Magnifiers Task Information

Grade:

4th Grade

Content:

Physical Science - Level 1C

• Properties of an object can be affected by its shape and by the material.

Format:

Manipulative

Purpose:

 To determine student's ability to infer that objects need the properties of transparency and curved exterior to magnify.

Skills:

Primary: observing, inferring Secondary: recording data

Time:

8 - 10 Minutes

Materials:

Teacher

Per student clear glass ball (marble)

scissors or craft kniferesealable plastic bags

clear rod

clear plastic block

white rodhand lens

Preparation:

• Clear glass balls(marbles) can be purchased at a florist or craft supply store. You may find ones that have a flat surface, these work very well.

• The clear plastic blocks should be 1" X 1" pieces of 1/4" Plexiglas.

Do not use a cube of plastic (1" X 1" X 1") it could be misleading for the students.

• Plexiglas can be purchased at a hardware store. It is easily cut with a hack saw or a saber saw.

• Clear rods can be the clear craft glue sticks used in some hot glue guns.

• The white rods can also be craft glue sticks used in some hot glue guns. The glue sticks can be cut into 2 or 3 pieces for this experiment as the student only needs about a two inch rod. Glue sticks can be purchased at any craft or fabric store.

• individual sets of materials can be easily stored in resealable sandwich

Safety:

· Be sure that the edges of the Plexiglas are sanded smooth

Magnifiers

Task: At this station, you will observe the ability of different objects to magnify small letters.

Materials:

1 hand lens

1 clear ball

1 clear block

1 clear rod

1 white rod

Directions:

- Suppose you wanted to read the message in the box below better, but could not find a hand lens to help you see it. Which of the four objects in front of you would you choose to help you see the message? In the data table:
 - show or tell how the objects make the message look.
 - tell whether or not the objects are good or poor magnifiers

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Object	Show or tell how the letters look through the object	Good or Poor Magnifier?
Hand Lens		
Clear Block		
Clear Rod	`	
Clear Ball		
White Rod		

Magnifiers - Scoring Rubric Maximum score - 6 points

1. **Standard:** The student will record his/her observations about the objects in the data table.

Criteria:

• 1 point for <u>each</u> object if the student draws an appropriate diagram or gives an appropriate description of his/her observations

*** No points are given for the "good or poor" column. This question is intended to give the students a focus for the next question.

Sample of appropriate responses:

Clear block

- The letters stayed the same
- There was no change in the letters
- The letters didn't look any different
- Nothing happened

Clear Ball and Clear rod

- It made the letters bigger
- It turned the letters upside down
- It made the letters bigger, but it was still blurry
- The letters were bigger, but they weren't very clear
- Could see through it, but not very well

White rod

Couldn't see through it

*** No points are being given for the hand lens. It is being used to set a standard for the student. ***

4 points total

2. No points are awarded for this question

No points given

3. <u>Standard</u>: The student will write a sentence giving two properties of good magnifiers which includes transparency and a curved exterior surface

Criteria:

1 point for each appropriate property

Sample of appropriate responses:

- round or curved
- clear or transparent
- · thick or thicker in the middle than at the edges
- you can see through it
- it's curved like glasses

2 points total

Highest possible score - 6 points

Circle the student's score for each questic write the total score at the bottom of the		nts fo	r each q	ues	tion and
1. Hand Lens	Not 1	Rated			
Clear block	0	1			
Clear rod	0	1			
Clear ball	0	1			
White rod	0	1			
2. Choose the best magnifier	Not a	rated			
3. Properties of magnifiers	0	1	2		
Total Sco	possible score -		Form	e a	Magnifie
Total Sco Total Student ID	possible score - Sco	ring			J
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Clear block	0 1
Clear rod	0 ①
Clear ball	① 1
White rod	9 1
2. Choose the best magnifier	Not rated
3. Properties of magnifiers	① 1 2
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Student ID <u>DE - </u> Male / Female (circle one)	Total possible score - 6 #2 Scoring Form - Magnification. Add the points for each question and
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Clear block	0 (1)
Clear rod	0 (1)
Clear ball	0 ①
White rod	0 ①
2. Choose the best magnifier	Not rated
3. Properties of magnifiers	0 (1) 2
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TATOSITITICE 2

<u>Task</u>: At this station, you will observe the ability of different objects to magnify small letters.

Materials:

• 1 hand lens

• 1 clear ball

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1 clear block

1 clear rod

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• 1 white rod

#1

Directions:

Suppose you wanted to read the message in the box below better, but could not find a hand lens to help you see it. Which of the four objects in front of you would you choose to help you see the message?

In the data table:

- show or tell how the objects make the message look.
- tell whether or not the objects are good or poor magnifiers

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1.

Object	Show or tell how the letters look through the object	Good or Poor Magnifier?
Hand Lens	Biger	pGood
Clear Block	Same Size	Good
Clear Rod	a litta Biger	Good
Clear Ball	Same Size	POOK
White Rod	Do See	Poor

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The State Education Department
Albany, New York 12234

TATASTITITOT2

<u>Task</u>: At this station, you will observe the ability of different objects to magnify small letters.

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Materials:

1.

#2

- 1 hand lens
- 1 clear block
- l clear balll clear rod
- 1 white rod

Directions:

Suppose you wanted to read the message in the box at the bottom of the page better, but could not find a hand lens to help you see it. Which of the four objects in front of you would you choose to help you see the message? In the data table:

- show or tell how the objects make the message look.
- tell whether or not the objects are good or poor magnifiers

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Object
Show or tell how the letters Good or Poor Magnifier?

Hand Lens

Clear Block
Clear Rod
Clear Ball
White Rod

Show or tell how the letters Good or Poor Magnifier?

Good or Poor Magnifier?

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Clear Block

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TATASTITUTET 2

Task: At this station, you will observe the ability of different objects to magnify small letters.

Materials:

1 hand lens

1 clear block

1 white rod

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Directions:

Suppose you wanted to read the message in the box below better, but could not find a hand lens to help you see it. Which of the four objects in front of you would you choose to help you see the message?

In the data table:

- show or tell how the objects make the message look.
- tell whether or not the objects are good or poor magnifiers

1 clear ball

1 clear rod

1.

Object	Show or tell how the letters look through the object	Good or Poor Magnifier?
Hand Lens	-1. Bigger	GODÓ
Clear Block	<i>J J</i>	PUDY
Clear Rod	! IPSide Clow	DODY
Clear Ball	nakes it took a live	Good
White Rod		hPUDI

magnify a message as small as the one on page 1?

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