time. Piaget points out that the context of the experience and an environment with many opportunities to explore materials is fundamental to the learning process. These

considerations are interrelated. All are essential in creating a curriculum plan that is dynamic, engaging and successful.

Although there are many possible learning contexts, this guide focuses on play-based learning center environments and the thematic/project approach. This section will discuss the decisions teachers make in planning curriculum. It will:

- highlight how children's **performance standards** are used as the framework for developing curriculum;
- point out the value of **assessment** in driving teaching and learning goals;
- discuss the primary choices for the **learning context**: play-based learning centers or the thematic/project approach;
- explore the decisions teachers make with regard to their degree of **involvement** in the learning experience, and possible strategies to use with individual children and experiences;
- present a step-by-step **curriculum planning process**;
- examine how to create well-organized **environments** by choosing appropriate materials and carefully considering **scheduling** and **timing** of experiences and routines; and
- discuss how the influences of a positive classroom climate can provide a base for all teaching and learning.

Performance Standards

Preschool curriculum is integrated when the content and experiences cut across developmental domains. Individual performance standards are not considered in isolation. A single learning experience will be built with knowledge of the child's abilities and interests across several domains, and often involves more than one performance standard.

Each child arrives at his or her desired level of understanding, knowledge or skill as a result of carefully selected and planned curriculum experiences. Children engage in learning in ways appropriate to their individual levels of development. In planning curriculum, the full range of abilities, including those of children with disabilities, must be considered. Performance standards are the same for all children; however, a child with a disability may need specific teaching strategies and additional support to achieve the same level of success.

Learning Context

Play is the first and most important defining behavior of a young child. Research shows that play cannot be replaced by any other activity (Bodrova & Leong, 1996). Play contributes to and enhances all areas of development in young children. When children are working in play-based learning centers they play with materials and ideas and interact with peers. Through play, children construct their understanding of the world, re-create their knowledge, employ their own rules, make ideas part of their reality, and discover solutions to complex problems. Children learn cooperation, problem solving, language, mathematic and scientific concepts, and to express and control emotions. Children need opportunities for extended, self-directed, uninterrupted play, both indoors and outdoors, where the environment has been intentionally prepared by a teacher who is able to guide and support each child's learning.

As we watch a 3-year-old climb a jungle gym, or use a magnifying glass to see a pollywog, or observe a 4-year-old count out the number of crackers for a snack, or create a sign for the latest block building, we understand the value of the time, energy and skill involved in each activity. Vygotsky pointed out that children develop through play (Berk & Winsler, 1995), thus teachers must be *prepared* to follow each child's lead.

The ability of children to construct meaning from their play should not be underestimated. How excited they become when they first discover how to make purple by mixing other colors, or sing a song that plays with words and sounds. Whether building a home for the guinea pig, or participating in a game with others, playing alone and with others contributes to the development of self, and provides a forum for the development of independence, self-confidence and problem solving (Wassermann, 1990).

HOW PLAY CONTRIBUTES TO DEVELOPMENT

Play is vital in cognitive development. Children who play freely with designated materials exhibit more thinking skills and problem-solving abilities than those not given opportunities to play. They are also more goal-directed and persistent (Sylva, Bruner, et al., 1976). Children who have opportunities to "re-create stories among themselves" during play have greater abilities to understand and retell stories.

Play also fosters creativity and imaginative thinking. As children mature, their thinking and actions grow in flexibility. Materials and objects are used in many ways. The symbolic play of children lays the foundation for their understanding of the written symbols of language and mathematics. Play lays a foundation for reading success (Gentile and Hoot, 1983). In play, children use visual perception, eye-hand

coordination and symbolic representation. Additionally, play develops the power to analyze, make judgments, synthesize, formulate and see causal relationships.

Play also has an important role in learning **physical and perceptual skills** (Sponseller, 1974). Complex learning tasks depend upon well-integrated neurological development, which is supported by playful activity. Sensory motor skills must be developed before the activities of reading, writing and arithmetic can be mastered.

Play is the principal activity through which **social interaction** is facilitated in the early childhood classroom (Gullo, 1992). Erikson (1964) suggests that play is of prime importance in the mastery of **emotional needs**. Through play, children gain confidence and learn to trust others. They learn to give, receive, share, express ideas and feelings, make choices, express friendship, see the perspectives of others, and include others. Through dramatic play, children plan cooperatively with others, use language to shape their interactions, solve problems and identify with a variety of societal roles.

Children who play are more flexible and versatile (Sutton-Smith, 1974). Versatile people are easier to work with and make more competent leaders. Teachers and parents who provide plenty of opportunity for children to play are cultivating adults who are more likely to respect themselves and make positive contributions to the lives of others.

The influences of Dewey are evident in play-based learning centers, especially when they provide opportunities for problem solving with materials and peers in an integrated curriculum. Most early childhood environments use learning centers as vehicles for prompting play on various levels. Centers are generally of two types.

- Curriculum centers include manipulatives and materials to foster development in the cognitive areas of mathematics, language and literacy, and science.
- Interactive learning centers provide materials and experiences that focus on children's dispositions to explore and investigate by using drama, blocks, sensory integration (sand/water) and creative arts.

Centers are typically prepared in advance by the classroom teacher or assembled in reaction to children's interests, questions and abilities. Effective centers:

- provoke interest;
- encourage exploration and inquiry;
- change throughout the year depending on interests; and
- provide for independent thought and activity.



TYPES OF PLAY

Preschool children engage in many types of play, which develop in complexity as they change and grow. Play does not evolve cleanly from one category to the next. Several types of play may occur simultaneously. Through observation and participation in children's play, teachers gain insight into children's thinking and developing abilities. With this information teachers make instructional strategy choices. Possible strategies (among many) include direct teaching, provocative questioning, integrating a challenge within an activity, peer collaboration and problem solving.

The following categories often are used to describe the play of preschool children.

Solitary Play:	Playing alone with materials and ideas.
Parallel Play:	Playing side by side, sometimes mirroring each other, sometimes doing very different activities with the same materials.
Cooperative Play:	Playing in collaboration with another or a group with a common goal or problem to solve, sharing ideas, materials and roles.
Free Self-Directed Play:	Playing with materials or ideas, alone or with others, with adult support only if required by participants in the activity.
Sensori-Motor Play:	Exploring the properties of objects using both senses and physical activity, e.g., banging or rolling clay, pouring sand or water, or making sculptures from paper mache.
Constructive Play:	Making structures and creations using various objects and materials that can be assembled in an infinite variety of ways, e.g., building a garage for toy cars and trucks out of a set of wooden blocks or Legos.
Dramatic Play:	Assuming pretend roles, imitating and acting out situations about feelings, events, people and animals, e.g., using language and gestures while pretending to be a father, a salesperson in a store, or a doctor in the hospital.
Symbolic Play:	Representing concrete objects, actions and events mentally or symbolically. As children mature, they are able to use objects such as blocks or cardboard boxes that are increasingly less realistic in form and function from the object the child wishes to symbolize. Symbolic play incorporates constructive and dramatic play .
Gross-Motor Play:	Engaging in activities that require children to use their large muscles. Most typically outside, this type of play may involve dramatic play within the running, climbing and/or riding of vehicles.

THE VALUE OF PLAY

Cooperating
Sharing of ideas
Communicating
Listening
Problem solving
Developing
Representing knowledge
Risk taking
Concentrating

Perseverance
Succeeding
Learning
Thinking flexibly
Questioning
Gathering information
Creating
Imagining
Innovating
Being independent

LEARNING CONTEXT*Project/Thematic Approach*

Lilian Katz and Sylvia Chard (1989) have provided early childhood teachers a framework upon which to plan and create a learning environment that is vibrant and relevant to children. The project approach is an in-depth investigation of a topic, focused on finding answers to questions. It is undertaken by small groups of children, an entire class and, at times, an individual child. This approach begins with identifying a topic or question which children are interested in investigating. Projects allow for content, knowledge and skills to be integrated in a natural way. The length of time for study and research may vary from a short period of one or two days to several weeks of investigation.

The project or theme crosses curricular areas to enhance many aspects of children's development and learning. The theme or topic becomes an organizer, linking centers, knowledge, skills and experiences, as well as the investigation content. The critical feature is to enable children to make connections with prior learning and motivate them to want more information. Creating themes in isolation, or relying on plans saved from previous years, does not build on children's current interests and abilities. Such automatic planning does not respond to children's individual needs and will not be as engaging or successful.

Careful consideration in choosing projects or themes provides children with opportunities to acquire

new information, construct and extend their knowledge, and develop understanding. Such learning contexts allow children to master basic skills through engagement with meaningful activities, and to strengthen social skills of collaboration and sharing of ideas (Katz & Chard, 2000). Children are expected to ask questions, search for answers and connect prior information with new learning, whatever their developmental abilities, language issues, cultural interests, and prior experience and learning may be. The most effective technique for choosing projects or themes is by observing and interacting with children. Teachers who spend time listening to children, engaging them in conversation, and interacting with their play will gather many project or theme ideas.

Project and theme work allows children and teachers to develop ideas and possible activities together. Teachers may anticipate possible directions the study may take, but flexibility and attention to the ideas of the children are far more important than product-driven activities. The project/theme approach provides a key strategy for developing a plan for learning, rather than for lesson planning.

THE PROJECT APPROACH FRAMEWORK

The Beginning Phase. Children and teacher select and refine a topic to be investigated. Children discuss existing ideas and information on the subject while the teacher determines their level of knowledge and particular interests in the subject. This phase concludes with the children and teacher agreeing upon the research questions to be explored. Learning as a group and developing a sense of "we" is emphasized during this phase.

The Second Phase. Children research and make plans for gathering information and data on the topic. Depending on the children's ages and the subject, possible investigation strategies include first-hand observation and exploration; taking field trips; interviewing family members and experts; taking pictures and making videotapes; and visiting libraries. Children work individually and in small groups on related subtopics. They record and represent their findings using various media and emerging skills, e.g., painting, drawing, writing, dictating stories to the teacher, constructing models, making sculptures, measuring and graphing.

The Concluding Phase. To bring the investigation to a conclusion, the children and teacher debrief on what has been learned and accomplished. Children organize information gathered and present reports, including exhibits, to their classmates, children from other classes, families and other interested persons. This process clarifies and consolidates the knowledge

children gained from their study, and enables the children and their teacher to evaluate the project work (Katz & Chard, 2000).

Questions To Ask

The following questions should be asked when creating centers for themes or projects:

- Will centers be offered all day, every day, part of the day?
- Will the number of children involved in each center be limited at any point in time?
- How will children access each center?
- What type of management system will allow for independent use in each area?
- What type of arrangement will provide movement from one center to another?
- Will the children's choice of centers and frequency of use be recorded?
- What evidence will be collected on learning outcomes?
- How many centers can be open at one time to assure order and allow teacher interaction when necessary?
- How will varying abilities and interests be accommodated?

LEARNING CONTEXT

The Family

The family and the home environment provide another key context for learning. Marion Wright Edelman (1992) urges every segment of American society to help support strong families because "...America cannot afford to waste a single child." Early childhood teachers play an especially important family support role. By building relationships with parents and other significant adults in their students' lives, teachers contribute to the creation of safe and healthy learning environments for children. This type of partnership must reflect the different roles, attitudes and needs in multiracial and socio-economically diverse populations.

In a partnership, all partners share rights and responsibilities, power and decision making, and mutual trust and respect. Schools have long sought parental involvement. Using the term "partnership" rather than "involvement" captures the idea that responsibility for children is shared across all three contexts of home, school and community. Thus, for many in Connecticut, building this kind of relationship is part of a broader effort to strengthen school-family-community partnerships that support children's learning.

In recognition of the importance of partnerships, the Connecticut State Board of Education adopted

a position statement on *School-Family-Community Partnerships*. This 2003 position statement provides the following definition:

The State Board of Education defines school-family-community partnerships as the continuous planning, support and participation of school personnel, families and community organizations in coordinated activities and efforts at home, in the school and in the community that directly and positively affect the success of all children's learning. Each partner is viewed as an equally contributing member, maintaining a certain independence while acknowledging shared responsibility. To succeed, the partnership must be flexible and based upon mutual trust and respect.

Not all partnerships look the same. Successful partnerships exhibit as much variety as the people or groups that create them. Partnerships work best when they recognize and accommodate differences among families, communities and cultures.

The Connecticut State Board of Education recommends that schools develop programs organized around six standards. These standards provide a framework to help schools work with families and communities to assist them in becoming informed about how to support their children's education. The application in early childhood settings was detailed more fully in *The Guide to Using the Position Statement in Early Childhood Programs* (2000), which notes that "early childhood educators can be a pivotal force for encouraging community collaborations that support a unified vision of positive development for children." These six standards follow:

Parenting. Programs promote and support parenting skills and the family's primary role in encouraging children's learning at each age and stage of development.

Communicating. Staff members and families participate in ongoing, clear, two-way communication about the program and children's progress.

Volunteering. Programs provide opportunities and appropriate training to involve families in activities both in the programs and at home.

Learning at home. Programs help families engage in learning activities at home that are coordinated with the goals and objectives of the educational programs.

Decision making. Programs provide opportunities for all families to develop and strengthen their leadership roles in program decisions through

participation in parent organizations, advisory councils, school boards or other decision-making committees or groups.

Collaborating with the community. Programs provide coordinated access to community resources for children and families, and serve as a resource to the community.

These six standards can be implemented in a variety of ways, including the following.

Educating Parents. Parents are the most important people in children's lives. They are also their first and primary teachers. Early childhood programs are far more effective when they involve parents in meaningful ways so that children's learning is viewed as a joint effort between early childhood educators and parents. This involvement begins with mutual respect and trust. The early childhood educator provides knowledge of child development and early childhood education, and parents contribute specialized knowledge and experiences about their children. Teachers must share information with parents on an ongoing basis, and must recognize and respect their dreams and expectations for their children's successes.

Family Resource Centers. Many programs create welcoming environments by establishing special, attractive places for parents, such as parent rooms or family resource centers.

Connecting With Families. Even with a family resource center, it is still a challenge to support families who may not come to school because of a language barrier or different cultural perspective regarding their role in the school. Programs may try alternative methods, such as home visits, regular phone calls or newsletters.

Technology. Technology can be an invaluable resource for reaching out to parents. Programs may make workshop videos available for families to view at a later time. Voicemail, websites and e-mail also are available to a wider population and can help to keep communication open and flowing.

Families in Need of Special Services. For some families it may be especially challenging to establish close, trusting relationships on behalf of their children. Community-based family support programs that link adults and children to formal agency services and informal community support can help to make connections with families in need. For example, providing new immigrant families with information, preferably in their own languages, to help them navigate the education and social services systems can link early childhood teachers, families and members of the community in joint goals.

Parenting and the Child with Special Needs. Early childhood programs play an important role

in supporting families with special-needs children. Assistance with referrals to community agencies, resources and parenting education helps parents to secure the additional adaptations and modifications necessary for their children's success as learners.

Communicating. Effective communication skills and strategies serve as the basis for building all other relationships. When young children observe positive and genuine communication between their parents and teachers, they feel that their two worlds are connected. **Formal** communication is needed when everyone must receive the same information and when accuracy is required. Suggestions include a parent's bulletin board, weekly messages, journals and a parent handbook. **Informal** communication with parents should happen every day. This occurs naturally when children are brought to and picked up from the program. Although most exchanges are casual, planning can help to maximize these opportunities. Jotting down something a child has done so it can be shared with parents at the end of the day is one way to make these brief moments more meaningful and establish ongoing parental relationships.

TEACHER BEHAVIORS

When teachers decide *in advance* which teaching behaviors are most appropriate to the context of the learning setting, the abilities of the children, and the content to be gained, planning is intentional and rich. There are several types of teacher involvement in learning from which to choose (Bredekamp & Rosengrant, 1995) and they include the following:

Acknowledge. The teacher recognizes the child's efforts and work. By acknowledging, the teacher is accepting and supporting the child to continue his or her task.

Model. The teacher provides an example for the child to view. For example, the teacher may model how children can go to the writing area, locate supplies and begin making a book of their own. This does not suggest that teachers should provide models for children to copy.

Facilitate. The teacher assists the child in a task by making it easier to complete. Often facilitation is brief, with the hope that the child will be able to continue the task independently. For example, a teacher may facilitate an experience in the block area by assisting a child who is trying to balance a long block across two others to create a bridge. The child then continues to build without further assistance.

Support. The teacher assists a child, yet provides more time and help in achieving the goal. For example, a young 3-year-old child using scissors may need the teacher's support in holding her or his hand to

create the correct scissor grip for the entire time cutting the paper.

Scaffold. The teacher provides support while also challenging the child to try something a little more difficult by breaking it down into smaller components. For example, a child is trying to tell a story using puppets and the teacher is listening and providing ideas and questions. "So why is the monster angry? What will he do next? How will you end this story?"

Co-Construct. The teacher and child work together toward a goal. For example, the teacher and child complete a large pattern of shapes and colors. The teacher should follow the child's lead and provide encouragement.

Demonstrate. The teacher takes an opportunity to present a skill in progressive steps to the child. For example, the teacher demonstrates the safest way to pick up the snails from inside their cage.

Direct. The teacher gives specific information to the children. For example, while working on a shared writing experience the teacher points out where to start writing on the paper and what mark (a period), is put on the paper when a thought is finished.

TEACHING STRATEGIES

Every learning experience presents early childhood educators with choices of how to interact, encourage and manage the learning environment. The teacher may observe, intervene, support with questions, or listen, among the many possibilities, in an ongoing, dynamic effort to enhance children's learning. The chart which follows highlights many of these teaching strategies. An early childhood teacher cannot always plan in advance which strategy will be most effective. Rather, it is in the moment of engagement with children that the teacher chooses.

TEACHER STRATEGIES

Responder	Aware that the children are interested in creating a block structure that will resemble their field trip, the teacher provides some additional props for the children to select.
Risk-Taker	The teacher encourages children to experiment with ideas by verbalizing a risky decision. "I'm not sure if it will work if I add this color, but I think I will try."
Documenter	The teacher observes two children wishing to use the same swing. One of the children is especially verbal in articulating how they could solve this problem. The teacher takes a moment to write this down in the child's file for future reference.
Researcher	During a discussion, the teacher models how to locate information in resource books.
Interpreter	The teacher observes a young child who is not yet comfortable with sharing his or her feelings about the use of a toy. The teacher steps in and says to the other children, "I think Gabrielle would really like a turn, wouldn't you Gabrielle?" The child nods her head in response and one of the children responds, "OK, we didn't know."
Provoker	The teacher is watching a child sort bears of various sizes by color, joins the child in the activity, and then suggests another way to sort. The teacher sorts a few by size and waits to see the child's reaction.
Scribe	A child tells a story about an event that occurred at home overnight that appears to be of some concern to the child. The teacher suggests that the child draw a picture, and then tell the teacher the ideas that she wants to put down on the paper.
Learning Partner	The teacher joins a child in completing a puzzle. Both clap when it is finished.

(continued on page 17)

TEACHER STRATEGIES, continued

Problem Solver	The writing area is not big enough for all the children interested in writing. The teacher sits with those who want to write and helps to brainstorm the fairest way to ensure that everyone gets a turn.
Observer	The teacher notices children in the library area role-playing the reading of a story. After watching their activity, the teacher documents it for their files.
Questioner	Following a story, the teacher uses three pictures from the story to ask the children what happened first, next and last.
Listener	The teacher engages a child in conversation, giving his or her full attention.
Creator	The teacher moves about on the playground conversing and suggesting to children that they try certain equipment.
Evaluator	The teacher initiates a game with two- and three-step directions, noticing which of the children can handle as many as three steps.
Communicator	The teacher converses and shares with each child as they enter in the morning, demonstrating that all children are recognized equally and accepted into the group.

CURRICULUM PLANNING

The curriculum plans that follow have been created as organizers to assist in the process of creating challenging but achievable curriculum experiences. Curriculum is not just about activities. Rather, it must reflect children's abilities, questions and interests, and provide experiences that are intentionally created with specific performance standards in mind. In each of the curriculum plans the following steps were taken.



How To Get Started	Ask Yourself
<ul style="list-style-type: none"> Identify the developmental characteristics of the age/specific population. Regularly assess individual abilities. 	
<ul style="list-style-type: none"> Define two (2) performance standards for each of the four (4) domains on which to focus. 	<p>What performance standards are appropriate to the children’s present development?</p> <p>How will learning styles and varying abilities be accommodated?</p>
<ul style="list-style-type: none"> Select an appropriate experience and determine the best context(s) (thematic/project investigations; play based/learning centers) and processes for children to be engaged. 	<p>What interests are going to be supported? Can children be involved in the planning? What content, concepts should be introduced? What context is best suited for the experience?</p>
<ul style="list-style-type: none"> Distinguish among teaching behaviors and strategies. 	<p>How involved should the teacher be: direct, guide or model? What teaching strategies will work best? Have diversity and language issues been considered?</p>
<ul style="list-style-type: none"> Organize the environment and materials. 	<p>What areas need to be changed? What materials are needed for introducing, sustaining, enriching the children’s inquiry?</p>
<ul style="list-style-type: none"> Observe learning experiences and projects carefully to assess and facilitate future planning. 	<ul style="list-style-type: none"> What knowledge/content are the children gaining (assessment)? What experiences are working? Not successful? What further questions do the children have? Are there enough materials and time to explore? What materials, teacher strategies are necessary to sustain the experience? Is the interest and inquiry coming to an end? What other interests are becoming prevalent? What performance standards are emerging/ mastered? What performance standards are most appropriate to plan for next?

Sample curriculum plans are provided on pages 20 and 21 for each of two learning contexts: play-based learning centers and thematic/project investigations. Each presents performance standards and appropriate content; suggests possible experiences, teacher behaviors and teaching strategies; and necessary environments and materials. The only differences between the two plans stem from whether a theme or question is prompting the choice of experiences, or if the centers and play experiences of the children are the platform for enhancing the performance standards and experiences.

Planning in this way may appear daunting at first, but the following tips for starting may help:

- Strengthen your knowledge of the children. Observe and document their behaviors and interests. This will provide information for selecting performance standards. Begin by selecting two or three child performance standards as focal points.
- Collaborate with a colleague by discussing reflections and ideas as a way of supporting and encouraging each other. Adults also benefit from the construction of knowledge in a social context.
- Start in one area of the room. Observe and reflect on the interests and questions that arise when children work with materials in the art area, with blocks or at the sensory table, for example. Sometimes a response at the moment is the appropriate teaching strategy; other times reflective discussion and collaboration with colleagues better serves children's ideas.
- Take the children's ideas, interests and questions seriously. Consider how you might engage their thinking, keeping in mind curriculum expectations, particularly those in language, literacy, math and science.



PLAY-BASED LEARNING CENTERS

This plan reflects the use of the performance indicators by integrating activities within the various learning centers in the classroom utilizing a theme prompted by a story or field trip about a produce store.

Performance Indicators	<p>Demonstrates 1:1 correspondence. Shows curiosity in number-related activities.</p> <p>Retells information from a story. Uses symbols to express ideas.</p> <p>Interacts with one or more children. Beginning to play or work cooperatively.</p> <p>Elects to use the art media. Uses equipment for investigation.</p>
Concepts/Content	<p>Being able to count an object once.</p> <p>Data analysis.</p> <p>Sequence/comprehension concepts of first, next, last.</p>
Experience	<p>Children will:</p> <p>Engage in discussion following stories. What happened, first, second, last.</p> <p>Create and collaborate on the development of a produce store.</p> <p>Engage in counting and organizing fruits and vegetables. Graph paper will be encouraged as a way to keep track of the numbers/quantity of each fruit and vegetable.</p> <p>Provide a verbal retelling for teacher dictation – using their photographs.</p> <p>Pours and measures rice in response to questions from teacher. Which weighs more? What would you guess would take more to fill?</p>
Context/Environment	<p>Main centers: drama, creative arts, mathematics, literacy, sensory, blocks.</p>
Teacher Behaviors/Strategies	<p>Facilitate creation of a produce store.</p> <p>Demonstrate how graph paper can be helpful in recalling quantity.</p> <p>Scribe children’s thoughts and sequence of events in response to photographs.</p> <p>Question children at sensory table and during shared reading.</p> <p>Partner with children in math area as they count and sort objects.</p>
Materials/Changes to Environment	<p>Drama: items to set up a store (fruits and vegetables).</p> <p>Creative Arts: photographs of children engaged in work in the centers.</p> <p>Mathematics: items for counting and sorting.</p> <p>Literacy: graph paper, books on stores and shopping.</p> <p>Blocks: large blocks for building a produce store.</p> <p>Sensory: birdseed, cups, measuring scales, spoons and plates.</p>

THEMATIC/PROJECT APPROACH

The children return to the classroom after an exceptionally windy walk. Questions arise. Why is it so windy? Where does wind come from? What happens to spiders and butterflies in the wind? How can clouds “fly” in this wind? Based on the children’s intense interest, the teacher decides to begin tomorrow by looking at books that will spark further discussion and gather more information on wind for a possible project.

Performance Indicators Choose to engage in physical activity that is child-selected or teacher-initiated.

Participate in creative movement and dance.

Use a variety of art materials for sensory experience and exploration.

Demonstrate the ability to represent experiences, thoughts and ideas using several art forms.

Ask questions about and comment on observations and experimentation.

Collect, describe and record information.

Concepts/Content/Skills Become acquainted with terms: volcanoes, tornadoes, gusts of wind.

Investigation of the power of air/wind.

Wind can produce sound and cause vibration.

Wind can change the land, move water and cause damage.

Practice with measurement tools.

Experience Children will investigate individual and group questions about wind. For example, Will wind move objects? Which ones? and Where does wind come from? Activities may include measuring how far something has moved, drawing pictures, dictating personal stories involving wind, etc.

Context/Environment Investigation center, outdoor playground, music/movement area, writing area.

Teacher Behaviors/ Strategies **Acknowledge** their questions.

Facilitate ideas for researching information.

Co-construct experiments by using fans and creating wind instruments.

Research characteristics of wind through literature, computer resources and experiences.

Provoke ideas and further questions with fans, pinwheels, kites, windmills.

Model the speed and quality of wind with music and movement.

Materials/Changes to Environment Camera, clipboards, fiction and nonfiction books on wind; field resource books for ideas and research information; music of various types and tempo, popsicle sticks, tape, paper.

Important Note: It is not possible to completely plan experiences ahead of time. Teachers should try to anticipate possible questions and spark continued interest in the topic. Try to prepare a variety of materials and supplies to be available, depending on where children take their investigation.

TEACHER BEST PRACTICES**Keeping The Children In Mind**

- Know growth and developmental characteristics for the age you teach and at least a year above and below.
- Gather information by observing and recording regularly so you can be confident of your children's current ability levels and interests in order to provoke appropriate activities.
- Become familiar with the community and families/guardians of the children you teach.
- Modify planning on an ongoing basis to build on the needs and strengths of your children.
- Include children in the planning and preparation phases.
- Follow up on ideas that children contribute.
- Support and guide children in the understanding that we can build on one another's ideas.
- Create goals that provide opportunities for nondisabled and disabled children to interact, support and collaborate regularly.

Play-Based Learning Centers

- Model play behaviors within the children's range of abilities so as to encourage social skills, language development, problem solving and reasoning.
- Get into the moment with the children. Your role as facilitator can energize the play and keep it moving.
- Invest time in promoting dramatic play. Promote the use of language, symbolization and getting into character.
- Once centers are established, organize teachers and other adults with specific roles each day: observe in blocks; facilitate a literacy-related book-making activity; float throughout the room to maintain balance and productivity.
- Strive for centers that provoke the imagination, stimulate inquiry and promote problem solving by using unusual materials that are open-ended and suggestive.
- Plan regularly to revitalize centers by adding, deleting and choosing materials that create varying levels of complexity and difficulty.

- Systematically assess your centers to determine if they are in touch with the children's interests and questions.

Thematic/Project Approach

- Observe and reflect on children's actions, interests and conversations.
- Think of yourself as a learner. Bring to the class your interests and questions as a model learner.
- Plan time for discussion with the class to uncover possible questions.
- Hold discussions with the children throughout the life of a project to determine continuing interest and new directions.
- Avoid broad questions such as, What do you want to learn about? These can become laundry lists of what "pops" into the children's minds.
- Re-train your eye to notice unusual, flexible materials and supplies for provoking and sustaining children's questions.
- Save materials and ideas from past experiences, but avoid the temptation of packaging these activities for use year after year.
- Be knowledgeable about the key concepts, facts and principles for each content/discipline area. This information can be tailored to the age and experience of the children.
- Plan with starting points in mind for activities, but be flexible based on the children's abilities and interests.

Planning Considerations

- Plan for a variety of types of questions to be used throughout the day.
- Use multicultural resources to complement and enhance all aspects of the curriculum.
- Strive for the appropriate balance between teacher-directed and child-initiated learning.
- Use parents as resources. Involve them in activities, projects and themes.
- Ask: Will the curriculum plan cover all of the developmental domains?
Is the child's culture and community reflected?
Are special-needs children able to participate with accommodations?
How will parents be involved in our classroom work?

- Do not be taken in by the cookbook activity, product-based type of teaching.
- Self-evaluate often to ensure that you are: providing concrete experiences; connecting new and prior knowledge; focusing on the process, not the product; setting realistic goals and expectations for you and the children; and reflecting the culture of the children and families.
- Listen to the children, interpret and reflect in order to provide facilitation toward higher levels of learning.
- Take advantage of children's representational work to observe the connections they are making; then plan the next steps in extending their learning.
- Develop your questioning skills to encourage higher-level learning, motivate problem solving, and clarify and support the learning process.
- Try to take the child's perspective when planning the environment.
- Devise a form to monitor children's use of areas, progress and interests to assist in planning.
- Provide ongoing information and education on curriculum development, evaluation and decision making.
- Provide opportunities for teachers to visit other classrooms and programs to view various approaches to curriculum and teaching.
- Support teachers and reorganize time schedules to avoid classroom activities that are controlled by rigid schedules.
- Review staff schedules so that programming is not at risk due to lunch breaks and organizational duties and tasks.
- Review plans regularly and participate in planning sessions to provide support and guidance.
- Provide encouragement and support for daily planning that promotes reflection and sharing.
- Avoid thinking that curriculum units, themes or projects must have set time limits.
- Promote training to develop teacher understanding of diversity and inclusion.
- Enlist the support of a transdisciplinary team in efforts to create achievable goals for all children.

Parent – Home Connections

- Take the time to help parents understand how learning takes place within the contexts of centers and projects. They may not always see the value of the process over the product or the cognitive gains their children are making.
- Consider enlisting parents to assist in guiding and facilitating centers where adult supervision is necessary.

ADMINISTRATOR BEST PRACTICES

- Support teachers with training on the value of play, and on how to engage children and prepare (seed and provoke) the environment.
- Model questioning, scaffolding and supportive strategies in the classroom.
- Plan time to be available during center time on a regular basis to provide support for teachers and children.
- Provide resources and materials that support learning centers and children's interests.
- Provide resources and information to help parents understand the curriculum and teacher strategies during play.

EARLY CHILDHOOD CURRICULUM MODELS

There are two distinct approaches to curriculum planning: the traditional, theme-based curriculum and the emergent, project-based curriculum. Theme-based curriculum is usually determined ahead of time by the teacher or an external curriculum developer, while emergent curriculum is developed based on the interests of the child and teacher investigations.

Each curriculum type has the following characteristics:

- identification of age-related objectives (performance standards);
- identification of content (new theme);
- preparing the environment and materials and involving parents;
- introduction of new concepts first concretely, e.g., drawing pictures, retelling stories; and lastly, making creative representations of the new experience, such as through art and dramatic play; and
- evaluation.

Early childhood programs often purchase a curriculum that includes age-appropriate activities and experiences. Others use a rather eclectic mix of ideas

found in different curricular models. Some of the best known and most widely used curriculum types (derived from the two basic types above) are described in this section. It is important for teachers and administrators to know what each curriculum model offers and how each curriculum's ideas fit the principles of developmentally appropriate practice.

The Creative Curriculum

The Creative Curriculum (Dodge, Colker and Heroman, 1998), a play-based center approach, offers teachers the guidance, support and freedom to be creative and responsive to children. Because children learn from their daily interactions with the environment, a carefully organized and rich environment is the foundation for the Creative Curriculum. Central to the use of the environment is an understanding of the potential of various materials to enhance learning and teaching, and knowledge of how these materials meet the developmental needs of young children.

