MARK SCHEME – Forces

Year 7 Physics | Total: 35 marks

Q	Answer	Marks
Section A – What is a force? (13 marks)		
1	(a) Push (b) Pull (c) Push (d) Pull *1 mark each*	**4**
2	(a) **push**, **pull** (either order) (b) **interaction** (c) **newtons** (d) **newtonmeter** (e) **shape** *1 mark per correct word. Not used: kilograms, metres*	**6**
3a	Newtonmeter / force meter / spring balance	**1**
3b	**6 N** (number and unit needed for the mark)	**1**
3c	The spring stretches **more** / gets longer **and** the reading gets bigger (more than 6 N)	**1**
Section B – Contact and non-contact forces (12 marks)		
4	**Contact:** friction, air resistance, upthrust, water resistance, tension **Non-contact:** gravity (weight), magnetic force, electrostatic force *All 8 correct = 3 marks; 6–7 correct = 2 marks; 4–5 correct = 1 mark*	**3**
5a	A: **air resistance** (accept drag) – **contact** B: **weight** / gravity – **non-contact** *1 mark for each name, 1 mark for each contact / non-contact*	**4**
5b	It acts between two objects that are **not physically touching** (the Earth pulls Zara without touching her)	**1**
6a	Arrow drawn on the box pointing to the **left** (opposite to the movement), labelled friction	**1**
6b	**Carpet**	**1**
6c	**Useful** – any one, e.g. grip of shoes on the ground, brakes on a bike or car, tyres on a road, holding a pencil **Problem** – any one, e.g. wears out shoes / tyres / machine parts, makes moving parts hot, makes it harder to push things *1 mark each*	**2**
Section C – Force arrows and balanced forces (10 marks)		
7a	**Team A** – because they pull with the bigger force (300 N is more than 200 N / longer arrow)	**1**
7b	**100 N** (unit needed)	**1**
7c	**Balanced** – the rope does not move / stays still	**1**
8	(a) Balanced (b) Unbalanced (c) Balanced *1 mark each*	**3**
8d	The car **speeds up** (1) because the forward force (2000 N) is bigger than the backward force (500 N) / the forces are unbalanced (1)	**2**
9a	**Air resistance** – a **contact** force (both needed for the mark)	**1**
9b	There is **no air** on the Moon, so there is **no air resistance**; only gravity acts on both objects, so they fall at the same rate	**1**
	Total	**35**

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