



**Year:** Year 5

**Subject:** DT

**Title:** Mechanical systems  
Pulleys or Gears

**What key knowledge do I need to have before this unit?**

- Experience of axles, axle holders and wheels that are fixed or free moving.
- Basic understanding of electrical circuits, simple switches and components.
- Experience of cutting and joining techniques with a range of materials including card, plastic and wood.
- An understanding of how to strengthen and stiffen structures.

**Key outcomes:**

**What I need to know by the end of this unit of work:**

**Designing**

- Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.
  - Develop a simple design specification to guide their thinking.
- Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.

**Making**

- Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.
- Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

**Evaluating**

- Compare the final product to the original design specification.
- Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.
  - Consider the views of others to improve their work.
- Investigate famous manufacturing and engineering companies relevant to the project.

**Key knowledge:**

- Understand that mechanical and electrical systems have an input, process and an output.
- Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.
- Know and use technical vocabulary relevant to the project.

**Key Vocabulary:**

Pulley  
  
Gear  
  
Drive belt  
  
Rotation  
  
Spindle  
  
Driver  
  
Motor

**Definition:**

A wheel with a grooved rim around which a cord passes, which acts to change the direction of a force applied to the cord and is used to raise heavy weights.

A toothed wheel that works with others to alter the relation between the speed of a driving mechanism (such as the engine of a vehicle) and the speed of the driven parts (the wheels)

A single, continuous belt used to drive multiple peripheral devices in an automotive engine

The action of rotating about an axis or centre

A rod or pin serving as an axis that revolves or on which something revolves

A wheel or other part in a mechanism that receives power directly and transmits motion to other parts.

A machine, especially one powered by electricity or internal combustion, that supplies motive power for a vehicle or for another device with moving parts