

Zoom Out

Levels



Overview:

Students explore perspective by drawing an object at various distances.

Objectives:

The student will:

- draw an object at various distances; and
- identify that objects appear smaller the farther away they are.

GLEs Addressed:

Science

- [3-4] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [3] SD4.1 The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by recognizing that objects appear smaller the farther away they are.

Vocabulary:

field of view – how large an area one can visually perceive

Materials:

- Banyai, I. (1995). *Zoom*. New York: Puffin Books.
- Cardboard tubes (one per pair of students)
- STUDENT WORKSHEET: “Zoom Out”
- STUDENT WORKSHEET: “Zoom Out Part II” (Level II only)

Activity Preparation:

Pick an object or set of objects for students to observe and draw during the lesson. The objects should be of sufficient size to enable students to see a difference when examined at various distances, such as a plant or class pet.

Activity Procedure:

1. Ask students if they have flown in an airplane. What did their community look like from above? What can a person see from an airplane that they couldn't from the ground?
2. Explain that as a person goes up, such as in an airplane or climbing a mountain, their field of view increases. That is, they can see more of the area around them.
3. Read *Zoom* to the class and discuss.
4. Divide students into pairs. Distribute the STUDENT WORKSHEET: “Zoom Out” and cardboard tubes. Explain that students will be looking at and drawing objects from different points of view: a mouse's view, a bird's view, and a satellite view. Instruct students to complete Part I of the activity. Assist students as needed in completing the activity. Make sure students understand that they should draw what is in their field of view (what they can see in their tube). For example, if in moving from the bird's view to the satellite view there is more empty space in the field of view, the empty space should be shown in the drawing.

5. When students have completed their worksheets discuss the differences between each view. Make sure student recognize that the mouse's view is from the side and the bird's and satellite views are from the top.
6. Ask students why they would want to view things from the top and discuss.
7. With level II students, discuss the advantages and disadvantages of using satellites to view Earth. (*The field of view is very large, making it possible to see large areas at one time. However, because of the distance, the detail is less.*)
8. Distribute the WORKSHEET: "Zoom Out Part II" to Level II students and instruct them to answer the questions individually or in small groups.



















Extension Idea: Explore telescopes and other objects that make things further away appear closer. (GLE Addressed: [3-4] SD4.3)

Answers:

1. Answers will vary, but the object drawn should be shown from the *side*.
2. Answers will vary, but the object drawn should be shown from the *top*.
3. Answers will vary, but the object drawn should be shown from the *top and farther away than 2*.
4. B
5. B
6. C
7. A

Rubric:

Drawing: Use this rubric to assess student's performance and/or allow students to assess their own performance at drawing.

Performance Measure	Student			Teacher		
	Great	O.K.	Needs Work	Great	O.K.	Needs Work
1. Did I draw what I was asked to draw?						
2. Did I label the drawing?						
3. Did I make the drawing the right size?						

Name: _____

Zoom Out: Part I

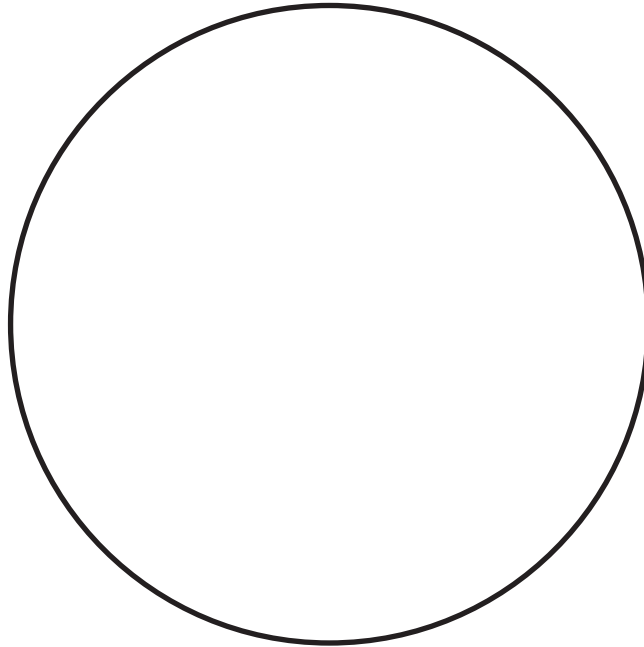
Student Worksheet (page 1 of 2)

