## Unit 12 Surface Area and Volume Guided Notes

 Name: $\qquad$ Per: $\qquad$Day 1 - Volume of Prisms
Objective: SWBAT Find the Volume of Prisms
Volume of a Solid

Volume of a Prism:

Base: (B)

## Height of PRISM: (h)

## Formula:

What are the bases of the following prisms?


Name the shape of the base of each of the following shapes, and then find the Volume of the following prisms.
1.


Base: $\qquad$

V: $\qquad$ V: $\qquad$
3.


Base: $\qquad$
V:
5.

4.


Base: $\qquad$

V: $\qquad$
6. Find the volume in terms of $x$.

7.

8. What is the height of a cube that has a volume of $1331 \mathrm{ft}^{3}$ ?

Day 2 - Volume of Cylinders
Objective: SWBAT Find the Volume of cylinders

## Cylinder:

Bases:

Lateral Faces:

Formula for Volume of a Cylinder:


## Find the Volume of the following:

1. 


2.

3.

4

6. You have to pick between two cylindrical containers, which has the greater volume?

Cylinder A: $r=6 m$ and $h=13 m$
Cylinder B: $r=8 m$ and $h=7.5 m$
7. Find the height of a cylinder that has a volume of $5024 \mathrm{in}^{3}$, and a diameter of 16 in .
8. Find the radius of a right cylinder with a volume of $25.12 \mathrm{~cm}^{3}$, and a height of 8 cm .

## Day 3 - Volume of Pyramids

 Objective: SWBAT Find the Volume of Pyramids
## Pyramid

## Base

## Lateral Faces

## Height

## Slant Height



## Lateral Edge

## Regular Pyramid

## Formula for Volume of a Pyramid

What are the bases of the following prisms?


6 in


10 in


## Find the Volume of the Regular Pyramids.

1. 



Base: $\qquad$

V: $\qquad$
3.


Base: $\qquad$

V: $\qquad$
2.


Base: $\qquad$

V: $\qquad$
4.


Base: $\qquad$

V: $\qquad$
5. What is the height of a square pyramid that has a side length of 12 feet and a volume of $240 f t^{3}$ ?
6. Assuming that both sunscreen bottles are regular pyramids, find the following.


Day 4 - Volume of Cones Objective: SWBAT Find the Volume of Cones

## Cone

## Base

## Slant Height



## Height

## Formula for Volume of a Cone:

Find the Volume of the following solids.
1.

2.

3.

4. Write an expression for the Volume

5. A food manufacturer sells yogurt in cone shaped cups with the dimensions shown. To the nearest tenth, how many fluid ounces of yogurt does the cup hold? (Hint: $1 \mathrm{~cm}^{3} \approx 0.034 \mathrm{fl} \mathrm{oz}$ )

## Day 5 - Surface Area of Prism

Objective: SWBAT Find the lateral areas and surface areas of Prisms

## Prism

## Bases

## Lateral Faces

Lateral Area

## Surface Area



## Naming Structure

Formula of the Surface Area of a Right Prism

What are the bases of the following prisms?


Identify the base of the following prisms, name them, and find the surface area.
1.


Shape of the Base: $\qquad$
Name of the Prism: $\qquad$
2.


Shape of the Base: $\qquad$
Name of the Prism: $\qquad$

Surface Area: $\qquad$
3.


Shape of the Base: $\qquad$
Name of the Prism: $\qquad$
4.


Shape of the Base: $\qquad$
Name of the Prism: $\qquad$
$\qquad$
5.

6.


Shape of the Base: $\qquad$ Name of the Prism: $\qquad$
Shape of the Base: $\qquad$
Name of the Prism: $\qquad$

Surface Area: $\qquad$ Surface Area Expression: $\qquad$
Day 6 - Surface Area of Cylinder Objective: SWBAT Find the surface areas of cylinders

## Cylinder

## Bases



Lateral Area

Formula for Surface Area of a Cylinder

## Find the Total Surface Area of the following:

1. 


2.


10 in

## 4. Find the Surface Area Expression


5. Find the height of a cylinder which has a radius of 6.5 centimeters and a surface area of 592.19 square centimeters
6. You want to design a cylindrical container for oatmeal. You want the height of the container to be 2 times the radius. Write an expression for the surface area of this cylinder.
7. The surface area of a cylinder is $226.2 \mathrm{in}^{2}$. If the cylinder has a radius of 4 in and a height of 5 in, what is the lateral area of the cylinder?

## Day 7 - Surface Area of Pyramid

Objective: SWBAT Find the lateral areas and surface areas of Pyramids

## Pyramid

Base

Lateral Faces

Height

## Slant Height



## Lateral Edge

## Regular Pyramid

## Formula for Surface Area of a Pyramid

What are the bases of the following prisms?



6 in


10 in


Find the Surface Area for each Pyramid.

2.

3.

4.


Day 8 - Surface Area of Cones
Objective: SWBAT Find the lateral areas and surface areas of Cones

## Cone

## Base <br> Slant Height

## Height

## Formula for Surface Area of a Cone



## Find each Total SA.

1. 


2.

3.

4.

5. Write an expression for the Surface Area

6. A cone has a surface area of $77 \pi \mathrm{~mm}^{2}$. What is the radius of the cone if the slant height is 4 mm long?

Day 9 - Surface Area and Volume of Spheres Objective: SWBAT Find the Surface Area and Volume of Spheres

Sphere:
Center of a Sphere:

## Radius of a Sphere:

Diameter of a Sphere:

Chord:


Great Circle of a Sphere:

Surface Area of a Sphere:

Volume of a Sphere:

## Examples: Find the Surface Area and Volume of the following Spheres

1. 


2.

3.


Hemisphere ~

## Surface Area Formula ~

```
    4
CAUTION
```

Volume Formula~
4.

5.

6. Find the volume of a sphere that has a surface area of $36 \pi \mathrm{in}^{2}$.
7. Find the Surface Area of a Sphere that has a volume of $36 \pi \mathrm{~m}^{\mathbf{3}}$.

Day 10 - Surface Area and Volume of Composite Figures Objective: SWBAT Find the Surface Area and Volume of Composite Figures

Composite Figures:

## Finding the Surface Area:

Bases

## Lateral Area

## Finding the Volume:

Describe the shapes of the following composite solids.


Find the Surface Area and Volume of the following figures.
1.

2.


Find the Volume of the following figures.
3.

4.


