KS3 SCIENCE · PHYSICS

Forces: exam questions

Name _____
Total: 19 marks

1 State the unit of force. **[1 mark]**

2 State three things that a force can change about an object. **[3 marks]**

3 Name one contact force and one non-contact force. **[2 marks]**

4 A force arrow is drawn on a diagram. State what its length shows and what its direction shows. **[2 marks]**

5 In a tug of war, one team pulls to the left with 600 N. The other team pulls to the right with 450 N. Calculate the resultant force and give its direction. **[2 marks]**

6 A book rests on a table. Explain why it does not move. **[2 marks]**

7 Give one example where friction is useful and one where it is a nuisance. **[2 marks]**

8 Explain why a racing cyclist crouches low over the handlebars. **[2 marks]**

9 A skydiver falls at a steady speed. Compare the size of her weight with the size of the air resistance, and give a reason. **[2 marks]**

10 A car travels along a straight road. The forward force on it is 900 N and the drag is 900 N. Describe the motion of the car. **[1 mark]**

KS3 SCIENCE · PHYSICS

Forces: mark scheme

Total: 19 marks

1 [1 mark]

- Newton (accept: N) **(1)**

2 [3 marks]

- Its speed **(1)**
- Its direction **(1)**
- Its shape **(1)**

3 [2 marks]

- Contact: friction, air resistance, water resistance, upthrust or tension (any one) **(1)**
- Non-contact: gravity (accept: weight), magnetic force or electrostatic force (any one) **(1)**

4 [2 marks]

- Length: the size of the force **(1)**
- Direction: the direction the force acts in **(1)**

5 [2 marks]

- 150 N **(1)**
- To the left **(1)**

6 [2 marks]

- The forces on it are balanced (accept: its weight and the push of the table are equal and opposite) **(1)**
- So the resultant force is zero (accept: it is in equilibrium) **(1)**

7 [2 marks]

- Useful: for example brakes, tyres on a road, or shoes gripping the ground **(1)**
- Nuisance: for example moving parts of a machine or a bike chain rubbing, which wears them out or wastes energy **(1)**

8 [2 marks]

- It makes a more streamlined shape (accept: a smaller area facing the air) **(1)**
- So there is less air resistance (accept: less drag) **(1)**

9 [2 marks]

- They are equal **(1)**
- Her speed is not changing, so the forces are balanced (accept: the resultant force is zero) **(1)**

10 [1 mark]

- It moves at a steady speed (in a straight line) **(1)**