6th Grade Unit 1 Parent Packet

Standard: 6.G.1

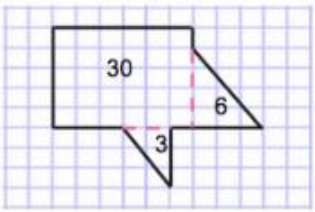
- I can recognize and know how to compose and decompose polygons into triangles and rectangles
- I can compare the area of a triangle to the area of the composed rectangle.
- I can apply decomposing to solve real world problems
- I can discuss, develop, and justify formulas for triangles and parallelograms.

Example:

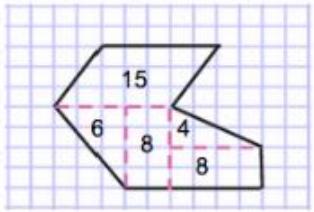
Students have learned how to find the area of squares and rectangles by multiplying length and width. They know discover that parallelograms work the same way because you can cut off the triangle created on one end and attach it to the other to create a rectangle. They also discover the formula for area of a triangle because it takes up half the space of the rectangle it is cut from. Decomposing can also be tricky because they have a hard time understand what measurement goes with which line.

No matter how students decompose each of the polygons, there is only one possible area for each figure.

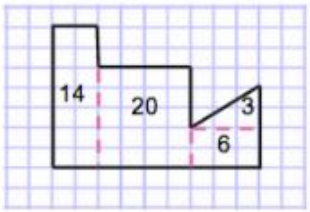
The area of the composite polygon is the sum of the areas within it. The number in each shape represents its area in square units.



Total Area = 39 sq. units



Total Area = 41 sq. units



Total Area = 43 sq. units

Misconceptions:

Students are always inclined to use length times width anytime they see the word area. This is really the first time they discover a different formula for something of the same name.

Supplementary Material:

https://learnzillion.com/resources/72949-find-the-area-of-triangles-quadrilaterals-and-polygons-6-g-a-1/ -videos and lessons

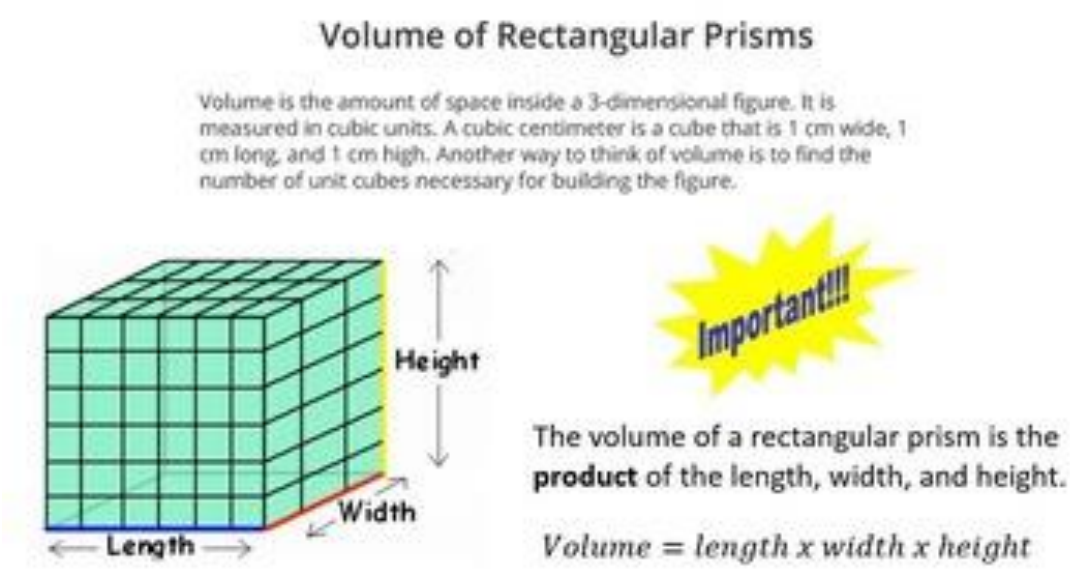
https://www.commoncoresheets.com/SortedByGrade.php?Sorted=6g1 –practice sheets

Standard: 6.G.2

- I can find the volume of a right rectangular prism.
- I can apply the volume formula to solve real world problems with fractional side lengths.
- I can model volume with unit cubes.

Created By: Leia Hickmott

Example:
Students have talked about volume before but we really dive into 3 dimensional shapes in 6th grade.



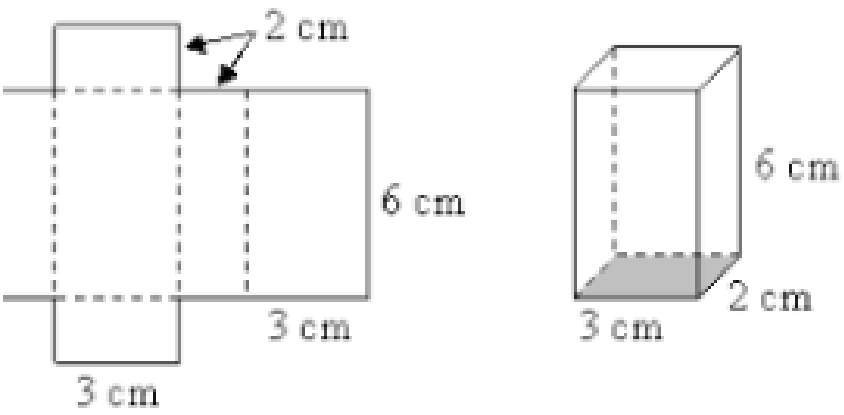
Misconceptions:
There's a couple things to watch for here. Students will have calculators to use, but often feel like fractional side lengths make the problem hard and draw a blank. I will have them cover the fractional sides and just tell me what steps they would take from the directions and picture. Students also start confusing formulas because they have several to remember now. We really try to drive home what formulas are for 2-d and what are for 3-d as we work through this entire unit.

