Learning Targets

## Learning Targets

### Solid Geometry

### Lesson 1: Solids of Rotation

* I can draw the two-dimensional shape that creates a particular three-dimensional solid when rotated using a given axis.
* I can identify the three-dimensional solid created by rotating a two-dimensional figure using a linear axis.

### Lesson 2: Slicing Solids

* I can identify the three-dimensional shape that generates a set of cross sections.
* I can visualize and draw multiple cross sections of a three-dimensional figure.

### Lesson 3: Creating Cross Sections by Dilating

* I know that a pyramid’s cross sections are dilations of its base with scale factors ranging from 0 to 1.

### Lesson 4: Scaling and Area

* I know that when figures are dilated by a scale factor of $k$, their areas are multiplied by $k^{2}$.

### Lesson 5: Scaling and Unscaling

* I can use square root graphs and do calculations to interpret the relationships between scale factors and areas.

### Lesson 6: Scaling Solids

* I know that when a solid is dilated by a scale factor of $k$, its surface area is multiplied by $k^{2}$ and its volume is multiplied by $k^{3}$.

### Lesson 7: The Root of the Problem

* I can create and describe graphs that show relationships between volumes and scale factors.
* I can work backwards from a volume or surface area scaling to find a scale factor.

### Lesson 8: Speaking of Scaling

* I can calculate scale factors for lengths, surface areas, and volumes if I’m given any 1 of the 3 factors.

### Lesson 9: Cylinder Volumes

* I can calculate volumes of solids that are composed of cylinders.
* I can explain how finding the volume of a prism relates to finding the volume of a cylinder.

### Lesson 10: Cross Sections and Volume

* I know that if two solids have equal-area cross sections at all heights, they have the same volumes.

### Lesson 11: Prisms Practice

* I can calculate volumes of right and oblique prisms and cylinders and figures composed of prisms and cylinders.

### Lesson 12: Prisms and Pyramids

* I can explain the relationships between pyramids, cones, prisms, and cylinders.

### Lesson 13: Building a Volume Formula for a Pyramid

* I can explain why the volume formula for pyramids and cones is $V=\frac{1}{3}Bh$.

### Lesson 14: Working with Pyramids

* I can calculate volumes of pyramids and cones.
* I can work backward from a given volume to find possible dimensions of a pyramid or cone.

### Lesson 15: Putting All the Solids Together

* I can use the Pythagorean Theorem and trigonometry to help calculate volumes of prisms, cylinders, cones, and pyramids, including solids of rotation.

### Lesson 16: Surface Area and Volume

* I can use surface area and volume relationships to solve problems.

### Lesson 17: Volume and Density

* I can solve problems involving density and volume.
* I know that the density of an object is the ratio between its mass and its volume.

### Lesson 18: Volume and Graphing

* I can use cube root and square root graphs to solve geometric problems.



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