

## Instructions

Hello, future scientist! Let's explore the amazing world of light and shadows. Read each question carefully and choose the best answer. For some questions, you will get to draw! Have fun!

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### Part A: Choose the Correct Answer

*Circle the best answer for each question.*

1. What do you need to make a shadow?
  - a) Light and an object
  - b) Only an object
  - c) A loud noise
2. A shadow is formed when an object...
  - a) makes light.
  - b) is see-through.
  - c) blocks light.
3. An object that blocks ALL light from passing through is called...
  - a) transparent.
  - b) opaque.
  - c) translucent.
4. An object that lets SOME light pass through is called...
  - a) transparent.
  - b) opaque.
  - c) translucent.
5. Which of these objects is TRANSPARENT?
  - a) A brick wall
  - b) A clear glass window
  - c) A book
6. Which of these objects is OPAQUE?
  - a) A magnifying glass
  - b) Your school desk
  - c) Wax paper
7. When the sun is high in the sky at noon, your shadow is...
  - a) very long.
  - b) gone.
  - c) very short.
8. If you move an object closer to a light source, its shadow gets...
  - a) smaller.
  - b) bigger.
  - c) disappears.

9. A shadow is always formed on the \_\_\_\_\_ side of the object from the light.  
a) opposite  
b) same  
c) top
10. What color is a shadow?  
a) Always rainbow colored  
b) Dark  
c) The same color as the object
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### Part B: True or False?

Read each sentence and circle **True** or **False**.

1. You can have a shadow in a completely dark room.  
**True / False**
2. The shape of a shadow often looks like the object that makes it.  
**True / False**
3. Your shadow is longest in the morning and late afternoon.  
**True / False**
4. A clear glass window makes a very dark shadow.  
**True / False**
5. A shadow can change its size and position during the day.  
**True / False**
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### Part C: Match the Words

Draw a line to match the word on the left with its correct description on the right.

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|-----------------------|--|
| 1. <b>Opaque</b>      | Lets SOME light pass through. The shadow is faint. (Example: frosted glass)    |
| 2. <b>Translucent</b> | Lets ALL light pass through. It makes almost no shadow. (Example: clear water) |
| 3. <b>Transparent</b> | Lets NO light pass through. The shadow is dark. (Example: a rock)              |
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### Part D: Fill in the Blanks

Use the words from the word box to complete the sentences.

<b>light</b> <b>shape</b> <b>opposite</b> <b>blocks</b>
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1. A shadow is a dark area made when an object \_\_\_\_\_ light.
2. A shadow is always on the \_\_\_\_\_ side of the object from the light source.
3. To make a shadow, you need a source of \_\_\_\_\_ and an object.
4. The \_\_\_\_\_ of a shadow is similar to the object creating it.

### Part E: Answer the Questions

Write or draw your answers in the space provided.

1. What are the three things you need to make a shadow?

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2. Why is your shadow very short at noon when the sun is directly above you?

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3. Name two OPAQUE objects you might find in your kitchen.

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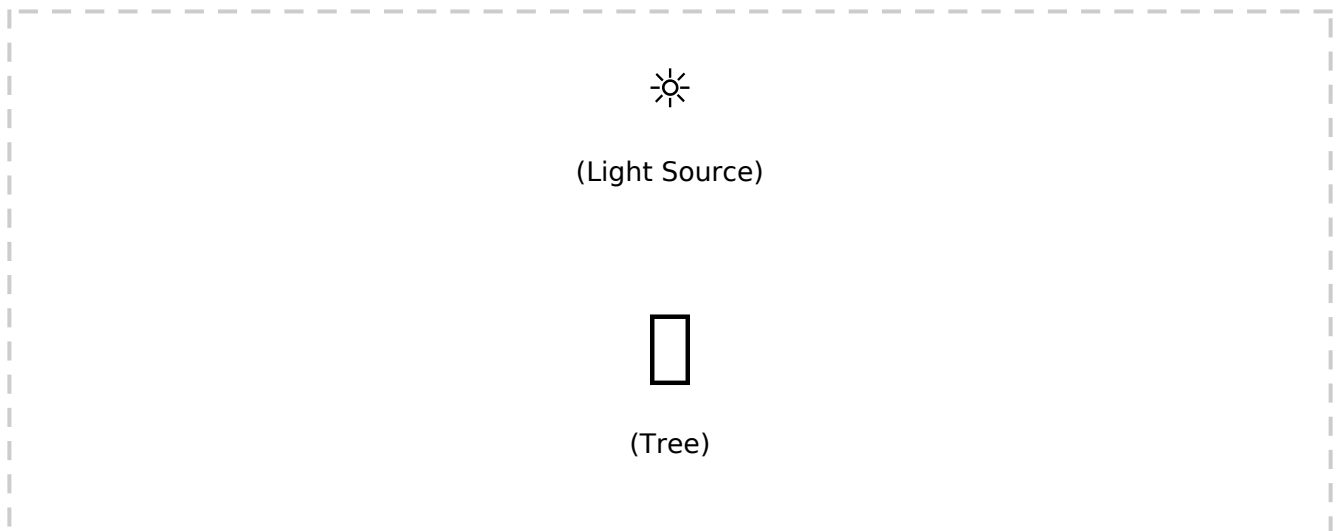
4. Name one TRANSLUCENT object you might find at home.