Supplementary Material:
https://www.commoncoresheets.com/SortedByGrade.php?Sorted=6g2 –practice sheets
https://learnzillion.com/resources/72955-find-the-volume-of-a-right-rectangular-prism-with-fractional-edge-lengths-6-g-a-2/

Standard: 6.G.4

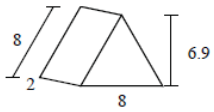
- I can recognize that 3-D figures can be represented by nets.
- I can draw nets using rectangles and triangles.
- I can apply my knowledge of area to find surface area.

Example:
This is a big standard that just takes practice. Students have to visualize what the flat version of a 3-d shape (the net) would look like. They then use what they know about area to find the surface area of ALL faces of a 3 dimensional shape. Struggles show up here with knowing which measurement to apply to which side. Lots of practice and visualizing goes into this standard.

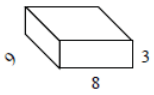


Find the surface area of each figure.

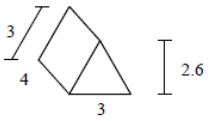
Ex)

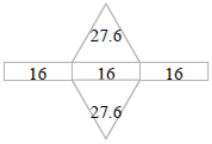


1)



2)





Answers

Ex. 103.2

1. _____

2. _____

3. _____

4.

Misconceptions:
As stated above, students have a hard time with knowing what measurements go where, especially when all they are given is the 3-d composed figure. Practicing looking at nets of figures, then applying the correct measurements to the correct lines needed to find the area can help with this issue.

Supplementary Material:
https://www.commoncoresheets.com/SortedByGrade.php?Sorted=6g4 –practice problems
https://www.onlinemathlearning.com/nets-3d-figures-6g4.html

Standard: 6.EE.1

- I can write numerical expressions involving whole-number exponents.
- I can evaluate numerical expressions involving whole-number exponents.

Examples:

Which expression is another way to write $3 \times 3 \times 3 \times 7 \times 7$?

A. $3^3 \times 2^7$

B. $3^3 \times 7^2$

C. $3^7 \times 7^3$

D. $3^3 \times 7^7$

Created By: Leia Hickmott

This is an example problem from their quiz. We will talk about exponents and how they mean that's how many times you mulplity the number by itself. The answer to this dproblem would be B, because you've multiplied 3 by itself 3 times and 7 by itself 2 times.

Misconceptions:
This is their first real practice with this skill so students try to multiply the whole number by the exponent number, such as 3x3, which is not what it means. They need practice and to be remined that the exponent means how many times to multiply the number by itself.

Supplementary Material:
https://learnzillion.com/lesson_plans/6212-evaluate-numerical-expressions-by-using-whole-number-exponents

https://learnzillion.com/resources/72480-write-and-evaluate-expressions-involving-whole-number-exponents-6-ee-1

pgs. 110-117 in the text book

Standard: 6.EE.2a

- I can write expressions that record operations with variables.

Examples:

Answer the following question:

1) Write expressions for the following:

a) The sum of y and 7.

b) The difference of z and 8

c) The product of a number r and 3.

Explanation#1

In each instance a variable in the form of a letter represents an unknown number. Expressions are groups of numbers, symbols, and variables that represent another number. There are keywords in each sentence that indicate the operation that is taking place between the number and variables.

a) The sum of y and 7. The keyword "sum" indicates addition.

Expression for this is y + 7

b) The difference of z and 8. The keyword "difference" indicates subtraction.

Expression for above is z – 8

c) The product of a number r and 3. The word "product" indicates multiplication.

Expression for above is r x 3

Misconceptions:
Students have a hard time with order. They generally know which operation to do, but especially with subtraction and division where it matters which number is first, they have a hard time understanding what the problem is asking,and putting that in the correct numerical form.

Supplementary Material:
https://learnzillion.com/resources/72284-write-read-and-evaluate-expressions-in-which-letters-stand-for-numbers-6-ee-2

pgs. 118-123 in the text book

Standard: 6.EE.2c

- I can evaluate expressions with variables.
- I can evaluate expressions using specific values for variables.
- I can use formulas to solve real world problems.

Examples:

1) Jacob has 'p' playing cards. Jeff has 60 more playing cards than Jacob. Write an expression showing how many playing cards Jeff has.

Explanation#1

Step 1) In the question Jacob has playing cards

playing cards are going to be denoted as 'p'.

Jeff has 60 more (+ 60) playing cards than Jacob.

Step 3) The answer will be 'p + 60'.

Misconceptions:
This skills just takes the last two a step further and students will have to find an answer by plugging a number in for the variable.

Supplementary Material:
https://learnzillion.com/resources/72284-write-read-and-evaluate-expressions-in-which-letters-stand-for-numbers-6-ee-2
pgs 118-123 in text book