Kindergarten-PartA Mathematics CRT

MATHEMATICS ASSESSMENT

Teacher Directions

Assessment of mathematical understanding is done in the following ways.

Students are assessed during the instructional program through the **Performance Assessment Tasks**. This method of ongoing assessment is designed to help teachers make decisions about instruction.

Material on the following pages consists of a series of assessment tasks and a Student Record Card. Some tasks are done only once during the year. Other tasks may be extended by checking student performance two or three times during the year.

Each task is coded to show the time of year and the corresponding mathematics concept that is assessed. For example, a task coded as Nov. is used to assess student progress during the first third of the year and the assessment task is administered in November. Some objectives are developed throughout the year and thus assessed more than once during the year. For example, an objective coded Feb. May would be assessed by a task in February and with another task in May.

The assessment tasks should be scheduled so that you may easily interview and observe the students as they work. You may accomplish many of the assessments by observing students as they work in the classroom during regular learning activities. Occasionally you may need to bring a student aside for a more focused observation.

It is important to keep a record of student progress. Fill in the Mathematics Assessment Record Card for each student. **Use the code: M = Mastery, and NM = Not Mastered.** Where applicable, teachers will record individual scores. If students have not achieved mastery, re-teach and then have them try the same task at a later time. Room for comments is provided at the end of the card. You also may choose to keep a folder of student work samples or your own system of recorded observations.

It is important to integrate items from Part B into the assessment process. We will work over the next 2 years to select benchmark assessments from this group of problems.

KINDERGARTEN ASSESSMENTS

Standard	Benchmark	Performance Activity	Performance Task
Patterns	1. Sort by a single attribute. **<u>CMT Alignment:</u> (24a) Identify objects that are the same or different by one attribute.**	**1. Single Attributes** In advance, prepare a set of about 20 objects which can only be sorted by color, such as Unifix cubes, Color Tiles, or construction paper squares, so that only four different colors are available - red, yellow, green, and blue. Ask the student to sort them. Successful performance is the ability to organize the objects into four piles. If successful, you may ask the student to name the colors. [Nov.]	**A) Multiple Sorts/Multiple Rules** Ask the student to sort a set of objects and describe the rule; then sort the same set of objects in a different way, and describe the second rule. [Nov.]
	2. Describe the rule used to sort. **<u>CMT Alignment</u>: (24b) Sort objects into two groups by a common attribute.**	2. **What's my rule?** Give the student a set of objects, such as buttons, and ask the student to sort them and describe the sorting rule used. Then ask the student to sort the same objects in a different way and describe the new sorting rule. [Nov.]	**B) Multiple Sorts/Multiple Rules** Ask the student to sort a set of objects and describe the rule; then sort the same set of objects in a different way, and describe the second rule. [Nov.]
	3. Copy and extend a pattern. **<u>CMT Alignment:</u> (22) Extend or complete patterns involving whole numbers and attributes and identify or state rules for given patterns.**	3. **Pattern Making** In advance, prepare an AB pattern that repeats five times using two colors of Unifix cubes. For example: R Y R Y R Y R Y R Y Give the student a large collection of the Unifix cubes, including more than the two colors, and ask the student to copy and build the same pattern underneath yours.	C) **Pattern Extensions** Start an ABBABB pattern with Pattern Blocks and have the student extend it. Include ABC.

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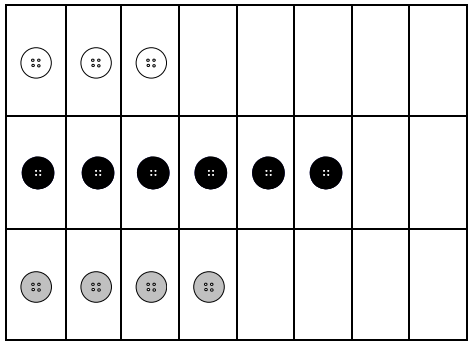
		If the student successfully builds a copy that repeats the pattern five times, ask the student to make the pattern longer, perhaps to the edge of the table. [Nov. Feb.]	
Probability & Statistics	4. Count and compare objects in real graphs and pictographs. **<u>CMT Alignment:</u> (19a) Identify correct information from graphs, tables and charts.**	4. **Analyzing Pictographs** In advance, make a real graph by placing three colors of buttons (or construction paper pieces) into three rows; for example, a row of 3 white, a row of 6 black, and a row of 4 gray buttons. You may wish to glue the buttons onto 1-inch grid paper and save the graph for use with each student.  Ask the student to tell how many buttons are white; then black, then gray. Ask the student, "Which color has more buttons?" "Which has the least?" Ask the student to tell you something else about the graph. [Feb] Repeat the task in May, but use a simple pictograph. [May]	**D) Reading Graphs** Ask the student to describe the information in a real graph. Ask the student to tell you about the graph. If necessary, during the interview, ask the student "Which is the most? The least? How many of each?"

