

Unit 4: Geometry

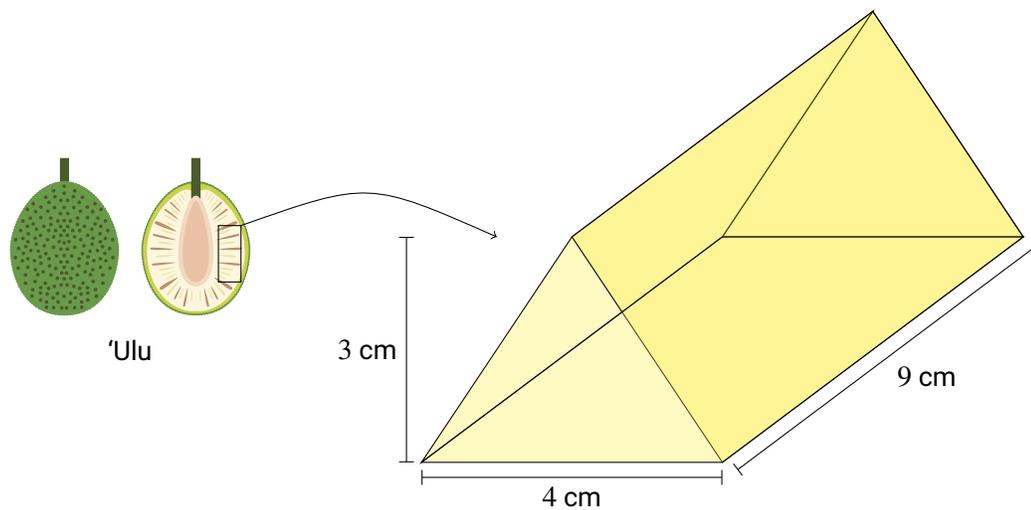


SBAC alignment for *Unit 4: Geometry Activity 1*

Claim(s)	Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 F: Solve real-life and mathematical problems involving angle measure, area, and volume.
Content Domain:	Geometry
Standard(s):	7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
DOK:	2

Unit 4: Geometry Activity 1

A piece of 'ulu (breadfruit) was cut into this triangular prism before cooking. The triangular face of the prism has a base of 4 centimeters (cm) and a height of 3 cm. The length of the prism is 9 cm.



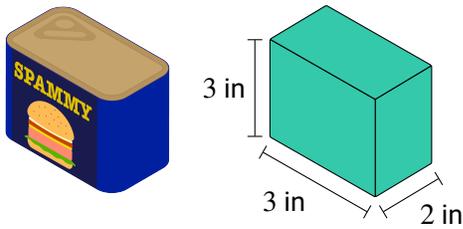
What is the volume, in cm^3 , of this triangular prism?

SBAC alignment for *Unit 4: Geometry Activity 2*

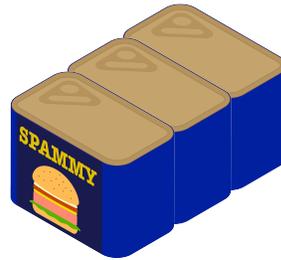
Claim(s)	Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 F: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 1 E: Draw, construct and describe geometrical figures and describe the relationships between them.
Content Domain:	Geometry
Standard(s):	7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
DOK:	3

Unit 4: Geometry Activity 2

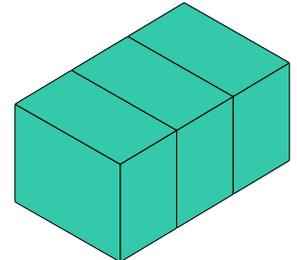
Your cousin left Hawai'i to go to college, but she is homesick so you decide to send her a care package. You line up a row of her favorite lunch meat to form a rectangular prism. Each can is 3 inches (in.) long, 2 in. wide, and 3 in. tall, and the cans are lined up so that their largest faces touch. Then you wrap the prism of cans in lauhala leaves before sending it to her in the mail. You have enough lauhala to cover a rectangular prism with a surface area between 181 and 191 square inches.



Can of meat



Rectangular prism of cans



1. What is the maximum number of cans you can use to create a rectangular prism that you can wrap with the lauhala? Draw the new prism and label its length, width, and height in inches.

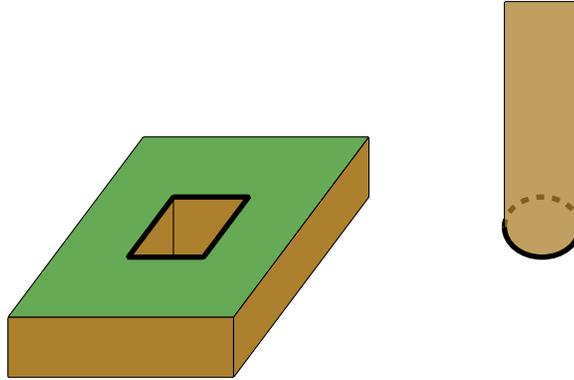
2. Find the surface area of the prism that you drew.

SBAC alignment for *Unit 4: Geometry Activity 3*

Claim(s)	<p>Claim 2: Problem Solving (primary claim) Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.</p> <p>Claim 1: Concepts and Procedures (secondary claim) Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p>
Assessment Target(s):	<p>2 A: Apply Mathematics to solve well-posed problems arising in everyday life, society, and the workplace.</p> <p>1 F: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p>1 I (Gr 4): Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</p>
Content Domain:	<p>Geometry (primary)</p> <p>Measurement and Data (secondary)</p>
Standard(s):	<p>7.G.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.</p>
DOK:	2

Unit 4: Geometry Activity 3

While building a hale, the main posts are buried deep into the ground to make the hale stable. We have dug a square hole in the ground and we are going to stick a cylindrical pole into this hole. The opening of the hole is perfectly square and the cross section of the pole is a perfect circle.



The hole has a perimeter of 40 inches, and the diameter of the pole is exactly the width of the hole. How many inches longer is the perimeter of the hole compared to the circumference of the pole? Show all work necessary to justify your response. Use $\pi = 3.14$.

SBAC alignment for *Unit 4: Geometry Activity 4*

Claim(s)	Claim 2: Problem Solving Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.
Assessment Target(s):	2 F: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 2 A: Analyze proportional relationships and use them to solve real-world and mathematical problems.
Content Domain:	Expressions and Equations
Standard(s):	7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. 7.EE.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05." 7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
DOK:	2

Unit 4: Geometry Activity 4

A calculator is needed for this activity.

A master wa'a (canoe) maker found a tree that he wants to cut down and carve a wa'a from. The circumference of the tree is 28π inches.

1. The cross section of this tree is a perfect circle. What is the area of the cross section? Show all work necessary. Use $\pi = 3.14$ and round the final answer to the nearest hundredth.

2. If the wa'a maker needs a tree with an area that is 20% larger, what would the radius of this tree be? Round your answer to the nearest hundredth.

