Cube or Not?

Sort the pictures, then build with unit cubes.

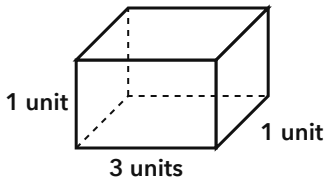
3.GM.1.2 "Build a three-dimensional figure using unit cubes when shown a picture of a three-dimensional shape."

NAME _____ DATE _____

CAN BUILD

You can make the pictured solid exactly with whole unit cubes. Use the side lengths to decide how many cubes fit.

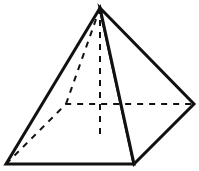
This block is 3 units long, 1 unit wide, and 1 unit high. Three unit cubes make it.



CANNOT BUILD

Whole unit cubes cannot make the pictured solid exactly. Cube faces are flat squares, so they cannot make a curved or slanted face.

This pyramid has slanted faces. Whole unit cubes cannot make it exactly.



1 SORT

8 items

Circle BUILD or CANNOT for each picture, build each BUILD picture with unit cubes, and for Part 2 choose one picture from each group and explain how you knew.

1.

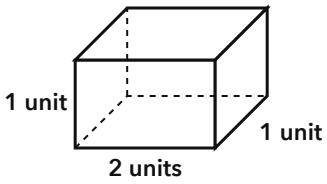


Figure 1

BUILD CANNOT

2.

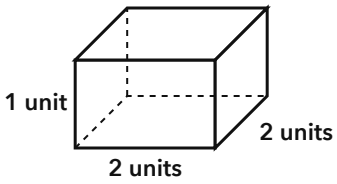


Figure 2

BUILD CANNOT

3.

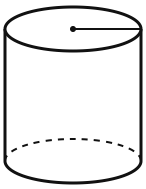


Figure 3

BUILD **CANNOT**

4.

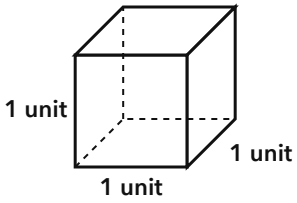


Figure 4

BUILD **CANNOT**

5.

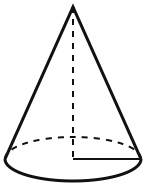


Figure 5

BUILD **CANNOT**

6.

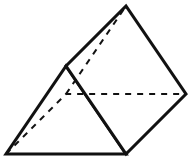


Figure 6

BUILD **CANNOT**

7.

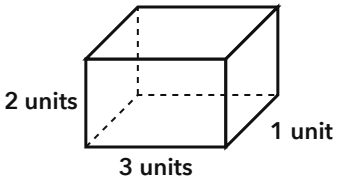


Figure 7

BUILD **CANNOT**

8.

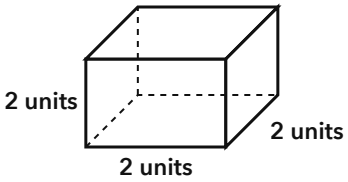


Figure 8

BUILD **CANNOT**

2 PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Draw one new BUILD solid and one new CANNOT solid, label each drawing, and make your BUILD solid with unit cubes.

BUILD

CANNOT

CHALLENGE

Build a solid that uses the same number of unit cubes as Figure 8 but has a different shape, then draw it and label its length, width, and height.

ANSWER KEY

Cube or Not?

GRADE 3 · 3.GM.1.2

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (prism)	**BUILD**	Two unit cubes make the pictured prism.
2	Figure 2 (prism)	**BUILD**	Four unit cubes make the pictured prism.
3	Figure 3 (cylinder)	**CANNOT**	Whole unit cubes cannot make the cylinder's curved side.
4	Figure 4 (cube)	**BUILD**	One unit cube matches the picture.
5	Figure 5 (cone)	**CANNOT**	Whole unit cubes cannot make the cone's curved side.
6	Figure 6 (triangular_prism)	**CANNOT**	Whole unit cubes cannot make its triangular ends or slanted faces exactly.
7	Figure 7 (prism)	**BUILD**	Six unit cubes make the pictured prism.
8	Figure 8 (prism)	**BUILD**	Eight unit cubes make the pictured prism.

PART 2 · PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **BUILD**: Draw a prism 3 units long, 3 units wide, and 1 unit high; make it with 9 unit cubes.
- **CANNOT**: Draw a hemisphere with a curved surface.

Challenge: A prism 4 units long, 2 units wide, and 1 unit high uses 8 unit cubes and has a different shape from Figure 8.

For Part 2, accept explanations that connect BUILD to an exact construction with whole unit cubes or CANNOT to a curved or slanted face. Figure 8 uses 8 cubes, so the challenge construction must also use 8.