

Connecting Cubes

Purpose

Students will use interlocking blocks to learn about the conservation of numbers while utilizing problem-solving skills.

Materials

For each group of students: enough interlocking cubes to build at least 4 constructions, copy of Black Line Master (BLM) *Connecting Cubes* (cut into 10 pieces)

Activity

A. Introducing the Problem

1. Divide students into groups of two or three, depending on access to materials.
2. Provide each group with 20 blocks.
3. Explain to the class the idea of the conservation of numbers since some students may believe the quantity of objects can change depending on how they are arranged.

B. Solving the Original Problem

1. Ask each group member to count out five blocks and line them up in front of him/her.
2. Ask the students: "Do the rows look like they have the same number of blocks?" "Why?"
3. Have one of the students connect his/her blocks together, and ask the students once again if each person has the same number of blocks.
4. Reiterate to students that the number of blocks does not change when they are arranged differently (e.g., five blocks will always be five blocks no matter how they are arranged).

C. Solving Related Problems, Part I

1. Using the connecting cubes, have the students find four different ways to build connecting constructions of five blocks each.
2. Inform students that each construction can be flipped, picked up, or moved in any way so as not to match any other construction and that all the cubes in the construction must be connected.
3. Ask students if any of their constructions contain more/fewer blocks than the others, and ask them how they know.

(continued)



MEETING
INDIVIDUAL

NEEDS

Challenge students who grasp the concepts in the activity by having them create additional constructions or work with additional pieces.



connecting
across the

curriculum

Science

Using the cube constructions from the activity, ask students to describe the objects by saying how they are similar or different.

Standards Links
K.1.1, K.1.2, K.1.3

Activity (continued)





D. Solving Related Problems, Part II

1. Give each group 8-10 of the game cards made from the BLM *Connecting Cubes*.
2. Ask each student to select a card and make that pattern with his/her blocks (e.g., one student may select a card with two separate blocks on it while the other selects a card with five connected blocks on it).
3. Have students determine if one set of objects is equal to, more than, or less than another.
4. Ask the students how they came to their conclusion.
5. Repeat until all of the cards have been used or as time permits.

Questions for Review

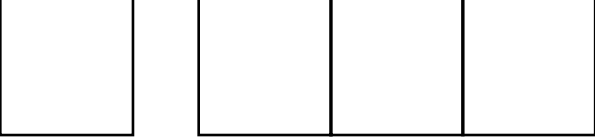
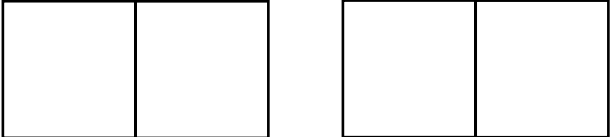


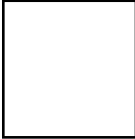
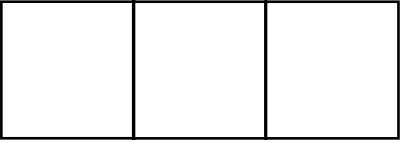

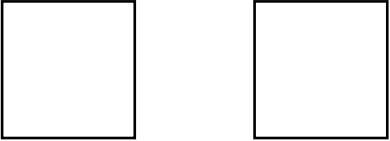


Basic Concepts and Processes

During the activity, discuss the following questions with your students to gauge their understanding of the Standard Indicators:

-  How many blocks do you have? Is it the same number as [insert name]?
 -  Show me your constructions. How are they different? How are they the same?
 -  How did you come up with the different designs for your constructions?
 -  How did you determine if you have more blocks than [insert name]?
-

Name: _____

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Teacher Directions

Provide each group with cut-up copies of BLM *Connecting Cubes* (copying the BLM onto card stock will provide more durable game pieces).

See activity for instructions.

Answer Key

Answers will vary depending on the card selected.