Developmental Interaction – The Bank Street Approach

The Bank Street approach (Mitchell and David, 1992), a thematic/project investigation approach, is characterized by its emphasis on age appropriateness and individual appropriateness in early childhood programs. The work children do to understand their world is called social studies. Social studies is about making connections between self, family and community. Using social studies topics as a framework, teachers provide opportunities for experiences that help children learn concepts about the social world and master important skills. Through social studies, a teacher builds an integrated curriculum, one that helps children use the skills they are learning throughout the program in a meaningful context.

The High/Scope Approach

High/Scope, a play-based center approach (Hohmann and Weikart, 1995), is built on five basic principles: active learning, positive adult-child interactions, child-friendly learning environment, consistent daily routine and team-based daily child assessment. In the High/Scope approach to early childhood education, adults and children share control. The curriculum recognizes that the power to learn resides in the child and, therefore, there is a focus on active learning practices. When learning comes from within, a critical balance is achieved in educating young children. The teacher supports and guides young children through their active learning adventures and experiences.

The Montessori Approach

Montessori schools use unique methods, materials and specially trained teachers. Essential characteristics of Montessori programs include: teachers specifically trained in Montessori philosophy and methods, partnership with families, multi-aged heterogeneous groups of children, use of Montessori materials and experiences carefully presented and sequenced to children's needs; schedules that allow large blocks of time to problem-solve and become deeply involved in learning; and a classroom atmosphere that encourages social interaction for cooperative learning.

The Reggio Emilia Approach

This approach to education embraces children, families and teachers working together to make schools dynamic and democratic learning environments. The child is regarded as competent, strong, inventive and full of ideas. The classroom environment is designed to facilitate social construction of understanding, as well as nurture aesthetics. Partnerships are developed with parents, teachers, children and the larger community to facilitate collaboration in the learning process. Documenting children's experiences provides a verbal and visual trace of children's experiences and work, and opportunities to revisit, reflect and interpret. By listening closely to children's interests teachers devise means for provoking further thoughts and actions. Children also are encouraged to make symbolic representations of their ideas using different kinds of media to represent those ideas.

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DIVERSITY RESOURCES

Anti-Bias Curriculum: Tools for Empowering Young Children

Louise Derman-Sparks and the A.B.C. Task Force

This book provides a comfortable framework for use in creating an anti-bias environment for young children, including a self-education guide for introducing the curriculum into an existing program. Chapters deal with a variety of issues in the area of inclusion, including racial differences and similarities, cultural differences and similarities, learning about disabilities, learning about gender identity, learning to resist stereotyping and discriminatory behaviors, and activism. Developmental tasks and guidelines, worksheets, activities and resources are provided.

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Web: <http://www.naeyc.org/>

*Diversity***Janet Gonzalez-Mena**

A series of four videotapes designed to help individuals working with young children and their families to integrate culturally responsive caregiving with developmentally appropriate practices and a set of thought-provoking discussion questions comprise this set of materials. The tapes (*Diversity, Independence and Individuality*; *Diversity: Contrasting Perspectives*; *Diversity and Communication*; and *Diversity and Conflict Management*) display a multiethnic group of practitioners and family members struggling over differences that arise from culturally driven views on caring for children. Pre-service instructors, in-service trainers, or individuals with staff development responsibilities could use these materials to uncover preconceived notions, provide exposure to other viewpoints in a nonjudgmental manner, and offer approaches to conflict resolution, all in a safe context.

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E-mail: magnasys@ix.netcom.comWeb: <http://www.weberign.com/magna/index.htm>*Alike and Different: Exploring our Humanity with Young Children***Neugebauer, B., ed. (1992). Redmond, WA: Child Care Information Exchange**

Use this book to explore, with children or adults, the unique qualities that make us individuals. Consideration is given to differences of physical and intellectual ability, economic situation, cultural heritage, gender and age.

*Building Bridges with Multicultural Picture Books for Children 3-5***Beaty, J.J. (1997). Upper Saddle River, NJ: Prentice-Hall, Inc.**

This book offers strategies for acquainting teachers and children with multicultural book characters as a strategy for helping them to relate to and accept the real multicultural people they meet. This resource offers suggestions for choosing books, leading children into book extension activities featuring multicultural characters, and developing multicultural curriculums.

*Developing Roots and Wings: A Trainer's Guide to Affirming Culture in Early Childhood Programs***York, S. (1992). Beltsville, MD: Gryphon House**

This companion to *Roots and Wings: Affirming Culture in Early Childhood Programs* includes over 170 multicultural training activities adaptable to any audience or training style. Designed to prepare child-care staff members and caregivers to provide multicultural education that will prevent and eliminate the development of prejudice and racism in children, it also provides ideas for trainer support, training design and personnel development.

*Diversity and Developmentally Appropriate Practices***Mallory, B.L. and New, R.S., eds. (1994). New York: Teachers College Press**

The purpose of this volume is to provide a forum for the presentation of new challenges to the concepts and indicators of developmentally appropriate practices in early childhood education. The dual focus on children representing cultural and developmental differences is carried out throughout the volume.

*Multicultural Issues in Child Care, 2nd Ed.***Gonzalez-Mena, J. (1997). Mountain View, CA: Mayfield Publishing Company**

This volume is designed to increase caregiver sensitivity to different cultural child-care practices and values and to improve communication and understanding between caregivers and parents. The emphasis on practical, immediate issues of daily caregiving routines provides examples for teaching, training or self-enrichment.

*Observing Preschoolers: Assessing First- and Second-Language Development***Child Development Division, California Department of Education (1998). Sacramento, CA**

In 30 minutes, this videotape illustrates a thoughtful process for learning more about young children through observation, documentation and discussion. This is a useful resource for supporting the development of observation skills and for learning to distinguish between children who are different and children who are disabled.

Starting Small: Teaching Tolerance in Preschool and The Early Grades

Teaching Tolerance Project (1997). Montgomery, AL: Southern Poverty Law Center

This video and text training kit offers early childhood educators strategies for implementing tolerance education programs for young children. The 250-page book includes research-based commentary, suggestions for activities and a comprehensive resource list. The 58-minute video highlights seven exemplary programs at sites throughout the country.

Valuing Diversity: The Primary Years

McCracken, J.B. (1997). Washington, DC: NAEYC

This book presents ideas and suggestions for how teachers can develop and implement developmentally appropriate anti-bias curriculums, teaching children in early elementary school to value diversity. Guidelines for evaluating and developing curriculums, environments, learning materials and activities are provided, emphasizing realistic depiction of a wide variety of human cultures and characteristics in ways that provide children with experiential learning while fostering principles of democracy alongside pride in each child's heritage. Lists of recommended resources are provided.

EARLY CARE RESOURCES

Early Childhood Environment Rating Scale (ECERS-R)

Thelma Harms, Dick Clifford and Debby Cryer

This program-quality assessment instrument has been revised and expanded to include new interaction items, expanded curriculum materials, more inclusive and culturally sensitive indicators, and more items focusing on staff needs. It looks at quality in terms of categories that include personal care routines, furnishings and display, fine- and gross-motor activities, language and reasoning, creative activities, social development, and adult needs. Designed for use by classroom teachers, administrators, board members, trainers, state licensing staff members and family members as an evaluation tool for all day-care settings, this also can be used as an instrument for team-based decision making.

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Active Learning for Children With Disabilities

Bailey, P.; Cryer, D.; Harms, T.; Osborne, S. and Kniest, B.A. (1996). Reading, MA: Addison-Wesley Publishing Co.

This manual was designed to complement the other volumes in the Active Learning series (see *Active Learning for Infants* and *Active Learning for Fives*). It provides suggestions and resources, targeted to care providers and family members, for helping young children with disabilities learn through play. Learning situations posed throughout the book can be adapted as training activities.

The Art of Awareness: How Observation Can Transform Your Teaching

Curtis, D. and Carter, M. (2000). St. Paul, MN: Redleaf Press

This text is organized in "study sessions" to focus users on specific aspects of observation (e.g., observing how children form relationships and negotiate conflict, observing children with their families). It is designed to offer ideas, activities, experiences and realistic strategies to help teachers and readers learn to value children and their individuality within diverse contexts.

Eager To Learn: Educating Our Preschoolers

Bowman, B.; Donovan, M.S. and Burns, M.S., eds. (2000). Washington, DC: National Academy Press

This 468-page report reviews and synthesizes several bodies of research related to early childhood pedagogy, including research concerning special populations (children living in poverty, children with limited English proficiency, children with disabilities). In addition to a distillation of the knowledge base, it offers implications for practice in early childhood education programs, the training of teachers and child-care professionals and future research directions. The document includes a 17-page executive summary, which provides a brief overview of findings and implications.

Cost: \$37.95. The entire document (including the executive summary) may be downloaded at <http://www.nap.edu/catalog/9745.html>

From Neurons to Neighborhoods: The Science of Early Childhood Development

Shonkoff, J.P. and Phillips, D.A., eds. (2000). Washington, DC: National Academy Press

Significant advances in neuroscience and the behavioral and social sciences have shed new light on early development and what kids need in order to thrive. This report summarizes scientific and research findings from the past 40 years, debunking popular myths, offering new insights and advocating increased commitments to early care and education. This is a reference and resource for both institutions and individuals.

Available online at <http://www.nap.edu/books/0309069882/html/>

Observing Young Children: Learning To Look, Looking To Learn

Colker, L.J. (1995). Washington, DC: Teaching Strategies, Inc.

A 30-minute videotape and accompanying guide help new and experienced early childhood educators observe and learn about children as a way to individualize programs and adjust environments. Observation techniques are described and guided practice opportunities are provided. This resource is appropriate for self-instruction or use with a group.

The Power of Observation

Jablon, J.R.; Dombro, A.L. and Dichtelmiller, M.L. (1999). Washington, DC: Teaching Strategies, Inc.

This book is a tool for those who educate young children, or for faculty members who are preparing students to

do the same, in that it reflects on the vital connections between observation and effective teaching. The authors share their personal experiences and the experiences of others to illustrate how observation is a powerful and effective method for teaching better, learning more about children and building better relationships. Strategies for various settings (e.g., family child care, preschool) are highlighted, including how to make observation fit into your day, getting started, making observation a habit, using what you learn from observation and overcoming observation barriers.

Talking and Play: Language is The Key

Cole, K. (1999). Seattle, WA: Washington Research Institute

Pre-service and in-service audiences can discover strategies for increasing language and building language/literacy skills with children (0-4) through these materials. The set, which is available in English, Spanish and Korean, includes two 20-minute videos (*Talking and Play* and *Talking and Books*). An accompanying manual includes handouts, agendas and other resources to support effective use of the videos, along with suggestions for enhancing cultural sensitivity, using interpreters/translators and coaching others in skill development.

Young Investigators: The Project Approach in The Early Years

Helm, J.H. and Katz, L. (2001). Washington, DC: NAEYC

This book illustrates how all children, even those who are considered to be at risk, may benefit from the exploratory and child-initiated nature of project investigations in order to achieve mastery of basic literacy skills. It's a book with anecdotes, illustrations and supports for helping early childhood personnel take this active approach to supporting learning and development.

DECISIONS ABOUT PRACTICE: ENVIRONMENT, SCHEDULING, MATERIALS AND CLIMATE

3

"We value space because of its power to organize, promote pleasant relationships among people of different ages, create a handsome environment, provide changes, promote choices and activity, and its potential for sparking all kinds of social, affective, and cognitive learning. All of this contributes to a sense of well being and security in children. We also think as it has been said that the space has to be a sort of aquarium that mirrors the ideas, values, attitudes, and cultures of the people who live within it." (In the words of Loris Malaguzzi)
(Edwards, Grandini and Forman, 1998)

MAKING DECISIONS
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Climate And Comfort
Curriculum Focus And Content
Safety and Accessibility
Independence And Movement
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LIST OF SUGGESTED MATERIALS AND SUPPLIES
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BEST PRACTICES: SCHEDULING
ESTABLISHING A POSITIVE CLASSROOM ENVIRONMENT
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Suggested Circle Time Procedure
Tips For Successful Circle Time



MAKING DECISIONS

Classroom environments must be carefully planned, prepared and maintained to invite children into learning experiences. The environment must send two important messages: this space is for children; and this space was purposefully created, based on how young children learn.

Discovery, exploration, creation, experimentation, observation and sustained engagement take place in well-planned early childhood classrooms. Materials are well chosen with intention and purpose. Areas are arranged to accommodate and support the work of children and adults, and time is scheduled to allow children full access.

Early childhood classrooms should have work areas – or centers – for blocks, dramatic play, art/creative experiences, science and investigation, mathematical thinking, literacy experiences, writing, large- and small-group activities, small-group snacks, quiet alone times, sand/water/clay experiences, woodworking, construction and music making. When establishing work areas, teachers must carefully choose locations, considering the purposes, materials and experiences anticipated in each. Characteristics such as quiet/noisy, messy/neat, private/small-group/large-group or fragile/sturdy are as important as the allocation of space and the general flow of traffic and movement through the centers and the classroom.

Early childhood environments must reflect the amount of time children and adults spend together. The space reflects the goals of the program, the age of the children, the daily traffic patterns and the climate of the class. This section will guide teachers as they make decisions about materials, scheduling and creating quality environments.

PLANNING QUESTIONS

To maintain a well-planned classroom environment, teachers should periodically ask themselves the following questions.

- What areas in the room are rarely used or used inappropriately?
- Can the children be independent in this area?
- How are the children using the materials and the space?
- Which areas are sources of frustration for children due to high demand by other children?
- Do the areas stimulate ideas?
- Are the areas of the room reflective of the culture and families of the children?

- How can areas be created to encourage collaborative work?
- Is this classroom visually appealing when you stand in the doorway?
- Does the classroom invite you in?
- Are some areas created from children's ideas and questions?

INDOOR ENVIRONMENT

When planning new spaces or evaluating present ones, the following characteristics should be considered.

Children's Interests And Cultures

Children are learning about themselves, their abilities and preferences as they interact with materials within the classroom environment. Room arrangements and materials should reflect and support their interests, skills, cultures and family values.

- Encourage children to bring materials from home. Sharing their cultures and family experiences with others broadens each child's choices and reflects the community's diversity.
- Purchase and select materials that accommodate varying abilities and cultures.
- Periodically review and examine the space. Is it dynamic and responsive to the learners' current abilities and interests.
- Be sure that props are culturally inclusive and inviting for both boys and girls.
- Avoid always using stereotypical clothing and props.
- Organize equipment that can be manipulated and moved by the children for easy storage and accessibility.

Climate And Comfort

Appropriate materials and equipment invite children to come together with others, to interact and problem solve. Aesthetic elements of light, texture and color are important. Quality early childhood environments are organized, yet inviting.

- Create an environment that resembles a home.
- Wherever possible include natural lighting.
- Present children's work and all visual information for learning at children's eye level.
- Locate areas and materials so all children have access.

- Provide inviting spaces with pillows, rocking chairs and rugs for quiet and individual activities, such as resting and reading.
- Provide seating areas and storage spaces for the personal needs of staff members.
- Create and maintain a parent area for announcements, information, resources, teacher biographies and the sharing of ideas from parent to parent.
- Create a balance between soft/hard, large/small and high/low workspaces.

Curriculum Focus And Content

Creation of an early childhood environment that is responsive to content areas (numeracy, science, language and literacy) is based on the knowledge that children learn best through active exploration and discovery, aided by a supportive teacher.

- Develop centers and arrange furnishings with intentionality, keeping in mind goals and anticipated activities. (For example, the science area should include measuring cups and containers to encourage discussion of full/empty and estimation of how many cups will fill various containers.)
- Place related areas adjacent to one another. Often, dramatic play and blocks are placed in close proximity because block structures often lead to dramatic play. Art may be placed near dramatic play if the children are creating costumes or props, or near the writing area if they are publishing books.
- Plan the environment to encourage manipulation and transformation. Depending on the imagination, needs and interests of the children and adults, furniture can be rearranged or used for new purposes.
- Maintain dedicated space for children to store long-term projects or unfinished work.
- Choose materials, balancing open-ended with structured and specific. Include “real-life” objects in each area.
- Select materials and equipment that can be used in multiple ways and encourage curiosity, experimentation and imagination.
- Ask yourself if the materials are inviting and interesting. In how many different ways can the learner use the materials? Encourage creativity by including items that do not specifically denote a particular

use, such as pieces of fabric or a variety of hats.

- Provide materials for children to create labels, signs and other representations of their work.
- Consider a variety of senses, (touch, smell, visual and hearing) when choosing materials.
- Create labels and photos to help children recognize areas and materials.
- Rotate materials for variety and provocation of new ideas.
- Change displays occasionally to avoid items becoming “wallpaper”.
- Avoid commercial images, cartoon characters or posters that are adult-created.
- During planning look for opportunities to “seed” the learning areas; to challenge and provoke the learners to further exploration and inquiry.
- Consider expanding current drama, art, reading and writing activities to the outside.

Safety And Accessibility

Safety should be an overriding concern in setting up an environment for young children. The materials and physical arrangement of the classroom should create a sense of belonging. It is important that children feel this is an exciting and interesting place where they can try new things.

- The environment should be safe, healthy and sanitary, in compliance with state and local licensing requirements and fire safety codes.
- The physical environment should promote inclusion of all children.
- Equipment that is not heavy or dangerous should be flexible. Children should be able to transform this equipment to support new ideas.
- Children should be guided and supervised in using equipment appropriately and safely.
- Floor coverings provide warmth and softness, but should not impede wheelchair movement.
- Consider storing common supplies in several places for children who have difficulty getting to them.
- Keep an emergency contact list by the classroom door and in an outdoor bag that holds emergency numbers and first-aid supplies.

- Consider whether project areas should be near electrical outlets, light sources and/or water.
- Sinks and toilets may need to be lowered. Consider installing assistive devices to promote hygiene independence.
- Classrooms should be large enough for at least 35 square-feet of usable space per child.
- Children should be easily visible in all areas to enable proper supervision.
- Model concern for the environment by attending to common areas, such as the entranceway, halls and outside.

Independence And Movement

Space should be adaptable, welcoming and organized. It must allow children to make choices and easily access materials. This allows children to feel some control over their learning.

- For each center, plan the best number of children to comfortably work in the space.
- Create areas that can serve more than one purpose at different times of the day.
- Eliminate visual clutter. Plan carefully what will be placed on boards and wall space.
- Use clear containers for storage, so items are visible and easily organized.
- Use shelves, dividers, carpet and tables to create discrete yet flexible work areas that allow children to work alone or in small groups, without concern that their work will be disturbed.
- Find opportunities to place mirrors and natural elements in different locations to spark interest or a “new use.”
- Give each child a defined and labeled place for personal belongings.
- Ease transitions by guiding children when changes to the environment are made.

OUTDOOR ENVIRONMENT

The outdoor environment is essential to accomplishing learning outcomes and fulfilling the need of children to be active. Outside, children have the advantage of fresh air, sunshine, room to move about and be loud. Outdoor activities can foster the development of gross motor skills, stimulate spontaneous play with friends, and strengthen emerging abilities in all developmental domains. These outdoor learning experiences also present natural opportunities for scientific inquiry.

Suggestions for outdoor experiences that promote physical growth, contribute to social/emotional growth, and promote cognitive development follow.

Physical Growth. Encourage children to dig and explore. Even the smallest area of grass offers a wide array of possibilities for discovery and collecting. Helping children to realize that living things are everywhere is a way to spark discussion about care and respect for our environment. Bring balls, buckets, hoops and ribbon outside. Engage children in creating, throwing, catching and other cooperative games to challenge upper and lower muscles.

Social/Emotional Growth. Create a box of props for the outdoors. Include hoses, hard hats, vehicles, boxes and fabric to stimulate dramatic play possibilities. From time to time suggest a favorite story as a possible theme for outdoor play. Bring a tape player, sticks, cymbals, class-made instruments, balloons, streamers, etc. Children love to make music and to march.

Cognitive Development. Bring reading and writing materials outdoors. Take advantage of what is happening near the school to link literature, drawing and research. For example, children who love construction vehicles might eagerly draw a bulldozer or find the exact piece of equipment in a resource book. Use outdoor space for movement experiences. Create cooperative games in which children can experiment with speed, directionality and other large-muscle movement, such as skipping, leap-frogging or crawling.

LIST OF SUGGESTED MATERIALS AND SUPPLIES

Material selection and arrangement strongly influence children’s learning opportunities. In selecting materials and equipment for each work area or center, teachers should give consideration to:

- *safety*: nontoxic, smooth edges, cushioning and age-appropriate;
- *quality and durability*: able to withstand daily use by many children over several years;
- *flexibility*: easily transformable for many uses; and
- *instructional value*: appropriate for the age and developmental abilities of the children.

<p>Woodworking</p> <p>Work bench Hammer, saw, screwdriver Vice clamp, hand drill Ruler Wood Dowels Styrofoam Nails, Golf tees Goggles</p>	<p>Sand/Water</p> <p>Sand tables Sifters, Funnels Shovels, pails Rakes, molds Measuring cups Rice, beans, other materials to sift & pour Garden tools Plastic tubing Pitchers</p> <p>Pumps Eye droppers Food coloring Water wheel Bottles Trays</p>	<p>Audiovisual Equipment</p> <p>Listening center with headphones Cassette recorder Record player Overhead projector Transparencies Filmstrip projector and filmstrips Screen Computer & software Digital camera</p>
<p>Library Corner</p> <p>Fiction & nonfiction books Books on tape Books made by children Chairs, rocking chair, rug Book racks, shelves Reading “boat” or bath tub Magazines Audiotapes & records Big books Multicultural representations</p>	<p>Art Supplies</p> <p>Modeling clay, play dough & tools Easels Scissors, paste & glue Finger paints, tempera paints & brushes Crayons, water colors, markers, chalk Yarn, ribbon, string Newsprint & manila paper Color construction paper Burlap & fabric scraps Collage materials Color tissue & crepe paper Wallpaper scraps Cardboard & oak tag Magazines, catalogs Smocks, drying rack</p>	<p>Music</p> <p>Rhythm & musical instruments Autoharp &/or piano Records &/or tapes Scarves & other dance props (See also AV equipment & gross motor)</p> <p>Cooking</p> <p>Electric hotplate, toaster oven Electric frying pan Measuring cups & spoons Bowls, utensils, pots & pans Recipes Mixer Refrigerator</p>

<p style="text-align: center;">Literacy Materials</p> <p>A variety of crayons, pens, markers and pencils Different sizes and types of paper and envelopes Manipulative letters of wood, crepe, foam and plastic Dictionary Index cards for word banks Games: matching alphabet, lotto, initial consonants Chart stand with paper Puppets and puppet stage or frame Stuffed animals associated with books</p>	<p style="text-align: center;">Gross Motor Play (Some of these may be used outdoors or in the gym)</p> <p>Balance beam (low) Rocking boats Climbing structures Slide Stairs Floor mats Wheel toys, pedal toys, wagons, ride-on vehicles Scooter board Parachute Games: ring toss, bean bags, bowling A variety of balls Jump ropes Plastic paddles and large bats Fabric tunnels Sawhorses Hula hoops</p>
<p>Picture file and art productions Sentence strips Letter stamps Alphabet cards Teacher-prepared blank books Small chalkboards Flannel board with cutouts Computer/printer Typewriter</p>	<p style="text-align: center;">Mathematical Resources/Problem Solving Manipulatives/Building Materials</p> <p>Pattern blocks Various objects to sort Unifix or multi-link cubes ESS wooden attribute blocks Geoboards and geobands Color cubes Beansticks and loose beans Base ten blocks Tangrams Primer (balance) scale Tools for measuring length, area, perimeter, volume and time Counters, chips Parquetry blocks Lacing boards Beads and string</p> <p>Set boards Peg boards and pegs Games and puzzles for counting, numeral recognition, etc. Tabletop building toys: Legos, small block sets, building sets, puzzles and accessories Lincoln Logs/Legos/Bristle blocks Real and play money Objects for sorting, classifying and ordering food and/or other items to stack to develop concepts of part/whole, size/quantity Other building materials Counters, such as buttons, chips, checkers, etc.</p>

<p>Construction</p>	<p>Dramatic Play</p>	<p>Science/Investigation and Discovery Materials</p>
<p>Wooden unit blocks Signs Large, hollow wooden blocks Planks Rug Large empty boxes Carpet pieces (various sizes) Wheel toys for riding Steering wheel Block play props: vehicles, toy animals, people and furniture Materials from nature – rocks, sticks</p>	<p>Opened-ended furniture Multiethnic dolls and clothes Kitchen appliances: wooden stove, sink, refrigerator and cupboard Table and chairs Broom, dust pan, ironing board and cleaning equipment Telephone, pots and pans, clock, food containers, dishes, and silverware Doll bed, blankets and pillow Dress-up clothes and uniforms Calculator Occupational props: fire hoses, doctor’s kit, cash register and play money Typewriter Doll house and accessories Full-length mirror Real props, such as menus, ordering pad, clipboard Scarves and hats</p>	<p>Scales (balance and other types), magnifying glasses, measuring tools Rice, beans and oatmeal to vary sand play Simple machines: pulleys, gears, inclined plane, wheels Gardening tools and supplies Magnets Collections of rocks, shells, nests, insects, etc. Color paddles and prisms Batteries, wires, bells, flashlight bulbs Animal environments and animals Water tub and accessories, such as plastic tubing, small pitchers, hand pumps, spray bottles, funnels, measuring cups, eye droppers, sponges, food coloring, containers of various sizes Thermometers Globe Old appliances, tools, paper, writing materials, clipboard Plants Prisms, nonfiction resource books Nails, hammers, screwdrivers, screws Wood, string, boxes Rubber bands, tin cans</p>

TIME: SCHEDULING THE DAY

The daily schedule sets the stage for the early childhood classroom. Balance, consistency and routine are key to planning a schedule that meets children's needs. Effective daily schedules feature learning experiences for large groups, small groups and individual children. Parts of the day are group-oriented, teacher-directed and teacher-supported. Blocks of time allow for exploration and discovery, and for children to pursue their own interests and activities. The schedule includes indoor and outdoor play, opportunities for large-muscle and small-muscle activities, and time for investigation and collaboration. A rhythm of active and quiet activities offers busy, challenging work interspersed with rest, relaxation and socialization. The daily schedule provides consistency and an external structure that also allows children to develop inner control and an ability to plan. Most importantly, a consistent daily schedule creates an atmosphere of predictability that fosters trust. Young children require visible clues and sufficient transition times between daily events.

Sample Schedule: Full Day

- 7:30 *Arrival.* Selected activities for children to choose during breakfast and while student arrivals continue.
- 9:00 *Group meeting or circle time.* Morning routines are conducted with individuals or small groups, with a quick recap for the whole group. Plans for the day are discussed. Children receive information about planned experiences, including special activities and open centers.
- 9:15 *Planned curriculum experiences.* Children are encouraged to choose from available centers. Children may become engaged in an investigation or project, and are able to participate in a small-group snack experience.
- 10:30 *Outdoor activities and curriculum experiences.* Teachers should be prepared to take some planned activities and projects outdoors so children can continue their work in a new setting.
- 11:15 *Transition.* Children wash up, use the bathroom and prepare for lunch.
- 11:30 *Lunch.*
- 12:15 *Transition.* Children clean up, use the bathroom and prepare for rest.
- 12:30 *Story.* Large- or small-group story time.
- 1:00 *Rest.* Children nap or rest. Children may have quiet toys or books with them while they rest.

- 2:30 *Transition.* Children wake up, use the bathroom and get ready for next activity.
- 2:45 *Small-group and individual experiences.* Children chose among activities and may participate in a small-group snack.
- 3:45 *Transition.* Children clean up, use the bathroom and prepare to go outdoors.
- 4:00 *Outdoor experiences and activities.*
- 4:45 *Transition.* Children finish activities, prepare to go indoors and use the bathroom.
- 5:00 *Story.*
- 5:15 *Closing circle or group time.* Children prepare to go home.
- 5:30 *End of Day.*

Sample Schedule: Half-Day

- 7:30 *Arrival.* Selected activities for children to choose during breakfast and while student arrivals continue.
- 9:00 *Group meeting or circle time.* Morning routines are conducted with individuals or small groups, with a quick recap for the whole group. Plans for the day are discussed. Children receive information about planned experiences, including special activities and open centers.
- 9:15 *Planned curriculum experiences.* Children are encouraged to choose from available centers. Children may become engaged in an investigation or project, and are able to participate in a small-group snack experience.
- 10:15 *Story.* Large- or small-group story time.
- 10:30 *Transition.* Children clean up, use the bathroom and prepare to go outdoors.
- 10:45 *Outdoor activities and curriculum experiences.* Teachers should be prepared to take some of the planned activities and projects outdoors so children can continue their work in a new setting.
- 11:15 *Transition.* Children finish activities, prepare to go indoors and use the bathroom.
- 11:30 *Closing circle/group time.* Children prepare to go home.
- 11:45 *End of day.*

BEST PRACTICES: SCHEDULING**Teachers**

- Create a schedule with large blocks of time for children's activity times.

- Provide a schedule that allows for active and quiet, individual and small-group, indoor and outdoor, independent, child-directed, teacher-initiated and adult-directed activities.
- Plan each day's schedule to include opportunities for learning in physical, social, emotional and cognitive areas.
- Plan transition times to avoid children moving in large groups or waiting for others.
- Monitor and adjust the daily routine to create a comfortable, unhurried pace.
- Post a typical schedule for parents and visitors.
- Create visual reminders (photos, drawings) of the day's sequence for children and review it with them daily.
- Plan ahead. Be prepared for the unexpected in the daily routine, and be flexible.
- Develop routines with children. Provide signals and warning times so they can easily participate in transitions.
- Allow time for children to assist one another and develop independent learning behaviors.
- Provide opportunities for self-selected activities that promote independence and decision-making skills.

Administrators

- Organize a master schedule for all classes to ensure that each group has planned times for common spaces.
- Review each class schedule with the teaching team and provide suggestions to ensure that group size, type and tempo of activities are varied throughout the day.
- Allocate personal and planning time for teachers.
- Help teachers develop systems for observing and recording children's progress.
- Work with faculty and staff members to create community guidelines for outdoor play and use of equipment.
- Develop emergency procedures with staff input. Include information on first aid, notifying parents and completing accident reports. Provide training in first aid and CPR.
- Provide playground guidelines to substitutes.
- Inform parents about playground safety.

ESTABLISHING A POSITIVE CLASSROOM CLIMATE

Children often behave in certain ways as a means of accomplishing a desired goal. Such goals include:

- getting attention;
- avoiding an activity;
- showing an emotion;
- gaining acceptance; and
- feeling competent and powerful.

Children's behaviors may be explained as a result of examining their circumstances. For example:

- the physical environment is unfamiliar, restrictive or lacking in stimulation;
- materials are insufficient or lacking in variety;
- the child's basic needs may be unmet because of feelings of inadequacy, abuse or hunger;
- curriculum and behavioral expectations are inappropriate and frustrating; or
- cultural and family values may conflict.

Children also may attempt to communicate a message with their behaviors. For example:

- *This is too difficult;*
- *I don't understand;*
- *I want something;*
- *I don't know how or don't want to wait; or*
- *I need attention* (Strain and Hemmeter, 1997).

Once teachers determine what a child is trying to communicate or achieve, they can better intervene and, more importantly, examine how to prevent the behavior in the future. The key to prevention is knowledge, which must be gained through observation. Careful observation and note taking should answer the following: What takes place prior to the unwanted behavior? What is the unwanted behavior? What takes place as a result of the behavior? This method of observing the antecedent, behavior and consequence is often referred to as "ABC analysis" (Bijou, Peterson and Ault, 1968).

Close examination makes it possible to reshape the environment and anticipate so that a plan can be created to intervene prior to the undesired behavior. If it is not possible to intervene, an alternative is to change the consequences following the behavior, and teach the child a more appropriate way to achieve the desired goal. For information on maintaining a positive classroom environment, please read Chapter 10 of this

guide on social and emotional development, which includes possible sentence starters, responses to avoid in guiding behavior, and best practices for promoting positive classroom behaviors.

MAKING THE MOST OF CIRCLE TIME

Early childhood programs frequently gather children together, usually on a carpeted area, to have discussions, read stories and make plans for the day. Large-group circle time is a useful teaching strategy first discussed in the work of Frederick Froebel, the father of kindergarten. To maximize the benefits of circle time, teachers should consider:

- the amount of time they are asking children to come together in a group;
- the age and developmental abilities of the group;
- how to provide learning experiences that are valuable; and
- whether plans are engaging and relevant to the children's interests.

