

CONCEPTS TO MANIPULATIVES

THE FOLLOWING IS A LISTING OF **SOME** OF THE MANIPULATIVES THAT CAN EFFECTIVELY BE USED TO TEACH THE GIVEN CONCEPT.

Concepts	Manipulatives
Angles	protractors, compasses, geoboards, miras, rulers, tangrams, pattern blocks
Area	geoboards, color tiles, base-ten blocks, decimal squares, cubes, tangrams, pattern blocks, rulers, fraction models
Classification, sorting	attribute blocks, cubes, pattern blocks, tangrams, 2-color counters, Cuisenaire rods, dominoes, geometric solids, money, numeral cards, base-ten materials, polyhedra models, geoboards, decimal squares, fraction models
Coordinate geometry	geoboards
Constructions	compasses, protractors, rulers, miras
Counting	cubes, 2-color counters, color tiles, Cuisenaire rods, dominoes, numeral cards, spinners, 10-frames, number cubes, money, calculators
Decimals	decimal squares, base-ten blocks, money, calculators, number cubes, numeral cards, spinners
Equations/inequalities Equality/inequality Equivalence	algebra tiles, math balance, calculators, 10-frames, balance scale, color tiles, dominoes, money, numeral cards, 2-color counters, cubes, Cuisenaire rods, decimal squares, fraction models
Estimation	color tiles, geoboards, balance scale, capacity containers, rulers, Cuisenaire rods, calculators
Factoring	algebra tiles
Fact strategies	10-frames, 2-color counters, dominoes, cubes, numeral cards, spinners, number cubes, money, math balance, calculators
Fractions	fraction models, pattern blocks, base-ten materials, geoboards, clocks, color tiles, cubes, Cuisenaire rods, money, tangrams, calculators, number cubes, spinners, 2-color counters, decimal squares, numeral cards
Integers	2-color counters, algebra tiles, thermometers, color tiles

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Concepts	Manipulatives
Logical reasoning	attribute blocks, Cuisenaire rods, dominoes, pattern blocks, tangrams, number cubes, spinners, geoboards
Measurement	balance scale, math balance, rulers, capacity containers, thermometers, clocks, geometric solids, base-ten materials, color tiles
Mental math	10-frames, dominoes, number cubes, spinners
Money	money
Number concepts	cubes, 2-color counters, spinners, number cubes, calculators, dominoes, numeral cards, base-ten materials, Cuisenaire rods, fraction models, decimal squares, color tiles, 10-frames, money
Odd, even, Prime, composite	color tiles, cubes, Cuisenaire rods, numeral cards, 2-color counters
Patterns	pattern blocks, attribute blocks, tangrams, calculators, cubes, color tiles, Cuisenaire rods, dominoes, numeral cards, 10-frames
Percent	base-ten materials, decimal squares, color tiles, cubes, geoboards, fraction models
Perimeter/ Circumference	geoboards, color tiles, tangrams, pattern blocks, rulers, base-ten materials, cubes, fraction circles, decimal squares
Place value	base-ten materials, decimal squares, 10-frames, Cuisenaire rods, math balance, cubes, 2-color counters
Polynomials	algebra tiles, base-ten materials
Probability	spinners, number cubes, fraction models, money, color tiles, cubes, 2-color counters
Pythagorean Theorem	geoboards
Ratio/proportion	color tiles, cubes, Cuisenaire rods, tangrams, pattern blocks, 2-color counters
Similarity/congruence	geoboards, attribute blocks, pattern blocks, tangrams, miras
Size/shape/color	attribute blocks, cubes, color tiles, geoboards, geometric solids, pattern blocks, tangrams, polyhedra models
Spatial visualization	tangrams, pattern blocks, geoboards, geometric solids, polyhedra models, cubes, color tiles

Concepts	Manipulatives
Square/cubic numbers	color tiles, cubes, base-ten materials, geoboards
Surface area	color tiles, cubes
Symmetry	geoboards, pattern blocks, tangrams, miras, cubes, attribute blocks
Tessellations	pattern blocks, attribute blocks
Transformational geom.: translations, rotations, reflections	geoboards, cubes, miras, pattern blocks, tangrams
Volume	capacity containers, cubes, geometric solids, rulers
Whole numbers	base-ten materials, balance scale, number cubes, spinners, color tiles, cubes, math balance, money, numeral cards, dominoes, rulers, calculators, 10-frames, Cuisenaire rods, clocks, 2-color counters

MANIPULATIVES TO CONCEPTS

THE FOLLOWING IS A LISTING OF **SOME** OF THE CONCEPTS THAT CAN EFFECTIVELY BE TAUGHT USING THE GIVEN MANIPULATIVES.

