

Light and Shadow

1. Why does the moon appear brighter at night?

2. How is a shadow formed?

3. What happens when light hits a mirror?

4. Does light only travel in a straight line or can it bend?

5. Why is the sun so important to life on earth?

6. What does it mean when a material is opaque?

7. What does transparent mean?

8. List all the light sources you know.

9. Make a silhouette of a friend's head using a projector. How can you change the size of the shadow?

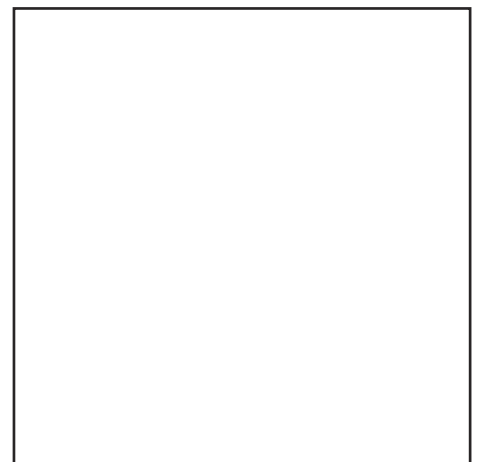
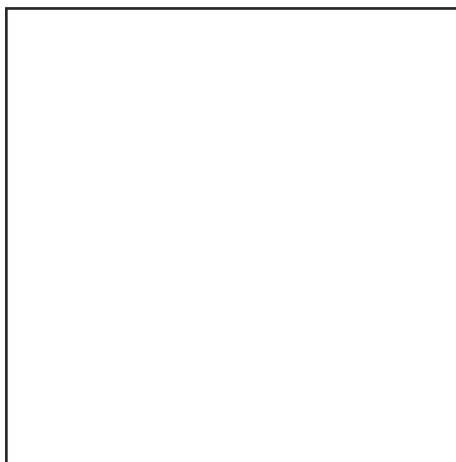
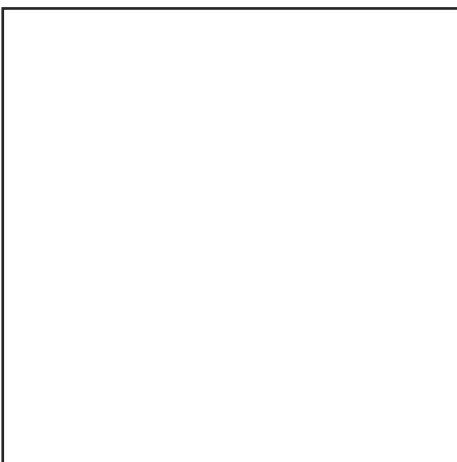
10. What happens to a shadow when you move the object towards the light source?

11. Is it possible to see without light?

12. Can you see reflective material without light? Why?

13. Why is your shadow sometimes in front of you and sometimes behind you?

14. Draw three different light sources and label the brightest.



Light and Shadows Answers

1. Why does the moon appear brighter at night?

The moon appears brighter at night because light from the sun reflects off it (bounces off it) back to the earth.

2. How is a shadow formed?

Shadows are formed by opaque objects blocking light and creating an area of darkness.

3. What happens when light hits a mirror?

When the light rays hit the smooth mirror, they all bounce off at the same angle, creating a clear reflection.

4. Does light only travel in a straight line or can it bend?

Light only travels in a straight line.

5. Why is the sun so important to life on earth?

The sun is so important because it is our main source of light and it gives out rays of light and UV light. The sun helps plants to make food, it helps people to make vitamin D and it also provides warmth.

6. What does it mean when a material is opaque?

Materials that are opaque block the light and don't let any light rays get through.

7. What does transparent mean?

Transparent is used to describe objects that let light travel through them easily.

8. List all the light sources you know.

Answers may include examples such as:

- **the sun**
- **light bulb**
- **lamp**
- **lighthouse**
- **candle**
- **torch**
- **camera flash**
- **mobile phone backlight**
- **laser pen**
- **traffic light**
- **car light**
- **TV**
- **computer**

9. Make a silhouette of a friend's head using a projector. How can you change the size of the shadow?
- You can change the size of the shadow by getting closer to, and further away from, the projector.**
10. What happens to a shadow when you move the object towards the light source?
- When you move the object towards the light source, the shadow gets bigger.**
11. Is it possible to see without light?
- It is not possible to see without some form of light.**
12. Can you see reflective material without light? Why?
- You cannot see reflective materials without light, because the reflective materials are not light sources. The light must hit the reflective material, bounce off it and then hit our eyes for us to be able to see it.**
13. Why is your shadow sometimes in front of you and sometimes behind you?
- Shadows are formed by your body blocking the sun's light and as the earth moves around the sun, shadows move throughout the day.**
14. Draw three different light sources and label the brightest.
- Answers will vary and may include examples such as:**
- **the sun**
 - **light bulb**
 - **lamp**
 - **lighthouse**
 - **candle**
 - **torch**
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