Circle time may be used to:

- provide information on the schedule of the day;
- encourage an understanding of time within the framework of discussions on the calendar, the days of the week and the weather; or
- introduce new concepts and provoke ideas for project work.

During circle time, children should have opportunities to:

- share ideas, engage in conversation and practice communicating meaningful messages;
- listen to others and develop their skills as members of a social group;
- practice, strengthen and reinforce their abilities to share information and tell stories; and
- gain information and knowledge from peers and adults in a group setting.

Children at 3 and 4 typically can sit still in a large group and attend for about 15-20 minutes. During this time it is essential that they are active and participating, engaged in the activity or task, and involved in discussion and questioning.

Teachers often plan circle times to include calendar activities highlighting days of the week and

requiring children to repeat phrases such as "today is...". Children learn little from this activity despite a teacher's best intentions. It is a challenging task for children to sit still during a calendar presentation and, consequently, teachers often spend an inordinate amount of time on managing behavior rather than on productive and engaging activities.

Children at 3 and 4 do not have an ability to understand the concept of time. Rote recall is not sufficient to enhance their learning. "Young children's reasoning is tied to what they are seeing and experiencing; that is, young children are dependent on concrete, observable events (physical knowledge) to help them 'figure things out'" (Vanscoy and Fairchild, 1993). The calendar can be better understood as a literacy tool, a chart of sorts. Since time concepts cannot be seen, heard or felt, they are difficult for young children to construct. It is, in fact, the process of using the calendar as a reference tool where learning can occur.

Designing a calendar so the pieces can be manipulated and rearranged provides children with a more active engagement in understanding the labels for the days, months and dates. Ongoing conversations and opportunities to think about and experience temporal concepts are more worthwhile and lasting. The following experiences can be included within the daily calendar:

- shared experiences, such as field trips where children have an opportunity to discuss *before and after, first this happened and then this, etc.*;
- birthdates of classmates; and
- special occasions in the lives of the children.

Suggested Circle Time Procedure

8:45 The children are gathered on the rug with a familiar gathering song. This can be as easy as using a familiar tune and inserting the words, "Let's all gather together, let's all gather together, let's all gather together and begin our day." Clapping a beat, the teacher greets each child by name and asks, "Jeff, how are you today?"

8:50 As everyone settles on the carpet, the teacher begins with a comment on something that has already occurred that morning and elicits conversation from the children.

8:52 For a few minutes children are given an opportunity to spontaneously share what is on their minds. Then the teacher gently pulls the children back to the group and mentions that she has brought to circle some interesting items she would like to share, especially since they have been spending time watching their

new pet snails. The teacher lays out two small balance scales, several magnifying glasses, small pre-made journals and pieces of fruits and vegetables on a plate. As she is putting these items in the circle, she is encouraging the children to consider what the class might do with the items and how they might be of use with the snails. The children discuss what they have been noticing and wondering about the snails, and how these items might help them answer their questions.

9:02 The teacher points out what areas will be closed and open for center time. As the teacher begins to wrap up circle time, she notes that Joshua is the calendar person for this week and that he is going to come up and point to the spot on the calendar that represents today. Joshua does this by saying, "I drew a dog in the box for today because my mom is going to take my dog to the doctor." (Note: Joshua did not know this calendar information on his own. Earlier that morning the teacher spent five minutes with him alone to get this ready.) The teacher says thank you and that she hopes Joshua will tell everyone tomorrow how his dog did at the doctor. The teacher announces that it is center time and suggests that today she will clap out people's names, and when they hear their names they may go to a center of their choice.

Valuable class discussions are important for 3- and 4-year-old children. Teachers must recognize class meetings as a teaching strategy that requires an intentional plan for asking questions and setting the stage to engage discussion that makes children think. The process of encouraging children to sustain a question, to toss back the idea in a discussion, to think about their thoughts and those of their peers, requires teacher guidance, re-direction and, most important, a hesitancy on the teacher's part to deliver the "answer" (Edwards, Gandini and Forman, 1998). Children will create and re-create their perceptions of the world based on these conversations and further experiences. This social discourse, which Vygotsky describes as sociocultural theory, is the bridge between the child's world and his or her cognitive development (Berk and Winsler, 1995).

Tips For Successful Circle Time

1. Try breaking the group into smaller numbers to hold two circles simultaneously. The teaching team can meet earlier to quickly review the key points and reminders for the day, and provide the children with a more pleasant and productive circle.
2. Choose areas in the classroom that are free from distracting toys and materials and provide children with enough comfortable space to be good listeners.
3. Be sure that all children can see when props are displayed or materials shared. Advance planning prevents frustration.
4. Start before all children have joined the circle. Others will then become interested and transition more easily.
5. Keep the group time to 15 minutes. Be prepared to end circle time on any day when the dynamics and plans are not working. Watch and attend to children's behaviors during circle times. They will indicate their ability to listen and participate.
6. Avoid lengthy demonstrations and discussions where the teacher does most of the talking. Remember the goals: to engage children and provide opportunities for oral language development and listening skills.
7. Plan circle time to include active participation. Music and movement, story retellings and reflecting on shared experiences can prompt enthusiastic responses, where many children can be heard.
8. Remember, your approach sets the tone for the group. If you are in a managing mode and not excited about getting together, the children most likely will not be enthusiastic either.
9. If you are committed to calendar activities, consider including them only once or twice a week as a full group. On the other days work with children individually on skills of numeral writing and counting to keep the calendar up to date.
10. Plan across the week's schedule to provide interesting and valuable tasks and activities during circle time. This can be another way to provide intentional instruction time in many areas of the curriculum.
 - a. Monday – oral language games
 - b. Tuesday – calendar
 - c. Wednesday – music and movement
 - d. Thursday – Big Book with a discussion about ongoing projects in the classroom
 - e. Friday – retelling the story with chanting and puppets.

Remember that each circle time can include several brief, valuable and engaging

activities. Other possibilities include a shared writing story, dramatization of a favorite story with props and puppets, group collaborative games, discussion of a current science investigation or a mathematical problem encountered by a classmate.

11. Consider planning a closing circle at the end of the day or morning. This brings everyone back together to reflect and process events and consider what they have in mind for tomorrow. Lillian Katz once said "Look at a classroom at the end of a day and describe what it is that the children are coming back to tomorrow".
12. If show and tell is planned for circle time, keep in mind:
 - children should be the primary talkers;
 - not everyone needs to share each time;
 - promote discussion and sharing rather than children presenting and sitting down; and
 - sharing might include not only an item, but also an experience, problem to be solved, or simply a child's thoughts that are of importance to him or her.

Teachers need to make circle times so wonderful and exciting that children can't wait until it is time for another experience.

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"At its most basic level, assessment is the ability to see children, to perceive what they can do in the hope of understanding how they learn."

(Brainard, 1997)

HELPFUL TERMS
TYPES OF TEST INSTRUMENTS
ASSESSMENT IN EARLY CHILDHOOD EDUCATION
CONNECTICUT'S PRESCHOOL ASSESSMENT FRAMEWORK
PRINCIPLES OF ASSESSMENT FOR YOUNG CHILDREN
INFORMAL ASSESSMENT STRATEGIES
BEST PRACTICES
OBSERVING, RECORDING AND REFLECTING
ADDRESSING DEVELOPMENTAL CONCERNS
TYPICAL CLASSROOM CONCERNS AND SUGGESTED TOOLS
EVENT SAMPLING
PROBLEM-SOLVING APPROACH
PORTFOLIO COLLECTION TIME LINE
DESCRIPTIVE WORDS FOR RECORDING OBSERVABLE BEHAVIORS
REFLECTIVE QUESTIONS



HELPFUL TERMS

Assessment	An in-depth look at how a child is developing. It may be specific to one area of development or to the whole child. Assessment uses both formal and informal tools for gathering information on an ongoing basis.
Disability	An inability to perform a function, preventing or making it difficult for an individual to engage in activities.
Evaluation	Use of formal and informal tools to gather and interpret information in order to determine a child's strengths and weaknesses. Information gathered over time allows for development of a process to effect improvement and change in the child's environment.
Formal Assessment	A process using standardized assessment tools, reported validity and reliability, and often with more structured formats and requiring training for administration.
Individualized Education Program (IEP)	A plan detailing educational goals and services based on the child's needs. It is developed at a Planning and Placement Team (PPT) meeting, with the participation of parents/family, teachers and appropriate specialists.
Individuals with Disabilities Education Act (IDEA)	The federal law that provides requirements for the provision of special education services to students, ages 3-21.
Informal Assessment	A process that looks at the child within his or her daily experiences and activities with minimal interference in the child's day. It often includes such tasks as observation and recording, review of portfolios, etc.
Planning and Placement Team (PPT)	A group of certified and/or licensed professionals representing each of the teaching, administrative and pupil personnel staffs, all participating equally with the family in the decision-making process to determine specific educational needs and develop an Individualized Education Program (IEP) for a child.
Reliability	The degree to which scores on tests are consistent, dependable and able to be replicated. "Does it yield the same type of results each time?"
Screening	A brief look at how a child is developing to determine if a more detailed evaluation is necessary. It cannot be used to diagnose, treat, place or deny a child's access to a program or service.
Testing	A process of sampling behavior or knowledge at <i>specific points in time</i> to determine levels of change or growth. Testing is generally associated with measuring achievement or growth in intelligence or ability.
Validity	The degree to which a test measures what it is intended to measure. "How truthful is the test? Does it test what it says?"

TYPES OF TEST INSTRUMENTS

Criterion-Referenced Tests measure an individual's level of mastery of a particular skill without comparison to others.

Norm-Referenced Tests assess a child's performance in comparison to others of the same age.

Performance-Based Tests evaluate specific competencies, focusing on the individual without comparison to others. The child is asked to produce something or perform a task as part of the instructional process, rather than simply to recall information.

Readiness Tests examine skills considered necessary for preparedness to participate in a specific setting. Readiness tests seek information about skills that promote success in learning.

Standardized Tests study observable behaviors and experiences with selected items, backed by a body of research including field-testing for reliability and validity.

ASSESSMENT IN EARLY CHILDHOOD EDUCATION

Assessment is a process of gathering evidence about children, their development and personal learning styles. Each day early childhood educators make decisions about what to teach, how to modify lesson plans, and how best to build on children's strengths and respond to their needs as they arise in the classroom. Quality assessment provides important information on which to base such decisions, including information that assists with planning instruction for individuals and groups, and preparation of a stimulating and effective learning environment. Quality assessment supports effective growth for individual children, communication with parents, and identification of children who may need special services.

Information about assessment and how it can be helpful is essential for early childhood educators. In this section are examples of various formal and informal types of assessments, guiding principles for selecting the right instrument to meet program needs, suggestions about how to involve and communicate with parents, and samples of informal tools that can easily be implemented in the preschool classroom. This chapter is about assessment for purposes of gathering information to inform teachers' practices; not to screen for suspected disabilities or to determine eligibility for special education and subsequent IEP development.

CONNECTICUT'S PRESCHOOL ASSESSMENT FRAMEWORK

The Connecticut Preschool Assessment Framework (PAF) is a curriculum-embedded tool for assessing 3- and 4-year-old children in their preschool classrooms. It was developed as a companion to *The Connecticut Framework: Connecticut's Preschool Curriculum Framework*, and is directly aligned with this guide. The PAF enables program staff members and families to monitor knowledge and skills specifically related to the content standards in the Preschool Curriculum Framework. The PAF helps teachers use ongoing assessment to plan and implement appropriate curriculum that addresses specific learning outcomes. The PAF **provides an explicit method for integrating assessment and curriculum** by providing objectives for curricular activities and a focus for observing children during these activities. Its 30 performance standards are divided into four domains, as follows:

- personal and social;
- cognitive;
- creative expression; and
- physical.

PRINCIPLES OF ASSESSMENT FOR YOUNG CHILDREN

The principles of assessment in early childhood education are derived from an understanding of early learning and development. Young children behave in ways unlike adults or older children, and these differences must be considered when assessing in the early childhood classroom. Several principles will guide early childhood educators in considering and implementing assessment practices.

Assessment Is To Benefit The Child

In an effort to understand children and their developmental levels we examine what they know and can do. With that information we can measure progress, adapt curriculum, plan strategies and celebrate growth. Assessment aids in curriculum planning and in individualizing program objectives and goals. Possible tools include systematic observation of children, collecting and analyzing representative work, tracking skills over time, and recognizing when children demonstrate understanding while participating in classroom activities. Due to the variations in age and development of preschool children, whole-group administration of assessment instruments is unreliable and seldom used. Similarly, because rapid growth spurts

are common in young children, preschool teachers should regularly engage in both formal and informal assessment strategies appropriate to each child's age and program setting.

Assessment Is Intentional

The purposes for assessment must be clear in order to select the best tool. Clear goals help to ensure that assessment is authentic and valuable. Possible purposes include communication with parents, individualization of goals, curriculum reorganization and support, determination of whether intervention or special services are necessary, and articulation of program goals and practices for specific audiences.

Assessment Embraces All Domains Of Development

To gain information on the whole child, educators must consider a tool that assesses all aspects of development: physical, social, emotional and cognitive. Such tools may help to uncover and document information on how children think and learn, as well as their dispositions toward learning.

Assessment Is Carried Out With As Little Disruption As Possible

Most young children do not have the ability to understand rules of formal testing. Therefore, they should have an opportunity to share their ideas and talents in a natural and comfortable setting. The teacher observes within a child's usual context, gathering information in varied situations in order to discover patterns and understand each child's behaviors and processes of learning.

"The very young are, by definition, less familiar with the whole notion of and the materials used for assessment, so that creating a more flexible and responsive environment that promotes the physical and emotional comfort of the child is likely to produce a more accurate picture of the child's knowledge, skills, achievement or personality" (Meisels, with Atkins-Burrett, 1994).

Assessment Is Conducted By Familiar Adults

Children who are evaluated by an unfamiliar adult are likely to be tense and anxious, and often are not able to respond in ways that accurately demonstrate their strengths and skills. It is important that the teachers with whom the child is most familiar carry out the assessment or screening. Teachers need training on the specific tools they will be expected to use, as well as ongoing information related to assessment in general. Teachers also need to be provided with the time to reflect and interpret information collected alone and with colleagues.

Assessment Is Conducted Regularly And Periodically

Learning and development occur rapidly in young children. Interval assessments used only yearly are unlikely to accurately represent a child's growth patterns. Furthermore, an assessment limited to a one-time observation may not accurately reflect the child's abilities because a child's performance at a particular time depends on a variety of factors, including how he or she feels at that moment. The goal in assessment is to use a variety of settings and times so that findings are representative of progress over time. The resulting evidence of growth provides "moments in time" which children, parents and teachers should celebrate.

Assessment Is Mindful Of The Age Of The Child

In an effort to simplify assessment and create a “one-size-fits-all” approach, instruments developed for assessing older children often are used inappropriately in early childhood settings (Meisels and Fenichel, 1996). Early childhood teachers, instead, should use observations and systematic documentation of children’s activities, and avoid complicated “paper-and-pencil” tests requiring specific answers. Young children need to be active. They must be allowed to represent their knowledge with concrete materials in a suitable atmosphere and setting in order for the results to be useful.

Assessment Is Respectful Of Diversity Of Culture, Family, Language And Style Of Learning

It is essential that teachers consider all aspects of a child’s individual development and environment in an integrated manner, for growth in all areas is interrelated. Different approaches to child rearing and the use of different languages affect children’s reactions and performance. Teachers convey attitudes toward the cultural groups represented in each classroom. By appreciating the diversity of families, values, approaches to parenting, and attitudes around school and learning children need to be shown that they are accepted and valued for who they are. Gathering information from families is essential to creating a full description of each child as a learner. This also provides insight into whether aspects of a child’s behavior or pattern of development can be explained by language or cultural differences. For children who speak another language at home, it is especially important to determine which language to use in assessment in order to ensure that the process is tailored to the child’s strengths and abilities (Neisworth, 1993).

Assessment Is Adapted To Meet All Children’s Needs

Children with special needs or disabilities usually follow the same developmental stages as typically developing children. Depending on the nature of a disability, some children may require special modifications for assessment to accurately determine their knowledge, skills, growth and behavior patterns. These accommodations may include rephrasing directions; using concrete visual examples, large print and pictures; using sign language or an interpreter; providing more time to complete tasks; and, above all, maintaining an accepting and calm atmosphere.

INFORMAL ASSESSMENT STRATEGIES

There are many informal tools for conducting early childhood assessments. Informal tools used within the daily classroom routines can be tailored to meet each teacher’s specific needs and the abilities of each child. Several suggestions are provided and include the following.

Observing And Recording

Planning and observing are continuous activities. As teachers observe children’s responses to activities, they plan new activities that continue to challenge the children and promote their growth. This creates an ongoing cycle of planning and observing.

The process of documenting children’s behaviors with specific behavioral observations is the most common informal tool used by teachers on a daily basis. Each teacher must develop her or his own system of collecting and recording information. These collections reveal patterns over time, providing teachers with insight to support individual growth and classroom planning. This approach requires setting a time line for the observation of behaviors and activities.

The following guidelines may be helpful:

- Develop a system for collecting observations, e.g., post-its, clipboards around the room, notepads in pockets. Otherwise, the opportunity to record will pass. It is difficult to retrieve pertinent information from the daily routine after the fact.
- When planning observations, target a specific set of children or particular areas or times of day. This ensures that all children are noticed, all times of the day are addressed, and all curricular goals are considered.
- Use the information gathered to modify the program, reshape teaching strategies, and adapt to specific needs and strengths of the children. Consider information about temperament, interests, learning styles, dispositions, oral language, processing abilities, and social and emotional interactions with peers and adults.
- Beware of overgeneralizing, judging, labeling, stereotyping, blaming, comparing or making long-term predictions.

Teachers often prepare reports to foster communication at parent-teacher conferences. A report

might describe work samples collected over time and include an overview of anecdotal observations. This allows the teacher to describe behavior patterns using specific examples of strengths and areas for growth. A conclusion might include agreed-upon goals for home and school participation.

Such reports should be sensitive and positive. A well-written narrative reads like a story, providing much information and cause for celebration. The narrative should place information in perspective, set plans and goals, and target dates to communicate again.

Parent Conferences

While a great deal of valuable information can be shared in daily, informal communication, parent conferences provide time for more in-depth exchanges and problem solving. Helpful guidelines for conducting parent conferences include the following:

- Prepare parents in advance by sharing the purpose for meeting, anticipated length, and who will be present. Solicit parental input on topics to ensure addressing their questions and concerns.
- Organize thoughts and be prepared with examples and work samples to assist parents in understanding the teacher's perspective.
- Establish a relaxed and open tone for the meeting. All participants should feel that their contributions are valued and needed.
- Be descriptive. Celebrate the child's growth and avoid labeling or judging behavior.
- Share the curriculum and performance standards with parents and provide them with examples of their child's performance in the various domains.
- Approach the conference as an opportunity to problem-solve with the parent. Prepare some possible strategies in advance, but remain open and willing to search together for answers.
- Seek to agree on goals and together prepare an action plan for home and school in order to achieve these goals.
- Set a time to talk again, even if by phone. Take responsibility for keeping in touch. Make sure the parents feel supported.

Portfolios

Portfolios of children's work gathered over time demonstrate their growth and development to teachers and parents. This approach is different from anecdotal observations. If storage is an issue, many educators have found photographs, videos, cassettes and disks to be possible solutions. Viewing these collections with the child provides an opportunity to begin developing the child's ability to evaluate his or her own efforts. Viewing with parents provides a starting point for communicating about their child. Time should be balanced between celebrating growth and planning future goals and instruction. For a sample of a portfolio time line see page 62. A few guidelines in establishing a portfolio collection follow:

- Establish a time line and a list of the behaviors and outcomes to be observed and documented.
- Plan a storage system that will accommodate the items and be manageable in the classroom.
- If items to be collected include disks, tapes or film, be sure that supplies and funds are available for the process to continue throughout the year.
- Keep a checklist handy to determine what items are needed for specific children.
- Involve the child in the selection and review process. Even young children enjoy looking at past work and deciding which is their "best".

Checklists

Various checklists of age-appropriate expectations can be created to assess children's abilities and skills. These lists might include recognition of name, identification of letters in name, preference of centers, mastery of self-help skills and others. Each provides the teacher with an opportunity to take a quick look at the child with a specific objective in mind. This information can easily be incorporated into specific individual planning, as well as in determining environment and teaching strategies.

Time/Activity Samples

This type of observation is particularly helpful when patterns of behavior are being established. For example, it may be important to determine how much time a child spends in particular areas of the room, or how much

time a child will devote to experiences initiated by the teacher or those that are self-chosen. A time/activity sample is found on pages 59-61. Within the daily experiences of the classroom, the teacher keeps track of specific times when a child begins and finishes a specific task or experience. Although time consuming, this type of observation tool can generate useful information for the classroom teacher. Most often, patterns will emerge indicating a child's difficult moments in the daily routine, her or his ability to stay focused on a task, and how she or he approaches daily work and interactions.

Documentation Panels

Documentation panels are like small bulletin boards, but the purpose is more than decoration or the presentation of children's products. The intention is to provide a history of a project or study undertaken by the class. Such panels enable the teacher to reflect on what teaching strategies are most effective. Teachers find them more helpful in reflecting on instruction than in marking the progress of individual children. Photographs, interviews, representational drawings and designs show how a unit of study evolved over time.

Panels also present the curriculum in action. They can be made available to parents, guests, teachers and children, and can be especially useful if a group of children becomes interested in a topic of study that was previously undertaken by others. The newest group of child researchers is then able to benefit from the work of the first group by referring to their process and results. Over time a collection of panels documents the history of the program for all to admire.

"The passage from display to documentation travels from informing to educating and thereby changes the teacher's perspective from observing children to studying children. . . . [D]isplays should be converted to documentation by adding interpretation and explanation to the graphics. The panels need commentary to qualify as documentation. Documentation tries to raise questions about children's thinking and teaching strategies rather than to mark the progress of all individual children" (Edwards, Gandini and Forman, 1998).

Videotaping And Audio Recording

The daily life of a teacher is filled with frequent changes, decisions and interactions, sometimes limiting time for reflection. Equipment, such as a video camera or tape

recorder, allows the teacher to revisit classroom activities at leisure. Once these tools become part of the daily life of the classroom, children move about in their activities and pursuits without any recognition that they are being recorded. A wealth of information becomes available for the teacher to play and replay to examine children's styles, reasoning behavior, developing abilities and interactions with others and the environment. Many teachers transcribe small- and large-group discussions, using this information to strategically plan their next activity.

Interviews

Interviewing a child at play or during an activity helps teachers to further understand the child's thinking and reacting. Experienced teachers will not interrogate or request specific answers. Rather, conversing comfortably with the child, the teacher finds ways to encourage explanation and elaboration on thoughts and actions. Reflection on information gathered during an interview can suggest new materials that might interest a child, or a different approach that may be more successful.

Finding The Right Formal Instrument

More formal assessment is often necessary to understand language delays, difficulty with motor skills, inability to self-monitor behavior, or if development overall is slower than expected. If, despite collecting significant data over time, and trying various approaches and modifications, teachers are unsuccessful in prompting growth, then teachers and administrators must determine the best instrument for the particular child. The appropriate professional, e.g., speech/language pathologist, audiologist, occupational therapist or school psychologist, must then administer formal tools. The following considerations may help administrators and teachers make these decisions.

- Carefully review the manual accompanying any formal instrument.
- Examine information on validity and reliability.
- The instrument should reflect diversity in culture, language and families.
- Consider how the instrument is administered, and how much time is needed.
- The tool should allow children to be active and task oriented, rather than taking a paper-and-pencil approach.
- Concrete materials and pictures should be prominently used to elicit language and responses from the child.

- All domains of development should be included.
- Accommodations should be possible to enable all children to be assessed with the same instrument.

BEST PRACTICES

The following best practices in assessment are provided for use by administrators and teachers.

Administrators

- Identify the purposes of assessment, considering whether the information is for planning curriculum, individualizing goals and objectives, supporting the curriculum, defending the program to other audiences, or communicating with parents. Often the same tool can be used for multiple purposes, but one's intention should be clear as choices are reviewed.
- Spend time reviewing the variety of screening and assessment tools available, both informal and formal. The educational leader's direction is essential in encouraging teachers to make the best use of their time and energy.
- Choose tools and methods that accommodate children's sensory, physical, responsive and temperamental differences. Modifications, such as providing the assessment in the child's home language, providing additional items or tasks, or allowing more time for completion with several breaks, may be required.
- Insist on the collection of information regarding each child from multiple sources prior to evaluating and planning.
- Make sure that families are included in decisions about assessment and in gathering information. Ample opportunities must be provided for families to listen, reflect and plan goals with teachers.
- Training is vital and should be ongoing in order to keep assessment and reflection a vital part of the program. Important topics, such as effective observation and interpretation, how to assess and reflect on children's representational work, understanding behavior, and interactions with materials, benefit early childhood professionals.
- Use the information gained to examine program goals and curriculum. Are the children

successful? Are families in agreement about the children's experiences and growth? Is the program flexible and responsive to children's needs and interests? Are the children demonstrating growth in all areas?

- Allot time and funds to allow teachers opportunities to reflect and plan in quiet settings rather than during brief breaks. The administrator's own observations and reflections should be shared.
- Confidentiality is an important consideration. Model appropriate behaviors and guide teachers and staff members on where and when to engage in discussions.
- Support teacher understanding of the development of an Individualized Education Program (IEP) for children with special needs.

Teachers

- When selecting an assessment tool, keep in mind the kind of data that is sought. For example, for more information on a child's preferences, a survey tool is most helpful; whereas a timed observation may be the best instrument to learn about a child's ability to stay on task.
- Spend time reviewing the types of instruments available for collecting information on behavior and performance. Many informal tools can be adapted for use.
- Take advantage of training opportunities on assessment and evaluation of children to enhance professional expertise so that the growth of young children can be effectively promoted.
- Always remember to **celebrate** children's growth and progress, no matter how small.
- Develop expertise in interpreting children's representational work, including clay structures, writing, block creations, language interactions, drama or fantasy play, and *one hundred more*.
- Encourage children to take an active role in evaluating their accomplishments.
- Use a variety of tools to gather information. No one instrument is sufficient to create a comprehensive picture of a child's growth and development. (See pages 56-58 for a list of typical classroom concerns and suggested tools).

OBSERVING, RECORDING AND REFLECTING

Observation, recording and reflecting are key tools for early childhood educators. We study children by gathering information over time and devoting energy to reflecting and planning for future growth and learning opportunities.

Why Do We Observe?

Observation is essential in the teaching profession because children's activity and thinking provide a window into their skills, knowledge and dispositions. Understanding these through observation helps teachers understand how best to facilitate children's learning. Careful observation yields information on how to assist or extend learning, clarify or improve teaching strategies and the environment, document growth and progress, and communicate with parents and other teachers.

Why Do We Record And Document Observations?

The typical day of an early childhood teacher is filled with multiple tasks, decisions and emotions. At the end of a week it is difficult to remember a comment made by a child on Monday about block building, or a problem solved by two children on Wednesday using their words instead of their hands. Recording may, at first, feel laborious. Teachers may feel it takes precious time away from the children or necessary classroom tasks. However, when the process of observation and recording is organized systematically, it becomes an invaluable planning and teaching strategy.

Reflections – How? Why?

Collecting observations, work samples and photos is of no use without organizing and reflecting on the value of what has been gathered. Reflecting is the process of thinking seriously, contemplating and considering. Reflection deepens our understanding of the child's learning styles and strategies for working with others or alone in order to better interpret and plan. Reflection, thus, is the key to observation and recording.

But reflection requires time for review and interpretation. It also requires a willingness to collaborate and rethink teaching processes and children's performances. Reflection requires listening to oneself, to colleagues and most of all the children. By making time for reflection teachers validate the observations and information collected over time as being critical

to real understanding of children. Reflection is often best spent in collaboration with other professionals on the same teaching team, and should involve lively discussion. Interpretations and clarifications evolve as growth is recognized and new directions and questions are suggested.

Setting aside time is the critical key. Time reserved for reflection, even if short at first, will become more and more valuable. Devoting more time will become easier as improvements in effectiveness of planning and interactions with children are recognized.

How To Get Started

Think of the process of observing as an opportunity to capture a moment, to create a photo in words of a specific point in time. Create a system that sets aside time each day, even brief 15-minute periods, just to observe. Rotate this task so many perspectives are "taken" on a child. One teacher observes and records while teammates are facilitating to ensure that the learning environment is maintained. Consider various approaches for recording and collecting, such as clipboards, organizing questions and post-its. Perhaps, begin by focusing on a favorite area of the classroom. Create a series of guiding questions, rather than waiting for something to record. Consider focusing on specific children. As a team, choose two or three children to observe for short periods of time over several days. At the end of a week collect the observations and spend time as a team reflecting on the information gathered. Look for patterns and try to answer questions such as, What do we know about this child that we didn't know previously? What further questions do we have about this child? Based on the information we have, what should be planned or considered to further this child's growth and progress?

Eventually all of these techniques will become comfortable. Teachers may even find themselves stopping to record more often than expected because they are noticing more subtle behaviors.

Questions And Language: Tools For Creating Valuable Observations

Knowing what to observe and what to record are critical skills. At times there may be specific behaviors or activities on which the teacher should focus. At other times there may be interest in questions children raise, their use of language to communicate and solve problems, their interaction styles with peers, materials and adults, and their approach to tasks, to list just a few possibilities. Pages 64-65 provide a list of reflective questions associated with the developmental domains.

Focusing on specific questions can provide guidance and assist in gathering useful information. For example:

- What did I specifically see?
- What do I think is most significant about this experience for the child?
- What can I say about how this child feels about her or himself?
- What is the child trying to figure out in this situation?
- What experiences, knowledge or skill is the child building?
- What questions, inventions or problems is the child encountering?
- What does the child find meaningful? challenging? frustrating? (Carter and Curtis, 1996)

When observing children's interactions with materials and/or peers:

- How does the child come to use the materials? (Teacher's suggestion, self-initiated, watching another?)
- How flexible is the child with the materials?
- How long does the child spend with the materials?
- Does he or she engage others?
- Does she try different approaches when the materials present her with problems?
- Is there any private language or communication with others?
- Who does the child approach to join him?

When observing children at work:

- Does the child ask questions out of a desire to know?
- Is the child adventurous, a reasonable risk-taker with materials and ideas?
- Does the child have an intentional plan in mind and work to completion?
- What seems to interest the child?
- Does the child show understanding of concepts such as sequence, classification and cause/effect?
- Would you be able to use words such as persistent, curious and flexible to describe this child's style of learning? (Cohen, Stern and Balaban, 1983)

The documentation process is only as valuable as the language used to describe the observation. De-

veloping a strong vocabulary enables teachers to "capture" what they saw. Then, when the teacher revisits the observation for reflection, it comes alive again and is almost as vivid and provoking as when it was first witnessed. Spend time with colleagues creating word banks so that descriptive words can easily be retrieved during observations. For example:

Walk:	amble, stroll, saunter, clomp, stomp, march, strut, lope
Run:	dash, dart, gallop, shoot across, fly
Happy:	jubilant, joyous, bubbling, bouncy, sparkling, cheerful
Cry:	whimper, mourn, lament
Sad:	downcast, gloomy, depressed, dejected, discouraged
Say:	whisper, shout, scream, demand, tell

NOTE: See page 63 for additional examples of descriptive words to be used during observation and recording.

Some suggested materials to keep on hand include the following:

- checklists to record which children and/or which areas have been observed;
- clipboards with paper, pens and post-its in ample supply around the room;
- folders or containers for each child for storing observational notes;
- a time line for collection of specific observations/behaviors;
- tape recorders and tapes for recording children's discussions, which should then be transcribed for later interpretation; and
- a digital camera to take photos to accompany observations.

When teachers have completed making their student observations, the following questions should be asked.

- Is there a pattern emerging?
- Can you detect the child's strengths and weaknesses?
- What would be an experience you could provide to move the child to the next level of learning?
- What could you do next time to ensure that the child is successful. How can you create more opportunities for the child to practice and integrate new skills or knowledge?
- Are there specific materials, peers or a learning center that would be appropriate?

- What strategies could you use to assist, promote independence or directly teach?
- Is the behavior the same or different across settings or with different people?
- seek out the advice of their child's pediatrician or a specialist; or
- contact their local school district to make a referral for a special education evaluation.

