

Surface Area and Volume Flags

Use centimeter linking cubes to solve the following problems.

4. Build a $4 \times 4 \times 2$ rectangular prism.

- Decrease the volume by $\frac{1}{4}$. How many blocks did you remove?
- Form a new prism with the blocks. The new surface area is larger than that of the original prism.
- How many possible prisms having integer dimensions match this description?
- Can you find a prism with at least one non-integer value for a dimension?

5. Build a $4 \times 5 \times 2$ rectangular prism. Add 20% to the volume.

- How many blocks did you add?
- Find all possible prisms having the new volume.
- Which one has the least surface area? Greatest?
- What do you notice about the relationship between dimensions and surface area?

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Use centimeter linking cubes to solve the following problems.

1. Build a $3 \times 2 \times 4$ prism.

- Remove blocks to cut the volume by $\frac{1}{3}$.
- Find possible new dimensions.

2. Build a rectangular prism.

- The surface area is exactly double the volume.
- Name the dimensions.

3. Build a $2 \times 2 \times 4$ rectangular prism.

- Now build another prism that has different volume but the same surface area.
- Sketch this solid and label the dimensions.