What is Volume?

Materials needed: pencil, book, snap cubes

Let's build and compare objects made of cubes.

Hand Signals

These are our **thinking signals**. We will allow everyone the opportunity to think. We will not blurt out answers. Hold your hand to your chest using the “I am ready and thinking symbol.”

I am ready and thinking.

I have a strategy.

I have two strategies.

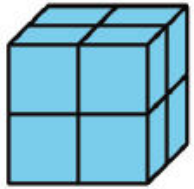
I agree!

Lesson 1: Find Volume Warm-Up

Pick one that doesn't belong and be ready to share why it doesn't belong.

Be sure to use your hand signals.

A.



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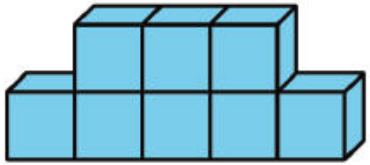

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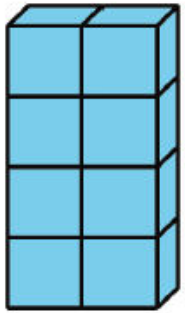
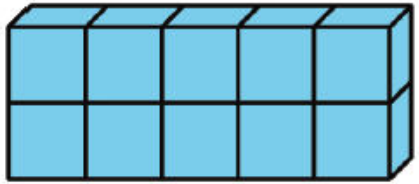
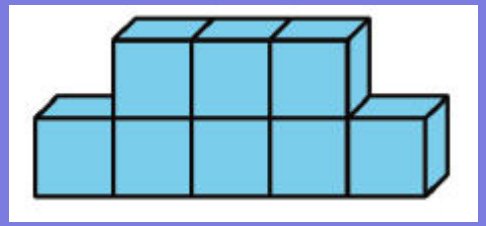


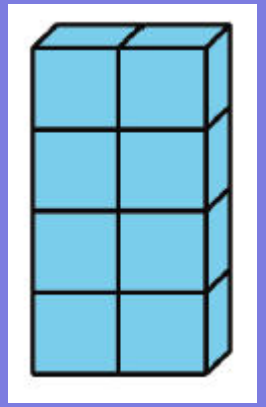
D.

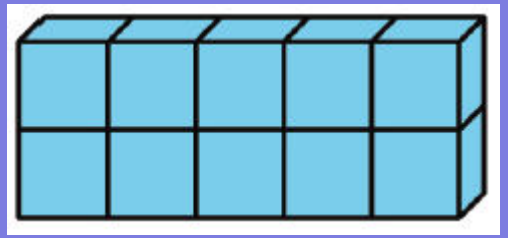


Warm-Up Synthesis

What do objects A, C, and D have in common?







Mathematical Community

Doing Math	Norms
Students	Students
Teacher	Teacher

Activity 1: Build Objects with Cubes

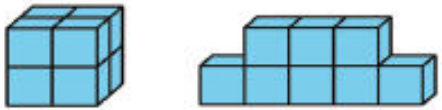
Now you will compare objects to determine which is bigger.

Quiet work time.

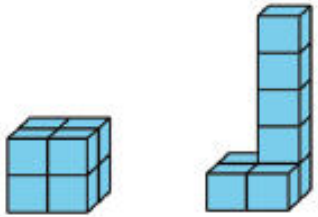
Discuss with your partner.

Student-facing Task Statement

1. Which is bigger? Explain your reasoning.



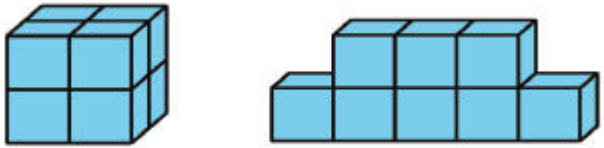
2. Which is bigger? Explain your reasoning.



3. What does it mean for an object to be "bigger"?

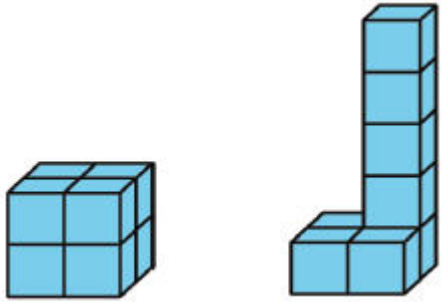
Activity 1 Synthesis

How would you describe the amount of space each object takes up?



