Investigation 2.1 Packing Boxes

ATC 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.

Problem 2.1 Finding Surface Area

The company wants to arrange 24 blocks in the shape of a rectangular prism and then package then in a box that exactly fits the prism.

1. Find all the ways 24 cubes can be arranged into a rectangular prism. Make a sketch of each arrangement. Record the dimensions and surface area. It may help to organize our findings into a table like the one below.

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| --- | --- | --- | --- | --- | --- |
| Length | Width | Height | Volume | Surface Area | Sketch |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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|  |  |  |  |  |  |

1. Which of your arrangements requires the box made with the least material? Which requires the box made with the most material?
2. Which arrangement would you recommend to ATC Toy Company? Explain why.
3. Why do you think the company makes 24 alphabet blocks rather than26?