KINDERGARTEN ASSESSMENTS

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Number Sense	5. Count by rote (1-10, 1-20, 1-50). **<u>CMT Alignment:</u> (4a) Order whole numbers.**	5. **Rote Counting** Ask the student to count out loud starting from 1. If the student counts beyond 100, ask the student to stop. Record the highest correct number. Successful performance is the ability to count correctly to 50 by the end of the year. [Nov.] Assess rote counting three times during the year and enter the highest number on the record card each time. [Feb.] Assess rote counting for a third time and enter the highest number on the record card. [May]	**E) Recording Highest Number** Observe the student rote count and record the highest number.
	6. Count sets of objects (to 10). **<u>CMT Alignment:</u> (2a) Relate pictorial representations using base ten blocks to whole numbers and vice versa.**	**6. Counting Objects** Place three counting mats on a table and put 5 blocks on one mat, 8 blocks on another mat, and 10 blocks on the third mat. Ask the student "How many blocks are on this mat?" as you indicate the first mat. Observe how the student performs the task (touch counts, counts without touching the blocks, or immediately states the number without counting). If the student correctly states "There are 5 blocks," then repeat the question with the remaining mats. Successful performance is the ability to state the correct number of blocks on each mat, regardless of the strategy used. Record the highest number counted correctly on the record card.	**F) Identifying Numerals** Ask the student to tell each number as you show a set of number cards.

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		[Nov.] Repeat the task, as needed. [Feb.] Repeat the task, as needed. [May]	
Estimation	7. Estimate the number of objects in a set. **<u>CMT Alignment:</u> (10b) Determine a reasonable estimate and describe the strategy used to make the estimate. (11a) Estimate a reasonable answer to a problem.**	7. **Estimating** Show the students a transparent plastic bag that contains ten Unifix cubes. [Feb.] Repeat the task, but use a bag of twenty cubes. [May]	**G) Estimating and Comparing** Ask the student to estimate which of two sets is more; (ask why they made that choice); then have the student count each set and tell which is more. Ask the student to name the number which is one more than the larger set.
Number Sense	8. Compare two sets of objects. **<u>CMT Alignment:</u> (1a) Solve problems involving 1 and 10 more or less.**	**8. Comparing Sets** Give the student five red and six white Unifix cubes (loose, not attached). Ask the student to tell you how many of each color there are. Then ask the student to tell you which color set of cubes is more. If successful, remove one of the white cubes and ask the student to compare the two sets again (they are the same, or equal). [Nov.] Repeat the task. If the student correctly says that the white set has more, ask "How many more?" [Feb.] Repeat the task, but rather than ask which set is more, ask which set is less. [May]	**H) Estimating and Comparing** Ask the student to estimate which of two sets is more; (ask why they made that choice); then have the student count each set and tell which is more. Ask the student to name the number which is one more than the larger set.

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	9. Match numerals to sets of objects. **<u>CMT Alignment:</u> (2a) Relate pictorial representations using base ten blocks to whole numbers and vice versa.**	9. **Match Making** In advance, put out four counting mats of 2, 5, 1, and 3 Unifix cubes. Give the student a shuffled set of numeral cards 1-10. Ask the student to place the matching numeral card next to each set. Observe how the student approaches the task. Successful performance is the correct matching for all four sets. [Feb] Repeat the task, but place 7, 5, 10 and 8 Unifix cubes on the mats. [May]	**I) Identifying Numerals** Ask the student to tell each number as you show a set of number cards.
Number Sense	10. Write numerals. **<u>CMT Alignment:</u> (2a) Relate pictorial representations using base ten blocks to whole numbers and vice versa.**	**10. I Can Write My Numerals** Show the student a mat with one Unifix cube on it. Ask the student to tell you how many and then write the same numeral. Then add a cube to the mat and again ask the student to tell how many and write the numeral. Repeat up to five. [Feb.] Ask the student to count aloud from 1 to 10 and write each numeral after it is said. [May]	**J) Recording Amounts of Objects** Ask the student to write the number on a small chalkboard that tells how many are in a small set or in picture of objects. Repeat for 2 or 3 different amounts.
Number Sense	11. Order sets of objects. **<u>CMT Alignment:</u> (4a) Order whole numbers.**	11. **What's the Correct Order?** Give the student a set of button cards from 0-10. Ask students to arrange them in order. [Feb.]	**K) Matching and Sequencing** Give the student a set of button cards 0-10 and a set of numeral cards. Ask the student to match each set with a card and arrange the sets in order from 0 to 10.
	12. Recognize ordinals (1st to 5th).	**12. Recognize Ordinals** Make a row of five Unifix cubes, each a different color - such as red, yellow, blue, green, and white, when facing the student.	**L) Identifying Ordinals** Given a row of five Unifix cubes, each a different color, ask the student to name the color of the fourth cube, the first cube, the