ADDRESSING DEVELOPMENTAL CONCERNS

When an early childhood teacher is concerned about a child's development, it is often after many hours of observing and interacting with the child in the classroom. The first step is to express these concerns to the child's parents. Parents and teachers should share information continuously, ideally on a daily basis; however, a parent conference is the most appropriate setting for sharing concerns. The typical conversation at drop-off or at the end of the day does not offer the parent an opportunity to discuss concerns confidentially.

Once a planned time is arranged, as with all parent conferences, teachers should be prepared to share specific, objective observations and thoughts on the child's behaviors and abilities. In addition, the parent should be informed of accommodations in the classroom environment that have been put into place in an effort to support the child, and of the teacher's expectations and strategies. Most importantly, teachers should allow time to learn from the family: Does this description sound like their child? Are they witnessing or addressing any of the same issues at home? What modifications have they tried and found successful? Following this meeting, the family might choose to:

- observe more closely at home and ask the classroom teacher to continue with the ideas currently in place;

If parents choose this third path, they should be aware that the school district has the responsibility to determine eligibility for special education and related services. Once the child has been referred to the school district by parents or professionals, a formal procedure begins. This involves a multidisciplinary evaluation by a team of professionals who gather information using formal and informal diagnostic tools. With the parents' permission, members of the evaluation team may contact the teacher regarding the child's behaviors and abilities. Evaluators may come to the early childhood classroom to observe the child or conduct a portion of the assessment in the classroom setting, and may even request the assistance of the teachers and staff. The evaluation also will include parent information and observations to complete the picture.

Once the evaluation is complete a Planning and Placement Team (PPT), which includes parents and professionals, will convene to share results and determine whether or not the child is eligible for special education and related services. If so, the team will write an Individualized Education Program (IEP) that will outline the services to be provided. Often the school district may suggest other community resources that may benefit the family and child. It is important to continue to facilitate open, two-way communications and parental involvement for both families and the specialists involved.

TYPICAL CLASSROOM CONCERNS AND SUGGESTED TOOLS

Concern/Question	Suggested Tool/Intervention	Who
<p>A child is having difficulty during transitions, disrupting others while they are getting ready to go outside or home.</p>	<p>Perhaps these particular transition times are difficult because the children are engaged in getting dressed.</p> <p>Observe with a rating scale for several days to note his ability to dress himself.</p> <p>Is he shying away from these activities because they are too difficult?</p> <p>Does he have a short attention span?</p> <p>Might he benefit from breaking the task into smaller tasks (e.g., coat on; coat zipped; locate hat; put on; put boots on)?</p>	<p>Teacher/assistant</p>
<p>A child's drawings are hastily completed. It is very difficult to get her to elaborate.</p>	<p>Conduct observations to determine her disposition and motivation during work time when she is alone, with a friend, self-initiated, teacher-directed.</p> <p>Is she merely creating drawings or representations because a teacher has asked her?</p> <p>Is she drawing to be near a friend, but not invested in the activity?</p> <p>Does she become easily frustrated because her representations do not match the ideas she has in mind?</p>	<p>Teacher/assistant</p>
<p>A child is very quiet in large groups and seldom shares.</p>	<p>Conduct an event sampling observation of different classroom situations: with peers, with the group at meeting time, on the playground, in dramatic play.</p> <p>Look for the frequency and type of language she uses.</p> <p>Is she uncomfortable in front of others?</p> <p>Is there any concern about her language skills (e.g., articulation)?</p>	<p>Teacher/assistant</p>

(Continued on page 57)

TYPICAL CLASSROOM CONCERNS AND SUGGESTED TOOLS, continued

Concern/Question	Suggested Tool/Intervention	Who
A child cries frequently throughout the day.	Try observing an event/time sampling to determine if there is a particular time or activity that is causing the upset (transition times, before rest, at any group times, only on specific days when mom drops off).	Teacher/assistant/aide
A parent conference is planned and information on the child's approach to learning and problem solving is needed.	Use an event sampling with problem-solving behaviors to determine the various responses with materials, with peers, with adults.	Teacher
What concepts about print does the child understand?	Use a checklist of skills (location of title, turning of pages, left-to-right sweep). Document while observing the child in the library or at other times with books.	Teacher
Does the child understand 1:1 correspondence?	Observe and take anecdotal notes when the child assists with snack, during calendar time, during a matching game.	Teacher/assistant
How can we share information with parents to illustrate emotional/social maturity within the group setting?	Videotape several group activities to share and discuss with parents.	Teacher
The child appears to be easily distracted, does not complete tasks, and seems always to be on the move.	Conduct a time sampling observation every 3-5 minutes, note if the child is on/off task. Note activity. Create a map of the classroom and track the child's movement.	Teacher
The child does not react to verbal clues. Is he hearing information or choosing not to attend to directions, etc?	Observe and record child's behavior During group times and during centers/choices. Is the child communicating with peers? Observe the child's responses during music/movement. Does he follow others' physical behaviors or attend to adult directions?	Teacher

(Continued on page 58)

TYPICAL CLASSROOM CONCERNS AND SUGGESTED TOOLS, continued

Concern/Question	Suggested Tool/Intervention	Who
It does not seem that the child is making any progress in her ability to represent her thinking and ideas.	Consult the portfolio for items collected representing the child's work over the last four months. Compare the first items with the most recent.	Teacher
A child, learning English as a second language, is allowing others to take his materials when working in the art area. What is the progress of the child's physical abilities? When he started in the program was he unable to use scissors or large puzzles? What is the child's current level of development? Does a developmental delay or disability exist?	<p>Observe at specific times throughout the day over the course of several weeks.</p> <p>Spend time examining and reflecting on information gained.</p> <p>Look at portfolio of work samples, observations, etc.</p> <p>Use a developmental scale to assess large- and small-muscle abilities.</p>	Teacher

EVENT SAMPLING

CHILD'S NAME	PLAYS ALONE	COMMUNICATES WITH PEERS	COMMUNICATES WITH ADULTS

EVENT TIME SAMPLING FOR BEHAVIOR

Crying

Indicate dates and time

Child's name				
Transition				
Meeting				
Centers				
Snack				
Outside				
Sharing				
Story				

Self-Help Skills

Indicate dates and time

Child's name			
Locates cubby			
Hangs up coat			
Takes care of sharing item			
Can put coat on			
Can untie shoes/sneakers			

CENTER PREFERENCE

Date:

Center	Alone	With Peers
Dramatic play		
Sand		
Water		
Writing Area		
Library		
Music		
Puzzles/Manipulatives		
Blocks		

ATTENTION TO TASKS

Put a +/o every 3 - 5 minutes for on/off task behavior

Child's Name								
Activity								
Meeting								
Story								
Centers								
Snack								
Transition								

1:1 CORRESPONDENCE

Child's Name	Calendar	Snack/napkins/cups	Sneakers	Counters

PROBLEM-SOLVING APPROACH

Name of child	Uses prior knowledge and experiences	Persists at tasks	Questions stories, activities	Uses senses to gather information	Takes risks	Is flexible in working out problems with blocks, at science investigations

DISPOSITIONS

Name of child	Works deliberately and carefully	Able to share ideas	Shares materials	Can brainstorm ideas	Repeatedly attempts difficult projects	Resourceful

PORTFOLIO COLLECTION TIME LINE

SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
Self-Portrait				Self-Portrait				Self-Portrait
	Event Sampling			Check Lists				
Inventory on Physical/Self-Help Skills		Problem-Solving Characteristics			Inventory on Dispositions	Inventory on Physical/Self-Help Skills		
Block Building		Block Building		Block Building		Block Building		Block Building
Choice/Centers		Choices		Choices		Choices		Choices

Anecdotes at least two times per month

	Photographs		Photographs		Photographs			
		Problem Solving, Science		Problem Solving, Science				
	Art Products		Art Products	Art Products		Art Products		
	Written Name						Written Name	
		Clay Representation				Clay Representation		
Inventory, Choice of Friends			Inventory, Choice of Friends				Inventory, Choice of Friends	
Graph Time on Task		Time on Task		Time on Task		Time on Task		Time on Task

DESCRIPTIVE WORDS FOR RECORDING OBSERVABLE BEHAVIORS

<p>DESCRIPTIVE LANGUAGE</p> <p>Smiling, frowning, fearful, perplexed, puzzled, quizzical, surprised, tearful, whispering, yelling, hunched, hopping, skipping, leaping, galloping, staggering, slowly, rapidly, creeping, roaming, screaming, softly, stuttering, stammering, crawling, fidgety, twitching, wiggling, bolted, affectionately, grimaced, amble, stroll, clomp, march, strut, calm, expressionless, waddle, sluggish, squinting, wide-eyed.</p>	<p>FACIAL EXPRESSION</p> <p>Frown, smile, yawning, sleepy, surprised, pout, puzzled, startled, drowsy, angry, sad, questioning, teasing, playful, timid, silly, excited, determined, hesitant, anxious, bewildered, blank, wrinkled brow, teary-eyed, jaw-clenched, open-mouthed.</p>
<p>MOVEMENT/LOCOMOTION</p> <p>Stomping, staggering, stiffly, slithering, skipping, slowly, squirming, sliding, gently, running, bouncing, hopping, jumping, crawling, creeping, tip-toe, boldly, prancing, sliding, softly, scuffing, dancing, marching, shuffling, creeping, tripping, swinging, quickly, haltingly, chugging.</p>	<p>LANGUAGE</p> <p>Shouts, loudly, whispers, softly, calmly, hollering, humming, whimpering, quietly, seriously, faltering, mimic, scream, screech, excited, affectionately, roughly, pleading, murmur, bellowed, blurted, hurriedly, squeaked, barked.</p>

CAUTION: Observations should be objective. Be sure to use value-neutral terms to convey vivid, but objective descriptions. For example: “The children ran and shouted to line up for music class;” rather than, “The children enthusiastically lined up for music class.”

REFLECTIVE QUESTIONS

SOCIAL-EMOTIONAL

- How does the child approach others? Did the teacher initiate interaction?
- Was the child friendly, bold, demanding? Did he or she touch or push?
- What does the child say? How does the other child respond?
- Is the child able to make his or her wishes known, understood?
- How does the child react to the behavior of others (withdraws, enters play, defies)?
- How does he or she behave with other children?
- How does she or he handle conflicts? Is he or she able to wait her or his turn?
- What are the child's feelings about other children?
- Are there any special problems or trends (impatience, hitting, temper outbursts, lack of speech, excessive dependence on teacher)?
- Where does the child fit in relation to the entire group (leader, follower, disrupter)?
- Is the child chosen by others?

MATHEMATICAL/ SCIENTIFIC REASONING

- Can the child make generalizations from examining and using specific materials?
- Does the child rely on the use of concrete objects or experiences to understand ideas?
- How accurate is the child's understanding when objects are absent?
- Can the child be logical?
- Does the child see part-to-whole relationships? One-to-one correspondence?
- Does the child see sequence?
- Can the child group objects using at least one criterion?
- Does the child have an ability to see cause and effect?
- Does the child know the usual daily schedule?

LITERACY/LANGUAGE

- Does the child use language for social purposes?
- Is the child's language directed more to adults or to children? Is the child able to communicate well enough to get through the day?
- What are the child's responses to stories read by the teacher?
- Is the child able to rhyme?
- Does the child speak in words, phrases, sentences?
- Does the child show knowledge of the irregularities and tenses in language?
- Does the child use pronouns appropriately?
- Does the child choose books as an activity during the day?
- How does the child use books? Does he or she show an understanding of cover, title, how to turn pages?
- Is the child able to retell stories that have been frequently read in class?
- Does the child use symbols to communicate thoughts and ideas?

BEHAVIORS/DISPOSITIONS

- When activities are teacher-initiated, how does the child react?
- If the activity is child-directed, how does the child react?
- Does the child seem to want to function independently?
- How much individual attention is requested?
- How does the child handle transitions, routines?

(Continued on page 65)

REFLECTIVE QUESTIONS (continued)

DRAMATIC PLAY

- How does play get started? Does the child initiate it? The teacher? Another child?
- Describe the child's comments and verbal interactions.
- Where do the ideas come from (television, books, personal experiences)?
- Is the child able to fit into other's plans?
- What roles does the child tend to play?
- How long does the child's participation last?
- What or who seems responsible for the ending?

SPECIAL NEEDS

- Do the child's skills lag behind those of other children?
- Is the child constantly in motion? Does he or she tend to go beyond set or natural boundaries?
- Is the child able to judge the spatial relationships of objects to each other?
- Does the child tend to play alone?
- Does the child make eye-to-eye contact with others?
- Does the child tend not to join group activities?
- Is the child overly attached to one child or adult?
- Does the child tend to give up quickly? Does he or she express himself or herself physically?
- Does the child tend to control her or his anger?
- Is the child overly fearful?
- Does the child have sudden, unprovoked outbursts of crying or anger that he or she is unable to control?
- Does the child tend to respond inappropriately to situations or stimuli?
- Is the child unable to remember verbal directions or stories?

BLOCKS

- What blocks does the child select?
- What forms or buildings does the child construct?
- How flexible is the child in solving problems?
- Does the child verbalize while working?
- Is the structure named? Does the child use it in dramatic play?
- Can the child engage in cooperative block-building with another?

USE OF MATERIALS

- How does the child come to use the materials (teacher suggested, group activity, imitation, self-initiated)?
- Does the child paint one color over another?
- Does the child create forms, lines, dots, representations?
- Does the child work in her or his own area or is there a need to spread out?
- Is there any socializing with other children while using materials?
- How does the experience end?
- What are the child's techniques in using material? (manipulative, exploratory, representational)?
- How does the child work (with concentration, skillfully, intensively, carelessly, tentatively, distractible)?
- Does the child complete what he or she begins?
- How does the child react to problems encountered while working with materials?

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LANGUAGE AND LITERACY DEVELOPMENT

5

He took it out and looked at it. "It's a Missage," he said to himself, "that's what it is. And that letter is a 'P', and so is that, and 'P' means 'Pooh', so it's a very important Missage to me, and I can't read it. I must find Christopher Robin or Owl or Piglet, one of the Clever Readers who can read this and they will tell me what this Missage means."

(Milne, 1965)

HELPFUL TERMS
DEVELOPING LITERACY SKILLS
LANGUAGE DEVELOPMENT
COMPREHENSION AND APPRECIATION OF STORIES
CONCEPTS ABOUT PRINT AND WORD AWARENESS
LETTERS OF THE ALPHABET
PHONEMIC AWARENESS
ENGLISH LANGUAGE LEARNERS
LANGUAGE AND LITERACY PLAN



HELPFUL TERMS

Concepts About Print	Knowledge about print and books that ranges from a basic level (e.g., front and back of a book) to a more advanced level (e.g., printed words are separated by spaces).
Decoding	Identifying words by using letter-sound relationships.
Early Literacy	Initial behaviors showing that young children understand aspects of reading and writing prior to gaining formal literacy skills. Examples include understanding how to hold a book and turn pages from front to back, or that writing is used to communicate to others.
Early Writing	Initial behaviors that illustrate understanding of aspects of writing such as direction from left to right and top to bottom, or that words have bigger spaces between them.
English Language Learner	The description given to a child or adult who is not a native English speaker and is learning English.
Environmental Print	Print that occurs naturally in the environment on signs, advertisements and labels. It usually appears with certain colors, shapes, patterns and pictures that help children as young as 2, recognize patterns and identify the print as if reading.
Literacy-Rich Classrooms	Classrooms that provide high-quality literacy materials that encourage reading and writing.
Phonemes	The smallest unit of sound in a spoken language, e.g., the “f” at the beginning of the spoken word “farm”.
Phonemic Awareness	The awareness of individual phonemes within words, e.g., ability to segment the word “fish” into 3 phonemes, /f/, /i/, /sh/, or being able to blend individual phonemes into a whole word.
Phonics	Knowledge of common letter-sound relationships, not just sounds for single letters, but also groups of letters.
Phonological Awareness	The whole spectrum from early awareness of speech sounds and rhythms to the highest awareness of syllables and phonemes.
Story Bags	Collections of items such as miniature animals, people, vehicles, shells, feathers, etc. that can be used to create a story.
Scientifically Based Reading Research	The process of using scientific methods to gather information on how children develop literacy skills, and how they can be prepared to learn to read.

DEVELOPING LITERACY SKILLS

Literacy development includes acquisition of oral language, listening skills and the ability to read and write. This begins at birth and continues in the home environment, in social situations, and in preschool classrooms as children interact with caring adults. Children learn about language through everyday experiences. Songs, chatter during diapering, at mealtimes or while riding in the car; conversations with adults, and listening and imagining during story time all contribute to literacy development. The skills of learning to listen and speak develop as children gradually become members of their family unit and social groups.

Over time, as their circles of relationships widen, children witness the power of listening and speech, and the pleasure of reading and communicating orally and through writing. They are immersed in literacy, provided with direct instruction, encouraged to practice, and motivated by adults who model, guide and support.

The preschool years have an enormous influence on children's later success as speakers and readers. Irrefutable research shows that a sizeable vocabulary accurately predicts later academic performance in the primary grades. The power of letter knowledge cannot be underestimated. Providing opportunities to develop print awareness, such as learning letter names, comparing letter shapes and recognizing meaningful words yields strong readers. The challenge is to create intel-

lectually engaging settings that do not teach these components in isolation but, rather, weave them into interesting, complex experiences.

There is a great deal of information on literacy and language development available to teachers and administrators. This section builds on Connecticut State Department of Education documents that focus on expectations for literacy skills and concepts, and provide guidance to preschool teachers. These include:

- *Early Literacy Development: A Focus on Preschool*, (1999);
- *The Connecticut Framework: Connecticut's Preschool Curriculum Framework*, 1999 (and 2005 and 2006 reprints);
- *Connecticut's Blueprint for Reading Achievement*, 2000; and
- Family Literacy Initiatives (See Family Literacy section of Child/Family/School Partnerships on Connecticut State Department of Education website).

Early childhood teachers play vital roles in fostering the development of these skills, which are critical to preschool children's future success as readers and writers, and in life. This section reviews content and teaching practices most appropriate for preschool children based on scientifically based reading research. Key principles in current research include those found in the chart on pages 72 and 73.

Principles	Quote From Research	Source
There are literacy skills and concepts appropriate to early childhood curriculum.	<i>“An essential understanding for teachers is how to design the organization of activity to create patterns that steadily enliven and invigorate children’s literacy learning in the classroom.”</i>	Dickinson & Neuman, (2002)
Early childhood teachers must be prepared in the science of teaching literacy.	<i>“All teachers of young children need good, foundational knowledge in language acquisition, including second-language learning, the processes of reading and writing, early literacy development and experiences and teaching practices contributing to optimal development.”</i>	Neuman, Copple, & Bredekamp, (2000)
The scope and sequence of the early childhood literacy curriculum must be developmentally appropriate for the age and stage of the children.	<i>“Early childhood educators should not try to replicate the formal reading instruction provided in schools; instead, their job is to help children develop the basic knowledge, interest and understandings that will allow them to flourish once it is time for such instruction.”</i>	National Research Council, (1999)
Early childhood teachers recognize that multiple teaching strategies are best practice.	<i>“Research suggests that many teaching strategies can work. Both direct instruction and child-initiated instruction, teaching through play, teaching through structured activity, and engagement with older peers and with computers are effective pedagogical devices.”</i>	National Research Council, (2001)

(Continued on page 73)

Principles	Quotes From Research	Source
<p>Teaching young children involves making decisions: when to use direct instruction, facilitation and support depending on the children, the objectives and the setting.</p>	<p><i>“...the need for teachers to make intentional efforts to push children’s thinking and support their literacy development as they converse with children throughout the day, plan their classroom day and the content of the curriculum, and organize their classroom environment. For a teacher to provide children optimal supports in all these areas, he or she must have a deep understanding of what children need, skillful ability to provide appropriate experiences throughout the day, and the willingness to expend the energy needed to support children’s development all day long. These are the qualities of intentional teaching.”</i></p>	<p>Dickinson & Tabors, (2001)</p>
<p>Parents and families must be recognized and supported as key partners in nurturing children’s literacy development.</p>	<p><i>“You may have tangible wealth untold: Caskets of jewels and coffers of gold. Richer than I you can never be- I had a Mother who read to me.”</i></p>	<p>Strickland Gillian, Trelease, (2001)</p>

LANGUAGE DEVELOPMENT

Performance Standards
<p><i>Speak clearly, including use of appropriate tone and inflection.</i></p> <p><i>Use multiple-word sentences or phrases to describe ideas, feelings and actions.</i></p> <p><i>Speak to initiate a conversation or enter into a play situation.</i></p> <p><i>Speak for a variety of purposes.</i></p> <p><i>Use multiple-word sentences or phrases to describe ideas, feelings and actions.</i></p> <p><i>Demonstrate understanding of basic conversational vocabulary.</i></p>

Preschool children exhibit varying skill levels depending on their individual development, home environment and experiences. Children develop oral language skills in a natural and sequential order as a result of interacting with others. Initially, children

use language to gain attention and fulfill basic needs, imitating the language of their environment and creating their own. As children grow, oral language becomes a useful tool for communicating ideas and emotions, and for developing relationships and connecting with others. Children use language as a tool for imagining, planning and solving problems.

Children need both varied experiences and opportunities to practice, to gain knowledge. Background knowledge is a key predictor for successful reading comprehension. Opportunities to hear and practice sophisticated vocabulary are key to strengthening background knowledge, as well as emerging skills. Children need multiple purposes for using language, strong models of appropriate language use and an audience. Interesting opportunities to label, categorize and summarize information provide children with mature purposes for use of oral language and listening skills. As children use language to describe and sort, they develop relationships, concepts and understandings, and enhance their thinking skills.

An environment where group and individual interaction is encouraged requires teacher support, including intentionally asking children to elaborate, responding to conversations and looking for ways to advance language development. In this environment,

children are motivated to share and clarify their thinking with others. The skills of speaking, listening, reading and writing become the tools for children to share and represent what they are learning.

Teacher Strategies	Suggested Experiences
Assist and encourage children to retell stories and describe events.	Use questioning strategies to foster children’s thinking about: <ul style="list-style-type: none"> • detail – what, who, where; • sequence – what, when; • cause and effect – why, what would happen; and • character traits – who, why.
	Let the children take the lead in describing games, reviewing directions or rules.
Assist those children who find it difficult to express themselves verbally.	Create a puppet corner with commercial and class-made puppets. Encourage children to create their own puppets and provide opportunities for shows.
	Provide telephones and microphones in the drama area.
Use circle time as an opportunity for numerous language experiences.	Use songs, rhymes and stories frequently throughout the day.
	Listen when children are describing and telling, avoid changing their language, or only asking questions that require specific answers.
	Write class news with the children. Encourage children to extend and elaborate on events and projects happening within the classroom.
Promote higher-order thinking skills with activities that involve predicting, hypothesizing and analyzing.	Encourage children to observe, predict and analyze; to find answers to questions and share their findings.
Provide opportunities for expanding vocabulary.	Take field trips, encourage families to come in and share experiences and talents.
	Introduce scientific and mathematical language at the water table, during project work and in the block area.

COMPREHENSION AND APPRECIATION OF STORIES

Performance Standards
<i>Show independent interest in reading-related activities.</i>
<i>Attend to a story.</i>
<i>Retell information from a story.</i>
<i>Demonstrate understanding of basic conversational vocabulary.</i>
<i>Demonstrate understanding of messages in conversation.</i>

Reading to children is crucial to literacy development. In this activity children learn about story structure and the functions of print, and develop comprehension skills (Morrow, 2001). Teachers should offer many choices of text, and plan the daily schedule to include three to four opportunities for reading to large and small groups and individual children. Experiences with books should be

varied and include shared reading, one-on-one, quiet, alone time, reading with a purpose and reading for sheer pleasure. Teachers should find ways to draw children’s attention to the characters in the story, the sequence of events, new vocabulary, etc. This lays a foundation for emergent reading development and comprehension.

Developing comprehension is an active process of strengthening the ability to understand and remember a story. Listening skills, knowledge of the topic and vocabulary all contribute to successful comprehension. Children’s questions and comments about a story reveal their levels of comprehension. Skilled teachers create opportunities for children to predict, question and retell stories. This provides experiences that foster thinking in a literal mode (who? what? where?), interpretive mode (why? how do you know?), and in a critical mode (what would you do? why?). The teacher must intentionally create contexts for such questions that are meaningful and provocative for the children.

Teacher Strategies	Suggested Experiences
Set the purpose for reading. Introduce stories by providing background knowledge. Point out the cover and several pictures within the story before beginning. Provide an opportunity to wonder and question first.	Elicit questions before beginning a story. Read the story to do a dramatization. Read to answer a question. Read for fun, because it’s such a great story!
	Collect and use a variety of books: alphabet, science, informational, poetry, favorite stories.
	Ask: “What might be happening? Why do you think so? What would happen if?”
Take time during and after a story to assess children’s understanding. Allow comments or questions.	Take time while reading to discuss characters. Encourage children to describe, evaluate and put themselves in the place of the character.
Re-read stories. Repeated opportunities with a story allow children to practice remembering, organizing information and sequencing. Each time they become quicker in their responses, thus allowing for more time to process and comprehend other story elements.	Read several versions of the same folk story or fairy tale. Encourage children to compare and contrast the sequence, characters and ending.
Read stories using incorrect sequence, syntax or vocabulary, encourage children to think about the story.	Ask questions while reading a story, e.g., Does it make sense? Is that how it should sound?
Choose books according to developmental levels and for intentional teaching.	Rhyming books may also be useful in developing phonological awareness.

CONCEPTS ABOUT PRINT AND WORD AWARENESS

Performance Standards

*Demonstrate book awareness.
Recognize matching sounds and some printed letters.
Recognize several printed words.*

Reading books with adults presents opportunities for children to notice print and develop an interest in reading. Experiences of connecting with stories and other texts are powerful for increasing vocabulary and developing background knowledge, and may contribute to reading achievement in the elementary years (Dickinson and Neuman, 2002).

As children witness significant adults using print for a variety of purposes, they become interested in the many functions of language, and learn that reading and writing are ways to gather information and to communicate their ideas. Research indicates that children benefit from intentional instruction and modeling of concepts such as: the story title and author, the difference between words and letters, the progression

of reading and writing from left to right, and the one-to-one correspondence between words in text and words read (Morrow, 2001; National Research Council, 1998). Exposing children to print-rich environments is not enough. Teachers must plan opportunities to draw children’s attention to these important concepts.

Reading experiences help children learn to distinguish letters from numbers and recognize their own name and many sight words from environmental print. Although they may not yet grasp the ideas that letters in printed words represent sounds, they begin writing by experimenting with letters and creating strings of letters to convey their message. Spaces between letters and words often emerge as children develop the idea that words are separate units. At this time children create visual images for words that correspond to the object. For example, a child might take a great deal of space to write *bus* because a bus is long. But the corresponding word symbol for *mosquito*, representing something very tiny, might be only a few letters. Eventually, through experiences with books and words, children come to understand that a word represents an idea or object and is not tied directly to its size or power.

Teacher Strategies	Suggested Experiences
Draw attention to the cover of the book, and the location of the title and author.	Point out the title, author and illustrator’s names. Suggest that children can be authors of their own books.
When modeling writing, articulate aloud that you are starting on the left side and when you get to the end of your thought you will use a period.	Find opportunities to write with the children, such as thank-you notes or morning news. Intentionally support concepts about print as you write their thoughts. Point out and discuss that some words are long and others short, and that there are many words in a sentence.
Motivate a “love for words” with children by modeling language that is rich with descriptive words.	Build a collection of big and small books for shared reading. Encourage children to use them during choice time and free play. Children reenact the reading times they witness. Call children’s attention to signs in the community. Encourage them to “read” them to their parents.
Assist children in recognizing the difference between individual letters and words.	Play games where children are asked to find favorite letters or words they know in stories or around the room. Label areas like cubbies and children’s mailboxes with print and pictures to facilitate word recognition.

(Continued on page 77)

Teacher Strategies	Suggested Experiences
Encourage and support children’s attempts at writing.	Make sure areas such as dramatic play, blocks and science include a variety of writing tools and paper, clipboards, pads, etc. for representing ideas and thoughts (shopping lists, phone messages, appointment books).

LETTERS OF THE ALPHABET

Performance Standards
<p><i>Recognize matching sounds and some printed letters.</i> <i>Recognize several printed words.</i> <i>Use letter-like approximations to write words or ideas.</i> <i>Print or copy the first names of children.</i> <i>Use symbols or drawings to express thoughts, feelings and ideas.</i></p>

One of the very first words a child learns to read is his or her name. From this first word, teachers can systematically build a familiarity of the letters in the

alphabet. With support and modeling, the child soon learns that letters represent sounds, have distinctive “names” and that these symbols, when put together, create words and stories. Children benefit from purposeful opportunities. When block constructions have been carefully created, signs are needed to identify builders. Children will ask, *How do I write my name?* or, *How do I write, “Don’t touch my building?”* Throughout the day teachers must take advantage as occasions arise to single out letters and identify favorite words, as well as plan direct instruction to foster letter recognition and sound/letter association. Teachers support children’s first attempts at writing, (drawings, scribbles, letter-like symbols and eventually letters that are recognizable) by encouraging children to write down their ideas and to use “writing” to convey messages.

Teacher Strategies	Suggested Experiences
Provide intentional instruction around the letters of the alphabet.	Read and re-read alphabet books. Play with letters, discuss their shapes and characteristic features. Make letters out of play dough, in sand, with water, in cookies.
Create a literacy-rich environment using signs, charts and word cards.	Use recipes with children when cooking. Support developing knowledge of initial sounds and picture clues.
Support children’s attempts at writing by providing appropriate tools, models of letters and words, and reasons to write.	Encourage and accept all of the children’s efforts at writing. Create a writing area with pens, markers, pencils, a typewriter, various types and sizes of paper, pictures, journals, etc.
Suggest that children use writing to communicate emotions and messages to parents and friends.	Encourage children to label or describe their building constructions and artwork. Offer to take dictation or assist with letter formation.
Find many times throughout the day to talk about letters.	Encourage children to find similarities and differences in other children’s names.
	Compare the letters in children’s names to other examples of print in the classroom.

PHONEMIC AWARENESS

Performance Standard

Recognize matching sounds and some printed letters.

Phonemic awareness is the understanding and ability to work with sounds in our language. Research indicates that phonemic awareness is a strong predictor of beginning reading achievement (National Research Council, 1998). Although children naturally hear and play with sounds, current practice supports more intentional teaching to develop the ability of children to identify and manipulate sounds. Such teaching includes

matching words that begin with the same sound, listening for each distinct sound, blending sounds into words, and taking apart and manipulating sounds, e.g., taking away the /h/ and putting a /p/ to change *hat* to *pat*. This kind of instruction should not be planned for long periods of time, nor in a drill and recall fashion. Rather, carving out brief moments for quick games as you move from one activity to another can heighten children’s sensitivities to sounds and provide needed instruction. As children become comfortable hearing and making individual sounds in spoken words, familiarity will build their confidence for later stages of decoding words.

Teacher Strategies	Suggested Experiences
During shared writing, model the sounding and blending process of words.	Take the opportunity to talk to the children as you write some of the text. Point out that one word sounds similar to someone’s name or a previous word. Ask children to find all the objects that match a particular letter sound.
Plan opportunities throughout the day for rhyming and blending games. Use transition periods or the beginning of a new activity. Plan no more than 5-10 minutes each time, and make them fun!	Play singing and rhyming games using familiar nonsense words. (“I like apples and bananas.”) Play with words by changing initial or final sounds. Invent nonsense words. Play games with children’s names: Abby likes apples. Bob likes books; Cory likes candy. Play I Spy: “I spy something that starts like mom, that rhymes with cat, etc.”
Support children whose language development is delayed and/or are experiencing impairment with additional opportunities to play with sounds.	During choice time or centers, find opportunities to play games with individuals or groups of two or three where children can participate and respond at a slower pace.
Read classic nursery rhyme books and recite favorite tongue twisters.	Encourage children to notice rhyming words and to create more.

ENGLISH LANGUAGE LEARNERS

Young children who enter preschool from home environments where English is not the predominant language often present different behaviors and needs than children whose families speak English. The more teachers understand the process of literacy development and the effects of learning more than one language, the better they can meet the needs of children from culturally and linguistically diverse backgrounds. English language learners require substantial educational supports to acquire English literacy. Preschool teachers must support children's attempts at communicating and create a classroom environment that is safe and respectful of all.

Teachers should also become familiar with the language spoken at home and be intentional in teaching appropriate literacy skills. Knowledge about cultural and linguistic differences is essential to foster early literacy development and avoid possible confusion. For example, if teachers know that a child's home language is written vertically, then they are better prepared to help the child compare and understand that English is written from left to right.

