8

DepED
DEPARTMENT OF EDUCATION

Learning Activity Sheet for Mathematics

Quarter 2
Lesson
4

Learning Activity Sheet for Mathematics Grade 8
Quarter 2: Lesson 4 (Week 4)
SY 2025-2026

Development Team

Writer:
- Renato V. Herrera Jr. (West Visayas State University)

Validator:
- Roldan S. Cardona (Philippine Normal University – North Luzon)

Management Team
Philippine Normal University
Research Institute for Teacher Quality
SiMERR National Research Centre

LEARNING ACTIVITY SHEET

Learning Area:	Mathematics	**Quarter:**	2
Lesson No.:	4	**Date:**	
Lesson Title/Topic:	Volume of Cone		
Name:		**Grade & Section:**	

I. **Activity No. 1:** Finding the Volume of a Cone

II. **Objective:** At the end of the activity, you should be able to derive the formula for finding the volume of cones and use the derived formula to calculate the volume of cones.

III. **Materials Needed:**

- Cone and Cylinder (with equal height and radius)
- Sand or mung beans/corn kernels
- Pencil
- Scissors
- Glue or tape
- Ruler
- Calculator

IV. **Instructions:**

- Build the cone:
  - Cut out the cone template
  - Form the cone by bringing the straight edges of the sector together and securing them with glue or tape.
- Build the cylinder:
  - Measure the circumference of the cone's base and the height of the cone.
  - Draw a rectangle on a piece of paper. The rectangle's width should equal the circumference of the cone's base. The rectangle's height should be equal to the height of the cone.
  - Leave an additional 1 cm tab along one of the longer sides of the rectangle for gluing.
  - Draw a circle with the same radius as the base of the cone.
  - Carefully cut out the rectangle and the circle using scissors.
  - Roll the rectangle to form the side of the cylinder. The edges should meet to form a tube. Use the 1 cm tab to overlap and glue or tape the edges together.
  - Glue or tape the circle to the bottom of the cylinder. Make sure the edges align perfectly.
- Fill the cone with sand/corn kernel/mung beans, ensuring it is filled to the top.
- Pour the contents of the cone into the cylinder.
- Repeat this process to observe how many times you need to fill the cone to completely fill the cylinder.

- Based on your observations, discuss and answer the following questions:
  1. How many cones filled the cylinder? _____
  2. What does this tell you about the relationship between the volume of a cone and a cylinder?_____
     _____
     _____

- Based on your observation that it takes approximately _____ cones to fill one cylinder, derive the formula for the volume of the cone.

  Volume (cone) = What fraction of the volume of the cylinder ($V = \pi r^2 h$)? _____

  Volume (cone) = ___ $\pi r^2 h$

- Use the formula you discovered to calculate the volume of the given cones.

Cone's Height (h)	Radius of Cone's Base (r)	Cone's Volume (V)
2	3	
2.3	1	
3	2	
5	5	

V. Synthesis

Reflect on the activity by answering the following questions:

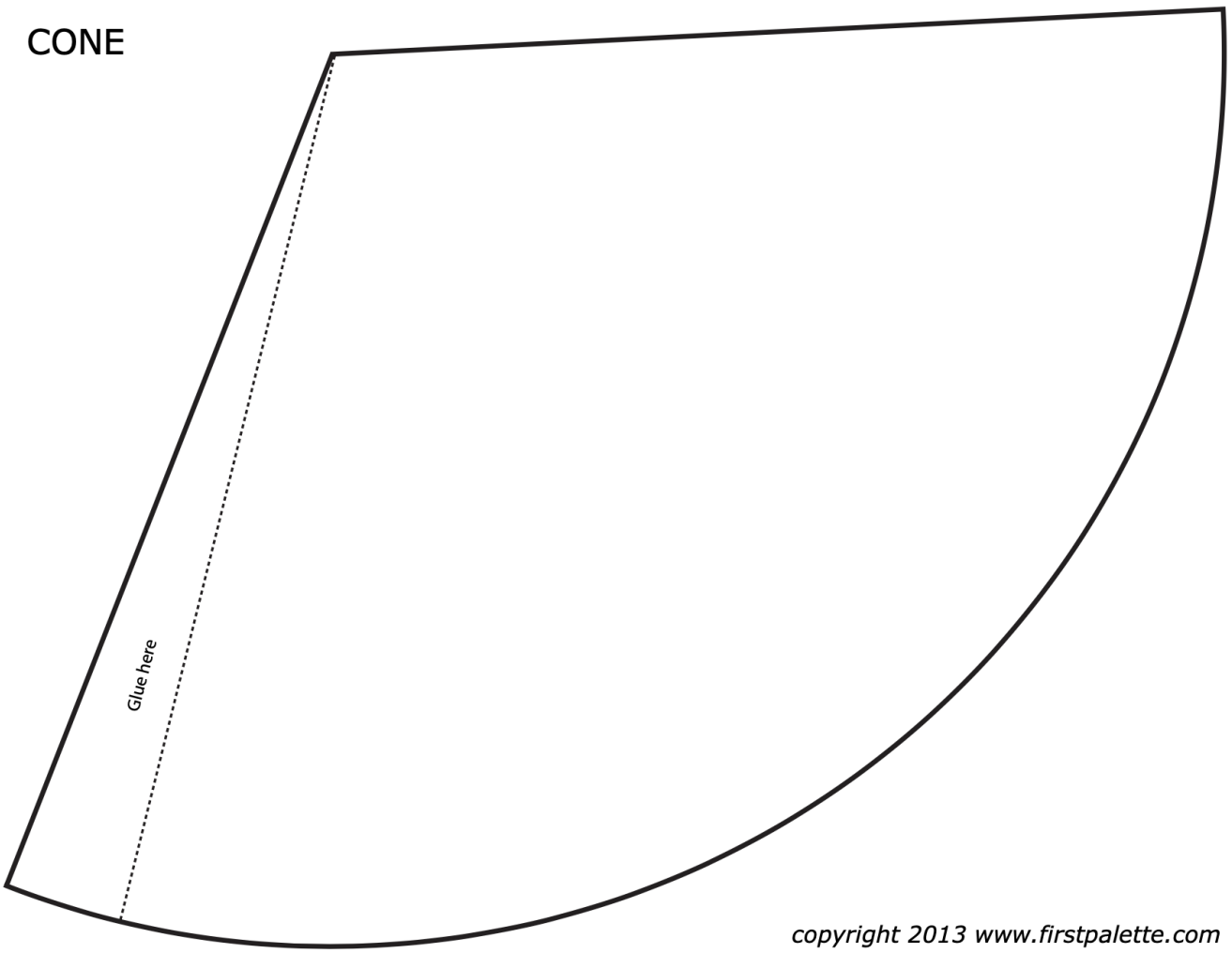
1. What did you learn about the relationship between the volumes of a cone and a cylinder?
   _____
   _____
   _____
   _____
   _____
2. How did this activity help you understand the concept better?

_____
_____
_____
_____
_____

3. Write a brief summary of the process you used to discover the formula for the volume of a cone.

_____
_____
_____
_____
_____

Cone Template:



LEARNING ACTIVITY SHEET

Learning Area:	Mathematics	**Quarter:**	2
Lesson No.:	4	**Date:**	
Lesson Title/Topic:	Volume of Sphere		
Name:		**Grade & Section:**	

I. Activity No. 2: Finding the Volume of a Sphere

II. Objective: At the end of the activity, you should be able to derive the formula for calculating the volume of spheres using your understanding of the volume of a cone. Then, apply the derived formula to find the volume of given spheres.

