

BLOCK PARTY

Teaching Guidelines

Subject: Mathematics

Topics: Measurement (volume), Geometry (rectangular prisms)

Grades: 3 - 7

Concepts:

- Surface area
- Volume
- Cubic centimeter

Knowledge and Skills:

- Can find the volume of a rectangular prism by computation

Materials (for each team):

- one pair of safety scissors
- one roll of $\frac{1}{2}$ wide transparent tape
- a few sheets of one-centimeter grid paper.

Procedure:

This activity is best done individually, but can also be done in teams of two.

Distribute the two handouts (instruction sheet and patterns). Review the instructions and have students begin the activity.

As the students work, circulate, observe and have them describe what they are doing. Be patient, as this activity may take 45 minutes or more.

You may wish to give students the hint that one way to match the patterns to their shapes is by determining the surface area of each (the surface area of the pattern will be equal to the surface area of the shape).

To speed up the activity, or for students that need extra help, you may wish to make the shapes yourself in advance and have them available as models.

At the conclusion of Part I, ask this question (students may answer orally or in writing):

“Suppose I have two shapes with the same volume. Will those shapes always have the same surface area? Explain your answer.” (*As demonstrated by the two larger shapes in Part I, shapes that have the same volume do not always have the same surface area.*)

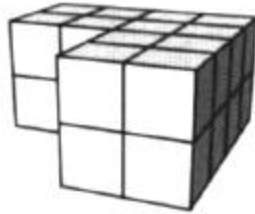
For Part II of the activity, you will need to provide students with 1-centimeter grid paper for their patterns.

Block Party

Part I : Each of the shapes below can be made from the patterns on the grid that your teacher will give you. (Be sure to cut all dotted lines.)

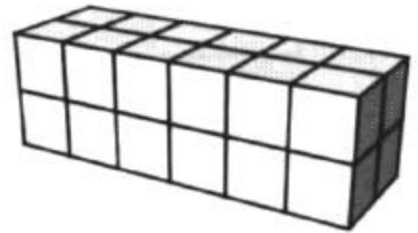
For each shape, choose the correct pattern, and make the shape (be sure to cut all dotted lines around and in each pattern).

Then find the volume of the shape and its surface area.



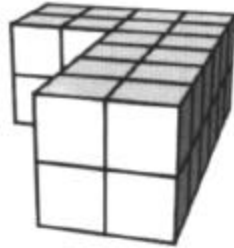
Area: _____

Volume: _____



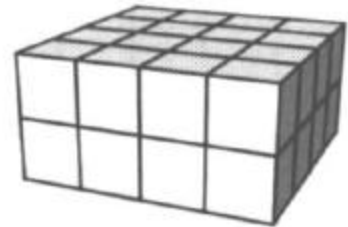
Area: _____

Volume: _____



Area: _____

Volume: _____



Area: _____

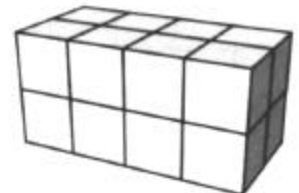
Volume: _____

Part II: Make patterns for these shapes. Then make the shapes and find the volume and surface area of each one.



Area: _____

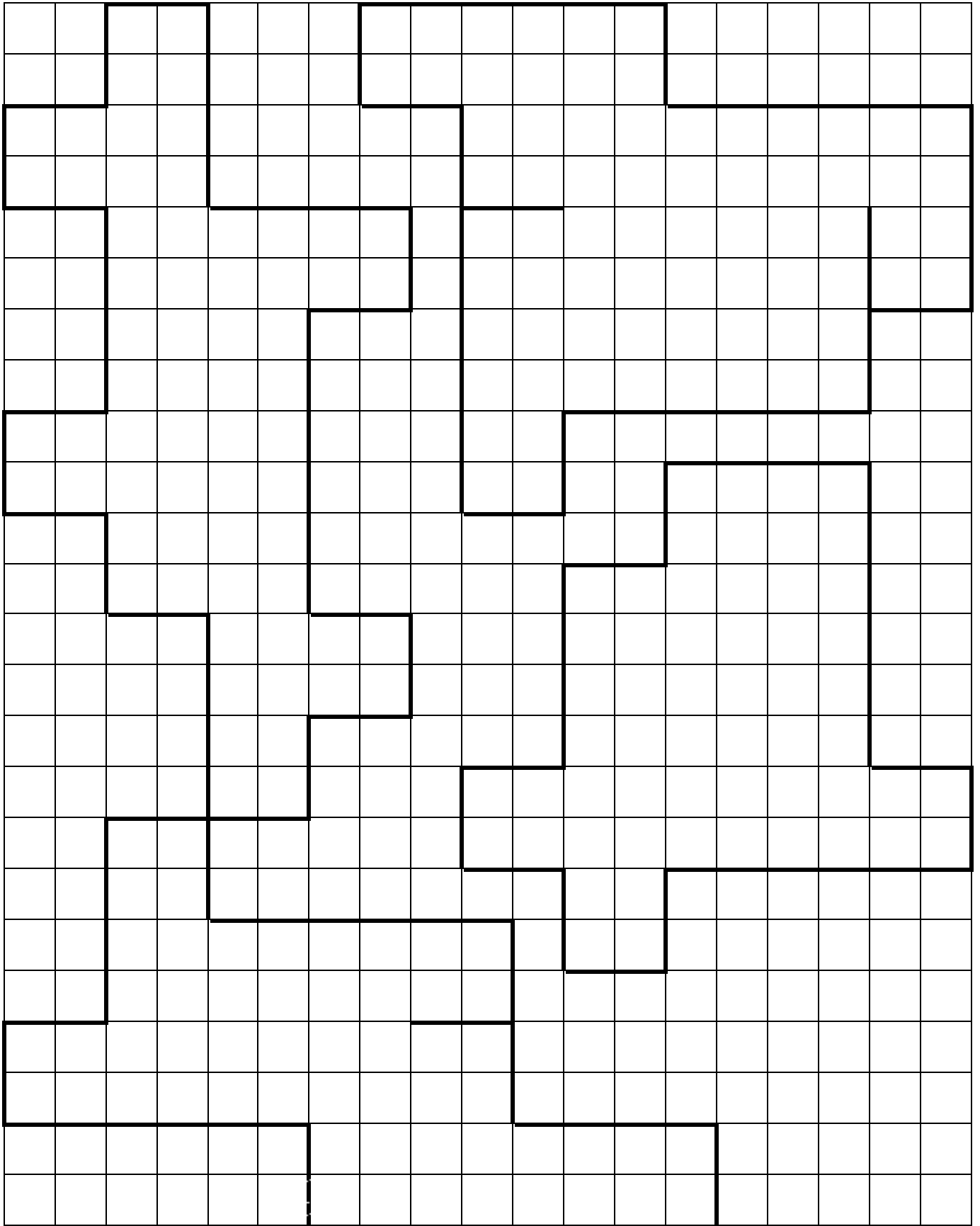
Volume: _____



Area: _____

Volume: _____

Block Party Patterns: Each square in the grid is one square centimeter.



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