Thank You

for downloading this product! I truly hope that you & your students enjoy using this in your classroom & find it helpful!

If you have any questions, please feel free to email me at clever.clover17@gmail.com

Let's Connect

Terms of Use

The pages in this packet are the intellectual property of The Clever Clover. All rights reserved. You may not create anything to sell or share based on the ideas in this packet.

For use in **ONE** classroom only. If you'd like to share this resource with another teacher, please purchase an additional license.

This document may not be redistributed, uploaded, or hosted on any web-based outlet without permission.

©The Clever Clover

© The Clever Clover, 2017

This resource can be used for practice with calculating and comparing the volume of cylinders, cones and spheres. Students will explore, discover and discuss the relationship between all three shapes.

The same radius and height are used to determine the volume for a cylinder, cone and sphere. After completing the calculations, comparisons can be made between the volume of the shapes. Two discoveries may be made.

1) One comparison students may make is between the shapes. If the shapes have the same height and radius, the cylinder will be three times the cone's volume. The sphere's volume will be twice the cone's volume.

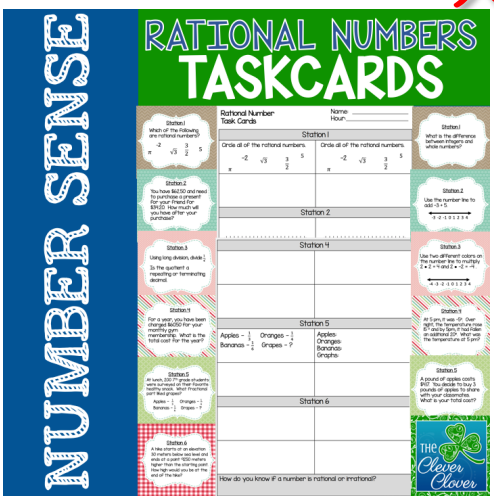
2) Students might also compare how the volume changed when the radius and height were doubled and tripled. For example, if the radius and height are doubled, the volume will be 8 times as large. If the radius and height tripled, the volume will be 27 times as large.

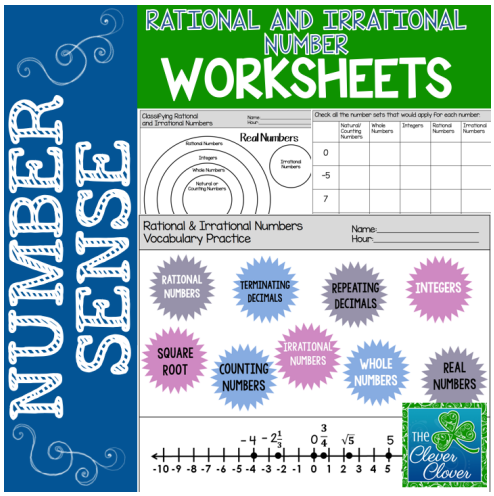
Practice with vocabulary is also important. Students will use a word bank to identify the correct geometry vocabulary word for ten definitions. Students can use a highlighter to find the vocabulary word in the word search. The ten words include:

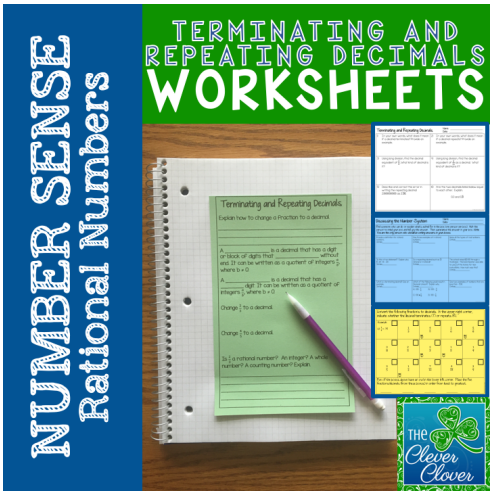
- Volume
- Cylinder
- Cone
- Sphere
- Height
- Base
- Formula
- Net
- Solid
- Face

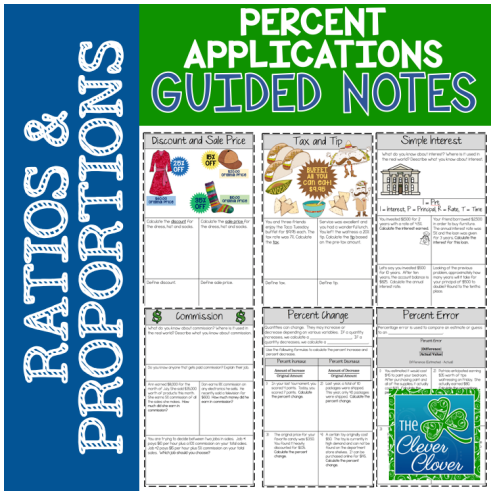
© The Clever Clover, 2017

If you liked this, you'll *love* these:

