

Learning Goals

Section 1: Area

Lesson 1: Shapes on a Plane

Exploring Area

- I can explain what *area* is.
- I can describe strategies for determining the area of a non-rectangular shape.

Lesson 2: Letters

Area Strategies

- I can determine the area of a non-rectangular shape using a variety of strategies.
- I know that decomposing a shape and rearranging the pieces keeps the area the same.

Lesson 3: Exploring Parallelograms

Parallelograms on a Grid

- I can use different strategies to determine the area of a parallelogram.
- I can identify the base and height of a parallelogram on a grid.
- I can explain how to calculate the area of any parallelogram using its base and height.

Lesson 4: Off the Grid

Calculating Areas of Parallelograms

- I can identify a base and height of a parallelogram without a grid.
- I can calculate the area of a parallelogram or the length of a missing base or height.

Lesson 5: Exploring Triangles

Triangles on a Grid

- I can use different strategies to determine the area of a triangle.

Lesson 6: Triangles and Parallelograms

Generalizing the Area of a Triangle

- I can connect the area of a triangle and a parallelogram with the same base and height.
- I can explain how to calculate the area of any triangle using its base and height.

Lesson 7: Off the Grid Part 2

Applying the Formula for the Area of a Triangle

- I can identify a base and height of a triangle without a grid.
- I can calculate the area of any triangle.

Lesson 8: Pile of Polygons

Investigating Polygons and Their Areas

- I can describe the characteristics of a polygon.
- I can calculate the area of a polygon.

Section 2: Surface Area

Lesson 9: Renata's Stickers

Intro to Surface Area

- I can explain what *surface area* is.
- I can calculate the surface area of a rectangular prism and explain my strategy.

Lesson 10: Plenty of Polyhedra

Polyhedra and Their Faces

- I can describe the faces of a polyhedron.
- I can compare and contrast prisms and pyramids.
- I know what a net is and how it is related to a polyhedron.

Lesson 11: Nothing But Nets

Nets and Surface Area on a Grid

- I can name a polyhedron.
- I can identify what kind of polyhedron will be created when a net is folded.
- I can calculate the surface area of a prism or pyramid using a net on a grid.

Lesson 12: Face Value

Surface Area Off of a Grid

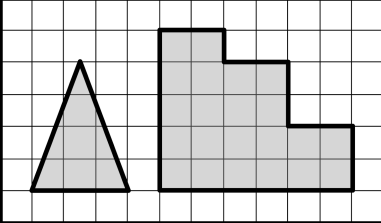
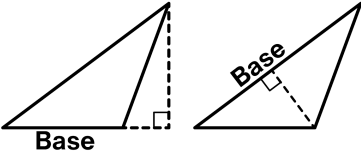
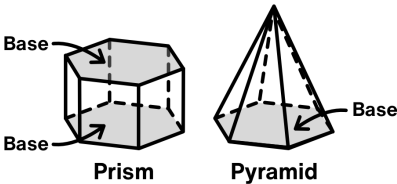
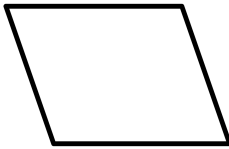
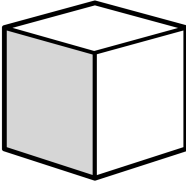
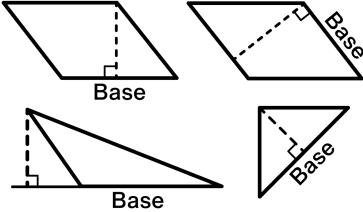
- I can match a polyhedron with its net.
- I can calculate the surface area of a prism or pyramid from a drawing and describe my strategy.

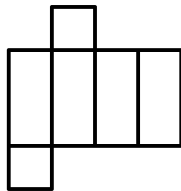

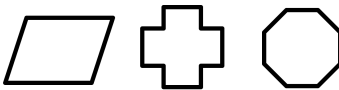

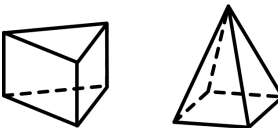
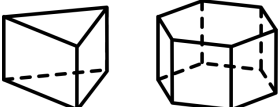
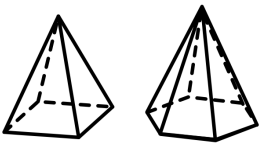
Lesson 13: Take It To Go

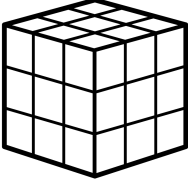
Surface Area in Context

- I can design a net for a three-dimensional object.
- I can calculate surface area to answer problems in context.

Glossary

Term	Definition
<p>area</p>	<p>Area measures the space inside a two-dimensional figure. It is expressed in square units.</p> <p>The area of the left shape is 6 square units. The area of the right shape is 22 square units.</p> 
<p>base (of a parallelogram or triangle)</p>	<p>The base of a parallelogram or triangle is one side. We can choose any side to be the base.</p> <p>The base can also refer to the length of this side.</p> <p>The height of a shape is perpendicular to the base.</p> 
<p>base (of a pyramid or prism)</p>	<p>The base of a pyramid or prism is the face that gives the solid its name.</p> <p>A prism has two identical bases that are parallel.</p> <p>A pyramid has one base.</p> 
<p>edge</p>	<p>Each straight side of a polygon is called an edge.</p> <p>This parallelogram has four edges.</p> 
<p>face</p>	<p>Each flat side of a polyhedron is called a face.</p> <p>A cube has six faces and they are all squares.</p> 
<p>height</p>	<p>The height of a parallelogram is the perpendicular distance between a base and its opposite side.</p> <p>The height of a triangle is the perpendicular distance between a base and its opposite vertex.</p> <p>Sometimes, the height falls outside the shape.</p> <p>Here, the height is shown by a dotted line.</p> 

<p>net</p>	<p>A net is a two-dimensional figure that can be folded to make a polyhedron.</p> <p>Here is a net for a rectangular prism.</p>	
<p>parallelogram</p>	<p>A parallelogram is a quadrilateral that has two pairs of parallel sides.</p> <p>The opposite sides of a parallelogram are the same length.</p>	 <p>Parallelograms Not Parallelograms</p>
<p>polygon</p>	<p>A polygon is a closed two-dimensional shape with straight sides that do not cross each other.</p>	<p>Examples of Polygons</p>  <p>Examples of Non-Polygons</p> 
<p>polyhedron</p>	<p>A polyhedron is a closed three-dimensional shape with flat sides. When we have more than one polyhedron, we call them polyhedra.</p> <p>Here are some drawings of polyhedra.</p>	
<p>prism</p>	<p>A prism is a solid that has two bases that are identical copies.</p> <p>The bases are connected by rectangles or parallelograms.</p>	 <p>Triangular Prism Hexagonal Prism</p>
<p>pyramid</p>	<p>A pyramid is a solid in which the base is a polygon.</p> <p>All of the other faces are triangles that meet at a single vertex.</p>	 <p>Rectangular Pyramid Hexagonal Pyramid</p>
<p>quadrilateral</p>	<p>A quadrilateral is a type of polygon that has four sides.</p> <p>Parallelograms and rectangles are examples of quadrilaterals.</p>	

surface area	<p>The surface area of a polyhedron is the sum of the areas of its faces.</p> <p>If the six faces of a cube each have an area of 9 square centimeters, then the surface area of the cube is $6 \cdot 9$, or 54 square centimeters.</p>	
volume	<p>Volume is the number of cubic units that fill a solid without any gaps or overlaps.</p> <p>The volume of this rectangular prism is 24 cubic units because it is composed of 3 layers that are each 8 cubic units.</p>	