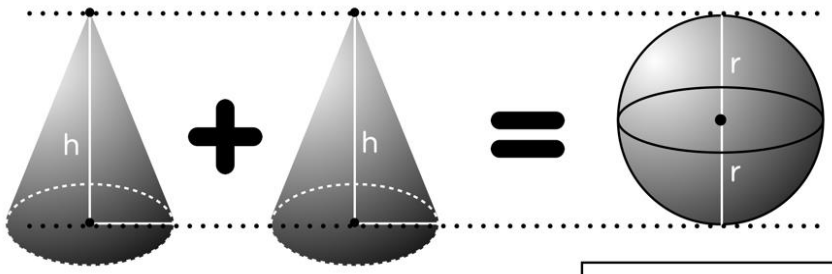
III. Materials Needed:

- Video showing water being poured from a cone into a sphere
- Worksheet
- Calculator

IV. Instructions:

- Your teacher will show you a video where water is being poured from a cone into a sphere. (Note that in the video, the cone and sphere have equal radius and the height of the cone is equal to the diameter of the sphere.)
- Observe how many times the cone needs to be filled to completely fill the sphere.
- Based on your observations, discuss and answer the following questions:
  1. How many cones filled the sphere? _____
  2. What does this tell you about the relationship between the volume of a cone and the volume of a sphere? _____
     _____
     _____

- Use the following formula for the volume of a cone: $V_{cone} = \frac{1}{3}\pi r^2 h$.
- Derive the formula for calculating the volume of a sphere using your observation about the relationship between volume of a cone and the volume of a sphere.



$\frac{1}{3}\pi r^2 h$ + $\frac{1}{3}\pi r^2 h$ = ☐

Write the sum inside the box. Represent the sum in terms of variable 'r'. (Hint: Diameter is equal to two radii)

- Use the formula you discovered to calculate the volume of the given spheres.

Sphere's Radius (r)	Sphere's Volume (V)
1	
2	
3	
4	

V. Synthesis:

Reflect on the activity by answering the following questions:

1. What did you learn about the relationship between the volume of a cone and the volume of a sphere?

   _____

   _____

   _____

   _____

2. How did this activity help you understand the concept better?

   _____

   _____

   _____

   _____

LEARNING ACTIVITY SHEET

Learning Area:	Mathematics	**Quarter:**	2
Lesson No.:	4	**Date:**	
Lesson Title/Topic:	Solving Problems Involving Volumes of Cones and Spheres		
Name:		**Grade & Section:**	

I. Activity No. 3: Matching Volume Word Problems

II. Objective: At the end of the activity, you should be able to calculate the volume of spheres and cones by matching word problems with correct answers.

III. Materials Needed:

- Worksheet
- Pencil
- Calculator

IV. Instructions:

- Carefully read each word problem in the first column.
- Use the formulas for the volume of a sphere and a cone to calculate the volume for each problem.
- Write your calculation next to each problem to show your work.
- Find the correct volume from the answers in the second column.
- Draw a line connecting the word problem to the correct answer.
- After matching all the problems with their answers, review your calculations to ensure they are correct.

V. Synthesis:

Questions for discussion:

1. Reflect on strategies you used to match the word problems with their correct answer. What steps did you find most helpful in ensuring your calculations were accurate?

   _____

   _____

   _____

2. How do the volume calculations of spheres and cones help us solve real-life problems?

   _____

   _____

   _____

During a fiesta, coconut water is served in a conical cups with radius of 3 inches and a height of 7 inches. Find the volume of one conical cup.

For a town fiesta, decorative spherical lanterns are hung along the streets. Each lantern has a diameter of 18 inches. If the town uses 50 lanterns, what is the total volume of the lanterns?

At a beach, participants in a sandcastle contest are building cone-shaped towers. Each tower has a radius of 2 feet and a height of 5 feet. If a team builds 10 towers, what is the total volume of sand used?

Basketballs are stored in a cylindrical container with. A height of 24 inches and a radius of 5 inches. The basketball has a circumference of 28 inches. If there are 3 basketballs in the container, find the amount of space within the cylinder not taken up by the basketballs.

The size of a cultured pearl is typically indicated by its diameter in millimeter. How much greater is the volume of the 9 millimeters pearl to the volume of the 6 millimeters pearl?

152,604

113,328

65.94

770.77

209.33

268.47