Manipulative	Concepts
Algebra tiles	integers, equations, inequalities, polynomials, similar terms, factoring, estimation
Attribute blocks	sorting, classification, investigation of size, shape, color, logical reasoning, sequencing, patterns, symmetry, similarity, congruence, thinking skills, geometry, organization of data
Balance scale	weight, mass, equality, inequality, equations, operations on whole numbers, estimation, measurement
Base-ten blocks	place value, operations on whole numbers, decimals, decimal-fractional-percent equivalencies, comparing, ordering, classification, sorting, number concepts, square & cubic numbers, area, perimeter, metric measurement, polynomials
Calculators	problems with large numbers, problem solving, interdisciplinary problems, real-life problems, patterns, counting, number concepts, estimation, equality, inequality, fact strategies, operations on whole numbers, decimals, fractions
Capacity containers	measurement, capacity, volume, estimation
Clocks	time, multiplication, fractions, modular arithmetic, measurement
Color tiles	color, shape, patterns, estimation, counting, number concepts, equality, inequality, operations on whole numbers & fractions, probability, measurement, area, perimeter, surface area, even & odd numbers, prime & composite numbers, ratio, proportion, percent, integers, square & cubic numbers, spatial visualization
Compasses	constructions, angle measurement
Cubes	number concepts, counting, place value, fact strategies – especially turnaround facts, classification, sorting, colors, patterns, square & cubic numbers, equality, inequalities, averages, ratio, proportion, percent, symmetry, spatial visualization, area, perimeter, volume, surface area, transformational geometry, operations on whole numbers & fractions, even & odd numbers, prime & composite numbers, probability

Manipulative	Concepts
Cuisenaire rods	classification, sorting, ordering, counting, number concepts, comparisons, fractions, ratio, proportion, place value, patterns, even & odd numbers, prime & composite numbers, logical reasoning, estimation, operations on whole numbers
Decimal squares	decimals - place value, comparing, ordering, operations, classification, sorting, number concepts, equality, inequality, percent, perimeter, area
Dominoes	counting, number concepts, fact strategies, classification, sorting, patterns, logical reasoning, equality, inequality, mental math, operations on whole numbers
Fraction models	fractions - meaning, recognition, classification, sorting, comparing, ordering, number concepts, equivalence, operations, perimeter, area, percent, probability
Geoboards	size, shape, counting, area, perimeter, circumference, symmetry, fractions, coordinate geometry, slopes, angles, Pythagorean Theorem, estimation, percent, similarity, congruence, rotations, reflections, translations, classification, sorting, square numbers, polygons, spatial visualization, logical reasoning
Geometric solids	shape, size, relationships between area & volume, volume, classification, sorting, measurement, spatial visualization
Math balance Invicta, number	equality, inequality, operations on whole numbers, open sentences, equations, place value, fact strategies, measurement, logical reasoning
Miras	symmetry, similarity, congruence, reflections, rotations, translations, angles, parallel & perpendicular lines, constructions
Money	money, change, comparisons, counting, classification, sorting, equality, inequality, operations on whole numbers, decimals, fractions, probability, fact strategies, number concepts
Number cubes	counting, number concepts, fact strategies, mental math, operations on whole numbers, fractions, decimals, probability, generation of problems, logical reasoning
Numeral cards	counting, classification, sorting, comparisons, equality, inequality, order, fact strategies, number concepts, operations on whole numbers, fractions, decimals, logical reasoning, patterns, odd & even numbers, prime & composite numbers