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5. If you are standing outside and the sun is rising in the east, which direction will your shadow point? (East or West?)

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6. Look at the diagram. Draw where the tree's shadow should be.



7. What is the difference between a shadow made by a book and a shadow made by tracing paper?

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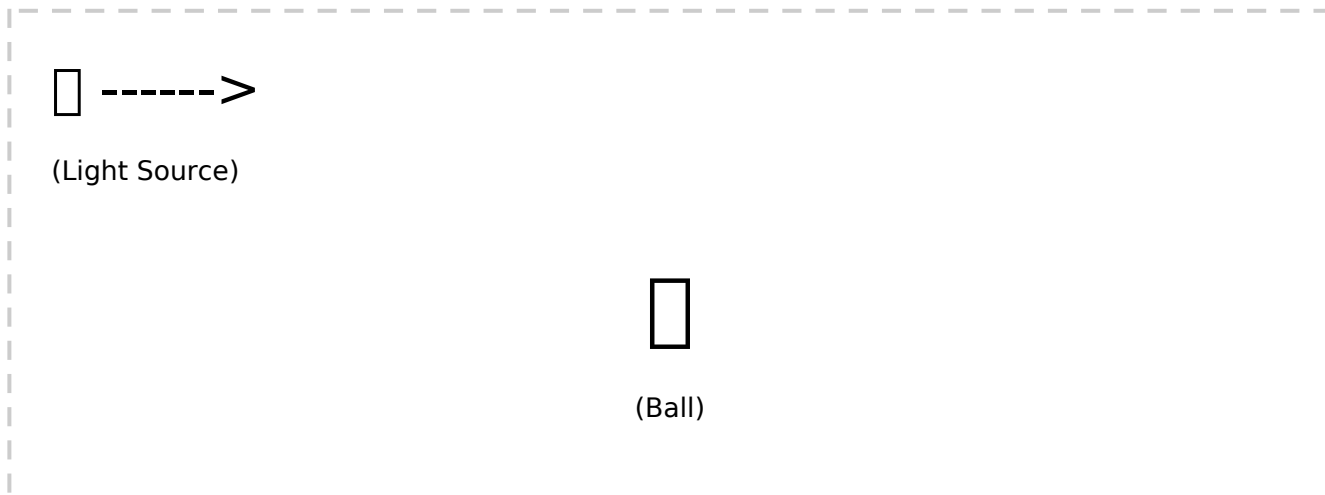
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8. Can you touch a shadow? Why or why not?

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9. Look at the flashlight shining on the ball. Draw the shadow in the correct place.



10. Draw a diagram showing how a shadow is made. Label the **light source**, the **opaque object**, and the **shadow**.

*Draw here...*

## Answer Key

### Part A: Choose the Correct Answer

1. a) Light and an object
2. c) blocks light.
3. b) opaque.
4. c) translucent.
5. b) A clear glass window
6. b) Your school desk
7. c) very short.
8. b) bigger.
9. a) opposite
10. b) Dark

### Part B: True or False?

1. False
2. True
3. True
4. False
5. True

### Part C: Match the Words

1. **Opaque** → Lets NO light pass through. The shadow is dark. (Example: a rock)
2. **Translucent** → Lets SOME light pass through. The shadow is faint. (Example: frosted glass)
3. **Transparent** → Lets ALL light pass through. It makes almost no shadow. (Example: clear water)

### Part D: Fill in the Blanks

1. blocks
2. opposite
3. light
4. shape

### Part E: Answer the Questions

1. You need: 1. A light source. 2. An object (usually opaque). 3. A surface for the shadow to fall on.
2. Because the light is shining down from directly above, it is not blocked from the side, so the shadow is underneath you and very small.
3. (Answers will vary) Examples: Refrigerator, spoon, plate, cupboard, can of soup.
4. (Answers will vary) Examples: Wax paper, a plastic milk jug, frosted glass, some thin curtains.
5. West. (The shadow is always on the opposite side from the light source).
6. The student should draw a dark shape of a tree on the ground, on the opposite side of the tree from the sun symbol.
7. The book is opaque and will make a dark shadow. The tracing paper is translucent and will make a faint, lighter shadow.
8. No, you cannot touch a shadow because it is not a physical object. It is just an area where light is being blocked.
9. The student should draw a dark, circular shadow on the right side of the ball.
10. The drawing should show a light source (like a sun or lamp), an object (like a person or a box), and

a dark shape on the ground/wall behind the object. Each of these three parts should be correctly labeled.