

Math Unit 11:3-D Shapes, Weight, Volume, and Capacity Study Guide

VOCABULARY

capacity	edge	prism	vertex
cone	face	pyramid	vertices
congruent	flat surface	quart	volume
cube	formula	rectangular prism	
cubic units	gallon	regular polyhedron	
cup	geometric solid	sphere	
curved surface	gram	square pyramid	
cylinder	ounce	surface area	
dimensions	pint	triangular prism	
dodecahedron	polyhedron	triangular pyramid	

UNITS OF MEASUREMENT - Memorize these units and be able to draw Gallon Fish.
(SRB p315)

Metric Units

1 gram (g) = 1,000 milligrams (mg)

1 kilogram (kg) = 1,000 grams (g)

1 metric ton (t) = 1,000 kilograms (kg)

U.S. Customary System

1 cup (c) = 8 ounces (oz)

1 pound (lb) = 16 oz

1 ton (t) = 2,000 lbs

***Volume** - a measure of the amount of space inside a 3-dimensional shape

***Capacity** - a type of volume measure - it is the measure of the amount of liquid or other pourable substance a container can hold.

*Be able to weigh various objects using a scale.

TWO AND THREE DIMENSIONAL FIGURES

1. Know the difference between 2-dimensional & 3-dimensional figures.

2. Understand the difference between cm^2 & cm^3 .

3. **Formulas:** 2D: $\text{cm}^2 = b \times h$ or $l \times w$

3D: $\text{cm}^3 = l \times w \times h$ or $b \times h$

GEOMETRIC SOLIDS - Review SRB pages 101- 103

1. **Parts:** faces, surfaces, edges, vertices, base

2. **Types:** cube, cylinder, cone, sphere, hemisphere, prisms, and pyramids

3. Polyhedrons - a geometric solid whose surfaces are all formed by polygons (no curved surfaces) A **regular polyhedron** is a polyhedron whose faces are all congruent and formed by regular polygons.

POSITIVE & NEGATIVE NUMBERS

1. Be able to identify **positive** & **negative** numbers.
2. Be able to use one of our strategies or tricks to add & subtract positive & negative numbers successfully.

CUBIC UNITS

1. Be able to find the volume of stacked centimeter cubes.
2. Be able to calculate the volume of a prism.
3. Know the **formulas**: $V = l \times w \times h$
 $V = b \times h$

Addition	Subtraction
positive + positive = positive Ex. $1 + 1 = 2$	positive - smaller positive = positive Ex. $10 - 5 = 5$
negative + negative = negative Ex. $-14 + (-10) = -24$	positive - larger positive = negative Ex. $25 - 100 = -75$
negative + positive = negative or positive Ex. $-11 + 24 = 13$ Ex. $-18 + 6 = -12$	positive - negative = positive Ex. $14 - (-5) = 19$
	negative - positive = negative Ex. $-6 - 4 = -10$
	negative - smaller negative = negative Ex. $-5 - (-3) = -2$
	negative - larger negative = positive Ex. $-5 - (-8) = 3$

****REMEMBER** - to subtract a positive and a negative number just change the operation symbol (subtraction symbol) to an addition symbol. Then change the symbol of the subtrahend to the opposite symbol (positive to negative or negative to positive) and add.

Ex: $12 - (-8) =$
 $12 + 8 = 20$

Ex: $-14 - 6 =$
 $-14 + (-6) = -20$

SECURE GOALS

Student should be able to:

1. Name geometric solids.
2. Identify pentagonal pyramid faces.
3. Mark the vertices of a triangular prism.
4. Identify rectangular pyramid edges.
5. Name the base of a pyramid.
6. Describe a triangular prism.
7. Find the volume of a stack of cm cubes.
8. Make reasonable weight estimates.
9. Use probability terms to describe events.