Manipulative	Concepts
Pattern blocks	patterns, one-to-one correspondence, sorting, classification, size, shape, color, geometric relationships, symmetry, similarity, congruence, area, perimeter, reflections, rotations, translations, problem solving, logical reasoning, fractions, spatial visualization, tessellations, angles, ratio, proportions
Polyhedra models	shape, size, classification, sorting, polyhedra, spatial visualization
Protractors	constructions, angle measurement
Rulers Tape measures	measurement, area, perimeter, constructions, estimation, operations on whole numbers, volume
Spinners	counting, number concepts, operations on whole numbers, decimals, fractions, fact strategies, mental math, logical reasoning, probability, generation of problems
Tangrams	geometric concepts, spatial visualization, logical reasoning, fractions, similarity, congruence, area, perimeter, ratio, proportion, angles, classification, sorting, patterns, symmetry, reflections, translations, rotations
Ten-frames	fact strategies, mental math, number concepts, counting, equality, inequality, place value, patterns, operations on whole numbers
Thermometers	temperature, integers, measurement
Two-color counters	counting, comparing, sorting, classification, number concepts, fact strategies, even & odd numbers, equality, inequality, operations, ratio, proportions, probability, integers

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Mathematics Teacher Questionnaire

Instructions: You may use either a #2 pencil or blue or black ball point pen to complete the questionnaire. Please do not use a felt tip pen.

A. Teacher Opinions

Questions 1 - 26. Please give your opinion about each of the following statements. Darken one circle on each line.

- 1. My principal is supportive of different approaches to teaching mathematics.
- 2. The more mathematics "drill" problems students work on in a class period, the more they will learn.
- 3. Virtually all children can learn to think mathematically.
- 4. Most students learn best when grouped with students of similar abilities.
- 5. It is important for most students to learn to perform complex computations with speed and accuracy.
- 6. Most parents fear that calculator use will inhibit learning basic number skills.
- 7. Mathematics for all students requires eliminating tracking by ability.
- 8. Most teachers in this school regularly share ideas and materials related to mathematics instruction.
- 9. Students need to master computation before going on to algebra.
- 10. The testing program in my state/district dictates what I teach.
- 11. Students should be able to use calculators anytime, other than when practicing basic calculations.
- 12. Including real-life applications disrupts the flow of mathematics instruction.
- 13. I organize my curriculum around the textbook.
- 14. Manipulatives or "hands-on" materials help many students understand mathematics
- 15. Most teachers in this school contribute actively to making decisions about the mathematics curriculum.
- 16. Most mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies.
- 17. The primary purpose of mathematics instruction is to prepare students for further study in mathematics.

Strongly Agree
Agree
No Opinion
Disagree
Strongly Disagree

(A vertical column of 17 rows of five circles each, corresponding to the 17 statements, for marking responses.)

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- 18. I feel well-prepared to phrase questions to encourage more open-ended investigations.
- 19. I feel well-prepared to use the textbook as a resource rather than as the primary instructional tool.
- 20. I feel well-prepared to manage a class of students who are using manipulatives.
- 21. I feel well-prepared to teach heterogeneous groups.
- 22. I feel well-prepared to use cooperative learning groups in mathematics instruction.
- 23. I feel well-prepared to use calculators as an integral part of mathematics instruction.
- 24. I feel well-prepared to use computers as an integral part of mathematics instruction.
- 25. I feel well-prepared to use a variety of alternative assessment strategies.
- 26. I feel well-prepared to involve parents in the mathematics education of their children.

Strongly Agree
Agree
No Opinion
Disagree
Strongly Disagree

○ ○ ○ ○ ○

○ ○ ○ ○ ○

○ ○ ○ ○ ○

○ ○ ○ ○ ○

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B. Experience with NCTM Standards

- 27. Are you aware that the National Council of Teachers of Mathematics has prepared Curriculum and Evaluation Standards, generally called the NCTM "Standards," for mathematics instruction? **Darken one circle.**
 - Yes, I am well aware of the Standards. (Go to question 28.)
 - Yes, I have heard of the Standards, but I don't know very much about them at this time. (Skip to question 36.)
 - No, I am not aware of the Standards. (Skip to Question 36.)
 - Not sure. (Skip to question 36.)