Cultural groups approach language experience and literacy differently. The use of stories and language, the amount of reading in the home, as well as the degree of emphasis on writing and sharing information depends on individual family culture. Each child comes to school with varied experiences that affect learning and growth. But family and preschool literacy experiences in any language, e.g., developing motivation to read and write or acquiring background knowledge, transfer readily to English literacy.

Teachers must work toward assisting all children to become successful learners. This is especially challenging when children and families are bilingual or learning a second language. Oral competence in a language is very important for learning to read in that language. It is important that teachers are knowledgeable about bilingualism, and learn as much as possible from the family about their attitudes and expectations for language and literacy.

**Developmental Sequence
For English Language Learners**

1. Initially children continue to use their home language at school, unaware that others do not understand.
2. When they become aware that their native language is not working, they often stop communicating with language, but listen and observe the new language in use.
3. They try out simple words and phrases in the new language, becoming increasingly verbal as they find success.
4. Finally, children use more words, while figuring out how the new language works.

(Tabors, 1997)

BEST PRACTICES

Teachers are encouraged to use the following best practices when working with young English language learners.

- Be aware of cultural differences between expectations from home and school regarding children's language development.
- Encourage children to use their home language in school.
- Learn key words and phrases in children's native languages to provide an environment that feels safe and receptive.
- Establish communication with families to understand their cultures, expectations and goals.
- Celebrate children's attempts to communicate.
- Provide language experiences that are interesting and linguistically simplified.
- Modify expectations: receptive vocabulary will be stronger than oral expression at first.
- Plan many experiences that introduce and use new vocabulary.
- Encourage social interaction with English-speaking peers to foster English language development.

LANGUAGE AND LITERACY PLAN	
Performance Indicators	Attend to a story Retell information from a story Demonstrate understanding of basic conversational vocabulary Demonstrate book awareness
Concepts/Content	Understand concepts about print: front of book, title, author, left to right Follow sequence of story Develop oral language skills: speak in complete sentences Develop vocabulary
Experience	Children listen to a series of stories over several days, e.g., <i>Curious George</i> , by H.A. Rey Children compare and contrast the different predicaments of <i>Curious George</i> Children locate the title and author of each book and note differences and similarities Children discuss their favorite stories and explain their reasons Children reenact/create new stories about <i>Curious George</i>
Context, Environment	Small group: three to four children Library area Literacy center Drama and fantasy center
Teacher Strategies	Provoke discussion and analysis with comparison questions about similarities and differences Demonstrate and label the parts of a book; observe children and notice how they use books Read with children, model print concepts, ask questions and enjoy stories together Facilitate the drama and fantasy area, partnering with children to create stories about <i>Curious George</i>
Materials/Changes to Environment	Multiple copies of various <i>Curious George</i> titles Create puppets with pictures of the characters in the stories glued to sticks

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“Teachers of young children should be aware of the impressive informal mathematical strengths of many children in the early years and recognize that it does make sense to involve them in a variety of mathematical experiences.”

Baroody, 2000

HELPFUL TERMS
CURRICULUM DEVELOPMENT
PROCESS STANDARDS
CONTENT STANDARDS
BEST PRACTICES
EXAMPLES OF PLANNING



HELPFUL TERMS

Analysis	The process of breaking something down into its parts.
Estimating	The math term for guessing or predicting the answer to a problem.
Geometry	The area of mathematics that involves using shape, size, position, direction and movement to describe and classify objects in the physical world.
Number	The amount or quantity used to group items.
Number Sense	Good intuition about numbers and their relationships.
One-to-One Correspondence	The understanding that one group has the same number of things as another.
Pattern	An arrangement of objects, numbers or shapes that repeats itself and can be extended.
Spatial Awareness	The ability of children to think of themselves or objects in relation to the people and objects around them.
Statistics	The study of data involving processes such as collecting, sorting, representing, analyzing and interpreting information.

CURRICULUM DEVELOPMENT

From ages 3 through 6, children begin to solve problems by moving and experimenting with real objects. Mathematics is everywhere and children are intensely interested in concepts such as number, size and comparison. “They are self-motivated to investigate patterns, shapes, measurement, the meaning of numbers, and how numbers work, but they need assistance to bring these ideas to an explicit level of awareness. Such awareness is an essential component of mathematical knowledge” (Clements and Sarama, 2001).

In their search for meaning children naturally explore and solve, communicate and connect ideas using mathematics. Early childhood teachers should capitalize on these interests by providing curriculum that challenges and engages children. As noted in earlier sections, curriculum is more than activities; it is developed with thoughtful regard to children’s needs and abilities through the selection of appropriate performance standards, processes, experiences and environments for the purpose of helping children learn.

Good early childhood mathematical learning experiences require:

- skillful adults to provide guidance, intervention and scaffolding when needed;
- interactions with teachers and peers;
- time to explore, investigate, manipulate, observe, discover and reflect;
- opportunities for children to express themselves, listen, ask for clarification and practice new skills;
- active, hands-on experiences; and
- opportunities to reorganize, reinvent and represent their learning (Wortham, 2002).

Mathematical experiences provide children with opportunities to problem solve rather than merely engage in activities. An important goal of mathematical curriculum planning is for children to learn to make sense of the information they have and to develop their abilities to use this knowledge in future projects (Copley, 2000).

Research shows that differences in math achievement in later school years may be caused, in part, by differences in young children’s informal math knowledge before they enter school. Equity in math opportunities is a crucial concern (Clements and Sarama, 2001). The challenge is to provide for all children a mathematical curriculum that is both broad and deep.

Mathematics curriculum for the pre-kindergarten years is not elementary curriculum watered down. Rather, it is a planned, systematic approach to developing broad concepts, integrating experiences, and developing attitudes and dispositions around problem solv-

ing and mathematical content. To be effective, it must not be a collection of unrelated activities, nor should it be based on an assumption that children will learn what they need merely through play experiences.

Effective mathematics programs include intentionally organized learning experiences that build children’s understanding over time. Depth is best achieved when content and process are considered with equal weight. The following standards for pre-kindergarten through Grade 2 are endorsed by the National Council of Teachers of Mathematics.

<p>Process Standards</p> <ul style="list-style-type: none"> • problem solving • reasoning • communicating • connecting • representing <p style="text-align: center; padding: 10px 0 10px 0;">Content Standards</p> <ul style="list-style-type: none"> • number sense and operations • measurement • geometry • algebra • data analysis and probability
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Opportunities for exploration in each of the concepts is not enough. Teachers must supply children with mathematical language, engage children in questioning and conversation, and focus their exploration. To do this successfully teachers must know which concepts and relationships the children are ready and able to explore (Bredenkamp & Rosengrant, 1995). Connecticut standards for mathematics for preschool and the Connecticut Mathematics Curriculum Framework, Grades PreK-12, are consistent with these concepts.

Preschool Performance Standards

- *Demonstrate* understanding of one-to-one correspondence while counting.
- *Show* curiosity and independent interest in number-related activities.
- *Show* spatial awareness by demonstrating an understanding of position and order.
- *Use* common instruments to measure things.
- *Recognize* simple patterns and duplicate or extend them.
- *Create* and duplicate patterns and shapes using a variety of materials.
- *Estimate* and verify the number of objects.

- *Collect*, describe and record information.
- *Collect*, organize and display information.

Connecticut Mathematics Curriculum Framework

- algebraic reasoning: patterns and functions
- numerical and proportional reasoning
- geometry and measurement
- working with data: probability and statistics

The National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM) suggest that 3-to-6 year-olds should be introduced to the key content areas of **number sense, operations, geometry and measurement**. This guide illustrates how the above content areas and other topics: **patterns, estimation and data analysis, and probability and statistics**, can be integrated within the daily curriculum. In order to help teachers to be purposeful and intentional in their planning, two guidance sections – one on process standards, the second on content standards – are presented. Strategies to assist teachers in planning instruction around the mathematical processes are included.

PROCESS STANDARDS

Learning happens over time. Children must move through the stages of learning from awareness to exploration to inquiry to utilization. Teachers must plan multiple experiences that help children become comfortable with all five mathematical processes: problem solving, reasoning, communicating, connecting and representing.

Problem Solving

Problem solving is the ability to get involved in a task in pursuit of a solution. In problem solving, children develop dispositions for persisting, testing, focusing and risk taking. They develop flexibility, confidence and motivation to look at life's experiences and wonder. To encourage these characteristics teachers should use the following strategies:

- provide uninterrupted time for investigation and exploration;
- use questioning strategies with children that encourage open-ended, creative thinking; and
- guide children to make connections between prior learning and new experiences.

Reasoning

Reasoning is the ability to explain and analyze possibilities for problem solving. It includes recognizing patterns and guessing what comes next, asking why and creating individual hypotheses. To promote reasoning skills teachers should use the following strategies:

- encourage children to think about hypotheses and talk about process as well as information;
- promote the habit of guessing, hypothesizing and evaluating work; and
- create a classroom where abundant questioning, investigation and discovery are norms.

Communicating

Explaining hypotheses helps to organize and connect learning. Encouraging children to explain why or how to teachers and peers deepens their learning. Conflicting opinions, approval and encouragement from others promote further understanding and consolidation of concepts. Teachers play important roles as observers, questioners, clarifiers and supporters. To help children develop communication skills in this area, teachers should use the following strategies:

- relate mathematical ideas to pictures and diagrams;
- take the time to model and encourage reflection on ideas and experiences; and
- relate activities and experiences to mathematical terms and symbols.

Connecting

Children are engaged in exploring mathematical concepts throughout their preschool years. Classroom experiences enable the child to connect life experiences with formal mathematical concepts. A key role for teachers is guiding children to see connections between their life experiences and the other content areas. To help children make such connections, teachers should use the following strategies:

- find relationships among classroom activities and mathematical reasoning;
- use math vocabulary and processes in all areas of the curriculum; and
- discuss connections to science, literature, family and cultural background.

Representing

Representation is a means of communicating. Learners should be encouraged to represent their thinking by using clay, blocks, drawing, language, diagrams, charts and eventually number symbols. Merely writing number symbols should not be a primary focus. The experience of conveying thoughts becomes a tool for making relationships in mathematics. Children remember what they were thinking, rethink new possibilities and make connections to new and old ideas. Representation is an opportunity to revise and make thoughts clearer to ourselves and to others. To encourage development of representation skills, teachers should use the following strategies:

- encourage representation as a continuous journey rather than as discrete projects that are finished and never addressed again;
- make learning an ongoing series of investigations that are all connected and integrated by the learner; and
- encourage children to visually and physically represent math ideas with blocks, manipulatives, in drawing and in many media forms.

CONTENT STANDARDS

This section presents broad concepts that should be included in a preschool mathematics curriculum. Each concept includes appropriate performance standards, a brief description of the topic area, skills to be cultivated, suggested teacher strategies, and ideas for maintaining a home-school connection.

Number Sense And Operations

Performance Standards
<ul style="list-style-type: none"> • <i>Demonstrate understanding of one-to-one correspondence while counting.</i> • <i>Show curiosity and independent interest in number-related activities.</i>

Number sense is the ability to think and work with numbers, and to understand their uses and relationships. This ability includes:

- distinguishing between small and large groups;
- understanding the relationship between and among quantities;
- using one-to-one correspondence; and
- understanding operations such as adding and subtracting.

Research indicates that the development of number sense is the most important element in preschool mathematics (NCTM, 2000). The development of number sense and the understanding of operations provides the foundation for much of what is taught in mathematics. Young children come to preschool with many informal mathematical experiences, for example those of quantity or comparison. Their existing knowledge must be connected with the language, symbols and operations of mathematics (Griffin and Case, 1998; Gelman and Gallistel, 1978).

In teaching preschool mathematics, the focus should not only be counting, reading and writing numbers. It is more important that children spend time creating a mental structure for number concepts. Encouraging thinking, making decisions and talking about quantity is the main goal (Kamii, 2000). Consider the experience of preparing a snack. Instead of giving specific directions such as, *Please get 15 napkins*, try asking children to gather *enough napkins for everyone* (Kamii, 2000). This encourages problem solving. The child may count the children; use trial and error with a random number; or create a one-to-one correspondence with the children or chairs. Whatever process is chosen, the experience of thinking and doing results from purposeful teaching that helps children learn to use numbers rather than just count.

Understanding quantity is central to developing one’s mathematical thinking abilities. Multiple experiences in counting help children understand that the last number in a counting sequence represents the entire quantity. As children come to understand quantity, they begin to understand part and whole relationships and to see many ways to use and represent numbers. (For example: *“There are 10 children here today. Four of them are girls.”*) This gradually leads to the child’s ability to see relationships around increasing and decreasing quantities (Ginsburg, Greenes and Belfanz, 2003).

Teacher Strategies: Number Sense	Suggested Experiences
Create an environment where questions about quantity and comparison are frequent.	<p>Instead of asking children to count items, suggest that they consider whether there are enough for everyone. Ask them to estimate. Ask, <i>“How do you know? Why do you think that?”</i> (Reasoning)</p> <p>Count often. Count anything. Ask, <i>“If I have three and add one more how many will I have?”</i> (Problem solving, communicating)</p>
Create numerous opportunities for 1:1 matching and counting.	Ask questions when children are sorting objects. <i>“Do you have the same number of red blocks as green?”</i> (Communicating, connecting)
Model approaches for representing number or quantity: tally marks, use of fingers, dots, pictures and graphs.	Using various materials, suggest that children show different ways to make 10, 8, etc. (Connecting, representing)
Integrate literacy with mathematics curriculum.	Include items that represent mathematical concepts such as: telephones, menus, calculators and clocks in the dramatic play center. (Connecting, representing)

(Kamii, 2000; NCTM, 2000; National Research Council, 2001; Forman and Kushner, 1983; Singer and Revenson, 1978; Ginsburg, 1977.)

Geometry And Spatial Relationships

Performance Standard
<ul style="list-style-type: none"> • Show spatial awareness by demonstrating an understanding of position and order.

Children learn geometry when they explore:

- shapes;
- patterns; and
- spatial sense.

Children love to explore materials and objects in their environments. As a result they develop informal knowledge of shape, symmetry and objects in space, including their own bodies. Early childhood teachers must build on these experiences by engaging children

in exploring two- and three-dimensional objects, and by providing children with language and vocabulary about shapes (Copley, 2000). For example: *“That is called a circle. It is round and has no corners. There are many things in our classroom that look like circles.”*

Experiences where children move objects as well as their own bodies help to develop the understanding of concepts such as boundaries, position and arrangement (Bredenkamp & Rosegrant, 1995). Music and movement activities, and following and giving directions, provide children with experience of position and direction. *“I am in front of you. You are in back of her. The blocks are in the corner of the shelf. I will put the legos on the side of the block building.”*

Take advantage of the environment. Focus children’s thinking on shapes and their features. The ideas children form during these early years will help them throughout their elementary schooling (Clements and Sarama, 2000).

Teacher Strategies: Geometry	Suggested Experiences
Provide numerous opportunities to touch, feel and describe shapes.	Locate and compare shapes found in the environment. (Problem solving, reasoning) Play mystery-bag games where children can reach in to feel, manipulate and describe shapes. (Problem solving) Encourage children to describe their building and art creations using positional and shape vocabulary. (Communicating)
Provide specific materials that engage children in geometric concepts.	Provide attribute blocks, pattern blocks, tanagrams and large, sturdy geoboards. (Problem solving, Representing)
Provide opportunities for children to use their bodies to understand space and directionality concepts.	Play music and movement games such as a direction game with large cardboard boxes. (Problem solving)
Use vocabulary to locate and describe: in, on top of, on the side, in between.	Provide motivation for comparative discussions such as this blue square is as big as the front of this blue box. (Reasoning, Communicating)

(Clements and Sarama, 2001; NCTM, 2000; Bredekamp and Rosengrant, 1995.)

Measurement

Performance Standards
<ul style="list-style-type: none"> • <i>Use common instruments to measure things.</i> • <i>Use equipment for investigation.</i> • <i>Compare and contrast objects and events.</i>

Measurement involves:

- understanding length, width, distance and time;
- placing objects in a series; and
- being able to classify and compare objects.

Children love to compare, to see who has more, who can jump the farthest, and who can build the tallest building. The ability to grasp concepts of time and distance is based on children’s experiences and cognitive development. Children may think, for example, that it took a long time to get there so it must be far away. A long time ago, may mean yesterday (Singer and Revenson, 1978). The goal for preschool children is to come to understand measurement by thinking about size and comparing lengths, weights and amounts. Making accurate measurements is not the objective. Early childhood teachers must carefully observe and interact with children while the children explore. Over time, multiple and varied experiences help children gradually develop measurement concepts.

Teacher Strategies: Measurement	Suggested Experiences
Provide real materials for investigation and problem solving.	<p>Use cooking activities for estimation and actual measuring. Engage children in problem solving how to make twice the amount of play dough or enough cookies so everyone can have two. (Problem solving)</p> <p>Engage children at the water/sand table with questions: About how many cups will it take to fill that? Which cup would you guess would fill the bowl faster? (Problem solving, reasoning)</p>
Encourage children to think about size and comparison.	Encourage children to use nonstandard units such as their arms, legs and feet to measure. (Reasoning, connecting)
Frequently use questions that encourage discussion about how far, which is heaviest, etc.?	<p>Encourage children to weigh items using balance scales. Measure, record and compare their results. (Problem solving, reasoning)</p> <p>Count and measure the length of children’s names. Whose name is longer? (Connecting)</p>
Use <i>time talk</i> : after, before, today, yesterday, tomorrow, minutes, hours.	Use clocks for periods of the day to measure time. (Connecting)

(Copley, 2000; NCTM, 2000; Hiebert, 1986.)

Patterns

Performance Standards
<ul style="list-style-type: none"> • <i>Recognize simple patterns and duplicate or extend them.</i> • <i>Create and duplicate patterns and shapes using a variety of materials.</i>

A pattern is an arrangement of objects, shapes or actions that repeats itself or grows in size. Children are already

aware of many patterns in their environments. Gradually they learn through experiences about relationships that create patterns. Opportunities to recognize and create patterns are opportunities for higher-level thinking. They help children develop skills to predict, order and create. As their knowledge grows, children transfer this information to the real world to make generalizations about numbers, counting and problem solving. Early childhood teachers must frequently identify patterns, because of their importance, and encourage children to notice and talk about them throughout the day.

Teacher Strategies: Patterns	Suggested Experiences
Provide various materials that encourage patterning discoveries.	Provide beads, colorful shapes, etc., and encourage children to label and represent their patterns with a descriptive vocabulary. (Communicating)
Bridge children’s informal knowledge with language and symbols.	Use songs, literature and games that illustrate patterns. (Communicating)
Provide examples of patterns in nature, art, music and counting.	Locate patterns and ways to create patterns in the classroom, in nature and music, e.g., butterflies, flowers, computer designs, music and movement. (Connecting) Make patterns with the children as they stand in line or during transition activities. Children wearing sneakers and those in sandals. Two children with red, one with a white shirt, two with red, etc. (Connecting, representing)

(Copley, 2000; NCTM, 2000; Bredekamp and Rosengrant, 1995.)

Estimation And Approximation

Performance Standard
<ul style="list-style-type: none"> • <i>Estimate and verify the number of objects.</i>

Children who have multiple opportunities for counting and collecting begin to develop a mental image of two or three. As numbers and sizes gain meaning for children, so do concepts such as more, less, bigger and smaller. Children then can start to problem-solve by making predictions and hypotheses. This is the beginning of estimating and approximating. Often these experiences

begin with nonstandard units, e.g., “That building is as wide as four of my feet put together.” After numerous experiences, children begin to recognize standard units of measurement, but the most important goals are encouraging thinking about mathematical ideas and working with others to try out ideas and test predictions.

Comparing numbers and quantities involves more than just using the correct words. Gradually, multiple experiences with various manipulatives help children come to understand the relationships underlying these comparative words and estimates.

Teacher Strategies: Estimation	Suggested Experiences
Provide a trusting atmosphere so children are disposed to guess without undue concern over the “right” answer.	Engage children at the water/sand table to guess the number of cups it will take to fill a container. Encourage estimating which might be heavier or how many blocks it would take to finish the road. (Problem solving)
Use words such as: about, near, approximately, in between, around, more than, fewer.	Provide opportunities to play games involving estimating how many items in the jar, how much it will take, etc. <i>Do you think there are more than five or less than five?</i> (Reasoning)
Make predictions using language such as possible, impossible, likely, unlikely.	Find opportunities, such as circle time or reading with children, to prompt discussion using these terms. They help children become comfortable with estimating and predicting.

(NCTM, 2000)

Probability, Statistics And Data Analysis

Performance Standards
<ul style="list-style-type: none"> • <i>Collect, describe and record information.</i> • <i>Collect, organize and display information.</i>

Young children and teachers love to chart information, graph results of counting and tally numbers. Such

experiences help children to develop skills for successful problem solving. They help children practice higher-order thinking and learn the importance of representing their knowledge so it can be organized and used for predicting, estimating, making inferences and coming to decisions. Analysis and synthesis of information are necessary tools for comparing, reflecting on and discussing ideas.

Teacher Strategies: Probability	Suggested Experiences
Encourage children to gather information.	Ask questions such as: “How many windows are in your bedroom? How many people are wearing sneakers?” (Reasoning, communicating)
Encourage children to think about the information they have gathered, to come to conclusions and develop further questions.	Review the data that has been collected with questions. What have you found out? What was our original question? Why do you think this number is higher? (Reasoning)
Present graphs, tally sheets and other representational data analysis.	Graph snack choices, the means by which children and staff members come to school, etc. (Communicating, representing)
Model the usefulness of information in graphs and charts.	Encourage children to reach conclusions using the information in their graphs. (Representing, connecting)

(Copley, 2000; Bredekamp and Rosegrant, 1995.)

BEST PRACTICES

Early childhood teachers are encouraged to review and implement the following best practices in the discipline of mathematics.

- Work with children to develop interests and projects related to mathematical ideas.
- Do not limit math to a specific day or time. Extend daily activities, building on interests.
- Provide opportunities for manipulation, discovery, reflection and problem solving. Ask open-ended questions as children explore materials.
- Be prepared to introduce and develop math ideas and skills within daily activities.
- Talk about numbers and math concepts using appropriate vocabulary.
- Use concrete materials, not worksheets, that require abstract thinking. Remember that children learn through hands-on experiences where they can construct mental relationships that lead to understanding mathematical concepts.
- Design activities that can accommodate varying abilities and interests.
- Use planning time to integrate content areas so children can better connect information.
- Use children’s literature for problem solving and concept development. Create projects based on children’s interests.
- Build on prior experiences, cultural backgrounds and abilities for planning and instruction.
- Regularly ask yourself if you are providing experiences that encourage children to think, solve problems, communicate and represent their ideas.

Do You Have...?

1. props in dramatic play areas that are related to mathematical ideas and functions;
2. enough blocks of varying sizes and shapes for at least three children to build successfully;
3. puzzles, games and materials that encourage counting, comparing, classifying and patterning;
4. literature that provokes discussion of mathematical ideas and vocabulary;

5. sand and water materials for collecting and measuring;
6. woodworking tools, various measurement units, scales and thermometers; and
7. materials that promote spatial sense and understanding of geometric and measuring concepts, e.g., rods, blocks, solid shapes and containers.

Math Talk: Having Conversations With Children

- How many crackers can each child take?
- How many children are at the table?
- Count the empty chairs.
- How many children are here today? How many are missing? How do you know? How did you figure that out? How could we decide?
- Why did you choose these shapes in your block-building?
- What are you noticing when you put these two blocks next to or on top of each other?
- Estimate how tall your building is.
- Do we have enough?
- Are there any extras?
- How are these shapes alike, different?
- How can we find out?
- Do we have more of ____ or more of ____?
- How did you figure that out?
- How can you share these materials with a friend?
- Can you estimate how many steps it will take to get there?
- Can you get just enough napkins so everyone will have one?
- What would have happened if?
- Can you go over the box? Under it? Get on top of it?
- Can you bring me one? Lots of?
- How many children are supposed to be in this area? What does the sign say? What should we do?
- How can we organize these so the longest is on this side and the shortest is over here?
- All of you are children and some of you are big brothers and sisters. Which number is more?
- Are you sure? How do you know?
- I wonder how this could be changed.
- What would the pattern be?

- How about if you sketch your building before taking it down so we can see how many different blocks you have used.
- How many more do you need?
- What number comes after ___?
- About how many do you think are in that basket? More than three? Less? Why do you think that?
- What do I need to make my design look like yours?
- Where else have you seen this shape?
- Do you think this block will roll? Why? Why not?
- Can you make a triangle with these shapes?
- Will this cup be large enough to hold your juice?
- Which size paper do you need to draw your picture?
- What size shoes will fit you best in the dramatic play area?
- Which is heavier? Lighter? How can you tell?

EXAMPLES OF PLANNING

Play-Based Learning Centers With A Focus On Mathematical Content	
Performance Indicators	<p>Sort objects by one or more attributes and regroup the objects based on a new attribute.</p> <p>Demonstrate understanding of one-to-one correspondence while counting.</p> <p>Collect, organize and display information.</p> <p>Attend to a story.</p>
Concepts/Content	<p>Number sense and operations</p> <p>Geometry and spatial relationships</p> <p>Data analysis</p>
Experience	<p>To integrate content in various learning centers, provide a variety of collections both from home and those found in school (buttons, sticks, stones, parquetry blocks, cars, etc). The children will be encouraged to examine, find similarities, begin to sort, classify, discuss and work with various objects.</p> <p>This experience will be introduced and repeated during morning meetings as a means to expose children to counting and estimating, and as a way of provoking the use of materials to represent our thinking in the art center.</p>
Context, Environment	<p>Morning meetings, art, math, science and other investigation centers</p>
Teacher Strategies	<p>Facilitate and demonstrate how sorting and rule-making can be done with collections.</p> <p>Question children as they sort and make patterns to arrive at a rule for others to follow.</p> <p>Encourage children to use language, such as impossible, certain, likely and unlikely, as they listen to stories.</p>

(Continued on page 95)

EXAMPLE OF PLANNING, (continued)

	<p>Prompt children to use probability terms in examining their collections, e.g., <i>It is likely this group has more.</i></p> <p>Partner with the children to create pictures using collections.</p> <p>Scribe for the children descriptions of their collection pictures.</p>
<p>Materials/Changes to Environment</p>	<p>Provide collections of various items in art, math and science investigation centers.</p> <p>Prepare large sheets for collage and collection displays in the art center and writing area.</p> <p>Collect and display various books in the library area on counting and collecting, and stories that are suitable for estimating and probability discussions.</p>

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“Young children are cognitively prepared and eager to learn about the surrounding world. Their commonly observed approach to learning – active, experiential, open-ended exploration – makes science an ideal domain for early childhood education.”

Bowman, Donovan and Burns, 2001

HELPFUL TERMS
CURRICULUM DEVELOPMENT
DEVELOPING CURIOSITY
DEVELOPING INQUIRY
MAKING CONNECTIONS
SAMPLE CURRICULUM



HELPFUL TERMS

Discovery Approach	A teaching strategy that encourages children to find answers and information related to their interests and questions.
Divergent Questions	An approach to questioning that is open-ended and used to generate several ideas to solve a problem.
Inquiry	A process of studying and developing knowledge and understanding of scientific ideas and the natural world. We do this by observing, questioning, investigating, analyzing and predicting.
Logico-Mathematical Knowledge	Knowledge that is gained when the learner creates relationships among materials.
National Science Standards	The outline developed by the National Academy of Sciences of what students should know, understand and be able to do to be scientifically literate at different grade levels.
Science	A way of thinking and gaining knowledge that includes: becoming aware of a problem; wondering why, proposing possible ideas and explanations; finding out through experimentation and observation; and sharing results.
Scientific Literacy	An approach to identify and solve problems based on logic, rather than on the memorization of facts.

CURRICULUM DEVELOPMENT

In early childhood education, science curriculum allows children to investigate their world and to search for answers to questions that begin with words such as What? How? Why? and When? Science curriculum can develop the child's innate ability to wonder, to discover new ideas, and to explore the world he or she lives in. In quality classroom environments, where science is an integral curriculum component, early childhood teachers:

- observe, listen, facilitate and question;
- recognize that learning is the process of exploring;
- believe that the goal of teaching is not about right answers, but rather about the development of independent thinking and problem-solving dispositions;
- know that children need time to explore and to take risks;
- recognize that learning must be hands-on and minds-on;
- provide learners of all abilities with opportunities to experience the wonder of questioning and discovery by making accommodations to the environment and to expectations;
- model enthusiasm for science and discovery so children can see how exciting these pursuits are;
- balance child-initiated activities with teacher-prompted ideas; and
- create relationships with families that encourage involvement in science at home.

The National Academy of Sciences has developed National Science Education Standards for early childhood science curriculum as a comprehensive guide for educators and policymakers. The standards call for more than "science as process," where students learn the skills of observing, inferring and experimenting. They suggest that, while these process skills are appropriate in early childhood science curriculum, there is also worthy and achievable science content for young children to learn in preschool. (National Research Council, 1996)

This chapter includes:

- a. discussion of the teacher's role in **developing curiosity**, including strategies and tips on preparation of the environment;
- b. an overview on the process of **developing inquiry**, including thinking skills and problem-solving abilities; and

- c. making connections with the Connecticut Core Science Curriculum Framework, PreK-10 and Connecticut's Preschool Curriculum Framework, including ideas for age-appropriate investigations.

DEVELOPING CURIOSITY

Curiosity can be described as the disposition to know. From birth infants seek understanding, trying to grasp objects, exploring their environments and gathering information. Both environments and experiences affect children's dispositions to be curious. A safe and encouraging atmosphere motivates young children to take risks, explore and discover. Questioning children is a strategy adults – educators and parents – can use to encourage curiosity. Questions may be either open-ended, encouraging divergent thinking and brainstorming, or closed, motivating the learner to gather specific information.

Effective questions stimulate and expand children's thinking or promote comparison, sorting or further experimentation. Questions may be used to:

- Initiate discovery: "How can we learn more about this machine?"
- Elicit predictions: "What will happen if this powder is mixed in the water?"
- Probe for understanding: "Why do you think that block worked better in the ramp construction?"
- Promote reasoning: "Why is this side a different color than that side?"
- Serve as a catalyst: "What would you do differently?"
- Encourage creative thinking: "If you could be any animal, which one would it be and why?"
- Reflect on feelings: "Is this your best work?"

A carefully prepared environment also promotes the development of curious children. The teacher, through observation, knows children's abilities and interests, understands their developmental growth patterns, and uses this information to create a classroom that provides safe, interesting and satisfying challenges. Creating the typical science table with unusual items contributed by children and teacher is not enough. The science center must be an area of investigation. This is accomplished by keeping in mind the main theme in the science curriculum, "hands-on and minds-on."

A “hands-on and minds-on” area is:

- attractive;
- organized;
- stocked with items chosen to support current interests and encourage investigation;
- an area that invites exploration, touching and manipulation;
- filled with real items from the child’s world; and
- safe.

Teachers must carefully observe and reflect on children’s interests and abilities, prepare challenges with appropriate materials and questions, then stand back and guide from the side, participating only when needed. Materials should be chosen with specific intention for investigations. The teacher should determine, in advance, what content information may be conveyed, what thinking skills might be encouraged, and what questions the children might realize as they explore. The goal is for children of all abilities to experience the inquiry process. (See Chapter 3 for a list of potential materials for an investigation table.)

DEVELOPING INQUIRY

Inquiry is a process of studying and developing knowledge. This process closely parallels the learning behaviors as defined by Piaget. The inquiry process typically includes behaviors such as:

- observing and questioning: using the senses to collect information;
- communicating: sharing information, representing orally or on paper;
- drawing conclusions: comparing similarities and differences while examining and manipulating materials and events;
- organizing: ordering information gathered so it becomes useful;
- relating: formulating and testing ideas and hypotheses;
- inferring and predicting: using information to create hypotheses and solutions; and
- experimenting and applying: using knowledge and skills to solve problems and learn more (Bredekamp & Rosegrant, 1995).

The chart that follows presents a sequence of sample teacher strategies and suggested experiences that support each of the inquiry behaviors.

