

Nova's Force Field Investigation

Learning objective: To identify and explain the effects of air resistance, water resistance, and friction as forces that act between moving surfaces.

Nova the barn owl is studying how different forces affect movement. Look at the scenarios below and categorise them based on whether they involve friction, air resistance, or water resistance. For each scenario, explain how the force is affecting the movement.

Word bank: friction · air resistance · water resistance · surface · drag · opposing force

1. A cyclist is travelling quickly down a hill but finds it harder to go faster because the wind pushes against their body. Which force is this, and how does it affect their speed? (2 marks)

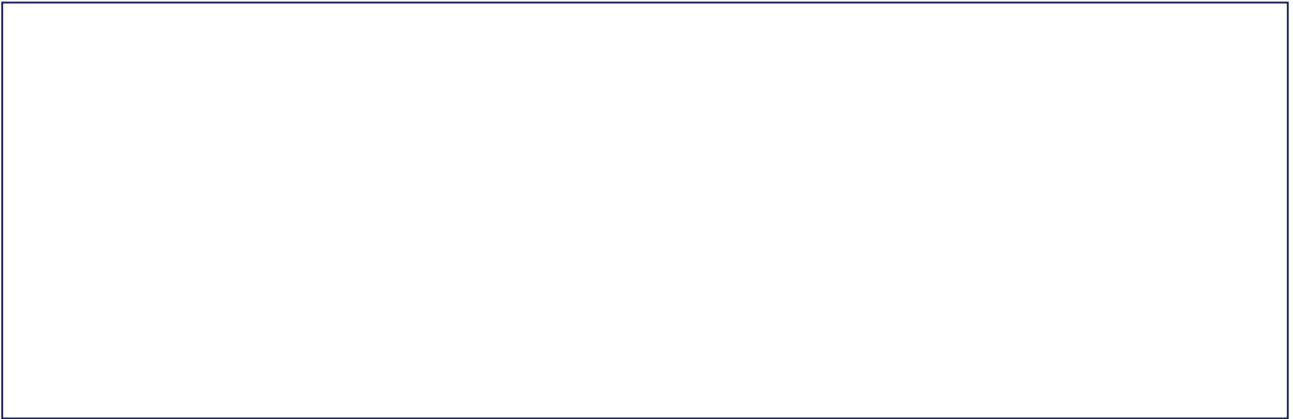
2. Finn the dolphin is swimming through the ocean. Why is it harder for him to swim fast than it is for him to jump through the air? (2 marks)

3. Max the monkey slides a heavy wooden crate across the floor. He notices the crate stops moving once he stops pushing. What force causes the crate to slow down and stop? (2 marks)

4. If you were designing a racing car to go as fast as possible, why would you want to make it streamlined? (2 marks)

5. Give one example of how friction is actually useful in our daily lives. (2 marks)

Draw: Draw a diagram of a bird in flight. Use arrows to show the direction of the bird's movement and a separate arrow to show the direction of air resistance acting against it.



Extension challenge: Nova wants to know what would happen if we lived in a world with zero friction. Write a short paragraph explaining how everyday tasks, like walking or writing with a pencil, would change.