We call the amount of space an object takes up as the object's **volume.**

Which shape has a greater volume?



What is different about the two shapes?

Activity 2: Build and Order

With your group, work on the Student-facing Task.

You will have 10 minutes of group work time.

Student-facing Task Statement

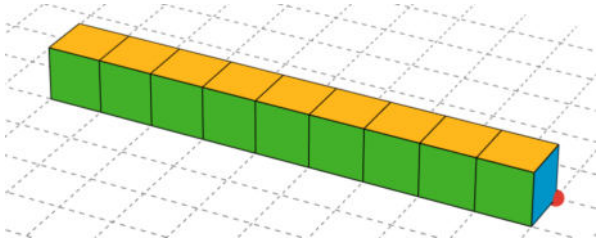
1. Each group member:
   a. Take a handful of connecting cubes
   b. Build an object
2. Order the objects by volume.
3. Repeat.
4. Each group member:
   a. Take 9 connecting cubes
   b. Build an object
5. Order the objects by volume.
6. Repeat.

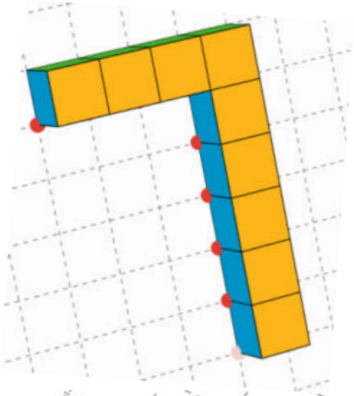
Activity 2 Synthesis

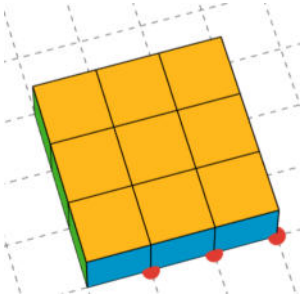
What is the same?
What is different?

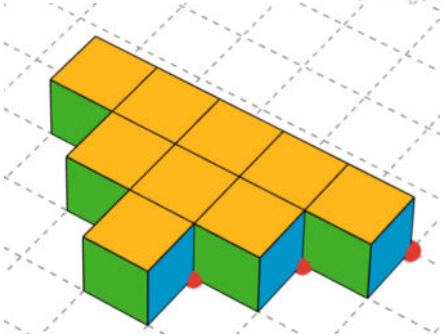
How do the volumes of these shapes compare? How do you know?

How much space does each shape take up?









Lesson Synthesis

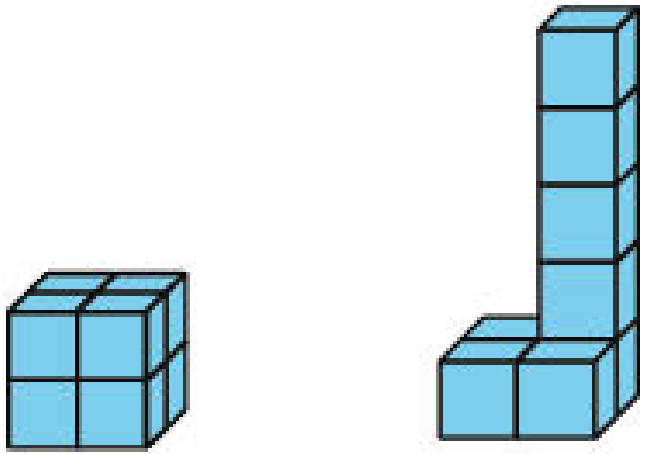
Today, we built objects out of cubes and compared them by the amount of space they take up. We call this an object's ***volume***.

Lesson Synthesis

How are the two shapes the same?

How are the two shapes different?

These two objects have different shapes, but take up the same about of space, that is they have the same **volume**.



Let's build and compare objects made of cubes.

Cool-Down

Which has more volume?

Complete the cool-down by yourself.