

Changing the Dimensions and Changing the Volume

Company A and Company B both make identical boxes that have a volume of 6 cubes.

Each company has a plan to change the design of the box.

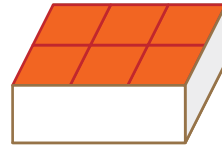
Company A plans to make a box that will hold twice as many cubes.

New Box Design: Company A



Dimensions: $6 \times 2 \times 1$, holds 12 cubes

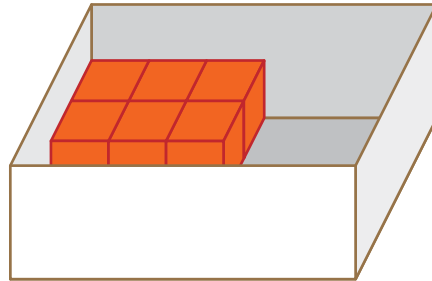
Original Box Design



Dimensions: $3 \times 2 \times 1$, holds 6 cubes

Company B plans to make a box with double the dimensions.

New Box Design: Company B



Dimensions: $6 \times 4 \times 2$, holds 48 cubes

Four students discussed how the volume of each new box compares to the volume of the original box.

Company A

Alicia: *The volume of Company A's new box is twice the volume of the original box.*

Olivia: *Only one dimension changed. The 3 doubled to be a 6.*

Company B

Stuart: *Company B's new box will hold 8 times as many cubes as the original box.*

Tavon: *All three of the dimensions were multiplied by 2.*



Design a different box for Company A that will also hold twice as many cubes as the original $3 \times 2 \times 1$ box.