

Nova's Guide to Fantastic Forces

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

Use the writing frame below to explain how different forces affect the movement of objects. Use the word bank to help you link your ideas and remember to use scientific vocabulary.

Forces are invisible pushes and pulls that change how objects move, speed up, or slow down.

Word bank: air resistance · water resistance · friction · surface · streamlined · opposing force · consequently · furthermore · in contrast · gradually

1. Introduction: What are forces and how do they act on an object? Start by saying: A force is a push or a pull that... (2 marks)

2. Friction: How does friction occur between two surfaces? Explain by writing: Friction happens when two surfaces rub together, for example... (2 marks)

3. Air Resistance: Nova wants to know why some objects fall slower than others. Describe this by saying: Air resistance acts as an upward force against falling objects because... (3 marks)

4. Water Resistance: How do living things like Finn the dolphin move easily through the ocean? Use this starter: Water resistance can slow down objects in water, but animals like dolphins are streamlined, meaning... (3 marks)

5. Conclusion: Summarise why understanding forces is important. Start with: Overall, forces are essential because they... (2 marks)

Extension challenge: Imagine you are designing a new sports car. Write a paragraph explaining how you would use your knowledge of air resistance and friction to make the car go as fast as possible.