

Forces Practice

1 Write down three things a force can do to an object.

(a)

(b)

(c)

2 Is each sentence always true (AT), sometimes true (ST) or false (F)?

Sentence	AT / ST / F
You can hear forces.	
You need a force to make something longer.	
You can see the effects of all forces.	
You need a force to change the direction of motion.	
You can feel forces.	
You need a force to stop something falling.	

3 Match the forces in the table to the thing you see which tells you the force is there.

What you see	Force
A train stops at a station.	Rotating blades make a lift force.
A parachute slows a skydiver.	Foot provides a contact force called a normal reaction.
A football speeds up when kicked.	Water provides an upthrust force.
The floor supports you when you stand.	Brakes provide a force.
A submarine rises to the surface.	Floor provides a support force called a normal reaction.
A helicopter is able to hover.	Drag force pushes upwards. (also called air resistance)

- 4 Do you need a force to do these things? How did you decide?
- (a) Stop a moving car, (e) Float on water,
- (b) Throw a basketball, (f) Hold a car still on a flat road,
- (c) Compress air for a tyre, (g) Drive a van up a hill at a steady speed,
- (d) Stretch a spring, making it longer (h) Hold a weight above your head.

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- 5 Fill in the table with the names and directions of the forces.
For the missing force names, choose from this list:

Drag, Driving force, Friction, Lift, Normal reaction, Upthrust and Weight.

For the directions choose from **upwards, downwards, forwards** (in the direction of motion) and **backwards** (against motion). Direction labels can be used more than once, once or not at all.

Example	Name of force	Direction
Force of gravity		
Force from engine		
Force which stops things slipping		
Force from wings		
Support force from the floor		
Floating force		
Force slowing a ball in flight		

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- 6 When drawing a force diagram,
- (a) should force arrows point towards or away from the object?
- (b) what does a longer force arrow mean?

- 7 When drawing a force diagram,
(a) must the diagram be to scale?

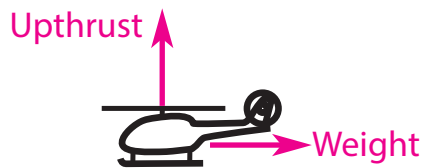
(b) can you draw a cat like this?

Cat

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- 8 The diagram shows a hovering helicopter.

(a) What is wrong with this diagram?

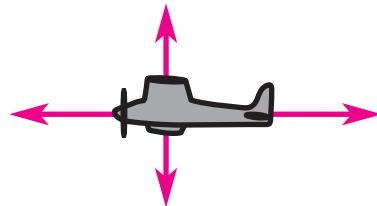
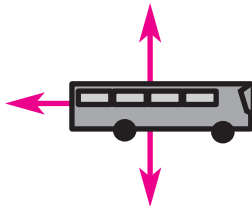
(b) Make a better diagram



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- 9 Label the forces on the diagrams.

(a) A bus stopping

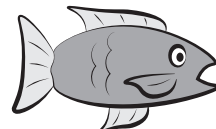
(b) An aeroplane flying at steady speed



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- 10 Draw force arrows on the objects. Use longer arrows for stronger forces.

(a) A basketball being thrown.

(b) A stationary fish in water.



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- 11 Weight is a non-contact force. What does this mean?

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- 12 Name two other non-contact forces.

(a)

(b)