

Problem Solving: Use Objects and Reasoning

Each cube has a volume of 1 cm^3 .

The area of one face of the cube is 1 cm^2 .

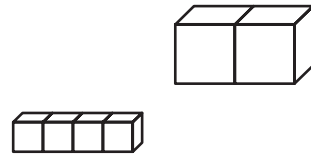
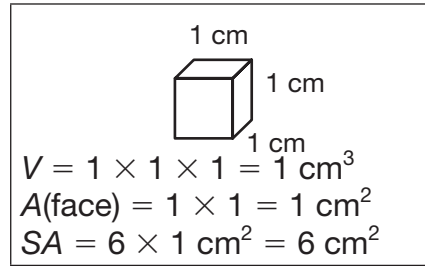
The surface area of the cube is the sum of the area of each face of the cube.

To find the surface area of a figure of cubes, count only the faces that are exposed.

$$V = 2(1 \times 1 \times 1) = 2 \text{ cm}^3$$

$$SA = 10(1 \text{ cm}^2) = 10 \text{ cm}^2$$

The arrangement of cubes can affect the surface area, but the same number of cubes will always have the same volume.



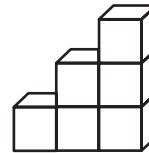
$$V = 4 \text{ cm}^3$$

$$SA = 18 \text{ cm}^2$$

$$V = 4 \text{ cm}^3$$

$$SA = 16 \text{ cm}^2$$

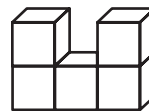
1. Find the volume and surface area of the figure.



2. Make a figure of cubes that has a volume of 7 cm^3 and a surface area of 26 cm^2 . Draw your figure.

3. **Reasoning** Explain how you know how many cubes to use to make the figure in problem 2.

4. Find the volume and surface area of the figure.



5. **Geometry** If the cubes in problem 4 were increased to 3 cm on a side, how would the volume and surface area be affected?