Observing And Questioning

Teacher Strategies	Suggested Experiences
Use children’s questions to illustrate how their ideas can become investigations.	“Yesterday I saw my shadow on the playground. Now I can’t.” Use this opportunity to prompt: “I wonder why.”
Model asking good questions by avoiding those that only require one answer. Allow the children to see you as curious and thoughtful. Provide time and plan for opportunities for children to ask questions.	“I wonder where all the water went that was on our playground yesterday.” “In how many different ways could we figure out how heavy our guinea pig is?”
Provide experiences for children to ask: who, what, where, why and how.	“It looks like you are trying to figure out why the water is not going through that tube very fast.”
Set the stage, present a problem or question, challenge the children to think.	“When you are in blocks today, see if you can figure out how to make the cars go faster on the track.”
Spend time encouraging children to use their senses to investigate.	Provide opportunities to touch, look, listen, smell and taste. Encourage understanding that information is gained when we investigate with our senses.
Encourage children to see beyond the obvious: to look for details and ask questions. As a guide you can help them see meaning in what they observe.	“What else did you notice? Look again. What words describe the water as it travels through the tube when you hold it like that?”

Inferring And Predicting

Teacher Strategies	Suggested Experiences
Use the language of science with the children. Encourage them to predict, estimate and to figure out how to test their ideas.	"Can you estimate how many cups of sand you think will fill this bucket? If we use this cup (different size) do you predict it will take more or fewer?"
Provide various materials that will stimulate children to investigate and predict.	Experiment with ice: What will happen to it? How can we try to slow the melting? Water? Salt? A blanket? A covered pot?
Provide opportunities for children to explain their thinking. Use the word <i>why</i> often.	"Why do you think that will happen? Why did you move it in that direction?"

Experimenting And Applying

Teacher Strategies	Suggested Experiences
Encourage children to test their ideas.	"That's a great idea, Colleen. What other tools can you use to measure the guinea pig?"
Provoke new ideas; encourage children to think in different ways.	"What are some other ways we could move the water from the water table to the sand table?"
Support the idea that we gather information in many ways: from our own work, from our peers, from books, and from experiences both in the classroom and at home.	Model processes such as asking, watching others, looking at books.

Drawing Conclusions

Teacher Strategies	Suggested Experiences
Point out that we must think carefully and look at all the information before reaching conclusions.	Use questions such as Why? What does this mean? What happened? What do we know now? What might you do differently?
Use classroom surveys and graphs for children to illustrate their information. Show how we compare information to answer our questions.	Use large-group and small-group sessions to analyze information from charts in a variety of ways.

Communicating Findings

Teacher Strategies	Suggested Experiences
Provide opportunities for children to represent their ideas and findings.	Use group time to model charts, record-keeping and other ways of showing what we know and have discovered.
Provide a variety of media for reflecting and representing work: clay, wire, paint, blocks, etc.	The children will grow to rely on each other as resources during investigations.

MAKING CONNECTIONS

Connecticut's Preschool Curriculum Framework includes the following performance indicators for logico-mathematical thinking:

Preschool children will:

- *ask questions* about and comment on *observations* and *experimentations*;
- *collect, describe* and *record* information;
- *use equipment* for *investigation*;
- *make* and *verify predictions* about what will occur;
- *compare* and *contrast* objects and events;
- *classify* objects and events based on self-selected criteria;
- *use language* that shows understanding of scientific principles to explain why things happen; and
- *engage* in a scientific experiment with a peer or with a small group.

Teachers suggest ideas that young children may find interesting and/or that may arise in typical classroom experiences. Teachers must rely on children's observations, ideas and questions. Typically, a class discussion can provide the setting where the teacher poses questions and challenges children's ideas. After time for discussion and brainstorming, children often are motivated to continue the inquiry. Suggested problems may spark interest and suggest investigative tasks children may wish to pursue.

The Connecticut State Department of Education's *PreK-10 Core Science Curriculum Framework* offers suggestions in the selection of content material for investigations. It is organized into the following strands:

Context of Science: nature of science, history of science, science and technology

Earth/Space Science: astronomy, geology and natural resources, oceanography, meteorology, earth history and dynamics

Life Science: characteristics of living things, cells, genetics, evolution, ecosystems, human biology, issues in bioethics

Physical Science: structure of matter, reactions and interactions, force and motion, energy sources and transformations, heat and temperature, magnetism and electricity, sound and light

SAMPLE CURRICULUM

The sample curriculum plans that follow on pages 103 – 106 use topics chosen from the earth/space, life and physical science strands. Each plan is organized in the format described in the curriculum chapter, including appropriate performance indicators. In addition, each plan has been expanded to include suggested questions to provoke inquiry, possible challenges for investigation and suggested materials.

Project/Thematic Approach
Earth/Space: Water

Performance Indicators	<p>Ask questions about and comment on observations and experimentations. Make and verify predictions about what will occur. Use language that shows understanding of scientific principles to explain why things happen.</p>
Concepts/Content	<p>Water has weight, helps things to float, clings to other materials, moves into other materials, and can evaporate, melt, boil and freeze.</p>
Experiences	<p>Children will experiment at the water table with containers and water. Children will engage in discussion at meetings about the various forms of water, i.e., ice and steam. Children will become aware of and discuss the properties of water in the class environment and at home.</p>
Context, Environment	<p>Water table, outdoors, investigation center.</p>
Teacher Strategies	<p>Co-construct with experiments If you have a full container of water and put it in the freezer what will happen? Does it take up the same amount of space in the container? Do you think we could make some vehicles that could move on the water? What do you think we will need? How will these vehicles move? Stay afloat?</p> <p>Facilitate with questions What happens to water when we touch it or add materials to it? Is water heavy? How can we find out? What happened to this tray of ice? What happened to this dish of water from yesterday? How do you know? When you paint on boards with water what happens? What will happen if this cloth, this paper, gets water on it? Where does the water go? How many drops of water can you put on the stick? On the penny? What happens when it is full? Where did the water go in the sand table? Where does the water go on the playground after it rains? What do drops of water do on waxed paper?</p>
Materials/Changes to Environment	<p>Food coloring, paint brushes, salt, various-sized containers, assorted objects, cloth, sponges, cooking oil, thermos, sand, sawdust, flour, seeds, soap, salt, cornstarch, liquid soap, cotton, measuring cups, plastic eyedroppers, waxed paper.</p>

Project/Thematic Approach
Life Sciences: Animals

<p>Performance Indicators</p>	<p>Ask questions about and comment on observations and experimentations. Collect, describe and record information. Ask questions during investigations. Use language that shows understanding of scientific principles to explain why things happen. Use equipment for investigations. Compare and contrast objects and events. Demonstrate 1:1 correspondence. Retell information from a story.</p>
<p>Concepts/Content</p>	<p>There are many kinds of animals. They all move in different ways, eat different foods, have different needs, look different, take care of their babies in different ways, and need us to help take care of them sometimes. Data analysis, sequence/comprehension of concepts first, next, last.</p>
<p>Experiences</p>	<p>Children will discuss at group time various animals visiting the classroom and pets they may have at home. Children will observe and discuss the characteristics of the animals in the classroom and at home. Children will learn how to take care of the needs of the animals in the classroom. Children will listen to fiction and nonfiction stories about animals; discuss the text; and share thoughts and opinions. Children will develop with the teacher a list of what they know about a specific animal and what they want to know. Children will brainstorm ways of learning more about animals.</p>
<p>Context, Environment</p>	<p>Library, investigation center, home, literacy centers.</p>

(Continued on page 105)

<p>Teacher Strategies</p>	<p>Facilitate and Question How does your favorite animal move? How do we know if our class pets are growing? What kinds of foods do they like? Do they have a favorite food? How do we know? Can we explore our playground for animals and their homes? Why does a bird make a nest and a cat sleep under a porch? What do animals do in the winter for food, water and a home?</p> <p>Support and Guide Take responsibility for caring and feeding the animals in our class. How can we get food to the animals outside (birds, squirrels)? Observe and draw our class pets. Weigh, feed and measure them. Ask the children to predict who weighs more, etc. Solicit ideas for solving this problem.</p> <p>Demonstrate and Teach Use nonfiction resources and children’s involvement with the animals.</p>
<p>Materials/Changes to Environment</p>	<p>Insects, worms, classroom pets, cages, magnifying glasses, animal food, literacy, writing materials and reading resources</p>

Project/Thematic Approach
Physical Sciences: Simple Machines

Performance Indicators	<p>Ask questions about and comment on observations and experimentations. Collect, describe and record information. Use language that shows understanding of scientific principles to explain why things happen. Engage in a scientific experiment with a peer or with a small group.</p>
Concepts/Content	<p>Lever help us lift, ramps help us move, and wheels turn and make moving easier.</p>
Experiences	<p>Children will discuss at group time problems in the block area moving items from one end of the center to another. Children will observe and discuss comparisons with the ways construction crews solve problems. Children will observe and discuss the possible uses for different materials presented at meeting time and in the investigation area. Children will discuss their solutions, listen to others and evaluate their ideas.</p>
Context, Environment	<p>Investigation center, block center.</p>
Teacher Strategies	<p>Facilitate with Questions How is a dump truck like a ramp? How do gears make things work? What is a lever? How can we lift, move this box? Scaffold and Challenge Using these wheels, pulleys and a rope, how can you create something to carry this container across the block area? What type of machine can you create with these gears? What will it do? How fast can you make this car move down the ramp without pushing it? What did you do differently to the ramp? Scaffold and challenge children to think further. Which ramp worked better? Co-Construct with Experiments Can you make a vehicle/wagon using a box? Take apart this typewriter or can opener. What pieces do you recognize? How do you think it works? How can we get these nails out of this piece of wood?</p>
Materials/Changes to Environment	<p>Wheels, pulleys, ropes, hooks, flat pieces of wood for levers and ramps, dump trucks, jars, screws, jars and screw tops, paper towel rolls, casters, Legos, gear toys, water wheels, nails, hammers.</p>

BEST PRACTICES

It is recommended that early childhood educators consider for implementation the following best practices in the discipline of science.

- Science should not be taught in isolation. Look for opportunities to integrate with literature, mathematical thinking, classroom projects or themes, and interests of the children.
- Experiment with and investigate materials before bringing them to the children. Recognize the value and usefulness of materials for provoking, engaging and sustaining children's thinking.
- Recognize that time is essential when investigations are proceeding. Plan within the weekly schedule for long blocks of uninterrupted work time.
- Collect unusual and typical materials. Explore various approaches to motivating and stimulating ideas in the science area and at the sand or water tables. Provide real tools to support the seriousness of the children's work, recognizing that more supervision may be necessary. Ask yourself these questions when choosing materials:
 - Will the children be interested?
 - Will I be interested in exploring these ideas with the children?
 - Will these engage children in experimentation and manipulation?
 - Will the experiences encourage social interaction and problem solving?
 - Will these materials lead to exploration of valuable content?
- Plan for the children to be immersed in the activities which are minds-on and hands-on.
- Use the outside environment for exploration and investigation. Even a walk around a city block can stimulate issues to examine.
- Provide adaptations and accommodations for children who may need more time, assistance with materials, or a more directed experience.
- Share information with parents on the various skills the children are developing as they experiment and investigate.
- Observe and listen. When the questions stop, the children need you to focus their investigation, provide new materials, guide new challenges or motivate new projects.

- Resist the urge to integrate the study or project into every center of the room. Keep it grounded by the children's questions.
- Keep engagement high. Support sustained interest by making connections to experts, field trips and/or literature.

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“Research has also moved beyond the simple question of whether computers can help young children learn. They can. What we need to understand is how best to aid learning, what types of learning we should facilitate, and how to serve the needs of diverse populations.”

(Clements, 1999)

HELPFUL TERMS IMPLEMENTING TECHNOLOGY

The Computer Center
Educational Software

BEST PRACTICES MATCHING TECHNOLOGY TOOLS, SKILLS AND CONCEPTS SOFTWARE EXAMPLES



HELPFUL TERMS

Assistive Technology	Computer attachments that make computing more accessible to children with differing abilities, such as single switches and communication boards.
Internet	A global network that links computer networks across the world connecting users with e-mail and the World Wide Web.
Listserv	A program that allows users to create a list of addresses for sending e-mail.
Modem	The hardware that allows computers to access the Internet.
Network	A system of two or more computers linked by wires or cable in order to exchange information.
Software	Programs such as those used for word processing, games and educational processes that are used on the computer.
Virus	A computer program that can cause damage to disks or files on the computer.
World Wide Web (www)	A network that holds information and that can be accessed by anyone who has a modem and Internet software.

IMPLEMENTING TECHNOLOGY

There is a large body of knowledge that demonstrates the positive role computer technology can play in young children's learning and development (Clements, 1994; NAEYC, 1996). Early childhood teachers should recognize the specific benefits and understand how to maximize the potential of the computer as an educational tool. Computers should be considered among the many materials and centers that support teaching and learning in an early childhood setting.

Technology and computers can contribute to effective teaching and learning by:

- offering additional ways for children to represent their thinking and ideas using pictures, sounds, words and music;
- encouraging more complex speech and the development of fluency. Children tend to talk aloud as they draw, move objects or solve problems. It is as if we are provided a window into their thinking processes (Davidson and Wright, 1994; Bredekamp and Rosegrant, 1994);
- offering opportunities for children to work individually and collaboratively to communicate ideas, take turns and even to coach one another. Research has shown that children demonstrate increased levels of communication and cooperation, and develop leadership roles when using technology appropriately (Clements, 1994; Haugland and Wright, 1997);
- promoting creative thinking and problem solving when children use appropriately challenging software. Software selection is crucial. Drill and practice software has not shown substantial effectiveness in improving children's conceptual skills. Rather, software for 3- and 4-year-olds should be open ended and encourage imagination and discovery;
- providing access to worldwide networks for information and communication, to research questions and conduct project investigations with teachers; and
- allowing children to be in control and make decisions about the learning process. Software should allow children to repeat the activity or task as often as they wish, as well as to experiment with variations, and save and return to earlier ideas.

Technology is so widespread that computer skills are no longer a frill. Rather, these skills are critical regardless of gender, race or cultural heritage; primary

language or special needs. Teachers have great influence as role models. If children see teachers trying programs, experimenting with the computer, and approaching technology with enthusiastic attitudes, they too will regard the computer as holding positive potential for learning experiences.

Teachers are encouraged to consider the following suggestions when implementing computers in an early childhood classroom:

- Be sure the child is developmentally able to understand the cause-effect relationship of moving a mouse or touching the screen to get the computer to do something.
- Discourage children from impulsive or random clicking within a program. Take time to talk about what is happening and what they are trying to do with the activity.
- Take time to help children understand how the computer works, how the printer is hooked up, how to get back to the main menu and to develop problem-solving skills (Healey, 1998).
- When introducing a new piece of software, plan to spend time at the computer with small groups of children to provide an opportunity for experimenting and learning with an adult who is immediately available for guidance and support (Haugland, 1992).
- Keep in mind that assistance can and most often does come from peers. Children love to help one another, and this helps to develop important social and language skills (Bergin, 1993).

The Computer Center

Research reveals that computers stimulate social interaction and cooperation. Language activity among preschoolers is reported to be almost twice as high at the computer as in any other classroom activities (Clements, 1994). When setting up computer areas in the classroom, teachers should provide at least two chairs and encourage children to work in pairs. Children enjoy and often prefer working with a friend (Clements & Natasi, 1993). Teachers should remember to check in, ask questions about what the children are working on and encourage peer tutoring.

Just as with other centers, all children should be encouraged to frequent the computer area occasionally, and children who want to spend all of their time at the computer station should be motivated to try other areas. Observing children as they interact with the computer

is another opportunity to study their learning styles and approaches to problem solving.

Computers also provide special needs children with many learning opportunities. Multiple input devices can facilitate use of the computer by children who are physically challenged. Such devices allow communication that might otherwise be severely limited. A variety of assistive technologies, such as simple switches, head pointers, touch-sensitive screens and voice activation devices, are available to early childhood classrooms. When adaptations like these are needed it is important to consult with appropriate special education personnel and provide training for the child, parents and teachers so that the benefits can be fully realized (Howard, et. al, 1996).

Educational Software

Software selection is key in the use of computers to maximize learning. The effectiveness of technology also depends on the characteristics and abilities of the learners, and the ways that teachers implement this tool. All decisions, including choice of software, must focus on appropriateness and benefits to children, rather than on just keeping the children busy or entertained.

Children generally prefer animated and interactive programs that allow them to make events happen and give them a sense of control. Computers can provide numerous opportunities for success. Most good software programs encourage learners to keep trying, providing supports and clues until they get it right. Many quality software programs have bilingual options, including those that allow children to listen to a story in one language and then in another. High-quality programs and games challenge problem-solving abilities and encourage the use of logic. While images on the screen are symbolic and cannot be manipulated in the same way as blocks or clay, they are more interactive than images in books and can be changed, moved about on the screen or made to speak (Davidson and Wright, 1994; Davis and Shade, 1994; NAEYC, 1996).

Educational software selection criteria include:

- Is the program flexible? Can it adjust to the various ability levels of children?
- Are the instructions clear enough to allow children to work independently?
- Does the program allow children to make decisions and act on the results?
- Does the program require children to be able to read?
- Can children set the pace of activities?
- Will the software encourage collaboration and sharing?
- Does the program offer children a multisensory experience?

- Will it be fun and engaging?
- Will children experience success and receive feedback in a relatively short period?
- Does the program encourage exploration and experimentation (Haugland and Wright, 1997)?

BEST PRACTICES

It is recommended that early childhood teachers and administrators consider the following best practices in the field of technology.

“What is concrete to the child may have more to do with what is meaningful and manipulable than with its physical nature” (Clements, Nastasi and Swaminathan, 1993).

Teachers

- Choose software carefully; spend time observing and using programs prior to purchase.
- Collaborate with colleagues to become more comfortable with the computer as a tool for children and for professional tasks.
- Access training whenever possible to increase knowledge and awareness of the computer as another tool in the classroom.
- Inform parents about the available programs and their children’s favorites.
- Make sure all children have access to the computer regardless of gender, ability or race.
- Support children who are less familiar with the technology by working with them at the computer or pairing them with peers who are strong role models.
- Encourage children who prefer to spend all of their time at the computer to find enjoyment and satisfaction from other centers, such as blocks, dramatic play and investigation.
- Observe children at the computer to study their learning styles, abilities to problem-solve and approaches to new tasks.

Administrators

- Include computer training and support for teachers and staff members in professional development plans and the budget.
- Encourage teachers to use the computer to assist with record keeping and research for children’s projects.

MATCHING TECHNOLOGY TOOLS, SKILLS AND CONCEPTS

EDITOR'S NOTE: the following list is not intended to be comprehensive. Early childhood teachers are encouraged to develop their own lists of high-quality software. (See software purchasing information and websites in Selected Resources at the end of this chapter.)

Oral Language Development	SOFTWARE EXAMPLES
<ul style="list-style-type: none"> Play with rhymes and songs Singing, story retelling 	Leap Into Nursery Rhymes Kid Pix Studio
Concepts of Print and Phonological Awareness	
<ul style="list-style-type: none"> Explore print, notice functions and patterns Concepts about print Awareness of letter sounds, letter identification, rhymes and syllables 	Bailey's Book House Leap Into Nursery Rhymes
Vocabulary and Background Knowledge	
<ul style="list-style-type: none"> Building background knowledge experiences 	Let's Explore the Jungle The Airport and the Farm
Exploration	
<ul style="list-style-type: none"> Opportunities to "read" independently and explore Opportunities to explore environmental print 	Broderbund's Living Books Edmark's Theme Weavers Kid Pix Studio
Connecting Reading and Writing	
<ul style="list-style-type: none"> Dictating thoughts to match drawings Practice writing in real experiences (menus, making lists, names, labels) 	Kid Pix Studio Kid Works Deluxe Digital Cameras Bailey's Book House
Logic, Critical Thinking and Problem Solving	
<ul style="list-style-type: none"> Solving problems in authentic contexts 	Humungous I Spy Jr. Logical Journey of Zoombinis
Interaction with Others	
<ul style="list-style-type: none"> Explore computers with a peer 	Kid Pix Studio Let's Explore the Jungle Freddi Fish and Pajama Sam
Mathematical Experiences	
<ul style="list-style-type: none"> Matching, sorting, counting Number concepts, number recognition Patterns 	Millie's Math House Trudy's Time Place House
Scientific Inquiry	
<ul style="list-style-type: none"> Cause and effect Problem-solving experiences Researching content information related to projects 	Sammy's Science House Thin Kin Science

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SELECTED RESOURCES

Teachers

Computers and Young Children: This ERIC Digest addresses questions about when children should begin working with and the benefits of computers. It offers a broad range of information for classroom teachers. <http://ericece.org/pubs/digests/2000/haugland00.html>

Integrate, Don't Isolate! – Computers in the Early Childhood Curriculum: An ERIC Digest discussing the value of integrating computers into the curriculum as a natural tool for learning. <http://ericece.org/pubs/digests/1994/shade94.html>

Technology and Young Children: An interest forum established by the National Association for the Education of Young Children (NAEYC) for discussion groups, sharing of research and demonstration of best practices regarding technology and young children. <http://www.techandyoungchildren.org/index.shtml>

Children and Technology: A World of Discovery: This website reviews children's software and explains the *Haugland Developmental Scale*, a scale parents and teachers can use to evaluate software (Haugland and Wright, 1997). <http://economics.semo.edu/kidscomp>

Children's Software Review: A magazine on children's software, video games and other interactive media. www.childrensoftware.com

Smart Kids Software: This resource categorizes software reviews alphabetically by age or by type and includes popular titles such as Reader Rabbit, Success Starters and Living Books. Description, price and system requirements are provided. Software is evaluated by ease of use, learning value, entertainment value, graphics and sound. www.smartkidssoftware.com

Computer Family Night: This site contains suggestions for family night activities provided by the Early Childhood Literacy Technology Project at Montgomery County, MD Public Schools.

www.mcps.k12.md.us/curriculum/littlekids/archive/computer_family_night.htm

Free Software Now: This site includes over 468 children's programs, searchable alphabetically. Quality software programs such as: Kid Pix, JumpStart Series, Living Books and Dr. Seuss are included. A description of each program is provided and family bundles, movies and CDs also are available. www.freesoftwarenow.com

Learning Services Inc.: This site includes an e-catalog featuring quality software such as: Kidspiration, HyperStudio and Kid Pix. Conference listings for educators and an EdBytes newsletter are provided. The promotion section features new products, specials, top sellers, demos, downloads and software licensing. www.learningservicesinc.com

Computer Software Purchasing Information

Sunburst: <http://sunburst.com>

Edmark: www.rwerdeep.net/edmark/

Broderbund and Learning Company: www.broderbund.com

Websites For Preschool Children

Enchanted Learning: A favorite for thematic units, rebus rhymes and more. www.enchantedlearning.com

Kid Grid Safe Sites: A variety of activities on literacy and other curriculum areas. www.infogrid.com/preschool/htm

Literacy Center: Provides literacy activities in English, Spanish, Dutch and French. www.literacycenter.net/lessonview_en.htm

Resources For People With Disabilities

Alexander Graham Bell Association for the Deaf, 3417 Volta Place NW, Washington, DC 20007-2778, <http://agbell.org>

American Foundation for the Blind, National Technology Center, 11 Penn Plaza, Suite 300, New York, NY 10001, techctr@afb.org, <http://afb.org>

Center for Best Practices in Early Childhood Education, Western Illinois University, 1 University Circle, 27 Hooabin Hall, Macomb, IL 61455-1390, www.mprojects.wiu.edu

Center for Rehabilitation Technology, 490 10th Street, Atlanta, GA 30332-0156, robert.todd@arch.gatech.edu

ConnSense Reviews, Debra Hultgren, Software Editor, The ConnSense Bulletin, E.O. Smith High School, Storrs, CT 06268, DHULTGREN@EOSmith.org, 860-429-7739

National Information Center for Children and Youth with Disabilities, P.O. Box 1492, Washington, DC 20013-1492, nichey@aed.org, www.nichy.org

The Council for Exceptional Children, 1920 Association Drive, Reston, VA 22091-1589, service@cec.sned.org

AESTHETIC & PHYSICAL DEVELOPMENT

9

"Today's children do need planned playgrounds to compensate for crowded conditions in urban areas, to provide reasonably safe play areas, and to help ensure that children play."
(Frost, 2000).

HELPFUL TERMS
AESTHETIC AND PHYSICAL DOMAINS
CREATIVE DRAMATICS
MUSIC
VISUAL ARTS
PHYSICAL DEVELOPMENT
MOVEMENT



HELPFUL TERMS

Aesthetics	Awareness and appreciation of pleasant sensory experiences, including the ability to perceive, respond and be sensitive to one's natural environment.
Balance	The ability to maintain an even distribution of weight.
Body Awareness	The awareness of one's body in space in relation to others, and an understanding of how to move in the environment.
Beat	A steady succession of units of rhythm in a musical piece.
Coordination	The skill of regulating movement of large and small muscles in an effective manner.
Directionality	The ability to understand movement and direction.
Dynamics	Changes in loudness of music: loud and soft.
Elaboration	The ability to stretch and expand on ideas and projects.
Form	The way all visible aspects of a visual artwork are united to create its distinctive character.
Harmony	Different pitches performed simultaneously to create musical sound.
Imagination	The ability to form internal images or concepts of experiences, people and things.
Inventiveness	The ability to produce or create, using various materials or ideas.
Large/Gross Motor Development	Development of the muscles in the arms, legs, head and trunk.
Pitch	The highness or lowness of sound.
Reggio Emilia	A town in central Italy widely known for its high-quality municipal early childhood system. Considered to be one of the most noteworthy and innovative approaches to early childhood education, Reggio Emilia schools focus on the importance of a team approach; involvement of family, community and teachers; and commitments to research, experimentation, communication and documentation (Edwards, Gandini and Forman, 1998).
Representation	A process where one thing is used to stand for (or represent) another. Use of pictures, models, images, symbols and language are all examples of representation.
Rhythm	Repetition of a beat in a pattern.

(Continued on page 119)

HELPFUL TERMS, continued

Small/Fine Motor Developmet	Development of the muscles in the fingers, hands, wrists and arms.
Spatial Awareness	An understanding of space, and movement within that space.
Tempo	The speed of music: fast, slow or gradual.
The Arts	The four visual and performing arts: dance, music, theatre and visual arts.

AESTHETIC AND PHYSICAL DOMAINS

Young children learn through active exploration of their environments. Curriculum must include both hands-on and minds-on experiences. In early childhood curriculum planning art, music, movement and drama are woven together throughout projects, themes and centers in the classroom. Engaging children's senses, using more than one avenue for learning, and physical involvement allow young learners to make connections with previous experiences and build bridges to new learning. Whether performance standards are tied to dance, music, movement, visual arts or physical skills, the child is making decisions, solving problems, communicating and representing. When early childhood curriculum plans provide varied experiences that acknowledge the aesthetic and physical developmental domains, each child (with his or her learning style, intelligence, culture, language and ability) is given an opportunity to understand and represent his or her learning.

"We know people truly understand something when they can represent the knowledge in more than one way" (Checkley, 1997). Early childhood educators in Reggio Emilia observe and reflect on the "languages" of the child. "Languages are the multiple ways in which the child understands, interprets and represents his or her learning. Each provides the child with an opportunity to express him or her self. They are, in fact, drawing, dancing, speaking, moving, singing and many more.

Active use of these forms also paves the way for the child to use verbal language, to read and to write" (Edwards, Gandini and Forman, 1998). Teachers must guide children in understanding their strengths and the many avenues available for representing their learning.

Each of these disciplines (art, music, movement and drama) offer children opportunities to express their thoughts and abilities in ways that are unique to who they are as learners. When teachers plan with aesthetic and physical performance standards in mind children are provided with:

- language to represent their thinking;
- opportunities to use more than one avenue for learning;
- chances to collaborate and problem-solve with peers;
- avenues for integrating their experiences;
- ways to communicate, in addition to their verbal responses; and
- opportunities to think about their learning, make decisions and connect information.

Although there are many connections, this guide presents the aesthetic and physical domains as separate disciplines, each with its own body of knowledge and skills. The following chart outlines preschool development in these domains and their connections with Connecticut's K-12 curriculum frameworks.

AESTHETIC DOMAIN

Connecticut's Preschool Curriculum Framework
Creative Expression/Aesthetic Content Standards

A Guide To K-12 Program Development in the Arts
Program Goals

Preschool programs will provide children with opportunities to:

- *exhibit* curiosity about and *explore* how materials function and affect the senses;
- *create* (imagine, experiment, plan, make, evaluate, refine and present/exhibit) works that express or represent experiences, ideas, feelings and fantasy using various media;
- *represent* fantasy and real-life experiences through pretend play;
- *engage* in musical and creative movement activities; and
- *describe* or *respond* to their own creative work or the creative work of others.

As a result of education in Grades K-12, students will:

- *create* (imagine, experiment, plan, make, evaluate, refine and present/exhibit) art works that express concepts, ideas and feelings in each art form;
- *perform* (select, analyze, interpret, rehearse, evaluate, refine and present) diverse art works in each art form;
- *respond* (select, experience, describe, analyze, interpret and evaluate) with understanding to diverse art works and performances in each art form;
- *understand* and use the materials, techniques, forms (structures, styles, genres), language, notation (written symbol system) and literature/repertoire of each art form;
- *understand* the importance of the arts in expressing and illuminating human experiences, beliefs and values;
- *identify* representative works and recognize the characteristics of art, music, theatre and dance from different historical periods and cultures;
- *develop* sufficient mastery of at least one art form to continue lifelong involvement in that art form not only as responders (audience members), but also as creators or performers;
- *develop* sufficient mastery of at least one art form to be able to pursue further study, if they choose, in preparation for a career;
- *seek* arts experiences and participate in the artistic life of the school and community; and
- *understand* the connections among the arts, other disciplines and daily life.

CREATIVE DRAMATICS

Creative dramatics and fantasy play emerge as soon as children begin to play. *“Creative dramatics is defined as the youngster’s ability to improvise and act out feelings, emotions and attitudes creatively and expressively, using verbal actions and/or motoric movements”* (Yawkey, 1981).

A 2-year-old child will use one object to represent another, or behave as if she or he were another person. At about 3 years of age, children begin to perform in ways that have a theme, or take on the roles of significant people in their lives. Their play is with actions and words, and social interactions develop with others. At around 4 to 5 years of age, dramatic play becomes highly complex and self-directed. A story may even emerge within their dramatic endeavors (Wagner and Heathcote, 1976).

Creative dramatics is typically integrated within other curriculums to provide children with a way of expressing their thoughts and feelings, rather than for performance.

Suggested Experiences

Role Play. This is an informal acting out of a situation, problem, story or scene. The teacher is often the leader in role play; setting the stage, initiating ideas, setting limits and guiding the discussion.

Finger Plays. These are most familiar to early childhood teachers and include songs, chants and rhymes that are recited and acted out.

Story Building and Storytelling. Storytelling is common for children in everyday life. As children’s stories are heard they develop a repertoire of vocabulary and ideas to communicate with others. By using his or her own story, each child’s voice is honored and reinforced, leading to increased self-esteem and risk-taking. Elaboration by parents, teachers and other children continues to build on creative thinking and problem solving.

Puppetry. Many of the benefits gained in role-playing are offered through puppetry, except that the child is talking or acting through the puppets. Puppets encourage expression of ideas and provide an opportunity to observe and evaluate the behavior of the others in a variety of roles. Children are naturally attracted to puppets, and enjoy thinking that the puppet may, in fact, be real!

Best Practices

Early childhood educators are urged to consider the following best practice recommendations in the discipline of *creative dramatics*.

- Provide time for children to play in settings with costumes, masks or puppets.
- Create a story by passing it around the circle, with everyone adding one part of the story. Encourage a beginning, middle and end. Write the story on big chart paper or sentence strips. Write each part on a page of the “book” and then encourage children to illustrate the story.
- Collect and organize for easy use a collection of fingerplays like *Five Little Monkeys*, *Going on a Bear Hunt*, *I Know an Old Lady Who Swallowed a Fly*, and *Ten in the Bed*. Play music while you are reciting the rhyme, encouraging the children to “act out” the words. Ask the children to recall the beginning, middle and end of the fingerplay.
- Create play opportunities out of large cardboard boxes. Provide materials for the children to paint and decorate the boxes to make them into a store, a spaceship, a house, etc.
- Using puppets, dramatize situations where rules are broken or friends disagree. Encourage the children to decide how to resolve the situations.
- From time to time change the items in the dramatic play area. Consider just having hats or scarves to encourage different ideas.
- Use drama yourself in reading or during circle time or transitions. Let the children see how much fun “acting” can be.
- Provide classroom space that is open and has materials that are open ended and flexible, such as blocks, scarves and cardboard boxes.

