

Year 5 Science Assessment: The Science of Light

Learning objective: To demonstrate an understanding of how light travels, how shadows are formed, and how we see objects.

Read each question carefully. Answer in full sentences where required. Ensure you use scientific vocabulary correctly.

Nova the owl is observing the night sky. She notices that the moon does not emit its own light, yet it appears bright in the darkness. Meanwhile, Max the monkey is using a torch to explore a dark cave, noticing that his torch beam only travels in one direction until it hits the cave wall.

Word bank: Light source · Reflection · Transparent · Opaque · Translucent · Shadow · Straight lines · Pupil

1. Explain why we are able to see objects that are not light sources, such as a wooden table. Use the term 'reflection' in your answer. (2 marks)

2. Light travels in straight lines. How does this property of light explain why shadows are formed when an opaque object is placed in the path of a light beam? (3 marks)

3. Compare and contrast the materials 'transparent' and 'translucent'. Provide an example for each. (3 marks)

4. Max shines his torch onto a shiny metal tray. Describe what happens to the light rays when they hit the surface and justify why a mirror creates a clearer image than a piece of white paper. (4 marks)

5. What might happen if light did not travel in straight lines? Explain your reasoning. (3 marks)

6. Nova wants to prove that light travels from a light source to our eyes. Design a simple investigation to demonstrate this. Include the equipment you would use and the steps you would take. (5 marks)

7. Why is it dangerous to look directly at the Sun, even with sunglasses? Link your answer to the intensity of light entering the human eye. (5 marks)

Draw: Draw a scientific diagram showing a torch shining light onto a ball. Include labels for the 'Light Source', the 'Opaque Object', and the 'Shadow'. Use an arrow to show the direction of the light.



Extension challenge: Total: /25. Challenge: If you were in a room with absolutely no light sources, would you be able to see your own hand? Justify your answer using your knowledge of how the eye perceives light.