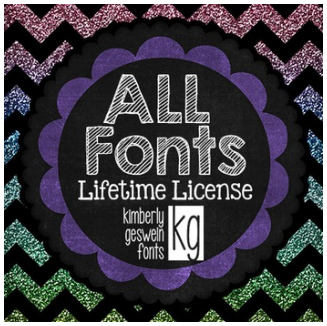








Thanks to these creative people:



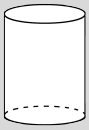
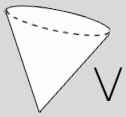
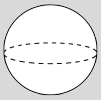
© The Clever Clover, 2017

Volume of Cylinders, Cones and Spheres Practice

Name:_____

Hour:_____

Directions: Calculate the volume of the cylinder, cone and sphere for the problems listed below. Label all of your answers with the appropriate units and show your work! Use 3.14 for π. Round your answers to the nearest tenth.

VOLUME PRACTICE	 Cylinder $V = \pi r^2 h$	 Cone $V = \frac{1}{3}\pi r^2 h$	 Sphere $V = \frac{4}{3}\pi r^3$
1) radius = 2 feet height = 4 feet	$V = \pi r^2 h$	$V = \frac{1}{3}\pi r^2 h$	$V = \frac{4}{3}\pi r^3$
2) radius = 4 feet height = 8 feet	$V = \pi r^2 h$	$V = \frac{1}{3}\pi r^2 h$	$V = \frac{4}{3}\pi r^3$
3) radius = 6 feet height = 12 feet	$V = \pi r^2 h$	$V = \frac{1}{3}\pi r^2 h$	$V = \frac{4}{3}\pi r^3$

Examine your answers for each problem. What conclusions can you make?

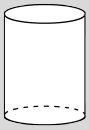
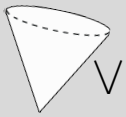
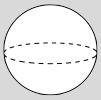
© The Clever Clover, 2017

Volume of Cylinders, Cones and Spheres Practice

Name:_____

Hour:_____

Directions: Calculate the volume of the cylinder, cone and sphere for the problems listed below. Label all of your answers with the appropriate units and show your work! Use 3.14 for π. Round your answers to the nearest tenth.

VOLUME PRACTICE	 Cylinder $V = \pi r^2 h$	 Cone $V = \frac{1}{3}\pi r^2 h$	 Sphere $V = \frac{4}{3}\pi r^3$
1) radius = 2 feet height = 4 feet	$V = \pi r^2 h$ $V = \pi(2^2)4$ $V \approx 50.2 \text{ feet}^3$	$V = \frac{1}{3}\pi r^2 h$ $V = \frac{1}{3}\pi(2^2)4$ $V \approx 16.7 \text{ feet}^3$	$V = \frac{4}{3}\pi r^3$ $V = \frac{4}{3}\pi(2^3)$ $V \approx 33.5 \text{ feet}^3$
2) radius = 4 feet height = 8 feet	$V = \pi r^2 h$ $V = \pi(4^2)8$ $V \approx 401.9 \text{ feet}^3$	$V = \frac{1}{3}\pi r^2 h$ $V = \frac{1}{3}\pi(4^2)8$ $V \approx 134 \text{ feet}^3$	$V = \frac{4}{3}\pi r^3$ $V = \frac{4}{3}\pi(4^3)$ $V \approx 267.9 \text{ feet}^3$
3) radius = 6 feet height = 12 feet	$V = \pi r^2 h$ $V = \pi(6^2)12$ $V \approx 1{,}356.5 \text{ feet}^3$	$V = \frac{1}{3}\pi r^2 h$ $V = \frac{1}{3}\pi(6^2)12$ $V \approx 452.2 \text{ feet}^3$	$V = \frac{4}{3}\pi r^3$ $V = \frac{4}{3}\pi(6^3)$ $V \approx 904.3 \text{ feet}^3$

Examine your answers for each problem. What conclusions can you make?

One comparison students may make is between the shapes. If the shapes have the same height and radius, the cylinder will be three times the cone's volume. The sphere's volume will be twice the cone's volume. Another comparison might involve the increase in the radius, height and volume. For example, if the radius and height are doubled, the volume will be 8 times as large. If the radius and height tripled, the volume will be 27 times as large.

© The Clever Clover, 2017

Volume of Cylinders, Cones & Spheres Vocabulary

Name:_____

Hour:_____

Directions: Read the vocabulary definitions below. Use the word bank to select the correct word for each definition. Use a highlighter or marker to find the word in the puzzle.