MUSIC

Making music provides children with opportunities to express their feelings, investigate rhythm, develop an understanding of their bodies in space, explore movement and strength, and experience concepts such as loud and soft, fast and slow, and high and low. Musical experiences provide arenas for children to connect with their own bodies and with their peers. Music can be used to soothe, excite and interpret feelings. Music and movement can foster the development of listening skills, promote oral language, strengthen auditory discrimination, and provide countless opportunities for problem solving. Music and movement go hand in hand in early childhood classrooms. Young children need to be “hands-on” as well as “minds-on”.

In a nutshell, the evidence is persuasive that (1) our brain may be designed for music and the arts and (2) a music and arts education has positive, measurable and lasting academic and social benefits. In fact, considerable evidence suggests a broad-based music and arts education should be required for every student in the country (Jensen, 1998).

The National Association for Music Education reminds teachers that:

- all children have musical potential;
- children bring their own unique interests and abilities to the music-learning environment;
- very young children are capable of developing critical thinking skills through musical ideas;
- children come to early childhood music experiences from diverse backgrounds;
- children should experience exemplary musical sounds, activities and materials;
- children should not be encumbered with the need to meet performance goals;
- children's play is their work;
- children learn best in pleasant physical and social environments;
- diverse learning environments are needed to serve the developmental needs of many individual children; and
- children need effective adult models (MENC, 1994).

When parents and teachers speak and sing to children, they foster awareness and the development of musical intelligence. Experiences such as bouncing to a steady beat, rocking, and dancing to music all build sensitivity to beat, rhythm, tempo, pitch, etc. It is not surprising that children who grow up in homes with a variety of opportunities for singing and listening become more interested in music and look for experiences that involve singing and listening.

Children also distinguish sounds in their environments. As children collect a repertoire of musical sounds they begin to experiment with sound. This same experimentation is found when children play with sounds, words and rhymes. Early childhood classrooms build upon these playful opportunities and provide children with numerous experiences playing with, hearing and recognizing the sounds of language. Research has indicated that the more proficient a child is with sounds, rhymes and language patterns, the more likely she or he is to be successful in later reading skills (Neuman, Copple and Bredekamp, 2000).

Effective music teaching in the prekindergarten should:

- support the child's total development -- physical, emotional, social and cognitive;
- recognize the wide range of normal development in prekindergarten-age children and the need to differentiate their instruction;
- facilitate learning through active interaction with adults and other children as well as with music materials;
- include learning activities and materials that are real, concrete and relevant to the lives of young children;
- provide opportunities for children to choose from among a variety of musical activities, materials and equipment of varying degrees of difficulty; and
- allow children time to explore music through active involvement (MENC, 1994).

Group experiences in music are only one aspect of a good music curriculum. Musical instruments and materials provide children with opportunities to explore sound. As children become more familiar and comfortable with exploring vocal and other sound sources, guided experiences can help develop understanding, skills and vocabulary.

Early childhood music curriculums also can develop listening skills. Paying attention to directions in a song, trying to keep a steady beat, and playing musical games all require listening and responses. Children enjoy such musical experiences and often find success in the new and the different.

Individual opportunities for music exploration should be available just as blocks, dramatic play, sand and water are available in an early childhood setting. Experimenting with sound and how to produce it with instruments real and "home-made" provide children with opportunities to learn about sounds, tones and pitch. The classroom setting can encourage children to feel free "to get into the music" and interpret it in their own ways. It may sound like children are making noise, but this is part of free experimentation in music, the language of sound.

Best Practices

The following best practices in *music instruction* are recommended for consideration by early childhood educators.

- Make music a daily and natural part of the classroom by playing music often, even as background during other experiences.

- Demonstrate musical concepts through stories, e.g., using high and low character voices in the *The Three Billy Goats Gruff*.
- Encourage singing and dancing as part of other routines and activities, such as during dramatic play or on the playground.
- Encourage children to notice rhythms in their environments, such as birds, rain or construction crews outside.
- Provide children with the vocabulary of music, e.g., high and low for pitch; loud and soft for dynamics; and fast and gradual for tempo.
- Use children's literature, such as *Down By the Bay* or *A Hunting We Will Go*, that can be sung or played.
- Sing songs of many cultures, especially those represented by the children in the group.
- Help children to discover ways to make sounds on instruments. Make your own instruments using materials like boxes, sticks, rubber bands, sandpaper and beans. Use instruments and "sound-makers" to create rain, thunder, birds and other sounds to accompany stories.
- Create a music center that includes tapes, a tape recorder, songs on charts, and stories with accompanying music. Add props to use when enjoying a song, such as felt cutouts to represent the characters in songs like *The Wheels on the Bus*.
- Avoid attempting performances that require long rehearsals, because these can create stress for parents.

VISUAL ARTS

Young children draw, narrate and create stories, actions and ideas with images. Children are spontaneous image-makers, using any available medium to create marks that have meaning for them. From these visual experiences come the abilities to read, use mathematical symbols, read musical notation, and reconstruct and assimilate experiences. In addition to symbolic representation, children use artwork to explore visual order and organize shapes, forms, colors and textures. Children's interactions with paper, writing utensils, clay and other art media are all encompassing. Their thinking cannot be separated from what they are feeling. In this way, the visual arts contribute to children's emotional well-being, giving form to their thoughts. Through such experiences children come to understand themselves in relationship to the world.

I used to draw like Raphael, but it has taken me a whole lifetime to learn to draw like a child.

(Picasso, date unknown)

Children spontaneously begin to work in both two- and three-dimensional representation, including drawing, painting, collage, working with clay, and construction with paper or other media. Their efforts at representing what they think and know allow children to:

- work with purpose and maintain a focus;
- respect themselves and their achievements;
- communicate feelings and ideas with others;
- appreciate the contributions of different cultural groups;
- create change in their environments using a wide range of media; and
- make aesthetic discoveries and render evaluative judgments.

Best Practices

Early childhood educators are encouraged to consider use of the following best practices in the *visual arts*:

- Analyze and describe illustrations in books. Encourage children to try to create in the style of familiar illustrators such as Eric Carle.
- Encourage children to examine elements of art such as line, color and contrast.
- Become scientists, even in the art area. Explore the mixture of colors, paper, collage and clay.
- Avoid the "arts and crafts" approach to providing children with art experiences. Ask yourself, *Is this art or is it an assembly task?*
- Provide opportunities for students to self-select art media and projects.
- Avoid ready-made models or ways of doing things. Allow the children to feel satisfaction in their own ideas and efforts.
- Provide a variety of model-making materials, such as clay, blocks or wood scraps.
- Provide time and support for children to explore and gain skill with tools.
- Make sure children have an opportunity to display and talk about their works of art.

- Incorporate culturally diverse materials, and encourage families to contribute items from home that may be interesting additions to the collage area.
- Model and encourage experimenting with materials and various media. Encourage children to realize that mistakes are OK and trial and error is common when one is creating.
- Save children’s artwork as important windows into their growth and development.
- Most importantly, emphasize that process is more important than product.

PHYSICAL DOMAIN

<i>Connecticut’s Preschool Curriculum Framework Performance Standards</i>	<i>The Connecticut K-12 Physical Education Framework Content Standards</i>
<p>Preschool programs will provide children with opportunities to:</p> <ul style="list-style-type: none"> • <i>demonstrate</i> competence in a variety of activities that require coordinated movement using large muscles; • <i>perform</i> activities that combine large-muscle movements with equipment; • <i>combine</i> a sequence of several motor skills in an organized way; • <i>choose to engage</i> in physical activity that is child-selected or teacher-initiated; • <i>perform</i> fine-motor tasks that require small-muscle strength and control; • <i>use</i> eye-hand coordination to successfully perform fine-motor tasks; • <i>show</i> beginning control of writing, drawing and art tools; • <i>move</i> through an environment with body control; and • <i>demonstrate</i> spatial awareness in fine-motor activities. 	<p>As a result of education in Grades K-12, students will:</p> <ul style="list-style-type: none"> • <i>physical activity</i> – become competent in a variety of, and proficient in a few, physical activities; • <i>human movement</i> – understand and apply principles of human movement to the learning and development of motor skills; • <i>fitness</i> – use fitness concepts to achieve and maintain health-enhancing levels of physical fitness; • <i>responsible behavior</i> – exhibit responsible personal and social behaviors in physical activity settings; • <i>respect for differences</i> – exhibit an understanding of and respect for differences among people in physical activity settings; and • <i>benefits of physical activity</i> – identify and understand how physical activity provides personal enjoyment, challenge, self-expression and social interaction.

PHYSICAL DEVELOPMENT

The preschool child is always in movement. During the early years significant physical development is occurring. Large-muscle skills improve and the small muscles of the hands and fingers become stronger and more controlled. Basic movement skills such as running, jumping, throwing and kicking develop over time.

Physical activity is influenced by the environment, as well as by the child's developing abilities. Early childhood teachers must provide experiences for physical development for children who may not have opportunities for such experiences at home. Early childhood curriculums should provide many and varied opportunities for experiences that promote physical development, including:

- *gross motor* – using large muscles for throwing, catching, kicking, jumping and swinging;
- *fine motor* – using fingers and hands for cutting, buttoning, hammering, pouring and drawing;
- *body awareness* – identifying or naming body parts or performing other tasks that promote an understanding of how the body works and what the different parts of the body do;
- *spatial awareness* – moving fast, using different parts of the body to move about, and other activities that promote an understanding of how bodies occupy space and how to move and explore in space around others and objects;
- *directional awareness* – following directions about moving left, right, up, across, front or back; or performing other tasks that encourage understanding of an object's or body's location and direction in space; and
- *balance* – bouncing or using beams to learn about controlling movement on different surfaces (Frost, 1992; Gallahue, 1993).

Three- and 4-year-old children need consistency, repetition and many opportunities to practice emerging skills. In the past, it had been thought that children develop physical skills by playing games on their own. More careful planning, however, has been found to be required, as children get frustrated trying to play games without sufficient skills. As with all teaching and learning experiences for children in early childhood settings, a combination of planned and unplanned experiences are necessary, both indoors and out. Some activities focus on a motor or movement goals, while others may be naturally integrated within the other developmental domains and goals of the daily curriculum (e.g., a

planned experience focusing on color and patterning also involves fine-motor and eye-hand coordination). Although children need abundant time for free play indoors and outdoors, teachers cannot assume that this will fully promote physical development without careful observation and intentional planning.

Planning requires careful consideration to match activities to the physical characteristics of each child. The play environment, the materials and the expectations for performance are all based on knowledge and understanding of each child's abilities. Children with physical disabilities that require a wheelchair or leg supports may need a teacher to facilitate movement around an outdoor environment. A visually impaired child benefits more from facilitation with sensory clues. Planning ahead and considering each child's needs helps to ensure that he or she experiences indoor and outdoor physical activities that enhance growth and development.

Best Practices

Early childhood educators are urged to consider implementation of the following best practices in the domain of *physical development*.

- Plan a variety of activities each day to keep children active and involved.
- Plan daily, intentional, integrated and natural opportunities for physical development.
- Attempt to keep group size small to enhance teacher support, especially if a particular skill or movement is being introduced for the first time.
- Remember that children of this age learn through repetition.
- Plan activities that include opportunities for walking, balancing, hopping, jumping, running, climbing, crawling, riding wheeled equipment, swinging, throwing, pouring, cutting, tracing, painting, connecting (legos, puzzles, geoboards), zipping, pulling and rolling.
- Regularly maintain equipment to ensure safety.
- Observe carefully to determine when to intervene, support, challenge or reinforce to promote success.
- Plan opportunities for children to work in pairs or small groups to complete physical tasks or games.
- Prepare outside activities for small-muscle development such as weaving with branches and yarn or painting.

- Acknowledge integration in your plans, e.g., the writing area emphasizes small-muscle development, oral language skills, and concepts about print and visual arts.
- releases high energy or tension, leading to relaxation; and
- provides imaginative ways to explore or practice concepts and skills from other subjects (Weikart, 1989).

MOVEMENT

At the beginning of life, movement allows a child to explore the world and separate the *me* from the *not me*. Movement and learning are inseparable. Infants repeat and refine movements to develop control of this tool for learning and outlet for emotions. Providing a safe, open environment for movement exploration is critically important. “Children need opportunities to express intent – to plan and talk about what they are going to do before they act. They need opportunities to carry out their plans and then recall what they have done. Planning and awareness are keys to thoughtful, purposeful movement” (Weikart, 1989).

Movement is part of our social language by which we are able to communicate with others. The art form of dance is a way of forming and sharing the way we respond to the world in which we live by paying particular attention to experiences and giving them significance, particularly those experiences that can be organized and ordered in bodily movement (Lowden, 1989).

Fundamental movement abilities include: steady beat independence, coordination, aural/visual processing, attending and concentrating, spatial awareness, language acquisition, creativity and problem solving, planning and decision making, and energy and vitality. Movement experiences need to be engaging, enabling and extending (Weikart, 1989). Creative movement education:

- develops neural networks necessary for future learning;
- increases the child’s movement vocabulary, leading to competent and confident movement;
- increases the language vocabulary, particularly verbs and adverbs;
- is a source of personal meaning, significance and power through self-concept;
- offers opportunities to solve problems through physical action;
- provides opportunities to develop relationships with others through leading, following, allowing time and space for others, and being a contributing member of a group;

Movement experiences are noncompetitive. Children learn about working with others and about how to share space without interfering. They learn about their own bodies in space and how to control movement, direction and tempo. Confidence, creative ideas and self-esteem all result from quality music and movement curriculums.

Best Practices

The following best practices in the areas of *creative movement and dance* are recommended for use by early childhood educators.

- Provide children with a vocabulary to describe their movements: high, low, under, as slow as, etc; and provide opportunities for children to talk about their movements.
- Move to show placement, e.g., over, around, through, on, in, next to; and to show emotions such as anger, fear and happiness.
- Give directions for movement. Start with one step and gradually increase the complexity of the directions as children’s skills develop. Start with large-motor coordination and build a movement vocabulary before focusing on small-motor coordination.
- Use a variety of music, from classical or jazz to world music, to stimulate different types of movement. Encourage children to notice changes in pitch and tempo and to adjust their movements.
- Involve all children in movement activities, but allow a choice of participation.
- Be prepared for the excitement that movement activities create. Begin slowly and be patient.
- Describe and label the children’s movements to encourage new and more elaborate movements (e.g., *Xavier is walking on tip toes. Holly is spinning like a helicopter. Sam is stopping when the music stops and listening before he begins again.*).
- Use movement to illustrate the characters and action of stories. Sing songs with structured movements such as *Bluebird, Rig a Jig Jig, I’m a Little Teapot, or Head, Shoulders, Knees & Toes.*
- Move to music of different cultural groups, especially those represented in the class.

- Play mirror games, by having pairs of children mirror one another. Children try following directions visually, while keeping up with a friend's actions (e.g., *Follow Your Partner, Follow the Leader*).
- Prepare children in advance to understand appropriate responses during movement activities. Some children will see this time as an opportunity for physical stunts. Help children to understand where to move, how to move, and when to start and stop.

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SOCIAL-EMOTIONAL COMPETENCE AND FAMILY RELATIONS

10

The child's world today is a global village, and children will have to understand what it means to live with others who look and sound different, have different cultures and values, and practice different religions. In the September 11 (2001) disaster, more than 5,000 people from 80 countries perished. If our lives and the lives of our children are not to be shrouded in conflict, we will need to learn understanding, tolerance, and respect for others.... It has become a place where we need to support each other and our children more than ever before.
(Greenman, 2001)

HELPFUL TERMS
FOUNDATION FOR LEARNING
SOCIAL-EMOTIONAL DEVELOPMENT
PROBLEM-SOLVING SKILLS
SUGGESTED SENTENCE STARTERS FOR GUIDING BEHAVIORS
RESPONSES TO AVOID WHEN GUIDING BEHAVIORS
SOCIAL-EMOTIONAL DEVELOPMENT IN A GROUP SETTING
SOCIAL-EMOTIONAL DEVELOPMENT IN THE FAMILY
FAMILY RELATIONS



HELPFUL TERMS

Collaboration	When adults or children work together as a team to solve problems and accomplish tasks that cannot be achieved alone.
Community-Building	Encouraging children to understand the needs of the group as well as their own; fostering attitudes of caring and responsibility.
Conflict	Describes situations where one person or group has needs, desires or goals that interfere with the accomplishment of those of another person or group.
Discipline	Providing instruction and guidance for behavior, interactions and relationships with others.
Dispositions	Attitudes and ways of responding, such as persisting, taking risks and attending.
Intervention	Guidance given by an adult when a child is behaving inappropriately.
Self-Concept/ Self-Esteem	The total collection of thoughts and feelings that an individual has at any point in time about who he or she is.
Self-Control	The ability to regulate one's behavior and relationships with others during conflicts or problem solving.
Social Competence	The ability to initiate and maintain satisfying, reciprocal relationships with peers.
Social Knowledge	An understanding of the symbols and behaviors common to the society in which you live, such as the names of numerals and saying <i>please</i> or <i>thank you</i> .
Temperament	A person's way of responding to the environment, such as activity level, irritability, fearfulness and sociability.

FOUNDATION FOR LEARNING

Early childhood educators face many challenges each day, including planning, caring for the learning environment, assessing children's development and learning, and gathering materials. Critical among these is guiding young children as they grow in the knowledge of the social world and their individual places in it.

The social-emotional domain provides the foundation from which all other learning emerges. The ability to become a member of a social group and to value others requires self-understanding. Teachers have a responsibility to create a classroom community that accepts and supports all children and encourages the development of self as well as understanding of one's place within a group.

Fostering Social-Emotional Development

From birth, children feel social contact. They delight in interacting with the people around them. Recent research about the development of the brain shows the importance of providing support for children's social-emotional development and the consequences for later development when this support is not provided. Emotion can positively or negatively affect the acquisition of new learning. Emotions that children associate with a learning experience determine whether the learning is pleasurable, successful and retained. Negative emotions interfere with recall.

A warm and responsive early child-care environment is crucial to the healthy development of children. It is during the early years, birth to age 5, that a solid foundation is laid for how children will function for the rest of their lives. While this period is one of remarkable development, children are very vulnerable. In a class, while some children are sociable and eager to learn, others may be fearful, unable to follow simple tasks or display basic social skills. Therefore, the early childhood teacher is crucial to the development of socially and emotionally competent children.

Children learn pro-social behaviors such as empathy, generosity and the inclination to help others during the early childhood period. Teachers, parents and adults should model these behaviors in their treatment, acknowledgement and thoughtfulness of others; through the books read, themes discussed in class, and by encouraging play and the development of friendship. Children learn through play. They need the guidance of teachers, parents and other adults to develop from parallel play to interactive cooperative play and make friends.

This chapter describes the development of young children's social and emotional behaviors: as individuals, as peers in a group setting and as members of families. It provides guidance on teacher

strategies and practices, including those on guiding behavior, classroom management and school-family partnerships.

SOCIAL-EMOTIONAL DEVELOPMENT

Developmental psychologists and educators view emotional development as an orderly process in which complex emotions emerge from simpler ones. A child's characteristic pattern of emotional reactions begins to develop during infancy and is a basic element of personality.

Early emotional development is manifested in signals such as crying, smiling and laughing. The primary or basic emotions emerge during the first six months of life. These include contentment, joy, interest, surprise, distress, sadness, disgust, anger and fear.

The self-conscious emotions develop at around 2½ years of age following the emergence of awareness of self, together with some knowledge about societal standards and rules. Guilt, shame and empathy are unrelated emotions and emerge at around 3½ years of age.

The most popular theories of children's social-emotional development include the following:

The Psychosocial Theory. Erik Erikson (1963) explained social development in terms of conflicts which a child must resolve successfully so there is opportunity for personal growth. Erikson described issues important to children's social-emotional development in stages and the balance adults must provide to help them achieve healthy development.

- Trust vs. Mistrust (birth to 18 months). The basic social need of a child during infancy is the development of trust. This need is met when the child's desires for food, warmth, sleep and nurturing are met consistently and predictably. Trust is observed in the child's contentment, joy and desire to explore.
- Autonomy vs. Shame and Doubt (18 to 36 months). Toddlers exert their growing motor, language and cognitive abilities by trying to be more independent. At the same time, they are still dependent on their parents and caregivers. Autonomy is observed in behaviors such as brushing teeth and selecting clothes.
- Initiative vs. Guilt (approximately 3 to 5 years). During the preschool years, a child's physical and social world is expanding rapidly. They want to try out their new motor and mental abilities. They are full of curiosity and they are eager to try new activities both alone and with other children. They

enjoy imitating adults, especially in gender-based roles. If children are not allowed to explore and satisfy their curiosities they develop a sense of guilt and failure. It is important that early childhood settings allow children to imitate and try out a variety of experiences and activities through which they can learn rules and expectations. Initiative is observed in pro-social behaviors like helping and showing affection and sympathy toward others.

- Industry vs. Inferiority (age 6 to puberty). By the end of kindergarten, children focus on the development of competence. They plan, carry out and complete projects unlike younger preschoolers who engage in exploratory activities. School-aged children need time, space, materials and support to engage in activities that build competence and industry. Industry is observed in a child's desire to produce projects and demonstrate accomplishments.

The Constructivist Theory. Piaget explained that, as the quality of children's cognitive development improves, their knowledge or understanding of other people's problems and how others feel strengthens. Children begin to develop emotionally by modifying and organizing their experiences within their environments. For example, babies are born with few experiences but, as they receive new information from their environments, they use these to build new emotional experiences which can become more complex as they grow older. Children need adult assistance as they try to make sense of themselves and others.

The Behaviorist Theory. The behaviorist view assumes that children learn social-emotional behaviors when their actions are either reinforced or not reinforced by the adults (caregivers, parents) and siblings around them. Social learning theorists explain that children learn social behavior by their observations; noting the behavior of and imitating the behavior of adults and children. Children imitate the behaviors of adults and peers. Children tend to imitate the behaviors of those they like because they want to be like them. They also imitate behaviors they observe being rewarded.

In summary, it is essential for teachers to understand the various stages in the development of social-emotional competence to determine classroom expectations for individual and group behaviors. These stages include:

- development and regulating of emotions;
- reliance on adult support;
- learning social rules;

- emergence of temperament and dispositions; and
- development of self (Shaffer, 1999).

The theories of social-emotional development inform teachers of the preschool-age child of how critical it is to know that children's temperament and social skills can be influenced by the learning environment.

Temperament and Dispositions

Each child possesses a temperament noticeable at birth and influenced by the reactions of important adults and the environment. Characteristics include:

- activity level – typical pace of activities;
- irritability – how easily one becomes upset;
- soothe-ability – how easily one can be calmed after being upset;
- fearfulness – how aware one is of the unusual in the environment; and
- sociability – how receptive one is in social situations (Shaffer, 1999).

These traits provide a framework upon which social-emotional development is built. Understanding children's temperament provides teachers with critical information to help shape expectations, plan curriculum and choose teaching strategies. Through experiences and relationships children come to understand more about themselves and their personalities and temperaments. Dispositions may include characteristics such as curiosity, humor and friendliness.

Children who have multiple experiences that boost their levels of confidence and enhance their self-image, and who have had success in self-regulating their emotions will gradually develop the ability to control their own behaviors and emotions. The ability to self-control has strong connections with cognitive competency, self-confidence and other social skills (Harter, 1990). To be socially and emotionally ready to learn in kindergarten, children must develop characteristics such as confidence, an ability to tackle problems and persistence. They must have strong language development, and be able to listen and attend to their environments.

Social Skills

Learning to regulate one's emotions becomes far more complicated as social relationships develop. Friendships and relationships involve learning tolerance of others, coping with the challenges and frustrations of sharing, taking another's point of view, and being able to move past one's own personal needs and wishes. Teachers

must provide a variety of experiences in large and small groups that encourage children to exercise these social skills in supportive settings. Young children are developing a social understanding and becoming socially competent. Social skills include the ability to:

- express wishes and preferences clearly;
- assert own rights and needs appropriately;
- express frustrations and anger effectively and without escalating disagreements or harming others;
- gain access to ongoing groups at play and work;
- take turns fairly easily;
- show interest in others;

- exchange information with and request information from others appropriately; and
- interact nonverbally with other children with smiles, waves, nods, etc. (McClellan & Katz, 2001)

These skills take time to develop and must be rehearsed by young children so they can become aware of the effects their actions have on others. Repeated experiences with positive outcomes, guidance from teachers and maturity all contribute to success in the social-emotional domain. One of the best practices in building children's social-emotional skills is to encourage children's play.

PROBLEM-SOLVING SKILLS

Children today experience multiple images and experiences that are conflicting and overwhelming. Television, radio, magazines and other media bombard us with violent stories of aggression and disputes whether we are in our homes, in line at the supermarket or in our cars. Children are encouraged to "play nice," yet simultaneously to stand up for themselves (Levin, 1994). Little time exists for children to play in their neighborhoods, where many problem-solving abilities were learned in the past (Pirtle 1997). Children must be taught problem-solving skills in prepared and structured environments where positive and negative behaviors can be expressed in caring settings.

Guiding children to express positive emotions involves the following skills:

- Support children in discussing the problem. Guide children in answering questions such as: *What toys are involved? What did you do?*

What did the other child do? How are people feeling? What do you want to happen?

- Encourage children to recognize the needs and feelings of all people involved in a dispute.
- Model language that describes feelings and events until children can comfortably use appropriate language by themselves.
- Brainstorm with children about possible solutions so everyone feels OK about the resolution.
- Accept children's ideas even if they don't seem totally fair, especially if all are in agreement. The goal is for children to rely on their own abilities to negotiate and solve problems.
- Allow children to try out their new problem-solving skills.

SUGGESTED SENTENCE STARTERS FOR GUIDING BEHAVIORS

To a child who...

is reluctant to share a toy brought from home:

"That's OK. Sometimes, you don't have to share toys from home. In a little while you will need to put this toy in your cubby. Perhaps it would be a good idea to leave it home tomorrow."

just knocked over another child's block building:

"I can't let you knock over the blocks. Blocks are not to be crashed. How could we help Ann? Could you help Ann rebuild her tower?"

is upset about not being able to sit next to a friend:

"I know you would like to sit next to Xavier, but right now that would not be a good idea. Perhaps later."

is grabbing markers:

"Please ask your friends before you take the marker out of their hands. They may still be using it."

has just hit a child who was in his way:

"I can't let you hurt Sam and I won't let anyone hurt you either. Is there something you want to say to Sam about where he is standing?"

is upset at not getting a turn on the swing when outside time ends:

"I know you really wanted a turn, but there will be other days. We can try to remember to make sure that you get a turn first next time."

is working on a block building:

"You are building a tall tower with lots of windows. I am so impressed."

has just successfully climbed to the top of the climber:

"You climbed that jungle gym all by yourself. I bet you feel proud."

typically has difficulty with transitions:

"I am so impressed. You didn't get upset when it was time to switch puzzles today."

To a group of children who are...

waiting to leave a room:

"If you are wearing red you may go. If you are wearing blue...."

getting snow clothes on:

"You are all working so hard at getting your snow pants on. Let me know if I can help anyone."

gathering for an activity and one child looks shy but interested:

"I think we should invite Mary to come and sit with us."

struggling with a toy that all want to use:

"What is happening here? How can we solve this problem?"

RESPONSES TO AVOID WHEN GUIDING BEHAVIORS

To a child who is...

Instead of...

Try this Response

refusing to give any play dough to the others at the table:

“No snack this morning if you can’t share.”

“Let’s take a look at how much play dough is at this table. How can we share some so others can use it?”

throwing water out of the water table onto the floor and at friends:

“We do not throw water.”

“Please keep the water in the table, not on the floor where it will be slippery or on our friends who might get cold and wet.”

stamping his feet at another child who will not share a building toy:

“You’re acting like a baby.”

“It looks like you’re angry at John. Can I help you solve this? What do you want to tell John?”

BEST PRACTICES

Early childhood educators are encouraged to consider the following best practices in fostering social-emotional development.

- Use positive words of encouragement such as, “You are doing a good job picking up your socks.”
- Spend time developing relationships with each child.
- Provide language models for children as they try to express concerns and solve problems.
- Provide opportunities to discuss feelings, using literature and puppets as springboards.
- Pair a child who is behaviorally challenged with a strong peer model.
- Use praise quietly and individually. Avoid manipulating children’s behaviors by offering rewards or compliments in front of a group.
- Respect a child’s wish not to participate in an activity. Provide alternatives that may be acceptable within the learning environment.
- Provide lots of opportunities for children to play and participate in groups with other children.

SOCIAL-EMOTIONAL DEVELOPMENT IN A GROUP SETTING

Many children spend much of their waking hours in group situations, most often in early childhood classrooms. These groups are miniature communities that require social skills. Children do not automatically develop social skills. They need direction, support and experiences led by teachers who can take advantage of teachable moments and planned activities. Social competence, the ability to initiate and maintain satisfying reciprocal relationships with peers, is a critical part of early childhood development. The teacher’s role is both guide and leader. Teachers model compassion, responsibility, trust and concern for others with the language used in the classroom and the climate they create and carefully maintain. *“The teacher purposefully leads children from the world of me to the world of us”* (Stone, 1999).

Knowledge of child development provides a framework for use by teachers in making decisions regarding behavior, routines and activities in the classroom setting. Teachers must be patient. Young children, by nature, regress, make mistakes, and need time to rehearse and practice emerging skills and abilities, especially in the emotional and social domains.

Group and peer behaviors to be encouraged in an early childhood classroom include the following:

- sharing;
- taking turns;
- being patient;
- being respectful;
- negotiating;
- cooperating;
- articulating preferences;
- explaining actions;
- accepting compromises;
- empathizing with others;
- handling impulses; and
- being responsible for actions.

The child’s developmental stage and ability, temperament, cultural values, particular situations, peers, the environment and classroom expectations, influence these behaviors.

BEST PRACTICES

The following best practices are recommended for implementation by early childhood educators in group settings.

- Ensure consistency and predictability in your expectations and classroom guidelines.
- Engage children in building classroom climate. Promote discussions of class rules and expectations.
- Model support and understanding of feelings. Encourage children to support each other.
- Encourage children to use verbal skills when communicating with peers.
- Offer guidance on negotiating as children try to compromise and collaborate.
- Provide opportunities for children to be responsible, make choices, cooperate and share.
- Use techniques to encourage turn-taking.
- Evaluate the daily schedule to determine how often and for how long children are in large-group situations. Minimize this practice in favor of opportunities for children to meet in small groups or pairs. Children, ages 3 and 4, do not profit from group times of over 15 to 20 minutes.
- Provide children with a consistent daily schedule and alert them when changes are made in the routine. Children benefit from the security of knowing what is expected and what is next.
- Plan a daily routine that provides for varied groupings, noisy and quiet times, active and slower-paced experiences.

SOCIAL-EMOTIONAL DEVELOPMENT IN THE FAMILY

While children are developing as individuals and as members of a group, they are immersed in learning the social rules and values of their cultures and families. Ethnicity, race, religion, region, social class, gender, sexual orientation and physical abilities make up some of the dimensions of the human experience that we know as *culture*.

The customs, traditions and values of children's families and cultures shape and influence their classroom experiences. Culture affects how we communicate with each other. We interpret all we see or hear through the lens of our own beliefs, values and experiences. It is common to misinterpret or misunderstand the communication style of someone from another culture. Each culture has its own defined communication system, including actions, gestures, words, postures, facial expressions, tones of voice, and ways of handling time, space, materials, work and play. Children learn the rules and norms for communicating and interacting from their families.

Cultivating a deeper understanding of children in the context of their family cultures may prevent misunderstandings. Teachers must take into account family values regarding behaviors and rules, and develop an understanding of how relationships with adults in authority are perceived in various cultures. These expectations affect the child's responses within the classroom, and misunderstandings can create confusion and discomfort. For example, certain cultures frown upon children looking directly at an adult during a conversation. Others encourage dependence on adults, for example, in feeding or decision making, beyond Western expectations. Teachers who understand children's home cultures are able to more fully understand their learning needs, and are better able to make all children feel safe and supported in the classroom. The importance of family relations is addressed in the next section.

FAMILY RELATIONS

Early childhood teachers play an especially important family support role. By building relationships with parents and other significant adults in their students' lives, teachers contribute to the creation of safe and healthy learning environments for children. The ultimate goal is for the significant adults in each child's life to work together more effectively as partners to promote the child's development and learning.

This type of partnership must reflect the different roles, attitudes and needs in multiracial and socioeconomically diverse populations. In a partnership, all partners share rights and responsibilities, power and decision making, and mutual trust and respect. Schools have long sought parental involvement. Using the term

partnership rather than *involvement* captures the idea of shared responsibility for children across the three contexts of home, school and community.

