Nova’s Scientific Experiment Record: Investigating Forces

Learning objective: To plan and conduct an investigation into how different surfaces affect the distance an object travels, as per the Year 5 Science curriculum on forces.

Help Nova the owl test how different surfaces affect the movement of a toy car. Choose three different surfaces (such as carpet, wood, or sandpaper). Roll your car down a ramp, measure the distance it travels in centimetres, and record your findings below to see which surface provides the most friction.

Word bank: friction · surface · resistance · force · measurement · distance · gravity · prediction

1. Prediction: Which surface do you think will cause the most friction, and why do you think this will happen? (2 marks)

2. Method: Briefly describe the steps you will take to ensure your test is fair. What will you keep the same each time? (3 marks)

3. Results Table: Create a simple list or table showing your three surfaces and the distance the object travelled in centimetres. (3 marks)

4. Analysis: Look at your results. Which surface made the object stop the quickest? Explain what this tells you about the force of friction. (3 marks)

5. Conclusion: How does the texture of a surface change the way an object moves? Use your findings to explain your answer. (2 marks)

Extension challenge: Imagine you are designing a brand new pair of trainers for Max the monkey. Using what you have learned about friction, explain what kind of material you would choose for the soles to help him climb trees safely.