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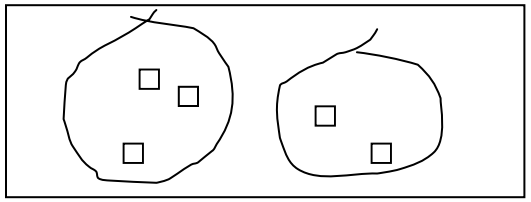
	<u>CMT Alignment:</u> (4a) Order whole numbers. (4b) Describe the magnitude of whole #'s.	Sit next to the student. Ask the student to tell you the color of the first cube; then ask for the color of the third cube. If successful, ask the student to tell the position of the green cube (fourth) and the white cube (fifth, or last). [May]	last cube, etc.
Operations	13. Combine two sets to sum 5. **<u>CMT Alignment:</u> (6a) Add and subtract facts to 18.**	**13. Combining Sets** In advance, use a marker to draw a Sets Board arrangement on a large sheet of paper or oaktag. Have available some counting objects, such as blocks of one color, bottle caps, or teddy bear counters.  Ask the student to put three blocks in one small ring and 2 blocks in the other. Ask, "How many blocks are there together?" Repeat with other combinations, such as 2 + 2, 3 + 1, 1 + 4. Observe the student's strategy - does the student count them all again, count on, or simply state the sum? If the student recounts all objects in both sets, the student should be given more	**M) Acting Out Story Problems** Take out a *Workjob* material and tell a simple story to the student who uses the material to act out the story, such as "There were 3 fish in the aquarium, 2 more swim in, how many fish are there in all?"

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		opportunities to complete similar tasks in the classroom. Do not check the record card for mastery. If the student counts on, or states the sum, the student is ready to move on in the curriculum. Record the task as mastered. [May]	
	14. Solve a simple oral story problem. **<u>CMT Alignment:</u> (9a) Solve simple story problems involving addition and subtraction.**	**14. Oral Story Problem** Give the student a handful of pennies which may be used as the student chooses. Tell the student you are going to read aloud a story problem about pennies - and that you will read it twice. Then read the problem. "Jimmy had three pennies. Maria gave him five more pennies. How many pennies does Jimmy have in all?" Read the problem again. Note whether the student solves the problem with or without counting out pennies. [May]	**N) Acting Out Story Problems** Take out a *Workjob* material and tell a simple story to the student who uses the material to act out the story, such as "There were 3 fish in the aquarium, 2 more swim in, how many fish are there in all?"
Measurement	15. Count pennies. **<u>CMT Alignment:</u> (1a) Solve problems involving 1 and 10 more or less.**	**15. How much money do I have?** Place a pile of 10 pennies in front of the student and ask the student to count them. [May]	**O) How many pennies?** Observe students as they engage in tasks that require counting and trading pennies.

KINDERGARTEN ASSESSMENTS

Standard	Benchmark	Performance Activity	Performance Task
Number Sense	16. Identify half of a whole object. **<u>CMT Alignment:</u> (2b) Identify, label or shade frictional parts of regions and sets.**	**16. Making Halves** Fold a paper in 1/2. Color 1/2 of a shape. [May]	**P) Making Halves** Given 3 choices, point to item that represents 1/2. Given 3 shapes, fold them in half.
Measurement	17. Sequence events. **<u>CMT Alignment:</u> (14b) Solve problems involving time, elapsed time and calendars.**	**17. Before and After** Give the student a set of three or four picture cards and ask the student to arrange them in order and tell a story. [Feb.]	**Q) Time Relationships** Observe that students use the appropriate language to describe time relationships.
	18. Relate calendar to everyday experience. **<u>CMT Alignment</u>: (14b) Solve problems involving time, elapsed time and calendars.**	**18. Calendar Language** During the daily classroom activities, observe that the student consistently uses the names of the days of the week, can tell which weekdays are school days and which days are not, and appropriately uses terms such as today, yesterday, and tomorrow. [Feb.]	**R) Time Relationships** Observe that students use the appropriate language to describe time relationships.
Geometry	19. Identify shapes. **<u>CMT Alignment:</u> (17a) Identify geometric shapes and figures including the number of angles and sides of polygons.**	**19. What shape am I?** Show the student each shape in turn and ask the student to name it. You may use wooden blocks from manipulative sets such as Attribute Blocks or Pattern Blocks. Teacher-made cardboard cutouts also may be used. Successful performance is the ability to name each shape. [Nov.]	**S) Name the Shape** Child will point out and name shapes (circle, triangle, square, rectangle, diamond)

