MILE
Math Interactive
Learning Experience

Measurement-Time

Page: 49

Supplies

Beads and string; pegboard and pegs; interlocking cubes; a 30-second and a 1-minute sand timer.

The Activity

The student will do an activity, for instance putting beads on a string, putting pegs in a pegboard, or making 10-towers by putting 10 same color interlocking cubes together. The activity lasts as long as the sand in the sand timer is running (30 seconds or 1 minute). The student will record the number of beads, pegs, or cubes that were used. Next, they can use one of the other objects to put together and compare the two activities.

Variations

- The student can estimate how many cubes, pegs, or beads they can put together during the time period. Then do the activity and compare the actual number with the estimate.
- The student does the same activity, once using the 30-second timer and once using the 1-minute timer. Then the numbers are compared.

Focus:

Encourage the student to focus they attention on the task at hand. Allow the student to get acquainted with the supplies by touching, holding, and talking about them. Formulate a plan with the student.

Questions: What is the plan? What do you need to do first? Next?

Act:

The student will estimate and measure the objects and record their findings.

Questions: How many beads did you string in 30 Seconds? Do you think you can string more if I set the timer again? How come? How many more did you string when the timer ran for 1 minute? How come the numbers for the pegs and the beads were different, even though the time was the same?

Reflect:

During and after the activity, reflect on what the student is doing/has done.

Questions: What did you do? What did you find out about the objects you measured? If something is shorter than something else, can it at the same time be taller than something else? How come?

Math Observation Checklist:

This activity will give insight into the student's understanding of size, conservation, focused perception, systematic exploration, attending to more than one piece of information, attending to relevant information, and inhibition of impulsivity.

MILE
Math Interactive
Learning Experience

Measurement-Time

Page: 53

Supplies

Sheet of 1" grid paper; multiplication chart; Base 10 blocks (cubes and rods); tens-and-ones chart (see example on the right); number cards or number dice to create the numbers to be multiplied; markers.

The Activity

The student will multiply double-digit numbers by a single digit number, without regrouping. Ask the student to write down the multiplication problem vertically. Explain that multiplication always starts with the ones column and then the tens column. For instance 14 x 2. Ask the student to lay out the array for 2 groups of 4 with the ones-cubes in the ones-column. Next they will lay out the array for the tens with the tens-rods and decide what the product of 14 and 2 is.

Variations

- Use three-digit numbers to be multiplied by a one-digit number. In this case the 100 flats are also needed, as well as a hundreds-tens-ones chart (see example on the right of the tens-and-ones chart, and add a column for the hundreds).

Focus:

Encourage the student to focus their attention on the task at hand. Allow the student to get acquainted with the supplies by touching, holding, and talking about them. Formulate a plan with the student.

Questions: What is the plan? What do you need to do first? Next?

Act:

The student will pick a double digit number, write down the math problem vertically, and lay out the arrays for the ones and the tens for each number to be multiplied, Then they will record the math problem with the product.

Questions: What number needs to be multiplied first? Why do you think that is so? How can you check if you got the right number?

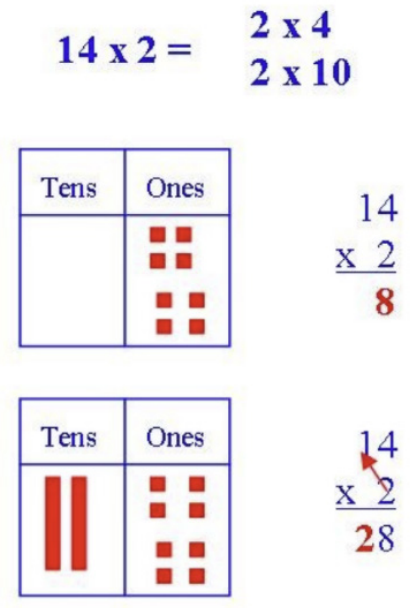
Reflect:

During and after the activity, reflect on what the student is doing/has done.

Questions: What did you do? When you multiplied 14 and 2 what was the product? How could you tell? What did you need to do after you had laid out all the blocks and rods?

Math Observation Checklist:

This activity will give insight into the student's ability to understand that multiplication is repeated addition, knowledge of multiplication tables, procedure for single digit multiplication, systematic exploration, attend to more than one piece of information, and attend to relevant information.



MILE
Math Interactive
Learning Experience

Measurement-Time

Page: 57

Supplies

Sheet of 1" grid paper; multiplication chart; Base 10 blocks (cubes and rods); tens-and-ones chart (see example on the right); number cards or number dice to create the numbers to be multiplied; markers.

The Activity

The student will multiply double-digit numbers by a single digit number, with regrouping. Ask the student to write down the multiplication problem vertically. Explain that multiplication always starts with the ones column and then the tens column. For instance 14 x 3. Ask the student to lay out the array for 3 groups of 4 with the ones-cubes in the ones-column. Next they will lay out the array for the tens with the tens-rods and decide what the product of 14 and 3 is. Because 3 x 4 = 12, the student will have to make a ten with the cubes and carry it to the tens column. Make sure the student adds the one ten after the multiplication has taken place (i.e. 3 x 10 plus the extra, carried 10)

Variations

- Use three-digit numbers to be multiplied by a one-digit number. In this case the 100-flats are also needed, as well as a hundreds-tens-ones chart (see example on the right of the tens-and-ones chart, and add a column for the hundreds).

Focus:

Encourage the student to focus they attention on the task at hand. Allow the student to get acquainted with the supplies by touching, holding, and talking about them. Formulate a plan with the student.

Questions: What is the plan? What do you need to do first? Next?

Act:

The student will pick a double digit number, write down the math problem vertically, and lay out the arrays for the ones and the tens for each number to be multiplied, Then they will record the math problem with the product.

Questions: The student will pick a double digit number, write down the math problem vertically, and lay out the arrays for the ones and the tens for each number to be multiplied, Then they will record the math problem with the product.

Reflect:

During and after the activity, reflect on what the student is doing/has done.

Questions: What did you do? When you multiplied 14 and 2 what was the product? How could you tell? What did you need to do after you had laid out all the blocks and rods?

Math Observation Checklist:

This activity will give insight into the student's ability to understand that multiplication is repeated addition, knowledge of multiplication tables, procedure for single digit multiplication, systematic exploration, attend to more than one piece of information, and attend to relevant information.