

Discovery in Science

Finding out new things is a human driver and affects things for better and worse.

Knowledge Harvest:

Students will consolidate and build on their concept of force and its measurement. They will describe situations in which different forces act and distinguish between mass and weight. Use the concept of speed to relate forces acting to changes in motion and identify situations in which forces are balanced and unbalanced.

Activity: Build a tabletop hovercraft (see instructions).

Students will consolidate their ideas about the Sun and Moon, and use models of these to explain phenomena such as eclipses and the seasons.

Key Questions: How can our understanding of forces and motion help to explain how we can be more successful at outdoor sports?

Skill Development: Students will work **independently** to demonstrate their learning through **effectively communicating** their understanding of how scientists use forces to design new sports equipment.

Project Outline: Imagine that you work for a company that designs and makes sports equipment. Some of the managers have asked you why the company needs to employ scientists to help to design new equipment.

Project Exit Point: Prepare a presentation to the management team to persuade them that an understanding of forces is necessary. Prepare a set of notes or a list of things you would talk about if you were giving the presentation.

Suggested duration: 7 lessons.

Key Questions: How can we explain our solar system through observations of the Sun, Moon and stars?

Skill Development: Within a group, students take responsibility to work together sharing out roles and responsibilities. They will use a variety of resources to research a planet. They will need to **communicate** their findings through a class presentation and summary sheet.

Project Outline: Each group researches 1 planet.

Project Exit Point: Each group delivers a 5 minute presentation and produces an A4 summary of their planet to include facts such as length of year and day, mass, diameter, atmosphere, temperature etc.

Suggested duration: 3 lessons.

Key Questions: What affects the size of moon craters?

Skill Development: Students will be obtaining data and analysing the results by **independently** carrying out the practical and **communicating** the results in an appropriate manner.

Project Outline: A marble is dropped into sand from various heights and the depth of the crater is measured.

Project Exit Point: Students will write a plan, collect and analyse results and draw a graph.

Suggested duration: 3 lessons.

Exit Point:

Moonwatch. Students present their findings of what happens to the shape of the Moon over a month. They relate this to the Moons orbit round the earth.



Effective COMMUNICATOR

I can express complex ideas effectively and communicate information. I am clear about my audience and able to use a range of appropriate media.

The quality of my language is excellent with accurate SPAG.

I use a wide range of sources and am able to justify my arguments and present appropriate conclusions.

I have excellent presentation skills and display confidence.

I take ownership of my work and can independently review and improve my communication to make sure it is highly suitable.



Independent ORGANISER

I am willing to take risks and seek out new challenges and take personal responsibility for my actions.

I can independently set goals and persevere to achieve them.

I can independently organise my time and resources to prioritise actions I need to take.

I can reflect on my learning and modify my goals when priorities change, showing flexibility.