Questions 28 - 35. Indicate the extent to which you agree with each of the following statements. **Darken one circle on each line.**

- 28. I am well informed about the Standards for the grades I teach.
- 29. I am prepared to explain the Standards to my colleagues.
- 30. If the Standards are followed, "paper and pencil" activities will disappear.
- 31. The Standards are just another fad, like new math.
- 32. Our district has made changes in the mathematics curriculum based on the Standards.
- 33. Most of the mathematics teachers in my school are well informed about the Standards.
- 34. Mathematics teachers in my school have changed what and how they teach based on the Standards.
- 35. Our district is organizing staff development based on the Standards.

Strongly Agree
Agree
No Opinion
Disagree
Strongly Disagree
Don't know

○ ○ ○ ○ ○

○ ○ ○ ○ ○

○ ○ ○ ○ ○

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36. Are you aware that the National Council of Teachers of Mathematics has prepared Professional Standards for Teaching Mathematics, generally called the NCTM "Teaching Standards"?
Darken one circle.

- Yes, I am well aware of the Teaching Standards. (Go to Question 37.)
- Yes, I have heard about the Teaching Standards, but I don't know very much about them at this time. (Skip to Section C.)
- No, I am not aware of the Teaching Standards. (Skip to Section C.)
- Not sure. (Skip to section C.)

Questions 37 - 43. Indicate the extent to which you agree with each of the following statements. **Darken one circle on each line.**

Strongly Agree
 Agree
 No Opinion
 Disagree
 Strongly Disagree
 Don't know

- 37. I am well informed about the Teaching Standards for my grade level.
- 38. I am prepared to explain the Teaching Standards to my colleagues.
- 39. The kind of mathematics teaching portrayed in the Teaching Standards is not possible with real children.
- 40. The mathematics teachers in my school are generally well informed about the Teaching Standards.
- 41. Most mathematics teachers in my school have changed how they teach based on the Teaching Standards.
- 42. Our district has changed how it conducts in-service based on the Teaching Standards.
- 43. Our district has changed how it evaluates teachers based on the Teaching Standards.

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C. Classroom Practices

Questions 44-49. Throughout this section, you are asked to think about a particular mathematics class that you teach. If you teach more than one mathematics class per day, please answer these questions for the first mathematics class you teach each day.

44. What is the title of this class? _____

45. Which of the following best describes the ability makeup of this class? **Darken one circle.**

- Primarily high ability students
- Primarily low ability students
- Primarily average ability students
- Students of widely differing ability levels

46. **Instructional Emphases:** Think about your plans for this mathematics class for the entire course. How much emphasis will each of the following topics receive? Answer 46A if your first class of the day is in grades K-4, 46B if grades 5-12, then go to question 47.

- 46A. Answer for grades K-4. **Darken one circle on each line.**
- a. Estimation
 - b. Number sense and numeration
 - c. Concepts of whole number operations
 - d. Whole number computation
 - e. Geometry and spatial sense
 - f. Measurement
 - g. Statistics and probability
 - h. Fractions and decimals
 - i. Patterns and relationships

	No Emphasis	Heavy Emphasis
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Go to Question 47.

D. Professional Development

50. During the *last twelve months*, what is the *total* amount of time you have spent on professional development in mathematics or the teaching of mathematics? Include attendance at professional meetings and conferences, workshops, and courses. **Darken one circle.**

- None
- Less than 6 hours
- 6 - 15 hours
- 16 - 35 hours
- More than 35 hours

51. When was your most recent course or in-service education experience in mathematics or mathematics teaching? **Darken one circle.**

- Within the last 3 months
- 3 - 6 months ago
- 7 - 12 months ago
- 1 - 3 years ago
- More than 3 years ago

52. Suppose you wanted to find out more about implementing new ideas in mathematics education. How likely would you be to use each of the following as a source of information? **Darken one circle on each line.**

	Not Likely	Somewhat Likely	Very Likely
a. Other teachers in my school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Teachers outside my school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Principal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. District personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. State department personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. University-based personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Meetings of professional organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. In-service workshops	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Journals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Publishers and sales representatives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