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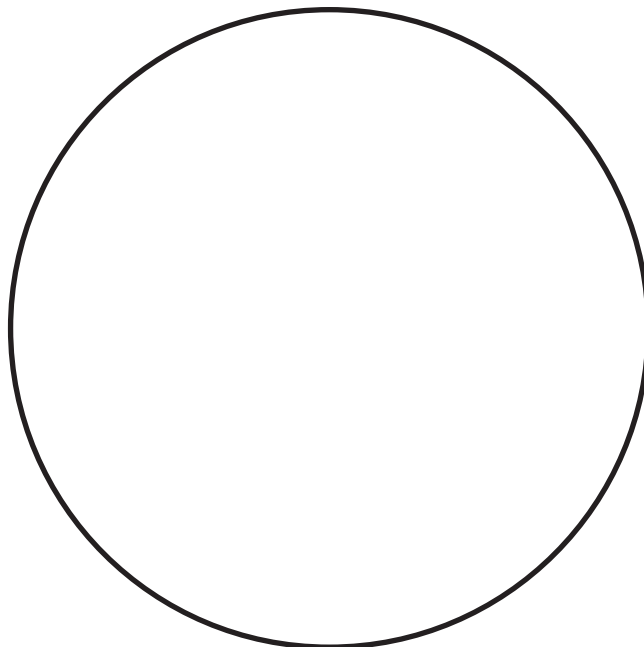


Directions: For each view listed below, look through the cardboard tube and draw the assigned object. Label the parts of your drawing.

1. Mouse View - Observe the object from the side.



2. Bird's View - Place the object on the desk and look at it from above.



Name: _____

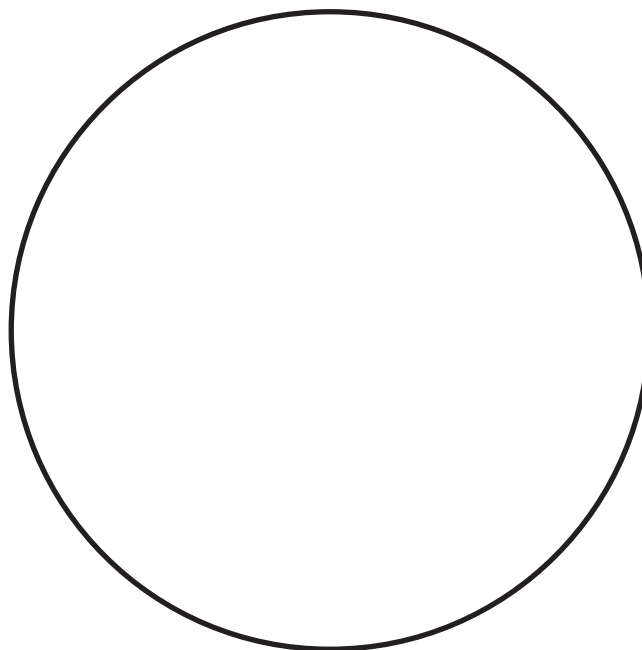
Zoom Out: Part I

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3. Satellite View - Place the object on the floor and look at it from above.



Name: _____

Zoom Out: Part II
Student Worksheet

Levels



Directions: Answer the questions by circling the correct answer.

Which view would be the most useful if you were:

4. an eagle looking for a mouse?
 - A. mouse's view
 - B. bird's view
 - C. satellite view

5. deciding where to build a house?
 - A. mouse's view
 - B. bird's view
 - C. satellite view

6. studying weather patterns?
 - A. mouse's view
 - B. bird's view
 - C. satellite view

7. looking for a lost pin?
 - A. mouse's view
 - B. bird's view
 - C. satellite view