

Lab FW 2.1: Packaging Blocks

Name _____

Date _____ Period _____

Filling & Wrapping Unit



Materials: Centimeter or inch cubes, Isometric Dot Paper, Pencil



Key Learning: Find all the arrangements possible for 24 cubic blocks. Discover a relationship between the surface area and the dimensions of boxes with the same volume.



Guided Directions



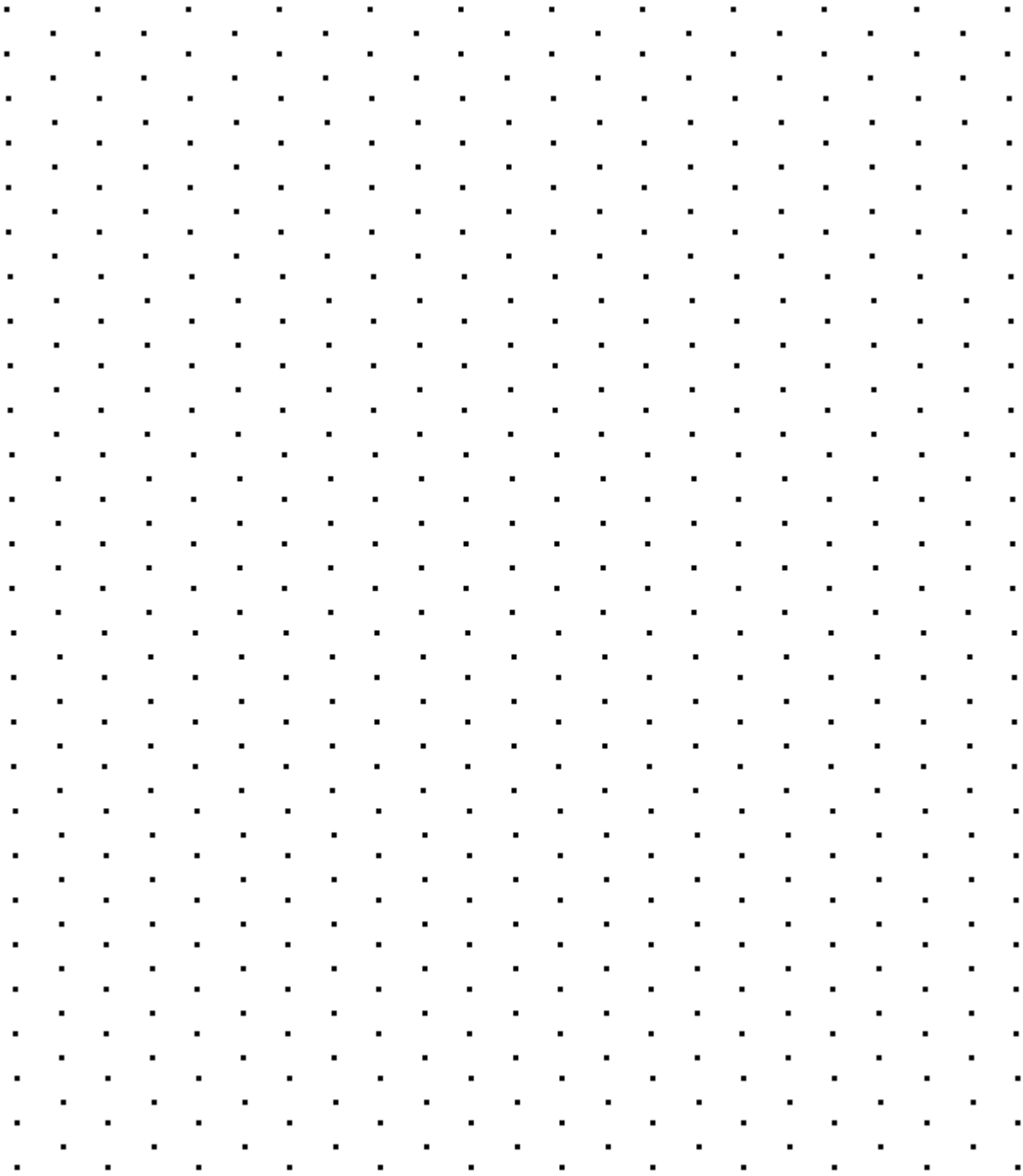
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PAIRS
ACTIVITY

ABC Toy Company is planning to market a set of children's alphabet blocks. Each block is a cube with 1-inch edges, so each block has a volume of 1 cubic inch. The company wants to arrange 24 blocks in the shape of a rectangular prism and then package them in a cardboard box.

- A. Find all of the different ways that 24 cubes can be arranged into a rectangular prism.

Note: A box with the dimensions of $1 \times 2 \times 4$ is no different than a box with dimensions of $2 \times 4 \times 1$.

- B. Make a sketch of each arrangement you find on isometric dot paper.
- C. Organize your findings in the table provided.



Possible Arrangements of 24 Cubes

	Length	Width	Height	Volume	Surface Area
Box 1				in^3	in^2
Box 2				in^3	in^2
Box 3				in^3	in^2
Box 4				in^3	in^2
Box 5				in^3	in^2
Box 6				in^3	in^2

1. Which of your arrangements requires the least amount of cardboard?
Explain how you know.

2. Which requires the most amount of cardboard?
Explain how you know.

3. Which arrangement would you recommend to ABC Toy Company? Write a short report below giving your recommendations and explaining the reason for your choice.