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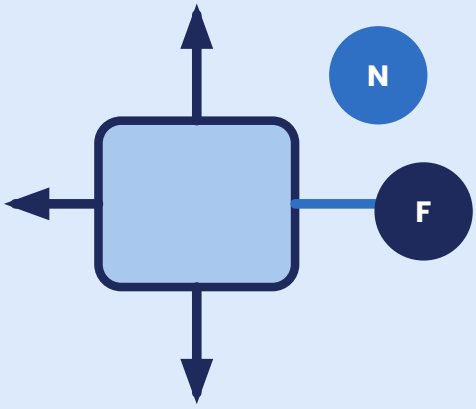
Year 7 • KS3 Physics

Forces



Homework Worksheet

Practise pushes and pulls, contact and non-contact forces, force arrows and balanced forces.

Push & pull | Newtons | Contact | Non-contact | Friction | Balanced

KEY IDEAS IN THIS WORKSHEET — YEAR 7

Name: _____ Class: _____

Date set: _____ Date due: _____

What's inside

Section A	What is a force?	13 marks
Section B	Contact and non-contact forces	12 marks
Section C	Force arrows and balanced forces	10 marks

Instructions

- Answer all questions in the spaces provided.
- Use a ruler to draw force arrows.
- Marks for each question are shown in [ ].
- A longer arrow means a bigger force.

Total score

/ 35

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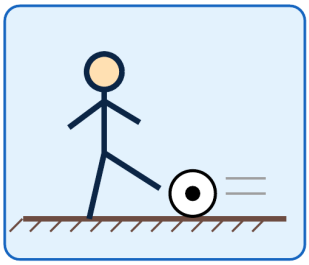
Forces Worksheet (Part 2)

Year 7 • KS3 Physics • Pushes and pulls, contact and non-contact forces, force arrows and balanced forces. Use a ruler for force arrows.

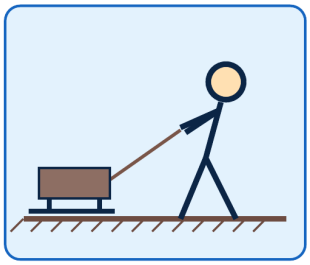
Section A — What is a force? [13 marks]

1 Look at each picture. Is the force a **push** or a **pull**? Tick one box for each. **[4]**



(a) Kicking a football

☐ Push ☐ Pull



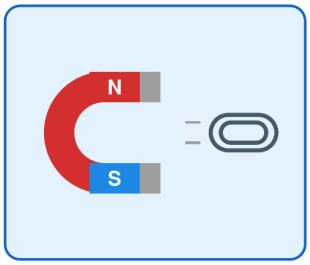
(b) Pulling a sledge

☐ Push ☐ Pull



(c) Moving a trolley

☐ Push ☐ Pull



(d) Magnet and paper clip

☐ Push ☐ Pull

2 Complete the sentences using words from the box. Each word is used **once**. Two words are not needed.

Word box push | pull | interaction | newtons | newtonmeter | shape | kilograms | metres

(a) A force is a ..... or a ..... . **[2]**

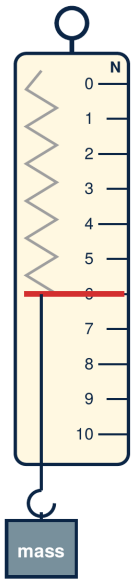
(b) A force acts because of an ..... between two objects. **[1]**

(c) Force is measured in ..... (N). **[1]**

(d) We measure force using a ..... . **[1]**

(e) Forces can change an object's speed, direction or ..... . **[1]**

3 Asha hangs a mass from the instrument shown below.



(a) Name the instrument Asha is using. **[1]**

.....

(b) Read the scale. What is the size of the force on the spring? Give the unit. **[1]**

.....

(c) Asha hangs a **heavier** mass on the instrument. What happens to the spring and to the reading? **[1]**

.....

.....

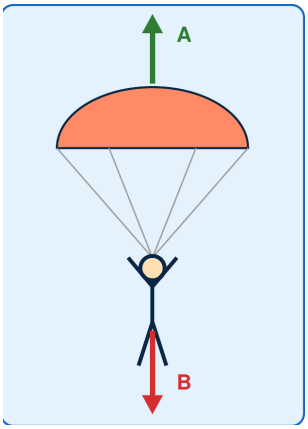
Section B — Contact and non-contact forces [12 marks]

4 Sort the forces in the box into the correct column of the table. [3]

Forces friction | gravity (weight) | air resistance | magnetic force | upthrust | electrostatic force | water resistance | tension

Contact forces (objects touching)	Non-contact forces (not touching)

5 Zara is falling with her parachute open. Two forces act on her, shown by arrows **A** and **B**.



(a) Complete the table. [4]

Arrow	Name of force	Contact / non-contact
A		
B		

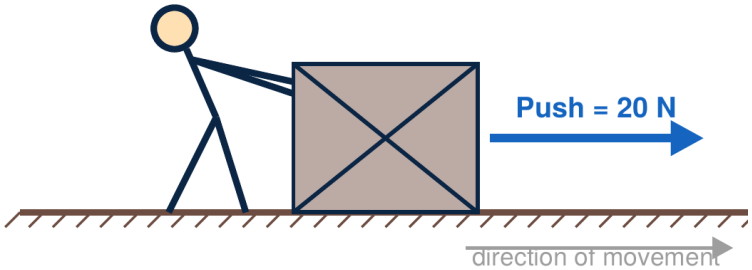
(b) Gravity still pulls on Zara even though nothing is touching her. Explain why gravity is called a **non-contact** force. [1]

.....

