



Design & Technology

Mechanics

Year 2

Spring Term

## Statutory Requirements

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria
- build structures, exploring how they can be made stronger, stiffer and more stable
- **explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products**

## Mechanics Opportunities

### Mechanics (Leavers & linkages)

Create products using levers, wheels and winding mechanisms.

## Vocabulary & Knowledge (Mechanics)

<b>Axle</b>	is a bar that goes through the wheel keeping them in place so they can turn
<b>wheels</b>	A circular object attached in a fixed position to an axle so something can move easily along the ground
<b>lever</b>	A simple mechanism which makes something move
<b>effort (input)</b>	The amount of force applied
<b>fulcrum</b>	Where the lever pivots
<b>Load (output)</b>	The weight that needs to be moved

### Additional Vocabulary:

speed, movement, direction, force, fixed, moveable, first class lever, second class lever

## Experiences

(e.g. toy car/ lever book)

- Look at different uses of lever in the real world e.g. wheelbarrow, nut crackers etc
- Investigate different existing ideas on the market.
- Investigate how axles and levers work to make something move.
- Practice using practical skills to experience axles and levers.
- Create design ideas to meet needs of target market.
- Make basic product (prototype) and evaluate to decide on improvements for making final design.
- Evaluate the whole process continuously.
- Use CAD (e.g. make a template using purple mash)
- Make own final product with improvements.

## Key Vocabulary & Knowledge

<b>Components</b>	Parts of something which together make a whole.
<b>Functional</b>	To serve a certain purpose
<b>Aesthetics</b>	Things to make products looks nice
<b>Prototype / mock-up</b>	A trial/test of a product before the final version.
<b>Design specification</b>	A list of criteria the final product should meet to be successful.

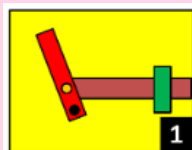
## Mechanical techniques

### Axle

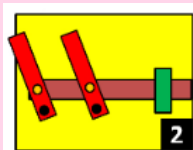
[Axles - BBC Teach](#)



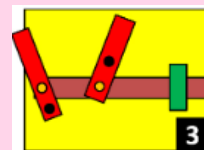
### Lever



### Lever



### Lever



### Lever