E. Teacher Background

53. Indicate your gender. **Darken one circle.**

- Male
- Female

54. Which best describes you? **Darken one circle.**

- American Indian or Alaskan Native
- African-American
- Asian or Pacific Islander
- Hispanic, regardless of race
- White (not of Hispanic origin)
- Prefer not to answer

55. How many years have you taught at either the elementary or secondary level prior to this school year? **Darken one circle.**

- Fewer than three years
- 3 - 5 years
- 6 - 10 years
- 11 - 15 years
- 16 - 20 years
- More than 20 years

56. What grade levels do you currently teach? **Darken all circles that apply.**

- K
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

57. What is the total number of mathematics classes you teach each day? **Darken one circle.**

- 1
- 2
- 3
- 4
- 5
- 6

58. Do you have a major or minor in mathematics at the undergraduate or graduate level? **Darken one circle.**

- Yes
- No

59. Do you have a major or minor in mathematics education at the undergraduate or graduate level? **Darken one circle.**

- Yes
- No

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Profile of an Equitable Math and Science Classroom and Teacher

Components:

Physical Environment
Language
Teaching Methodology
Behavior Management
Academic Evaluation
Classroom Integration

Introduction:

The following are Standards and guidelines for an equitable mathematics and science teacher and classroom. Each section defines the category and describes factors for promoting maximum student learning in mathematics and science. Classroom characteristics and teacher behaviors included in "Profile of an Equitable Math and Science Classroom and Teacher" reflect current research of effective teaching and learning, as well as a focus on promoting equity.

It is important to remember that the teacher and a classroom do not exist in isolation, but are part of a larger context that includes school and district policies and practices, administrative support of equity, other teachers, peer influences on students and parental involvement. Therefore, this deals with only part of the total picture.

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Profile of an Equitable Math and Science Classroom and Teacher

1. Physical Environment

Definition: The physical environment of the classroom includes:

- displays on bulletin boards,
- posters and presentations used to decorate the room,
- greetings and messages posted on walls, and
- configuration of desks and arrangement of room.

Ideal:

A. Wall displays show both male and female representatives of various races, cultures and physical disabilities actively engaged in science and mathematics activities -- from historical to present.

B. Wall displays invite and support interest in science and mathematics of all students.

C. Seating arrangements and placement of furniture are flexible and facilitate the integration of all members of the class into learning activities.

D. Classroom environment encourages movement of the teacher to be close to all students.

E. Classroom environment is barrier free.

F. The teacher extends student learning beyond the walls of the classroom into the community through partnerships with businesses, parents and community groups.

Profile of an Equitable Math and Science Classroom and Teacher

2. Curriculum

Definition: The curriculum of a classroom includes:

- formal and informal content taught through lessons,
- all activities related to lessons, and
- all aspects of the teacher's program.

Ideal:

A. Math and science activities and lessons are multicultural. They identify contributions of various cultures to math and science, and present various cultural perspectives about math and science topics.

B. Information is presented by the teacher using a variety of methods that appeal to all students and invite the participation of under-represented students.

C. The teacher organizes math and science instruction to insure that students learn to cooperate with students who are different.

D. The teacher encourages and enables students to examine science and mathematics from a variety of cultural perspectives.

E. The teacher carefully selects textbooks and resource materials from an equity perspective. If biases exist, the teacher discusses them with students, including how biased materials can effect learning.

F. The teacher has an extensive background in mathematics and/or science content.

G. The teacher is very secure with teaching mathematics and science content and can creatively utilize various methods of content presentation.

H. The teacher designs rigorous mathematics and/or science lessons that challenge all students.

I. The teacher involves parents in the mathematics and/or science learning of students.

J. The teacher includes learning activities that will develop skills, such as spatial skills, that have disparate development in students.

Profile of an Equitable Math and Science Classroom and Teacher

3. Language

Definition: The language of the classroom includes:

- the language and style of language used by the teacher, and
- the language and style of language the teacher allows students to use.

