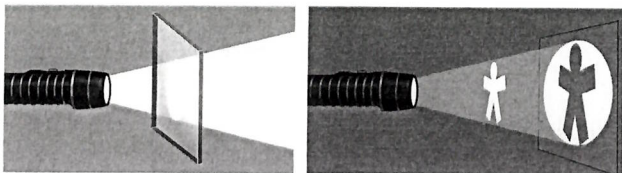


Work in a darkened room.

- 1 Switch on a torch and look for the light rays.
- 2 Shine your torch through glass or clear plastic. You will see most of the light travels straight through.
- 3 Shine your torch at a solid object (e.g. a cut out cardboard figure). You will see a shadow forms behind the figure.
- 4 Shine your torch at some other solid objects and look for the shadow shapes that are made.

**Shadow Shapes**

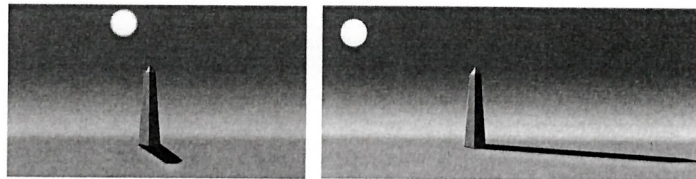
Shadows are always similar in shape to the objects forming them. Can you link these shadows to the objects?



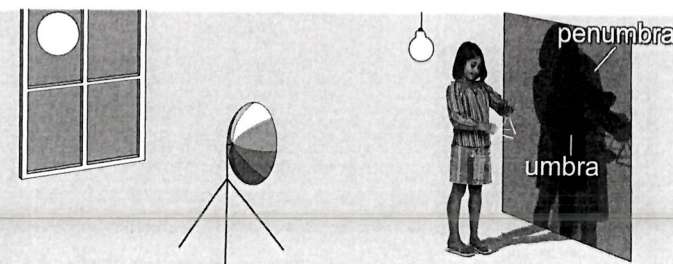
How to Make Shadows

Long and Short Shadows

- 1 To make short shadows, hold your torch (or other light source) high above the object.
- 2 To make long shadows, hold your torch low down.

**Complex Shadows**

Some shadows are very clear. These tend to have one source of light. Some shadows are fuzzy. These occur when there is more than one source of light. Fuzzy shadows have a dark region in the middle called the umbra with a less dark area around it called the penumbra.



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How to Make Shadows

Section A

Choose the best word or group of words to fit the passage and put a ring around your choice.

Remember to work in a dark room. Switch on your torch and look for

1 'X' death light dark

rays. If you shine your torch towards

2 glass wood brick metal

the light rays pass through. If you shine at a

3 soiled sorted soggy solid

object a shadow is formed. Shadows are always similar in

4 colour shape feel sound

to the objects forming them. If you have one source of light shadows can be

5 clean. clever. clear. close.

If you have more than one source of light shadows can be very

6 fury. furry. fuzzy. fun.

Section B

1 What do these instructions tell you?

2 When is a shadow formed?

3 How can you make short shadows?

4 Which shadows are very clear?

5 When are fuzzy shadows made?

6 Why do you think the instructions recommend working in a darkened room?

7 Why are shadows always similar in shape to the objects that made them?

Section C

Write a set of instructions telling how to make shadows with a candle.

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Section A

- 1) light
- 2) glass
- 3) solid
- 4) shape
- 5) clear.
- 6) fuzzy.

Section B

- 1) How to make shadows.
 - 2) When a light shines on a solid object a shadow forms behind it.
 - 3) Hold the light above the object.
 - 4) Those formed with only one source of light.
 - 5) When there is more than one source of light.
 - 6) There is only one source of light/shadows will be clearer.
 - 7) Accept an answer that demonstrates an understanding that light can't pass through a solid object.
-