

Cube Connections

Strand:	Computation and Estimation
Topic:	Recognizing and describing part-whole relationships for numbers up to 10
Primary SOL:	1.7 The student will a) recognize and describe with fluency part-whole relationships for numbers up to 10;
Related SOL:	1.1, 1.6, 1.7b, 1.15

Materials

- Connecting cubes –each pair of students will need two colors
- Recording sheets
- Crayons/pencils

Vocabulary

make, build, part, whole, add, and, plus, equal, total

Student/Teacher Actions: What should students be doing? What should teachers be doing?

Note: When working on part/whole activities, students typically work with one ‘whole’ for several days until they are fluent with all of the combinations for that ‘whole’. If a math workshop model is being used, the activity in this lesson can become a station and each student can work on whatever ‘whole’ is appropriate for his or her level of learning.

1. Explain to students that they will be connecting cubes to create a given number, such as 10, and finding ways to make that number with the cubes. (The recording sheets for this activity are to be completed as students work with a given number—not all in one lesson.)
2. Each partner group needs to select two colors of cubes to use to make the given number.
3. After students have selected the colors, ask them to determine how to build the given number using the two colors of cubes.
4. Show students how to record a picture of what they made, as well as the numbers that represent the quantities of cubes used. (Record the same color first for each cube combination.)
5. Have students continue working to build the given number in different ways and record the solutions on the sheet.
6. Gather students together as a class to discuss the different ways they made the given number.
7. Record their ideas with numbers and pictures on chart paper or the board, and ask them what they notice about the shared ideas.

Assessment

- **Questions**
 - How did you make ____?

- How do you know that ____ and ____ make ____?
- What patterns do you see?
- Are there other ways to make ____?
- How do you know we have found all the different ways to make ____?
- Does ____ always go with ____ to make ____?
- **Journal/writing prompts**
 - If you have 4 green cubes, how many red cubes will you need to make 7? Write a number sentence to show the parts and the whole.
 - Jose had 6 plates. Some were red and some were green. Draw a picture to show what Jose’s plates might look like. Can you find more than one way? Show all of the combinations Jose might have.
- **Other Assessments**
 - Provide a container of counters. Have students count out 8 (or whatever number you are working on). Hide some of the counters under your hand. Ask students to tell you how many counters are hidden. Repeat for all of the combinations for that number.
 - Play “I Want to Have ____”. Say: “I want to have six, but I only have 4. How many more do I need?”

Extensions and Connections (for all students)

- This activity could be used as a springboard for connecting addition and subtraction and writing related facts.
- Students could write and solve their own story problem using the number of the day.
- This activity could be placed at a station for students to complete during math workshop time.

Strategies for Differentiation

- If working at stations, each student can work on whatever number is appropriate for his or her level of proficiency.
- Have students write number sentences using the “+” and “=” signs on the recording sheets.
- If writing numerals and symbols is difficult, students can simply say the combination.
- If students have difficulty with numeral recognition, provide a number path so that students can find and write the correct numeral.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

Cube Connections – 4

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_____ and _____ is 4

Name _____

Cube Connections - 5

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Name _____

Cube Connections - 6

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Name _____

Cube Connections - 7

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Name _____

Cube Connections – 8

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Name _____

Cube Connections - 9

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Cube Connections - 10

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