In recognition of the importance of partnerships that support early learning the Connecticut State Board of Education adopted a *Position Statement On School-Family-Community Partnerships* in August 1997. A "Guide to Using the Position Statement" explains the role of early care and education in fostering social-emotional development as follows:

A Role For Early Care And Education Programs

Every early care and education program can develop effective strategies to involve *all* families in the education of their children. Partnerships with parents have been a primary focus of the early care and education field since its inception. However, based on national surveys, families indicate that they would like more information and opportunities to be actively engaged in their child's education. Early care and education programs can offer a comprehensive school-family-community partnership program that makes some connection with all families. Not all families can take advantage of all partnership activities, but every family can be involved in some way. Early care and education programs can provide training and support to staff and administrators in the areas of setting partnership goals and effective practices as well as strategies for monitoring progress to learn which practices are most successful.

Because early childhood educators have a holistic view of young children, they are uniquely positioned to assist families in connecting to resources in the community. To make these connections, early childhood educators can become knowledgeable about community resources by contacting local organizations and state information sources such as Infoline (available by dialing 211). Finding out about community resources that are available to families is the first step. Bringing the needs of young children and families to the attention of the wider community is the next step. Early childhood educators

can be a pivotal force for encouraging community collaborations that support a unified vision of positive development for children.

The Six Partnership Standards And Sample Activities

1. **Parenting** – Programs promote and support parenting skills and the family’s primary role in encouraging children’s learning at each age and stage of development.

Activities may include: providing parent education programs, transportation, family social activities, parent rooms and spaces, on-site Internet access for family use, social service referrals, and parent resource libraries; developing parent leadership training and parent support groups; and accompanying parents to the school district’s Planning and Placement Team meetings.

2. **Communicating** – Staff and families participate in ongoing, clear, two-way communication about the program and children’s progress.

Activities may include: preparing parent handbooks and newsletters; providing audio/video tapes; maintaining regular communication through phone calls, home visits, daily communication sheets, home-school notebooks, or e-mail; translating all information into parents’ languages (if parents speak a language other than English); and conducting parent meetings and conferences.

3. **Volunteering** – programs provide opportunities and appropriate training to involve families in activities both in the program and at home.

Activities may include: encour-

aging and supporting parents to volunteer to telephone other parents when needed, construct playground equipment, assist in the classroom or library, coordinate other volunteers, assist in planning activities, act as “buddies” for new parents, raise funds, lobby, and share talents, hobbies and interests with children and other parents.

4. **Learning at home** – programs help families engage in learning activities at home that are coordinated with the goals and objectives of the educational program.

Activities may include: providing book and activity bags to use at home; gathering information about educational activities in the community, including ideas in the newsletter for extending classroom learning at home; loaning parent resource and informational materials; making home visits; creating opportunities for parents to share ideas with other parents; and encouraging parents to be role models for life-long learning.

5. **Decision making** – programs provide opportunities for all families to develop and strengthen their leadership role in program decisions through participation in parent organizations, advisory councils, school boards, or other decision-making committees or groups.

Activities may include: involving parents in curriculum development; inviting parents to staff meetings; including parent participation in staff interviewing committees; supporting parents to advocate for the program with funders or policy-makers; asking parents

to represent themselves and others on advisory boards; and providing opportunities for parents to train other parents in leadership skills.

- 6. Collaborating with the community** – programs provide coordinated access to community resources for children and families and serve as a resource to the community.

Activities may include: helping parents identify resources and support for child and family needs; collaborating with other health and human service providers; engaging in joint activities with other community organizations such as senior citizen centers; developing a resource directory; linking parents with adult education programs (for high school completion, English for speakers of other languages or job training); providing service to the community for the benefit of others; and working together with community members to create greater access, availability and quality of early childhood programs.

The six standards for school-family-community partnerships are not exclusive or distinct categories. One practice can activate several standards simultaneously. For example, assisting a family and child with the transition to kindergarten can involve giving parents information about their child's developmental characteristics and appropriate expectations for kindergarten (parenting and communication). The early childhood program can arrange a meeting between the family and kindergarten teacher to assist them in developing a relationship to support the child's transition into a new environment (collaboration and communication). A parent may help gather together other families whose children are also transitioning to kindergarten to talk with kindergarten teachers about activities families can do at home (volunteering and learning at

home). Families who develop leadership skills by serving on committees at the preschool level may be interested in continuing that type of involvement in the public school and may become advocates for education in the community (decision making and collaborating with community).

The six standards for partnerships can guide the development of a balanced, comprehensive program that includes opportunities for involvement at school, at home and in the community. The results will depend on the particular types of involvement that are implemented as well as the quality of the implementation.

Note: Throughout this document the words parent(s) and family(ies) are used in the broadest sense to mean those adults with primary responsibility for children.

From A Guide to Using the Position Statement on School-Family-Community Partnerships, Connecticut State Board Of Education, 2000.

Families In Need Of Special Services

Children have diverse abilities and needs with individual rates of development, often exhibiting a wide range of skills and abilities. There are also some children who have special needs that warrant the individual attention of early childhood programs in different ways. Key to addressing a child's special needs is the ongoing communication and partnership with families. Families know their children best. Most often, families have acquired the expertise, knowledge and skills to address their child's special needs. Early childhood programs can benefit from the information that families have to share.

A child's special needs can be defined as any need that requires special attention from an early childhood program. For example, it could be a child's special health care need, such as asthma, diabetes or a life-threatening allergy. A special need also could be a delay in the child's development which may be caused by lack of experience or opportunities. A special need also could be that the child has a diagnosed or undiagnosed disability.

Early childhood staff members who have questions or concerns about a child should first share their concerns with the child's family. Families and program staff members can benefit and learn from each other. For example, a program concerned about a child's

allergy to nuts can jointly think of ways to modify the program to ensure that the child is safe, and plan for an unanticipated emergency.

Early childhood staff members who have concerns about a child's developmental and functional progress should discuss their concerns with the child's family. Initial strategies can focus on what needs to be done differently in the classroom that can support the child's learning and success. This might mean an environmental change, a change to the curriculum and instruction, a change in child grouping or the implementation of a behavior plan for the program. Programs also may wish to pursue obtaining special outside expertise. This expertise could come from the program's educational consultant or from an expert with special skills and knowledge.

When program concerns have been identified and shared with families, and, despite modifications or adaptations in the classroom the child continues to appear to be challenged by the teaching and learning environment, it is time to look for more formal expertise. Help Me Grow, at Infoline United Way of Connecticut, is a statewide system available to parents and early childhood programs. Help Me Grow is designed to identify children who are at risk for developmental or behavioral problems and is able to connect children and their families to existing community resources. Examples include the Connecticut Birth to Three System, special education provided by school districts, a child development monitoring program, and referral to health and medical services. Families and early childhood programs can contact Help Me Grow by dialing 211.

Communicating

Effective communication skills and strategies serve as the basis for building all other relationships. When young children observe positive and genuine communication between their parents and teachers, they feel that their two worlds are connected. *Formal communication* is needed when everyone must receive the same information and when accuracy is required. Suggestions include a parent bulletin board, weekly messages, journals and a parent handbook. *Informal communication* with parents should happen every day. It occurs naturally when children are brought to the program and/or when they are picked up. Although most exchanges are casual, planning can help to maximize such opportunities. Jotting down something a child has done so it can be shared with

parents at the end of the day is one way to make these brief moments more meaningful and establish ongoing relationships.

Parent Conferences

While a great deal of valuable information can be shared in daily, informal communication, parent conferences provide time for more in-depth exchanges of ideas and for problem solving when needed. Conferences are excellent times for teachers to ask parents to share information that will help them meet individual needs. Conferences also provide good opportunities to help parents better understand a program's goals and objectives, and how their child is progressing. Helpful guidelines for conducting parent conferences include the following:

- Prepare parents in advance. Share the purpose of the meeting, its anticipated length and who will be present. Solicit parental input on topics for discussion.
- Organize your thoughts and be prepared with examples and work to help parents understand your perspective.
- Establish a relaxed and open tone for the meeting. It is important that all participants know that their contributions are valued.
- Solicit parent perceptions, hopes and goals. Be sure to provide time to address their concerns and questions.
- Be descriptive. Celebrate the child's growth and avoid labeling or judging.
- Share the curriculum and performance indicators with parents and provide examples of their child's performance in the various domains.
- Approach the conference as an opportunity to problem-solve with parents. Prepare, in advance, some possible strategies but remain open and willing to search together for answers.
- Seek opportunities to agree on goals. Use the conference to work together on an action plan of steps for home and school in order to achieve these goals.
- Set a time to talk again, even if by phone, and take responsibility for keeping parents informed.

Best Practices: The Family

The following best practices are recommended for use by teachers and administrators.

Teachers

- Enlist parents in gathering information about children's abilities, experiences and development.
- Provide information on *Connecticut's Pre-school Curriculum Framework*, 1999 (with 2005 and 2006 reprints).
- Offer home visits as an opportunity for teachers and families to get to know each other.
- Communicate daily with parents regarding activities and their child's progress.
- Work with families to establish systems of communicating that fit their needs and parenting styles.
- Help parents of children with disabilities understand the value of early identification and planning.
- Provide opportunities for children to help each other and to recognize each other's strengths.
- Provide areas in the classroom where parents can find information on schedules, curriculum plans and parent meetings, as well as share information with each other.
- Provide opportunities for parents to visit classrooms, such as open houses, project-sharing events and social activities.
- Show respect for varied family compositions, values and cultural traditions.
- Provide ideas and support for parents to reinforce and extend the learning process at home, e.g., book or activity bags, loan of materials, at-home project-idea sheets.
- Work with parents to learn key words from home languages to reduce feelings of isolation in the classroom.
- Encourage parents to share family cultural traditions and values.
- Offer to accompany parents to planning and placement team (PPT) meetings.
- Find opportunities for all parents to contribute to the program and their child's early childhood program experience by volunteering in the classroom or helping with other tasks that fit into their daily lives and schedules.

- Create opportunities for parents to develop relationships with each other for support and friendship.

Administrators

- Provide education and support so teachers understand how cultural differences in parent beliefs and practices may affect a child's adjustment to the class.
- Provide training for teachers to reflect on their own cultures, goals and parenting styles.
- Encourage teachers to learn a basic vocabulary of children's home languages.
- Provide parent education programs, family social activities, parent rooms, social service referrals and parent resource libraries.
- Encourage teachers to create environments that are warm and inviting to parents.
- Create parent handbooks and newsletters.
- Provide all information in each family's native language whenever possible.
- Survey parents frequently for ideas and suggestions for improving school-family relationships.
- Work with parents and staff members to develop a process for responding to parent concerns.
- Provide information in multiple ways, rather than only in print or written formats.
- Provide interpreters for parent-teacher conferences.
- Work with local public schools to facilitate the transition process from preschool to kindergarten.
- Work with community organizations to hold family events.
- Help parents understand the curriculum and involve them in contributing curriculum ideas, projects, fundraising efforts and policies.
- Offer combined programs for parents and staff members, such as exercise classes or art workshops.
- Provide resource information to connect parents with other health and human services providers.
- Encourage parents to engage in activities with other community organizations that increase access, availability and quality of early childhood programs.

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SELECTED RESOURCES FOR WORKING WITH FAMILIES

Books

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Singer, G. H. S. and Powers, L. E. *Families, Disability and Empowerment: Active Coping Skills and Strategies for Family Interventions*. Baltimore, MD: Paul H. Brookes Publishing Co., 1993.

Informational Materials

Hanson, M. J. and Beckman, P. J. *Me Too!* Baltimore, MD: Paul H. Brookes Publishing Co. (in press).

Booklets included in the *Me Too!* series:

Introducing... Me!

It's Time for Preschool

My Community, My Family

Me and My New Friends

On My Best Behavior

Look What I Can Do Now

McWilliam, P. J. and Winston, P. *Brass Tacks: Part I – Programs and Practices: Part II – Individual Interactions with Families*. Chapel Hill, NC: Frank Porter Graham Publications, 1992.

National Information Center on Children and Youth with Disabilities (NICHCY), Washington, DC. Offers a variety of information and resources for parents.

Internet Resources

Early Childhood Research Institute on Culturally and Linguistically Appropriate Services. University of Illinois at Urbana-Champaign. www.clas.uiuc.edu/abtclas

National Information Center on Children and Youth with Disabilities (NICHCY) www.nichcy.org/pubs/parents

The Family Village – bringing together valuable information for parents of individuals who have disabilities. www.familyvillage.wisc.edu

*The preschool years are a time when children learn to eat and enjoy a variety of foods. In pleasant surroundings, with patient, supportive adults, young children eventually learn to enjoy most foods. Preschool children need fewer calories but the same variety of foods that older children and adults require. **MyPyramid** can suggest meal and snack choices for young children. By paying attention to their bodies, children learn to eat the right amount without overeating. It's up to children to choose **how much to eat from what is offered**. It's up to adults to decide **what foods to offer children and when**.*

Children develop their attitudes, beliefs, and eating habits from other people: parents, childcare providers, older siblings, and other caregivers. Role modeling is a powerful tool for helping children learn about healthful eating and active living. Hands-on experiences with food help children explore and enjoy a variety of foods.

USDA 2002



HELPFUL TERMS
NUTRITION GOALS
DEVELOPMENTAL APPROPRIATENESS
INVOLVING CHILDREN
SIX BEST PRACTICES

HELPFUL TERMS**Dietary Guidelines
for Americans**

The *Dietary Guidelines for Americans* (2005) provide general diet and lifestyle recommendations for healthy Americans ages 2 and over (not for younger children and infants). They were developed by the U.S. Departments of Agriculture and Health and Human Services, and form the basis for federal nutrition policies and programs.

MyPyramid

MyPyramid (USDA, 2005) is a tool for implementing the *Dietary Guidelines*. *MyPyramid* organizes food into five major groups (grains, vegetables, fruits, milk and meats) and provides a recommended number of daily servings. It translates the *Dietary Guidelines* into a **total diet** that meets nutrient needs from food sources and aims to moderate or limit dietary components often consumed in excess.

NUTRITION GOALS

Nutrition education is an essential component of early childhood education because nutrition influences how well children grow, develop and learn. Early childhood settings present ideal opportunities for teaching children about food, nutrition and lifelong habits for good health. Nutrition education from an early age can help children learn to make healthy food choices, resulting in:

- consumption of a balanced diet;
- achievement of optimal growth and intellectual development;
- increased physical performance;
- maintenance of healthy weight; and
- decreased risk of nutrition-related diseases.

Connecticut's Preschool Curriculum Framework (1999) recommends that all children practice appropriate eating habits by the end of preschool. To accomplish this goal, classroom experiences should ensure that preschool children recognize and eat a variety of nutritious foods. Early childhood teachers will encourage healthy lifestyles by helping children learn the skills for healthy eating, providing opportunities to practice these skills, and by making nutrition fun. Effective nutrition education has the following characteristics for curriculum and content areas.

Curriculum:

- connects ideas and information to prior knowledge;
- ensures that the child is actively involved in the experience and not just a bystander; and
- uses ideas that spring from the child's questions.

(More information on appropriate curriculum planning can be found in Chapter 2.)

Content:

- teaches children the relationship between food and health;
- helps children understand their growing bodies and how to take care of themselves through healthy behaviors;
- exposes children to a variety of learning experiences about where food comes from and how it can be prepared; and
- helps children develop sound attitudes and knowledge about food, nutrition and health.

Developing a plan for nutrition education is key to success. This plan should include opportunities for children to gain the knowledge and skills necessary to make appropriate food choices. It is most effective when the plan is the shared responsibility of all preschool staff members, teachers, administrators and food service personnel. This plan should:

- introduce children to new food and eating experiences;
- provide food- and health-related learning activities that can be connected to experiences the child has at home; and
- encourage children to talk with their families about their food experiences in childcare.

For preschoolers, nutrition education can be organized around three basic nutrition concepts: food keeps me healthy, food gives me energy and food helps me grow. Nutrition activities should be based on these concepts and provide concrete experiences such as exposure to new healthy foods and building skills in choosing healthy foods. The ultimate goal is **behavioral**. Preschoolers can easily begin to understand basic health concepts. But while children may *know* that fruits and vegetables make them healthy, they must actually *eat* fruits and vegetables to obtain health benefits.

Nutrition education should reflect a variety of cultural and ethnic foods and practices, including everyday customs, traditions and celebrations. Serving dishes from different cultures broadens children's food experiences and helps teach children about new foods. Children are more likely to relate to the concepts being taught when food experiences include familiar foods and customs.

Preschool nutrition education activities should be designed to achieve the following outcomes for young children:

Educational/Attitudinal

- Tries new foods
- Enjoys a variety of healthy foods
- Enjoys active play

Behavioral

- Gradually increases variety of foods eaten
- Eats healthy foods
- Participates in active play

(continued on page 148)

Health

- Improves motor skills, coordination and muscle tone
- Grows and develops at an appropriate rate
- Maintains good health

From *Bright Futures In Practice: Nutrition*, by Story, Holt and Stofka. Used with permission from National Center for Education in Maternal and Child Health and Georgetown University, 2002.

DEVELOPMENTAL APPROPRIATENESS

Nutrition education experiences should be fun, taking into consideration children’s developmental abilities in motor and language skills. Children reach predictable milestones throughout their early development. These milestones can help teachers plan experiences that meet children’s needs and stimulate learning in all developmental areas. The following chart highlights specific milestones and characteristic behaviors related to food and nutrition activities.

Developmental Milestones Related To Food And Nutrition	
<i>3- to 4-Year-Olds</i>	<i>4- to 5-Year-Olds</i>
<ul style="list-style-type: none"> • Eat without help. Prefer eating finger foods. Drink from cup. (Note: spills are normal.) • Select foods from limited choices. • Begin to share and take turns. • Help other children in need, e.g., passing food at mealtime. • Explore and experiment with new ways to do things. • Play is dramatic, solitary and models grown-up activities (play house, grocery shopping). • Describe color, shape and texture of food, if present. • Imitate adults and other children, e.g., mealtime behavior. • Name, identify and sort foods. • Learn by doing; need concrete experiences; understand only what they can see, smell, taste and touch or do. • Hesitate to try new foods. • Verbalize food preferences. • Eat independently with some help. • Easily distracted in groups. • Ask adults for more helpings of food and drink when desired. 	<ul style="list-style-type: none"> • Eat with less mess and spills. Use fork and spoon. • Manipulate packages and containers. • Use self-help skills to take care of needs. • Describe color, shape and texture of food in greater detail. • Speak clearly and express themselves to others about experiences, interests and needs. • Learn by doing and applying new information to new experiences. • Follow more complex directions, e.g., cooking activities. • Begin to experiment with new foods. Take more than they can eat. • Initiate new food selections. • Require less help at the table. • Eat more comfortably in groups. Able to concentrate. • Use fork and spoon. Pour own juice.
<p>Adapted from: <i>Tickle Your Appetite: Team Nutrition’s Education Kit for Child Care</i>. United States Department of Agriculture, 1998.</p>	

INVOLVING CHILDREN

Children are much more likely to try something new if they have been involved in the preparation process. Cooking activities are invaluable to the learning process because they encourage children to taste new foods and promote independence in eating. Preparing food gives children:

- *experience* with sharing as they take turns;
- *creative outlets* – changing flour and other ingredients into raw dough, then into a cookie or muffin that can be decorated;
- *self-esteem* – a sense of accomplishment when a project is completed and there is something to show for it;
- *fine- and gross-motor skills* – rolling bread dough, mashing fruit, scrubbing, tearing, breaking and snapping vegetables, etc.;
- *knowledge about safety* – injury prevention, food safety and sanitation;
- *knowledge about parts of plants* – stems, skins, seeds, etc.;
- *knowledge about science* – how plants, animals and people grow;
- *knowledge about math* – counting, measuring, etc.; and
- *knowledge about language and literacy* – describing characteristics of fruits and vegetables, reading stories about food, etc.

Adapted from *Making Food Healthy & Safe for Children: How to Meet the National Health and Safety Performance Standards – Guidelines for Out-of-Home Child Care Programs*. National Center for Education in Maternal and Child Health, 1997.

Food preparation is better suited to small groups of children rather than an entire class. Teachers should keep in mind that the *process* is more important than the *product*. While adult supervision is required, children

learn more and gain more satisfaction from doing something themselves than from producing a perfect end product.

To ensure learning and fun, food preparation activities must be well planned and match children's abilities and interests. Recipes should be pre-tested; all necessary food and equipment should be assembled; an appropriate time frame should be determined; and safety must be considered. Younger children can scrub, wrap, pour and mix, while older children can measure, cut, grind or beat. For example, a 2-year-old can scrub potatoes and tear lettuce while a 4-year-old can shuck corn, roll dough or cut bananas with a plastic knife. Everyone can work together, but the more difficult tasks should be given to children with the strongest fine-motor skills.

SIX BEST PRACTICES

Nutrition activities should promote positive attitudes about good nutrition and health, provide fun learning experiences, and offer opportunities for putting knowledge into action. Meals and snacks provide opportunities to integrate learning by connecting the classroom to meals served, and opportunities for hands-on practice of food and nutrition principles learned in the classroom. Teachers should incorporate the following strategies, which will be described in detail on subsequent pages:

1. Focus on developmentally appropriate out-comes;
2. Provide hands-on sensory experiences;
3. Integrate nutrition into existing curriculums;
4. Create a learning environment that promotes nutrition;
5. Promote physical activity; and
6. Engage families in healthy nutrition and physical activity practices.

1. Focus On Developmentally Appropriate Outcomes

<i>Instructional Strategies</i>	<i>Suggested Experiences</i>
Discuss properties of food (taste, smell, textures, colors, shapes) during mealtime and curricular activities.	<ul style="list-style-type: none"> • Eat with the children, pointing out different characteristics of foods. Encourage children to describe their food and to talk about what they like best and why.
Help children learn about healthy food choices by using <i>MyPyramid</i> .	<ul style="list-style-type: none"> • Use the terms <i>everyday foods</i> (e.g., fruits, vegetables, grains, milk) and <i>sometimes foods</i> (e.g., cake, candy, cookies), rather than “good” or “bad” foods. Hands-on activities and real foods should be used as much as possible.
Encourage children to try new foods. (Take note of children’s food allergies and diet-related issues.)	<ul style="list-style-type: none"> • Have food-tasting parties to introduce new foods in conjunction with nutrition education activities. • Be a good role model. Children are more likely to try new foods that they see adults eating and enjoying. If a food is rejected, avoid making an issue of it. Simply serve it again later. The more familiar it is, the more easily children will accept it.
Involve children in food preparation.	<ul style="list-style-type: none"> • Have children choose, wash, prepare and serve food. Children learn more, and are more likely to taste something new, if they are involved in preparation. Helping to prepare foods also can teach other skills like counting, measuring, sorting and following directions. • Try “cup cooking” or “baggie cooking,” a fun way for children to make their own snacks, e.g., apple salad or vegetable salad.

2. Provide Hands-On Sensory Experiences

<i>Instructional Strategies</i>	<i>Suggested Experiences</i>
<p>Young children learn best through hands-on sensory experiences—tasting, smelling, feeling, seeing and hearing. Provide hands-on experiences that help children learn about foods using their five senses.</p>	<ul style="list-style-type: none"> • Have a tasting party. Let children choose foods to cook based on shape or color. • Help children compare the taste and texture of raw and cooked fruits or vegetables. • Have children break, snap, tear or chew foods and listen to the sounds. • Have children close their eyes and identify foods by smell, sound or feel. • Have children close their eyes and guess what made the sound – biting an apple, pouring milk. • Have children reach into a “mystery bag” to feel foods of different sizes, shapes and textures. Have them describe what they feel, and identify the food. • Ask children to identify foods by smell. Foods that are easier to identify include onions, garlic or citrus fruit, such as oranges or lemons. • Take field trips to the local grocery store, fish market, bakery or nearby farm to see items before they reach the table. • Sprout seeds or grow vegetables in the classroom. • Identify parts of a fruit, e.g., skin, rind, meat, seeds. • Section fruits, count the parts, and discuss concepts of <i>whole</i> and <i>part</i>. • Teach about size, smell, shape, color and growth as children “explore a potato.” <p>(Sources: National Center for Education in Maternal and Child Health, 1997; American Dietetic Association, 1999.)</p>
<p>Coordinate nutrition education activities with the preschool food service program.</p>	<ul style="list-style-type: none"> • Take children on a “field trip” of the kitchen to learn about preparing healthy meals. • Incorporate multicultural learning experiences with the menu, e.g., children are learning about a country, and ethnic foods are featured on the preschool menus.

3. Integrate Nutrition Into Existing Curriculums

<i>Instructional Strategies</i>	<i>Suggested Experiences</i>
<p>Integrate nutrition throughout the preschool curriculum to provide children with daily exposure to nutrition concepts and messages. For example, these suggested experiences show how the important nutrition message, <i>Eat five servings of fruits and vegetables a day for good health</i>, can easily be integrated into various subject areas to reinforce the important concepts.</p>	<ul style="list-style-type: none"> • Language and Literacy Development – Read books with fruit and vegetable themes, such as <i>Eating the Alphabet: Fruits and Vegetables from A to Z</i>, or <i>Oliver’s Vegetables</i>. Discuss the colors, shapes, textures and tastes of the different types of fruits and vegetables featured in these books. • Music – Sing songs that involve fruits and vegetables, such as “<i>I like to Eat Apples and Bananas</i>,” or make up your own words to familiar children’s tunes. Songs can be sung during any activity, such as cooking with the kids, working on arts and crafts projects, or washing hands before meals. • Mathematics – Have children track how many servings of fruits and vegetables they eat for two days by placing stickers on a class chart. Count the number of fruits and vegetables. Have children determine which fruits and vegetables are eaten most often. • Science – Plant bean seeds in a shallow pan. Tape a number to a penny and place over each seed. Ask children, “What do you think might happen? Why do you think that?” <p>(Sources: Ehlert, 1989; Hall, 1983; Palmer and Edmonds, 1993)</p>

4. Create A Learning Environment That Promotes Nutrition

Consider all the ways in which young children learn about food and nutrition: through the physical environment (play areas, toys, books, games, etc.); adult role modeling; the preschool menu (breakfast, lunch and snack); and food served for holidays, parties and other celebrations. Teachers should integrate all of these as they plan nutrition education.

Meals and snacks provide opportunities for hands-on practice of food and nutrition concepts learned in the classroom and make a statement about what is appropriate to eat. Foods served for meals and snacks, at parties and on holidays, and foods entering the program from home, all provide nutrition messages. These choices can either broaden or limit children’s choices about foods and healthy eating. At a minimum, all meals and snacks should meet the requirements of the U.S. Department of Agriculture’s Child and Adult Care Food Program (CACFP) and follow the *Dietary Guidelines for Americans* (USDA, 2005).

Because children learn not only from teachers and books, but also from their experiences at meals, snacks and parties, early childhood programs should have policies regarding food that is offered to children in the preschool environment. These policies should follow the *Dietary Guidelines for Americans* (USDA, 2005), and encourage children to eat foods of high-nutrient density (containing a variety of vitamins, minerals and other nutrients) that encompasses a variety of choices from *MyPyramid* (USDA, 2005). The following guidelines should be considered:

- restrict foods of minimal nutritional value, such as candy, gum and soft drinks;
- limit foods high in sugar, such as highly presweetened cereals;
- limit foods high in fat, saturated fat and sodium, such as cakes, cookies, doughnuts, chips and processed foods;

- increase intake of foods high in fiber, such as vegetables, fruits and whole-grain products;
- increase intake of foods and beverages that are good calcium sources; and
- serve 100 percent juices instead of fruit drinks, punches and lemonade.

Early childhood programs also should develop nonfood-related strategies to reward and discipline

children. Using food as a punishment (e.g., withholding dessert) or reward (e.g., handing out candy to children who do well, or “bribing” children to eat vegetables to get dessert) does not help to promote healthy eating habits. A child who is rewarded or punished with food may overeat or place too much importance on desserts. Desserts should be served casually, as part of the meal. Suggestions for nonfood rewards are found in *Alternatives to Food as Reward* (Connecticut State Department of Education, revised 2007).

<i>Instructional Strategies</i>	<i>Suggested Experiences</i>
Create a physical learning environment that promotes nutrition.	<ul style="list-style-type: none"> • Read books, show videos and play games that portray healthy eating and physical activity. • Include “healthy” toy foods (e.g., fruits, vegetables and grains) in kitchen and housekeeping play areas. • Use pictures and posters that promote positive nutrition.
Reinforce nutrition concepts by modeling good eating practices in the preschool environment.	<ul style="list-style-type: none"> • Serve meals family-style, and eat with children. • At mealtimes, model appropriate eating patterns and communication skills (e.g., enjoying a variety of foods, being willing to taste new foods, avoiding comments about disliked foods). • Do not use food as reward or punishment.
Broaden children’s food experiences by exposing them to multicultural foods.	<ul style="list-style-type: none"> • Include ethnic foods and cooking utensils (e.g., wok and rice bowls) in the kitchen play area. • Create and sample ethnic foods. • Read stories that include multicultural foods. • Have children draw pictures of their favorite ethnic dishes.
Provide many healthy foods for children to taste in an enjoyable social context.	<ul style="list-style-type: none"> • Provide foods for parties, holidays and other celebrations that promote and reinforce healthy eating messages. • Provide families with ideas for healthy snacks and party foods. <p>For additional information on healthy parties, holidays and celebrations, see <i>Healthy Celebrations</i> (Connecticut State Department of Education, revised 2007).</p>

5. Promote Physical Activity

Young children need at least 60 minutes of physical activity daily. An important part of good health, physical activity complements good nutrition practices and helps children to maintain a healthy weight. Participating in healthy physical activity is one of the goals of *Connecticut’s Preschool Curriculum Framework* (1999). To accomplish this goal, preschool programs should provide opportunities for a wide variety of gross-motor activities that are both

child-selected and teacher-initiated. More information can be found in Chapter 9.

6. Engage Families In Healthy Nutrition And Physical Activity

Children’s eating habits are strongly influenced by family behaviors and interactions. Preschool programs can improve the success of nutrition education by actively engaging families and providing education, resources and support.

<i>Instructional Strategies</i>	<i>Suggested Experiences</i>
<p>Help families understand general child health, nutrition, hygiene and safety.</p>	<ul style="list-style-type: none"> • Provide basic nutrition, health and safety information in the preschool environment (e.g., posters, bulletin boards and artwork). • Send nutrition information home with children (e.g., handouts, brochures, “Dear Family” letters, articles, newsletters). • Set up a nutrition resource center with materials that families can borrow. • Discuss children’s food likes, dislikes, cultural preferences, food allergies and diet-related problems as part of the enrollment process. • Discuss children’s eating behaviors at both school and home.
<p>Encourage family/home involvement in preschool nutrition education activities.</p>	<ul style="list-style-type: none"> • Inform families of daily nutrition education activities. Suggest other simple activities that families can use at home to reinforce key messages. • Ask families to share special food traditions and family recipes for a tasting party or class cooking activity. • Invite families to participate in nutrition education.
<p>Promote family involvement in providing healthy foods at the preschool and at home.</p>	<ul style="list-style-type: none"> • Display or distribute menus of meals and snacks. • Provide information on the food program, including approaches to feeding children and nutrition policies. • Invite parents to eat lunch with the children. • Provide ideas and recipes for nutritious foods when meals, snacks or party foods are brought from home. • Relate nutrition education activities to healthy recipes for families to try at home. For example, send home child-friendly vegetable recipes when teaching children about vegetables. • Ask parents to send in healthy recipes to compile and share with all families.

Ideal Age For Learning

Good nutrition plays a significant role in maximizing each child's potential for success. Young children are at the ideal age to start learning about healthy eating, and opportunities for nutrition education and physical activity abound in the early childhood classroom. By providing healthy and safe foods daily, a variety of nutrition education activities, and an environment that reinforces positive nutrition messages and active play, preschool programs can encourage young children to develop eating and physical activity habits for a lifetime of good health.

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Resource Library

The Connecticut State Department of Education's, Bureau of Health/Nutrition, Family Services and Adult Education maintains a nutrition resource library to assist in the implementation of all nutrition education activities. Resources include a wide variety of educational materials, such as curriculums, videos, books, audiovisuals, puppets and games. A catalog of materials is available at <http://www.sde.ct.gov/sde/cwp/view.asp?a=2626&q=320754#Resources>. For more information, contact the Connecticut State Department of Education, at (860) 807-2075.





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