

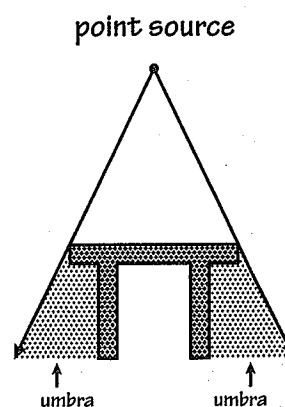
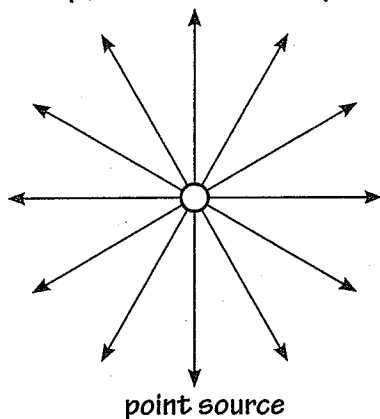
How are different shadows made? – I

Read the text.

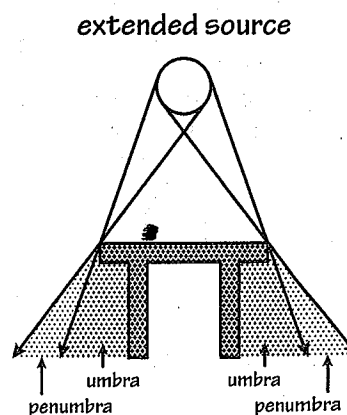
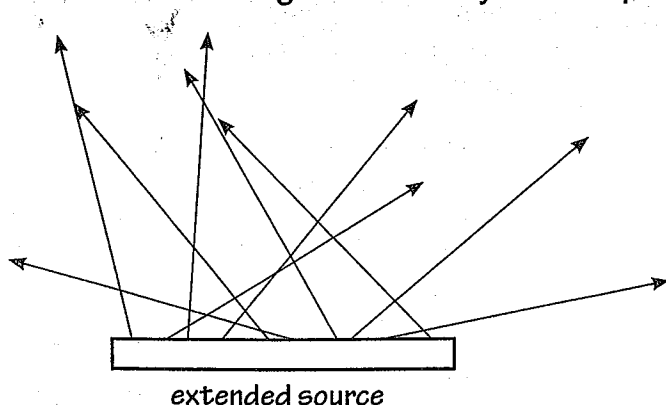
Shadows are formed when an obstacle blocks the passage of light.

Light reaches an obstacle from a source such as the sun, a torch, a fire or the stars. Light sources can be grouped into two categories: point sources and extended sources.

Point sources send out light rays in all directions from a single point. Point sources are small (or point) sources of light, such as light from a distant star as seen through a small telescope, a spotlight or light passing through a pinhole. Point sources create a sharp, clear and complete shadow called an umbra.



Extended light sources send light over a definite area. Large, extended light sources include the sun or a fluorescent light. An extended light source creates not only an umbra but also a partial shadow called a penumbra. A penumbra shadow is not clear and defined because some light is visible. An obstacle lit by an extended light source receives light from many distinct point sources.



Sometimes the moon acts as an obstacle to Earth's light from the sun. When the moon blocks our view of the sun and Earth lies in the moon's shadow, this is called a solar eclipse. A total solar eclipse occurs when the moon appears to cover the whole solar disc. A partial solar eclipse occurs when the moon covers part of the solar disc.

When the Earth blocks the moon from the sun's rays and the moon lies in the Earth's shadow, this is called a lunar eclipse. A total lunar eclipse occurs when the moon lies completely in Earth's umbra. A partial lunar eclipse occurs when only part of the moon lies in Earth's umbra.

How are different shadows made? – 2

Use the text on page 75 to complete the following.

1. (a) What is the difference between a point and an extended source of light? Give one example of each.

- (b) What is the difference between the shadow created by a point and an extended source of light?

2. Show the difference between a point and an extended source of light using a labelled diagram of each.

--	--

3. Write the correct word for each definition.

(a) a sharp, clear shadow

(b) a partial shadow

(c) something which blocks the passage of light

(d) when a celestial object obscures the light from another

4. Label each eclipse diagram to show the umbra and penumbra.

