**Unpacking Outcomes – SS6.2**



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| **Big Idea**  |
| **Harvesting the Outcome** |
|  **Relating area to volume** **Perimeter of Polygons Comparing perimeter and area** **Comparing area and volume****Extend and Apply Area of rectangles Concretely, pictorially, and symbolically Generalizing strategies and formulae** **Analyzing the effect of orientation** **Volume of Right Solving situational questions** **Rectangular Prism****Key Word - \***Extend\* – means they should know some of this already |
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| Extend and apply understanding of perimeter of polygons, area of rectangles, and volume of right rectangular prisms (concretely, pictorially, and symbolically) including: * relating area to volume
* comparing perimeter and area
* comparing area and volume
* generalizing strategies and formulae
* analyzing the effect of orientation
* solving situational questions.
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| **KNOW BEFORE UNIT** | **KNOW AFTER UNIT** | **UNDERSTAND** | **BE ABLE TO DO Students are able to do** |
| 1. What is perimeter
2. What is area
3. What is volume
4. What is a polygon
5. What is a rectangle
6. What is a right rectangular prism
7. What is a formula
8. What is orientation
9. How to measure accurately
 | 1.Formula for perimeter, volume, and area.2.How to apply the formula to polygons, rectangles, right rectangular prisms and squares2.Area of a 3D object will affect its’ volume3.An object will be the same if the orientation is changed. | 1. I can use formulas concrete, pictures and symbols to solve problems.2.Formulas can be used to: * calculate perimeters
* calculate area
* calculate volume

3.Volume is the space something takes up4. Orientation does not affect area, volume, or perimeter.5.Perimeter affects the size of the area | 1. Generalize formulae and strategies for determining the perimeter of polygons, including rectangles and squares.
2. Generalize a formula for determining the area of rectangles.
3. Explain, using models, the relationship between the area of the base of a right rectangular prism and the volume of the same 3-D object.
4. Generalize a rule (formula) for determining the volume of right rectangular prisms.
5. Analyze the effect of orientation on the perimeter of polygons, area of rectangles, and volume of right rectangular prisms.
6. Solve a situational question involving the perimeter of polygons, the area of rectangles, and/or the volume of right rectangular prisms.
7. Critique the following statements using concrete or pictorial models:
* “For any two right rectangular prisms, the one
* with the greater volume will be the prism that has the greatest base area”.
* “For any two rectangles, the rectangle with the greatest perimeter will also have the greatest area”.
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| Vocabulary:* Perimeter
* Polygon
* Area
* Rectangle
* Volume
* Prism
* Orientation
* Formula
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| **Essential Questions** |
| 1. Why is area important and where can it be used? How? When?
2. Why is perimeter important and where can it be used? How? When?
3. Why is volume important and where can it be used?
4. Why does knowing the difference between a 2D object and a 3D object important when calculating area?
5. Why is it important to measure accurately by using the same style of measurement?
6. Why is being able to use a formula important?
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