Allie and Jamil are watching a film in the cinema. A spaceship is being chased, and explodes in a ball of fire. Allie puts her fingers in her ears because the sound is so loud.

Jamil drops his sweets. He needs to use the torch on his phone to find them because it is very dark under the seats.

1 Which of these things are light sources. Tick (✓) *two* boxes.

☐ torch ☐ cinema screen ☐ projector

2 If you were really in space, you could see an explosion but you could not hear it. Why is this?

☐ light travels faster than sound

☐ sound travels faster than light

☐ sound cannot travel through empty space

3 Complete these sentences using words from the box. You do not need to use all the words.

absorbs	transmits	reflects	opaque	shadow	transparent

a The cinema screen is made from a material that _____ light well.

b It is dark under the seats because they are _____ (light cannot go through them) so they form a _____.

4 Draw arrows on the diagram to show how Jamil can see his sweets using the torch on his phone.

5 Outside the cinema they see two cars crashing in the distance. They don't hear the sound straight away. Why does this happen?

_____

_____

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Fill in the gaps in these sentences using words from the box.

incidence	reflect	reflection	scatter

Mirrors _____ light evenly, so that the angle of _____ (*r*) is equal to the angle of _____ (*i*).

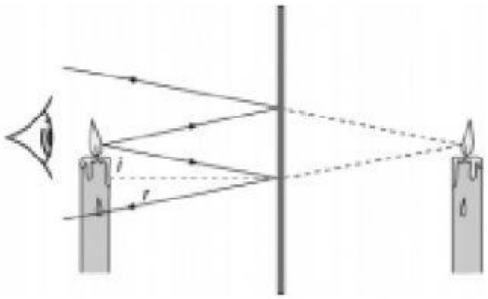
Most opaque materials _____ the light when they reflect it, so that it goes off in all directions.

Tick (✓) the boxes to show how each material will reflect light.

		Specular (even) reflection	Diffuse (scattered) reflection
a	paper	☐	☐
b	polished metal	☐	☐
c	brick	☐	☐
d	wood	☐	☐

a Label the diagram using words from the box.

angle of incidence	angle of reflection	image	incident ray
	mirror	reflected ray	



b Look at the diagram above. How big is the image of the candle? Tick (✓) *one* box.

☐ smaller than the real candle ☐ the same size ☐ bigger than the real candle

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