Nova’s Stargazing Science: The Behaviour of Light

Learning objective: To understand that light travels in straight lines and how we see objects by the reflection of light.

Read each question carefully and use your knowledge of how light behaves to provide clear, scientific explanations. Use the word bank to help you construct your answers.

Word bank: reflection · straight lines · light source · retina · opaque · transparent · shadows · travels

1. Nova the owl is stargazing. Explain how light travels from a distant star to Nova's eyes. Why does light need to travel in this way for us to see? (2 marks)

2. If Max the monkey holds an opaque wooden board in front of his torch, a shadow is formed. Describe why the shadow appears and what happens to the light rays when they hit the board. (2 marks)

3. Explain the process of reflection. How does light hitting a mirror allow you to see your own reflection? (2 marks)

4. Look at the following list: A clear glass window, a piece of card, and a piece of tracing paper. Categorise these as transparent, translucent, or opaque. (3 marks)

5. Why is it impossible to see an object in a room that is completely dark, even if your eyes are open and healthy? (2 marks)

Draw: Draw a scientific diagram showing a torch shining light onto a mirror and reflecting onto a wall. Use arrows to show the direction the light travels in.

Extension challenge: Research how a periscope works using mirrors. Write a short paragraph explaining how it allows a person to see around corners using the principles of reflection.