

3 Forces and energy

> 3.1 Forces and motion

Exercise 3.1A Balanced forces

Focus

In this exercise, you will describe balanced forces.

- 1 What is needed for two forces to be balanced?

Tick (✓) two statements in the table.

Statement	Needed for forces to be balanced?
Two forces must be the same size.	
Two forces must be different sizes.	
Two forces must be in the same direction.	
Two forces must be in opposite directions.	

- 2 A box sits on the ground. The box is **not** moving.
Write 'true' or 'false' after each statement.

- a There are no forces acting on the box.
b There are balanced forces acting on the box.
c There is an unbalanced force acting on the box.

- 3 Sofia is riding her bicycle. The driving force on the bicycle is balanced with the force of friction on the bicycle.

Draw arrows on the diagram to show these forces. Write the names of the forces on the arrows.



Exercise 3.1B Unbalanced forces

Practice skills

In this exercise, you will be thinking about the effects of unbalanced forces.

- 1 Which of these can happen because of unbalanced forces?

Tick (✓) all correct statements.

- A car will move at a constant speed. ☐
A boat will slow down. ☐
A football will change direction. ☐
A book will not move on a desk. ☐

- 2 The diagram shows the forces on a car.



State:

- a which forces are balanced and
b which forces are unbalanced and
c what will happen to the car.
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