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	20. Use vocabulary of position. **<u>CMT Alignment:</u> (18) Not tested at Grade 4**	**20. Vocabulary of Position** In advance, draw a rectangle on a sheet of oaktag. Place it in front of the student and give the student a Unifix cube. Ask the student to put the cube inside the rectangle. If successful, continue to ask the student to move the cube so it is outside, to the right, near the bottom, etc. [Feb.]	**T) Geoboards: Shapes and Positions** Ask the student to build a square on the geoboard. Ask the student to place a Unifix cube inside the square; then place the cube, in turn, near the top, near the bottom, outside, to the left, and to the right of the square.
Number Sense	21. Estimate and compare length, area, volume, and weight - nonstandard units. **<u>CMT Alignment:</u> (15) Estimate lengths and areas.**	**21. Estimating Lengths** In advance, precut two strips of oaktag - make one equal in length to 5 Unifix cubes snapped together, and the other 10 cubes. Give the student the two strips and ONE Unifix cube and ask the student to estimate the length of each strip. Record the estimates. Repeat, but use longer strips - 8 and 15, for example. [May] **Estimating Area** In advance, cut a 3-inch by 5-inch rectangle from a sheet of oaktag (or use a 3 x 5 index card). Give the student ONE Color Tile and ask the student to estimate how many tiles would cover the rectangle. Record the estimate. (Note: although to the adult the unit is a square inch - to a student, the Color Tile is nonstandard.) Repeat, but use a 4 x 6-inch rectangle or index card. [May] **Estimating Volume**	**U) Estimate and Measure** Ask the student to estimate the length of an object, such as a pencil, in Unifix cubes, and then measure it using the cubes. **Spatial Relationships 1** Place a red, a yellow, and a blue Pattern Block together to form a design. Ask the student to estimate how many green triangles will cover the design. Then have the student cover and count. **Estimating and Measuring Volume**

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		In advance, find a jar or other container that will hold from 8 to 12 Unifix cubes when filled. Show the jar and ONE cube to the student and ask the student to estimate how many cubes will fit in the jar. Record the estimate. Repeat, but select a jar that will hold from 12 to 20 Unifix cubes. [May] **Estimating Weight** In advance, find two objects, one of which is obviously heavier than the other. Place the objects in front of the student and ask the student, before picking them up, to guess which is heavier. Then ask the student to pick them up and describe them. [May]	Fill a small jar with walnut-sized objects (less than ten should fill the jar) and ask the student to estimate the number in the jar. Then count. Select a somewhat larger jar and ask the student to guess if all the walnuts in the first jar will fit in the second jar. Then transfer them. Next, ask the student to estimate how many more walnuts could be added to the jar and fill it. Then count and fill. **Estimating Weight** Ask the student to select two different small objects in the classroom, one which is heavier than the other. Ask the student to predict what will happen when the objects are each placed in a pan of the balance. Then place the objects in the pans and discuss.
Measurement	22. Measure length - nonstandard units. **<u>CMT Alignment:</u> (16a) Measure or draw lengths to the nearest inch or centimeter.**	**22. How long is that?** Continuing from Activity 21, give the student a handful of at least 12 Unifix cubes and ask the student to measure each strip. Record if successful. Repeat, but use longer strips - 8 and 15, for example. [May] **How big is that?** Continuing from Activity 23, give the student a pile of Color Tiles (at least 20), and ask the student to find the area of the rectangle. Record if successful.	**V) Non-Standard Measures** Ask the student to build a Unifix cube train with a length of eight. Then ask the student to find an object in the room that is shorter than the train, another that is about the same length, and a third object that is longer than the train. **Spatial Relationships 2** Ask the student to take a handful of Color Tiles and build a flat design. Have the student take a second handful and build another flat design. Ask the student which

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		Repeat in May, but use a 4 x 6 rectangle or index card. [May] **How much will fit inside?** Continuing from Activity 25, give the student at least 30 more Unifix cubes and ask the student to find out how many will fill the jar. Record if successful. Repeat, but use a larger container that holds 15 to 25 cubes. [May]	design is larger, then estimate the number of tiles in each design; and then count and compare the areas. **Estimating and Measuring Volume** Fill a small jar with walnut-sized objects (less than ten should fill the jar) and ask the student to estimate the number in the jar. Then count. Select a somewhat larger jar and ask the student to guess if all the walnuts in the first jar will fit in the second jar. Then transfer them. Next, ask the student to estimate how many more walnuts could be added to the jar and fill it. Then count and fill.