

Unit Title: Surface Area and Volume (in the Real World)

Grade Level: 9

Subject Area: Math - Geometry

Duration/Length/Number of class periods: 20 class periods

Description:

Students will incorporate real world examples of surface area and volume within the unit. We will discuss the relationship between these measurements and jobs that would use these skills.

Established Goals (National, State, Local):

▲ 9.3.1.2 Compose and decompose two and three-dimensional figures; use decomposition to determine the perimeter, area, surface area and volume of various figures.

What Enduring Understandings are desired?

I can calculate the surface area and volume of various solids
I can explain the difference between lateral area and surface area
I can determine the shape of an irregular shape.

What Essential Questions will be considered?

How can I break down a real world space into geometric figures to calculate surface area and volume?
What formulas will I use to calculate needed measurements?
How do I prepare for a Socratic Seminar to discuss workplace application of surface area and volume?
What technology can I use to make this final project come alive?

Students will be able to:

Calculate lateral area, surface area and volume of various solids

Research various careers that would use these calculations within their field - present findings to peers

Determine the area of an irregular shape

Explain the difference between lateral area and surface area (as well as applications of each in the real world)

Discuss advertising ethics in a Socratic Seminar

In group - plan and build a Tin Man

Review and Assessment

<p>Description</p> <p><i>Units must include at least one of each formative, summative, introductory activity and learning activity. Check the appropriate box; one per row.</i></p>	<p>Formative</p>	<p>Summative</p>	<p>Introductory Activity</p>	<p>Learning Activity</p>	<p>Student Technology Used</p>	<p>Teacher Technology Used</p>	<p>ISTE Standards</p>
<p>Quizlet - Finding the area of composite figures of real world objects</p>			<p>x</p>			<p>x</p>	<p>1</p>
<p>Partner project - what careers need to calculate SA or Volume?</p>			<p>x</p>			<p>x</p>	<p>6</p>
<p>Prepare presentation of career - "Around the world" gallery walk</p>				<p>x</p>		<p>x</p>	<p>6</p>
<p>Students discover 3D building with https://www.tinkercad.com/</p>				<p>x</p>	<p>x</p>		<p>4</p>
<p>Students discover nets with Geogebra (sketch net of 3D object built on tinkercad) https://www.geogebra.org/</p>			<p>x</p>		<p>x</p>		<p>1</p>
<p>Students sketch various nets of given 3D objects (can use software to help visualize) Must label all measurements and calculate surface area/lateral area</p>				<p>x</p>	<p>x</p>		<p>1</p>
<p>Students begin work on formula notesheet https://drive.google.com/drive/u/o/folders/1bZrUqtpbDF_bHUy2b7mqi2HyrtOLA611</p>				<p>x</p>		<p>x</p>	
<p>Kahoot on finding LA and SA</p>	<p>x</p>				<p>x</p>	<p>x</p>	
<p>The best no - common mistakes (Google Form)</p>				<p>x</p>		<p>x</p>	
<p>Discuss difference between lateral area and surface area</p>				<p>x</p>			<p>1</p>
<p>Students prepare for a Socratic seminar (Lateral Area advertising - ethics in advertising) Articles: http://mediasmarts.ca/digital-media-literacy/media-issues/marketing-consumerism/how-marketers-target-kids https://www.theodysseyonline.com/advertising-to-children https://milesmedia.com/ethical-issues-when-marketing-to-children/</p>				<p>x</p>	<p>x</p>		<p>6</p>

https://drive.google.com/file/d/1JMvkIdel5cvVZELSTQiDxMUexIEYHmOX/view?usp=sharing							
Flip classroom of SA/LA review (videos on Schoology)							
Quizlet review of SA/LA	x						
Tin Man Project https://app.box.com/s/51c2b1ad6c54d9f31bf7				x	x	x	6
More real world application example problems (jigsaw)				x	x		6
Quizizz as review for warm-up							1
Practice Testing environment (with review - discuss test taking strategies)							
Review https://drive.google.com/drive/u/o/folders/oBxf_RZdV7DeYM2NJYUffOU83dTQ							
Common assessment							

Materials, tools and resources linked above
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