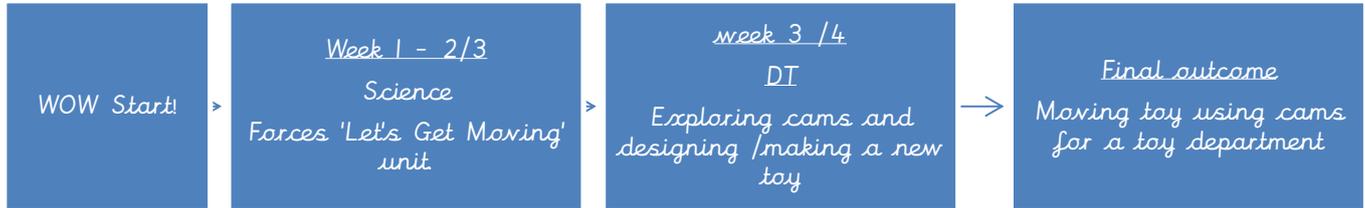


## Year 5/6 Science based unit 'Don't stop moving'

**Overview of unit:** Children will explore different forces including gravity, air & water resistance and other pushes/pulls. They will explore how they act in different ways and their effect on movement/speed etc. They will use 'Switched on Science - 'Let's Get Moving' (y5) unit. In DT they will explore how forces affect the movement, when using cams, and use this knowledge to create a toy for a new toy department.



<u>Working scientifically skills</u>	<u>Scientific knowledge skills</u>
<ul style="list-style-type: none"> <li>• Plan enquiries, including recognising and controlling variables where necessary.</li> <li>• Take measurements, using a range of scientific equipment, with increasing accuracy and precision. Eg. Force meter.</li> <li>• Record data and results of increasing complexity using scientific diagrams and labels, bar and line graphs.</li> <li>• Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</li> <li>• Present findings in written form.</li> <li>• Use test results to make predictions to set up further comparative and fair tests.</li> </ul> <ul style="list-style-type: none"> <li>• <b>Controlling variables</b></li> <li>• <b>Degree of trust/accuracy</b></li> <li>• <b>Precision</b></li> <li>• <b>Refute ideas</b></li> </ul>	<ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• Identify the effect of air resistance, water resistance and friction that act between moving surfaces.</li> <li>• recognise that some mechanisms including pulleys, levers and gears allow a smaller force to have a greater effect</li> </ul> <ul style="list-style-type: none"> <li>• <b>Resistance</b></li> <li>• <b>Aero-dynamic</b></li> <li>• <b>Balanced forces</b></li> <li>• <b>At rest</b></li> </ul> <p>Previous learning (Magnets) 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 how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p><u>Previous Vocabulary:</u> Surfaces, forces, magnet, attract Repel, poles (of magnets)</p>

## DT skills

### DT knowledge skills

- Use research and develop design criteria to inform design of innovative, functional, appealing products that are fit for purpose, aimed at particular groups
  - generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
  - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
  - select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities
  - investigate and analyse a range of existing products
  - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
  - apply their understanding of how to strengthen, stiffen and reinforce more complex structures
  - understand and use mechanical systems in their products [cams]
- **Mechanism**
- **Cams**
- **Prototype**
- **Innovative**
- **Specification**

### Previous knowledge

Levers and pulleys (Moving greek mythical creatures) Building aqueducts - strengthening structures for a purpose (roman invaders), Making shelters (Funky Flintstones) - **All Cycle A**  
Previous Vocabulary: Hydraulics, systems, pulleys and winding mechanisms.

A cam is a rotating or sliding piece in a mechanical linkage.

It is often a part of a rotating wheel.

It moves in a circular motion mostly and can push linked pieces in different directions. (up and down)

A design brief is a set of criteria by which an object or product is created.

A product must meet the needs of the group/individual in its function and aesthetic appeal.

A prototype is the first production of an object/product, in order to be able to evaluate it and make changes.

### Extra words

Design brief

Rotation

Evaluate

Criteria

Purpose

Force

Push

Pull

Resistance

Friction

At rest

Gravity

Surface