BASE	HEIGHT	FACE	SOLID	FORMULA
CYLINDER	CONE	SPHERE	NET	VOLUME

1) A three-dimensional shape, such as a ball, whose surface consists of all the points that are a given distance from the center of the shape. _____
2) The amount of space, or the capacity, of a three-dimensional shape. _____
3) The bottom face of a three-dimensional shape. _____
4) A three-dimensional shape with a circular end and a pointed end. _____
5) A three-dimensional (3D) object. _____
6) A polygon that forms one of the flat surfaces of the some three-dimensional shapes. _____
7) A pattern that you can cut and fold to make a model of a solid shape. _____
8) A solid with two congruent circular bases that lie in parallel planes. _____
9) The length of a perpendicular line drawn from one vertex to the opposite side. _____
10) A group of mathematical symbols that express a relationship or that are used to solve a problem. _____

F	O	R	M	U	L	A	P	N	B	R	E	C	X	O	K	J	S	E	D	B	G	Y	T	F
A	L	O	R	F	H	K	E	Y	R	D	E	N	O	C	C	V	U	Q	S	T	R	M	A	Y
X	B	T	H	C	F	M	R	I	U	T	B	V	M	L	S	W	S	O	I	V	Q	C	E	K
A	C	C	N	E	T	Y	I	K	F	C	C	X	W	L	F	X	O	R	Q	U	E	C	S	W
B	H	Y	D	O	M	G	M	C	E	F	R	H	N	M	I	L	L	O	V	R	S	X	C	C
A	W	S	E	E	F	M	E	O	P	C	D	E	G	X	S	K	I	P	E	O	T	C	D	E
M	B	E	Z	W	F	G	T	U	H	E	I	G	H	T	H	T	D	C	X	M	M	N	I	D
S	A	M	T	F	G	G	E	B	A	R	E	A	J	H	X	Y	A	L	P	Y	U	V	N	G
H	S	P	H	E	R	E	R	E	J	K	C	D	R	L	S	O	R	X	W	T	H	L	S	E
P	E	J	Y	F	X	C	E	I	Z	R	T	B	H	E	S	M	E	U	G	C	B	T	O	D
E	D	T	V	N	Y	R	D	C	Y	L	I	N	D	E	R	L	A	K	F	Y	B	C	X	V

© The Clever Clover, 2017

Volume of Cylinders, Cones & Spheres Vocabulary

Name: KEY

Hour: _____

Directions: Read the vocabulary definitions below. Use the word bank to select the correct word for each definition. Use a highlighter or marker to find the word in the puzzle.

BASE	HEIGHT	FACE	SOLID	FORMULA
CYLINDER	CONE	SPHERE	NET	VOLUME

1) A three-dimensional shape, such as a ball, whose surface consists of all the points that are a given distance from the center of the shape. SPHERE
2) The amount of space, or the capacity, of a three-dimensional shape. VOLUME
3) The bottom face of a three-dimensional shape. BASE
4) A three-dimensional shape with a circular end and a pointed end. CONE
5) A three-dimensional (3D) object. SOLID
6) A polygon that forms one of the flat surfaces of the some three-dimensional shapes. FACE
7) A pattern that you can cut and fold to make a model of a solid shape. NET
8) A solid with two congruent circular bases that lie in parallel planes. CYLINDER
9) The length of a perpendicular line drawn from one vertex to the opposite side. HEIGHT
10) A group of mathematical symbols that express a relationship or that are used to solve a problem. FORMULA

F	O	R	M	U	L	A	P	N	B	R	E	C	X	O	K	J	S	E	D	B	G	Y	T	F
A	L	O	R	F	H	K	E	Y	R	D	E	N	O	C	C	V	U	Q	S	T	R	M	A	Y
X	B	T	H	C	F	M	R	I	U	T	B	V	M	L	S	W	S	O	I	V	Q	C	E	K
A	C	C	N	E	T	Y	I	K	F	C	C	X	W	L	F	X	O	R	Q	U	E	C	S	W
B	H	Y	D	O	M	G	M	C	E	F	R	H	N	M	I	L	L	O	V	R	S	X	C	C
A	W	S	E	E	F	M	E	O	P	C	D	E	G	X	S	K	I	P	E	O	T	C	D	E
M	B	E	Z	W	F	G	T	U	H	E	I	G	H	T	H	T	D	C	X	M	M	N	I	D
S	A	M	T	F	G	G	E	B	A	R	E	A	J	H	X	Y	A	L	P	Y	U	V	N	G
H	S	P	H	E	R	E	R	E	J	K	C	D	R	L	S	O	R	X	W	T	H	L	S	E
P	E	J	Y	F	X	C	E	I	Z	R	T	B	H	E	S	M	E	U	G	C	B	T	O	D
E	D	T	V	N	Y	R	D	C	Y	L	I	N	D	E	R	L	A	K	F	Y	B	C	X	V

© The Clever Clover, 2017