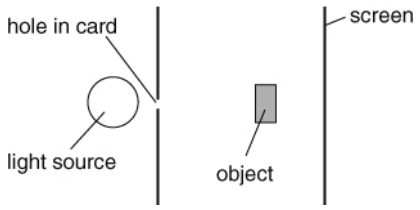
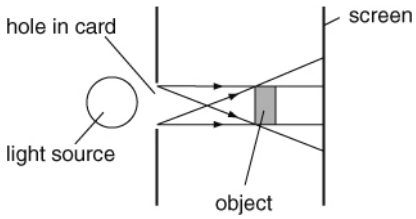
The diagrams show light from a bulb shining through a hole in a piece of card. The light shines on an object, which casts a shadow on a screen.

A



B



1 Copy diagram A and mark rays on it to show where a shadow will form on the screen. Add labels to explain why a shadow is formed there.

2 Explain, using diagrams, how the size of the shadow will change if:

a the object is moved closer to the light source.

b the screen is moved further away from the light source.

3 Copy diagram B and mark on it:

a an area where no light from the bulb can reach the screen

b two areas where light from all of the hole in the card can reach the screen

c two areas where only some of the light passing through the hole can reach the screen.

4 When light from a small source (such as the small hole in the card in diagram A) is blocked, the shadow has sharp edges. When light from a large source is blocked, the shadow has fuzzy edges. Use your answers above to help you to explain this difference.

I can…

- use a ray diagram to explain how shadows are formed
- use a ray diagram to explain the effect of various factors on shadow size.