

D&T – Mechanical Systems: Pulleys and Gears

Year 5: Summer 2

Key Vocabulary

Pulley – a wheel over which a belt, rope, or chain is pulled to lift or lower a heavy object.

Drive belt – is a transmission system that uses a flexible strip to transfer power.

Gears – are mechanical parts with cut teeth designed to fit with teeth on another part so as to transmit or receive force and motion.

Gearing Up/ Gearing down - this method is used to speed up or slow down the motion of the follower gear.

Follower – Any gear that is turned by another gear is called a driven gear or follower

Mesh – a gear or cogwheel is a rotating machine part having cut teeth or, in the case of a cogwheel, inserted teeth (called cogs), which mesh with another toothed part to transmit torque.

Motor spindle – a small electric motor that is used to rotate the shaft, or spindle.

Mechanical system - Any building service using machines. They include plumbing, elevators, escalators, and heating and air-conditioning systems.

Key Questions

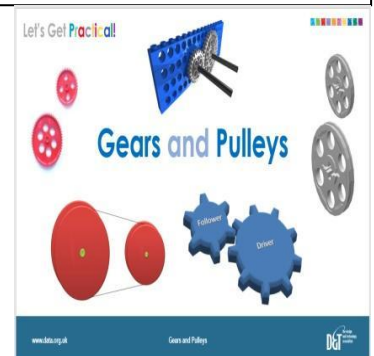
How innovative is the product?

What design decisions have been made?

What types of mechanical components are used and where are they positioned?

Why have the materials and components been chosen?

How can you reverse the direction of rotation?



Key Skills

- Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.
- 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 are accurately assembled and well finished.
- Compare the final product to the original design specification.
- 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.

Concepts

Technical Knowledge

Technical knowledge is an understanding of modern technology, its working and advances.

Making

The making of something is the act or process of producing or creating it.

Website Links

<https://nustem.uk/wp/wp-content/uploads/2015/01/On-the-Move-5Mar15.pdf>

<https://www.stem.org.uk/resources/community/collection/13378/gears-levers-and-pulleys>