

Nova's Forces Adventure

Learning objective: To understand how forces act on objects and identify the effects of friction on different surfaces.

Read each question carefully and use your knowledge of forces to provide the best answer. Remember to think about what happens when objects move across different surfaces.

Nova the owl is observing how things move in the forest. She notices that a toy car moves differently depending on whether it is on the wooden floor or the rug. Some forces act when objects touch each other, while others can act from a distance, like gravity or magnets.

Word bank: friction · force · surface · push · pull · grip · smooth · rough

1. Nova pushes a toy car across a smooth wooden floor and then across a rough carpet. On which surface will the car travel further and why? (2 marks)

2. Define the word 'friction' in your own words. What happens to the speed of an object when there is a lot of friction? (2 marks)

3. Give two examples of a 'pull' force that you might use during a game of tug-of-war or when opening a door. (2 marks)

4. If Max the monkey wants to slide down a playground slide very quickly, should the slide be rough or smooth? Explain your reasoning. (2 marks)

5. Look at the list of forces: Gravity, Friction, Magnetism. Which of these forces requires two surfaces to be touching to work? (1 mark)

Draw: Draw a diagram showing a ball rolling down a slope. Use arrows to show the direction of the movement and label where friction is happening between the ball and the surface.



Extension challenge: Max the monkey has £5.00. He wants to buy two different materials to test which one creates the most friction for his toy car. If a piece of sandpaper costs £1.20 and a piece of silk costs £1.50, how much change will he get from his £5.00 if he buys both?