CONSTRUCTING TASK: Moving Day

Approximately 1-2 days

STANDARDS FOR MATHEMATICAL CONTENT

MCCK.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings[1], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

MCCK.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

MCCK.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).

MCCK.OA.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

MCCK.OA.5 Fluently add and subtract within 5

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

Most part-part whole activities focus on a single number for the entire activity. Thus, a child or group of children working together might work on the number 7 throughout the activity. Either children build the designated quantity in two or more parts, using a wide variety of materials and formats, or else they start with the full amount and separate it into two or more parts (Van de Walle, p.48)

ESSENTIAL QUESTIONS

- Does the order of addends change the sum? Give examples to justify your thinking.

- How can I find the total when I put two quantities together?
- How can I find what is left over when I take one quantity away from another?
- How can I represent problems using objects, pictures, and numbers?
- How can strategies help us solve problems?
- How do you know when your answer makes sense?
- What happens when I decompose a quantity?
- What happens when I join quantities together?
- What happens when some objects are taken away from a set of objects?
- What is a strategy?
- What is the difference between addition and subtraction?

MATERIALS

- *Moving Day* part-part whole mat
- Centimeter cubes another counting manipulative (quantity depends on focus number)
- Folder
- Blank white paper
- Colored pencils or crayons

GROUPING

Whole, Individual, Small group task

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

This lesson focuses on the number *10,* however it could be repeated with every number 1-10.

Part I
Bring students to a meeting area and ask how many of them have moved or changed homes before. After allowing students to share their experiences, give each student a *Moving Day* part-part whole mat. Give each student 10 centimeter cubes. Allow the cubes to represent moving boxes for this task. Be sure that students are able to make the connection between moving boxes and the cubes and also the difference between the car and the trailer.

Ask the students some of the following questions and allow time for students to model and discuss what they did:

- *I was moving 10 boxes. I had 5 boxes in the car and the rest were in the trailer. How many were in the trailer?*
- *If I had 3 boxes in the trailer and 7 boxes in the car, how many boxes am I moving?*
- *I had 4 boxes in the trailer and I was moving 10 boxes in total. How many boxes were in the car?*
- *I was moving 10 boxes and none of them fit in the car. How many boxes were in the trailer?*

As students identify how many boxes there are, be sure that they explain their strategy of solving the problem (Example: counting up, subtracting from 10, etc…)

Part II

In pairs, have one student use the part-whole mat and create a situation that is shielded from the partner's view with the folder (example: 2 boxes in the car and 8 boxes in the trailer). The player then verbally shares part of the mat with the partner and the partner must identify the other part. (Example: One student says *"I have 2 boxes in the car, how many boxes are in the trailer?* The other student then determines how many boxes are in the trailer). If the responding player identifies the correct amount of boxes, the roles change.

Part III

Give each student a piece of blank white paper and have them create a picture/situation that can be used as a part-whole mat. Have them create 3 questions to go along with their picture. They can use any accessible manipulative in the classroom in conjunction with their mat. After they have created the mat and 3 word problems, they partner with another student and share each other's mat. Each student must try and solve their partner's word problems using the mat. (Some mats can be laminated and saved as a center for ongoing practice).

FORMATIVE ASSESSMENT QUESTIONS

- Are there any more ways to decompose the number 10? How do you know?
- Why did you decide to do it this way?
- Are you sure that you have found them all? Why do you think so? How do you know?
- Did you develop a strategy to find your answers?
- Did you identify any patterns or rules? Explain!

DIFFERENTIATION

Extension

- Instead of using 10 counting objects as boxes, the students can explore number relationships to 20 by increasing the number of manipulatives.

Intervention

- Allow students to work with smaller numbers within 5 so that they can practice using efficient strategies to solve the problems. Counting strategies are efficient at this stage, but will become inefficient and distracting as numbers get larger. As students begin to understand the relationships among numbers, they will begin learning number facts at a recall level (Carpenter et al. 1999).

Moving Day

Moving Day

Name:_____

Boxes in the car	Boxes in the trailer	Boxes being moved