.....

6 Leo pushes a heavy box across the floor. The box moves to the right.

(a) **Friction** acts on the box. On the diagram, draw an arrow to show the direction of friction. Label it **friction**. **[1]**



(b) Leo pushes the same box across three floors. Circle the floor that gives the **most** friction. **[1]**

smooth ice **carpet** **polished wood**

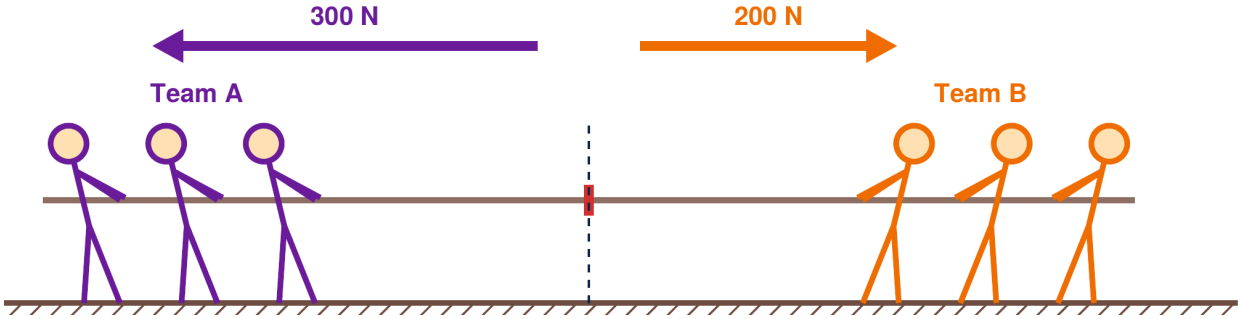
(c) Friction can be useful, but it can also be a problem. Give **one** example of each. **[2]**

Useful: .....

Problem: .....

Section C — Force arrows and balanced forces [10 marks]

7 Two teams play tug of war. The arrows show the force each team pulls with.
Remember: a longer arrow means a bigger force.



(a) Which team will win? Give a reason. **[1]**

.....

(b) Work out the difference between the two forces. Give the unit. **[1]**

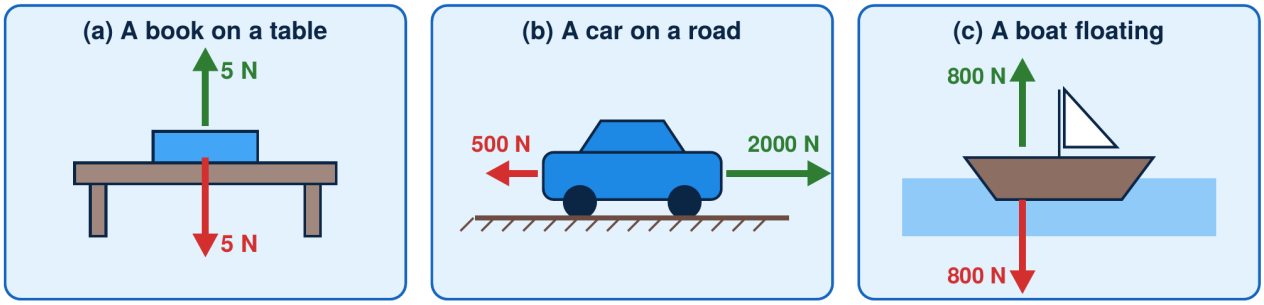
.....

(c) Both teams now pull with **250 N**. Are the forces balanced or unbalanced? What happens to the rope? **[1]**

.....

.....

8 For each picture, tick whether the forces are **balanced** or **unbalanced**. **[3]**



☐ Balanced ☐ Unbalanced ☐ Balanced ☐ Unbalanced ☐ Balanced ☐ Unbalanced

(d) Look at the car in picture (b). Will the car **speed up**, **slow down** or **stay at the same speed**? Explain your answer. **[2]**

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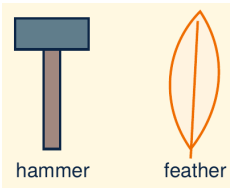
.....

.....

9 **Challenge.** Sam drops a hammer and a feather at the same time from the same height **on Earth**. The hammer lands first.

(a) Name the force that slows the feather down. Is it a contact or a non-contact force? **[1]**



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(b) An astronaut did this on the **Moon**, where there is no air. Both objects landed at the same time. Explain why. **[1]**

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END OF WORKSHEET **Total: _____ / 35**