

# 9K Speeding up...Newton's laws of motion

level 5

level 6

level 7

## plenary one

Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT email: sales@science-interactive.co.uk

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Match the following statements:



Click mouse to reveal answer

The size of a force is measured in...



A cannon recoiling on firing the cannon shot.

An example of Newton's first law is...



Their mass and the distance between them.

The force of attraction between two objects depends on...



Newtons.

An example of Newton's second law is...



An object that stays at rest or continues to move in a straight line and at a constant speed.

Gravity exerts a force of 10 Newtons per kilogram on Earth. On the moon it is...



Approximately one sixth the value at  $1.6\text{Nkg}^{-1}$ .

An example of Newton's third law is...



The force of a car's engine accelerating the car's mass in a forward direction.

Answer:

The size of a force is measured in...

Newtons.

An example of Newton's first law is...

An object that stays at rest or continues to move in a straight line and at a constant speed.

The force of attraction between two objects depends on...

Their mass and the distance between them.

An example of Newton's second law is...

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## plenary two

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Look at the four pictures and decide which object is gaining or losing gravitational potential energy (GPE):

 Click mouse to reveal answer

	Example one	Example two	Example three	Example four
Diagram				
	<i>Going up the escalator.</i>	<i>Jumping off the diving board.</i>	<i>Water flowing towards the sea.</i>	<i>Airplane taking off.</i>
	Losing GPE	Losing GPE	Losing GPE	Losing GPE
	Gaining GPE	Gaining GPE	Gaining GPE	Gaining GPE

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Answer:

	Example one	Example two	Example three	Example four
Diagram				
	<i>Going up the escalator.</i>	<i>Jumping off the diving board.</i>	<i>Water flowing towards the sea.</i>	<i>Airplane taking off.</i>
		Losing GPE	Losing GPE	
	Gaining GPE			Gaining GPE

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## plenary three

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Decide whether the following statements are true or false:



Click mouse to reveal answer

<b>Statements:</b>	<b>True</b>	<b>False</b>
An example of Newton's first law is an apple falling to the ground ?	True	False
On Earth, the value of gravity is approximately 5 Newtons per kilogram ?	True	False
An example of Newton's second law links engine size and car mass to acceleration ?	True	False
The mass of an object does not change wherever you are in the Universe ?	True	False
The gravitational pull between the Earth and Moon keeps it in orbit ?	True	False
In deep space, your mass remains the same but your weight is zero ?	True	False
Here on Earth, the tides are caused by Jupiter's gravitational pull ?	True	False
An example of Newton's third law is when a gun recoils after firing a bullet ?	True	False
The force of attraction between two objects each with their own mass is called friction ?	True	False
As you lift an object above the ground it loses gravitational potential energy ?	True	False

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Answer:

<b>Statements:</b>	<b>True</b>	<b>False</b>
An example of Newton's first law is an apple falling to the ground ?		False
On Earth, the value of gravity is approximately 5 Newtons per kilogram ?		False
An example of Newton's second law links engine size and car mass to acceleration ?	True	
The mass of an object does not change wherever you are in the Universe ?	True	
The gravitational pull between the Earth and Moon keeps it in orbit ?	True	
In deep space, your mass remains the same but your weight is zero ?	True	
Here on Earth, the tides are caused by Jupiter's gravitational pull ?		False
An example of Newton's third law is when a gun recoils after firing a bullet ?	True	
The force of attraction between two objects each with their own mass is called friction ?		False
As you lift an object above the ground it loses gravitational potential energy ?		False