Ideal:

- A. The teacher uses inclusionary terms for people in all written and oral communication. Inclusionary terms DO NOT assign positions to a specific gender, race or ethnicity (i.e. fireman vs. firefighter or "the student, he" vs. "the students, they" or "the student, he or she")
- B. The teacher consciously uses oral or written examples of women involved in science and mathematics activities.
- C. The teacher works with students to develop inclusionary language and encourages its use.
- D. The teacher does not allow any verbal harassment of one student by another.
- E. The teacher discusses the negative impact of derogatory terms in reference to race, gender, ethnicity, physical disability and sexual preference, and how this effects the learning environment.
- F. The teacher integrates current linguistic use into his/her language patterns, such as changing "handicapped" to "disabled" and changing "Black heritage" to "African American heritage".

Profile of an Equitable Math and Science Classroom and Teacher

4. Teaching Methodology

Definition: The teaching methodology in the classroom includes:

- style of presentation,
- time devoted to presentation, and
- method of attention directed at students.

Ideal:

- A. The teacher provides the same amount of teaching attention to all students.
- B. The teacher varies the type of teaching attention to meet students' needs and learning styles.
- C. The teacher ensures the equal participation of all students in classroom discussions through various methods.
- D. The teacher uses a variety of presentation styles during mathematics and science lessons to keep all students engaged and involved in learning.
- E. The teacher analyzes interactions with students for differential patterns and takes action to counteract and balance differences.
- F. The teacher is knowledgeable of various methods for presenting content.
- G. The teacher keeps updated on new teaching methods through staff development and reading.
- H. The teacher collaborates and discusses teaching methods with colleagues.
- I. The teacher utilizes inquiry as a mode for student learning.
- J. The teacher uses math manipulatives and/or science experiments to promote learning by all students.
- K. The teacher actively engages all students in discussion in science and math lessons, paying careful attention to the involvement of less verbal, aggressive students.
- L. The teacher uses small groups to promote the verbal participation of all in discussions of math and science.
- M. The teacher encourages students to take more math and science courses, and to get involved in informal math and science learning activities, such as events at science museums, etc.
- N. The teacher prevents passive non-participation of students by engaging all students in discussions.
- O. The teacher makes sure that all students set up and use science and math equipment.

**Profile of an Equitable
Math and Science Classroom and Teacher**

5. Behavior Management

Definition: The behavior management of the classroom includes:

- style the teacher uses to control student behavior,
- time the teacher takes to control student behavior, and
- methods used by the teacher to control student behavior.

Ideal:

- A. The teacher explicitly informs students in advance of acceptable and unacceptable behavior in the science and mathematics classroom.
- B. The teacher explicitly informs students in advance of the consequences of behavior.
- C. The teacher regularly praises students equally for good behavior.
- D. The teacher is consistent when applying behavior management techniques.
- E. The teacher DOES NOT allow any student to harass another student in any way.

Profile of an Equitable Math and Science Classroom and Teacher

6. Academic Evaluation

Definition: The academic evaluation of the classroom includes:

- style and systems used by the teacher to assess student performance,
- style and systems used by the teacher to evaluate student performance, and
- style and systems used by the teacher to report student academic performance.

Ideal:

- A. The teacher has high academic expectations for all students and expectations for students are not influenced by students' race, gender, ethnicity or physical disability.
- B. The teacher has analyzed personal biases that may influence expectations for students.
- C. The teacher communicates high academic expectations to all students.
- D. The teacher praises students for the intellectual quality of their math and science work, irrespective of the student's race, gender, national origin or physical disability from a set of criteria which has been announced to the students.
- E. The teacher uses a variety of methods of authentic assessment to evaluate student performance.
- F. The teacher experiments with different methods of authentic assessment, keeps track of the effective methods and continuously tries to improve classroom assessment.

Profile of an Equitable Math and Science Classroom and Teacher

7. Classroom Integration

Definition: Classroom integration includes:

- structure used to facilitate student social and academic cooperation, and
- activities used to facilitate student social and academic cooperation.

Ideal:

A. The teacher utilizes a variety of learning activities in math and science that will help students to learn from one another and work together effectively.

B. The teacher integrates students of all learning styles and abilities into heterogeneous groups.

C. The teacher structures math and science activities to promote the development of leadership skills among all students.

D. The teacher encourages students to identify and analyze their participation and involvement in groups, and to develop strategies for increasing effectiveness.

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