

Gravity

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Gravity + S p a c e ■ ■ ■



Traffic lights teachers' notes

This game is a revision activity on gravity and space. It also enables the teacher to assess the effectiveness of the teaching and level of knowledge and understanding in the class.

Managing the activity

Give each pupil three small pieces of coloured card about 10 cm square (one red, one yellow or orange, one green). They use these to signal their answers.

- RED means 'I think the statement is FALSE' .
- GREEN means 'I think the statement is TRUE' .
- YELLOW means 'I'M NOT SURE if the statement is true or false' .

To play the game

- Read the statement.
- Allow a short time for the pupils to consider their response.
- Count, "1, 2, 3. Show your cards!"
- Pupils all hold up their 'answer' cards at the same time.

They can keep a tally of how many they get right, and see if they can improve in further games. You will need to alter the order you ask the questions in subsequent games so that pupils don't learn the colour sequence!

Statements

- 1 Gravity is only present if there is air. False ■
- 2 Gravity attracts things towards the surface of the Earth. False ■
Gravity attracts towards the centre of the Earth.
- 3 Gravity would not exist if the Earth stopped turning. False ■
- 4 Weight is measured in kilograms. False ■
Weight is a force and is measured in newtons.
- 5 Mass is measured in kilograms. True ■
- 6 Far away from Earth objects have no mass. False ■
Mass is a measure of how much of an object there is.

- 7 People used to think the Sun moved around the Earth. True ■
The Sumerians and the Egyptians and some of the Greeks e.g. Ptolemy.
- 8 Orbiting the Sun causes day and night. False ■
Day and night are caused by the Earth spinning on its axis.
- 9 The Earth, Sun and Moon are different shapes. False ■
They are different sizes, but they are all approximately spherical in shape.
- 10 Shadows are longer when the Sun is lower in the sky. True ■
The Sun's rays hit the Earth at a more acute angle.
- 11 The Earth orbits the Sun once each year. True ■
- 12 The Moon always looks the same shape. False ■
The Moon takes 28 days to orbit the Earth and as it does so it appears as different shapes. The shape depends on how much of the illuminated Moon is visible to us from our position on Earth.
- 13 A person standing on the Moon would weigh the same as on Earth. False ■
If a person stood on the Moon they would weigh less because the Moon is less massive than Earth and so its gravity is less. However their mass would be the same as on Earth.
- 14 It is the pull of the Earth's gravity that keeps the Moon in orbit around the Earth. True ■
- 15 Heavier objects fall faster than lighter objects. False ■
If you drop a heavy object and a light object of the same size and shape at the same time from the same height they would hit the ground at the same time. If the objects are of different sizes and different shapes they will be affected differently by the air resistance acting on them, so a bulky object would be slowed more than a compact object.