Question: Why would we not survive on the moon?

National Curriculum Link

Science Y5: Earth and Space
KS2 Science Working Scientifically

IB Learner Profile Links

Inquirers – Nurture skills for research and curiosity

Knowledgeable – Develop conceptual understanding and engage with issues and ideas

Reflective – Consider the wider world and our own ideas and experience

Open-minded – Appreciate the views of others and consider culture and history openly

Prior Skills – Y4 (Mix of Skills from Past Topics / No Prior Earth and Space Topic)	New Skills – Y5	Future Skills – Y6
• Explain their findings in different ways (display, presentation, writing) • Find any patterns in their evidence or measurements • Make a prediction based on something they have found out • Record and present what they have found using scientific language, drawings, labeled diagrams, bar charts and tables • Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnetic forces can act at a distance • Observe changes across the four seasons • Name the four seasons in order • Observe and describe weather associated with the seasons • Observe how day length varies in different seasons	• Explain the size, shape and position of the Earth, Sun and Moon • Describe the sun, earth and moon as approximately spherical bodies • Understand and explain the movement of the Moon relative to the Earth • Identify and explain the movement of the Earth, and other planets, relative to the Sun in the solar system • Explain how the Earth's rotation causes night and day and use diagrams to show this • Identify and explain how seasons and the associated weather are created • ask a variety of types of scientific questions • choose the most appropriate scientific enquiry method to answer a question and outline the method • use simple models to describe scientific ideas make predictions based on scientific knowledge	• ask a variety of types of scientific questions • choose the most appropriate scientific enquiry method to answer a question and outline the method • use simple models to describe scientific ideas • make predictions based on scientific knowledge • draw conclusions from observations and findings based on scientific knowledge • Test a scientific idea and show evidence which supports it • Present a report of their findings through writing, display and presentation

Knowledge, Skills and Understanding for topic area

- Explain the size, shape and position of the Earth, Sun and Moon
- Describe the sun, earth and moon as approximately spherical bodies
- Understand and explain the movement of the Moon relative to the Earth
- Identify and explain the movement of the Earth, and other planets, relative to the Sun in the solar system
- Explain how the Earth's rotation causes night and day and use diagrams to show this
- Identify and explain how seasons and the associated weather are created

Knowledge, Skills and Understanding for Working Scientifically

- ask a variety of types of scientific questions
- choose the most appropriate scientific enquiry method to answer a question and outline the method
- use simple models to describe scientific ideas
- make predictions based on scientific knowledge

Challenge

- Can they compare the time of day at different places on the earth?
- Can they explain how planets are linked to stars?
- Can they begin to understand how older civilizations used the sun to create astronomical clocks, e.g. Stonehenge?
- Can they explore the work of some scientists to find out more? (Ptolemy, Alhazen, Copernicus)

Resources

- video or other secondary sources *eg photographs* of Earth taken from space
- photographs of Sun, Moon and Earth
- globe with small object attached
- inflatable solar system and moving battery operated
- compass
- shadow stick
- torches with powerful beams
- Earth, sun and moon vocabulary card game/ball
- secondary sources providing information about earlier ideas of the shape of the Earth
- secondary data about times of sunrise and sunset
- secondary sources providing information about how the appearance of the Moon changes over a 28-day

Suggested Texts

Non fiction: Books in topic box
A collection of newspaper articles linked to findings of life planets etc

Website/Apps

http://www.earthsunmoon.co.uk/ This is an interactive site which serves up a useful explanation.
Sun- http://www.earthsunmoon.co.uk/
This is an interactive site which serves up a useful explanation
http://www.bbc.co.uk/learningzone/clips/what-does-the-sun-really-look-like/8948.html
http://www.kidsastronomy.com/our_sun.htm
http://www.bbc.co.uk/newsround/14126818
http://www.nasa.gov/vision/universe/solarsystem/sun_for_kids_main.html
Earth: - http://www.bbc.co.uk/learningzone/clips/how-do-we-know-the-earth-is-spherical/2457.html
http://www.engineeringinteract.org/resources/astroadventure/flash/concepts/earth.htm
Moon – http://www.bbc.co.uk/learningzone/clips/what-does-the-moon-look-like-and-why/8957.html

Extended Writing Opportunities

Create a persuasive information leaflet about visiting a planet in the solar system. Children could create a non chronological report or a fact file on a chosen planet.

Numeracy Skills

Scale drawings of distances between and the sizes of the Sun, Earth and Moon. Children could measure and use scale and create diagrams in proportion

Wow starter/experience

Visit from a mobile Planetarium travelling Space zone or set up a telescope.
Visit to World Museum – book a session in the planetarium Immersion room experience linked to a journey or visit into Space.

Cross Curricular Links/ enquiry time activities:

DT: Make 3D models of Earth, Moon and Sun from plasticine, papier mache, fruit or balloons
Children to design and make a model to represent the moon surface and then to create a buggy. They will film this later as part of their reflection. Make your own Lunar surfaces craters made by dropping things into Plaster of Paris or PlayDough

Literacy: Create a set of questions they would ask Neil Armstrong.

ICT: Create a powerpoint presentation about the planets in our solar system

Art: Sunset/sunrise pictures. This could be done using wax and wash technique. Tissue paper collage, collage using coloured paper from magazines, sponge painting, etc. Details could be added in the form of silhouettes either cut from black paper or drawn using wax crayons or oil pastels. Trees look particularly effective. Use travel brochures as a stimulus if the real thing is impossible to observe

Night-time lights: Use the wax and scratch technique—fairgrounds, bonfire night, car lights, traffic lights.

Moonlight pictures: Paint a scene using only shades of grey and black and white. Use black paper for background; add details with white, grey and silver wax crayons.
Moon pictures. Cut out a large circle of white paper—mount on to black or dark blue. Cut out symmetrical bats and stick on to the moon, or overlap into the dark