*Mathematics: The Language of STEM*
Surface Area
Mr. Brenneman

## CONTENT AND TASK DECISIONS

**Grade Level(s): 7th**

**Description of the Task:** Students will understand the difference between surface area and volume, and be able to find the surface area of a rectangular prism.

**Indiana Mathematics Content Standards:** 7.GM.7: Construct nets for right rectangular prisms and cylinders and use the nets to compute the surface area; apply this technique to solve real-world and other mathematical problems..

**Indiana Mathematics Process Standards:**
**PS.1**: Make sense of problems and persevere in solving them.
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**PS.3**: Construct viable arguments and critique the reasoning of others.
- Students will be working with others, comparing answers, and explaining their own work as well as critiquing others if they came to a different conclusion.

**Mathematics Content Goals:** Students will demonstrate their abilities to find the areas of the faces of a rectangular prism to find the surface area.

**Language Objectives**: Students will understand that the surface area of a rectangular prism is the sum of the areas of the faces of a rectangular prism.

**Materials**: Pencil, handout, calculator.

## THE LESSON

**Before:** Students have been learning about the differences between the properties of 2-D and 3-D shapes. They have also been introduced to finding the volume of rectangular prisms and cylinders.

**During:** Students will be given a handout that they will have to fill out concerning wrapping a gift. Students will then compare their answers with others and discuss their reasoning for coming to their conclusions. I will be walking around the room to see what results students are coming up and asking how they came to that conclusion. Once students have completed their handout, we will discuss the solutions we should have had along for the reasoning. This will allow students to conceptualize surface area.

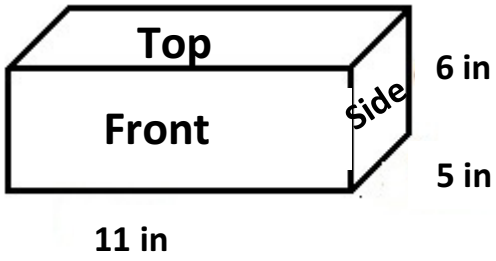
**After:** Once students have completed their handout, I will want to see if they can transfer the information learned through the handout to find the surface area of other rectangular prisms.

**Observe:** As students are working on their handout, I will ask if they are noticing tendencies as well as help them answer their questions on their handout.
**Ask**: See attachment

3-D Shapes Practice

Name _____m

1) When businesses order boxes from a packaging company, the box comes as a flat piece of cardboard. Draw and label a picture of what the box above would look like when a company receives it as a flat piece of cardboard.




You purchase a gift for your mom from Amazon and you receive the package in the mail. You want to wrap the present before you give it to your mom.

2) Are we filling the box with wrapping paper?
Is this a volume question? Explain

3a) How much wrapping paper would you need to cover the front of the box?

3b) How much wrapping paper would you need to cover the right side of the box?

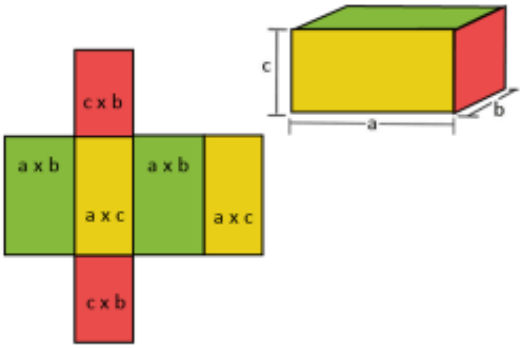
3c) How much wrapping paper would you need to cover the top of the box?

3d) How much wrapping paper would you need to wrap the entire box?

# Surface Area

The sum of the _____ of the faces of a 3-dimensional figure.

**Formula: SA =**




**Find the surface area of the following prisms**