

Design Technology

Programming and Mechanical Systems Year 6

National curriculum

Vocabulary

KS2

Design

To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.

To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Make

To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.

To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.

Evaluate

To investigate and analyse a range of existing products.

To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

To understand how key events and individuals in design and technology have helped shape the world

Control
Program
Crumble
Gear
Mechanism
Motor
Speed
Force
Energy
Circuits
Pneumatics
Structure
Strengthen
Input
Output
USB port

Investigate Technical knowledge

Design

Make

Evaluate

Year 5 / 6

Generate ideas through brainstorming and identify a purpose for their product

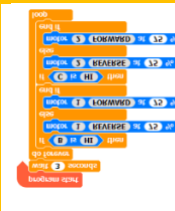
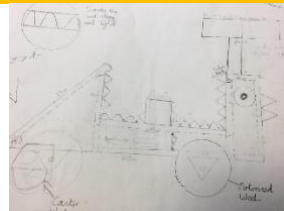
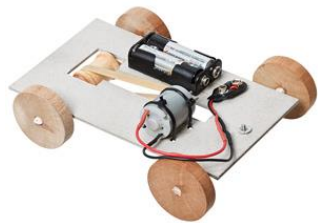
Communicate their ideas through detailed labelled drawings

Select appropriate tools, materials, components and techniques

Assemble components make working models

Use tools safely and accurately

Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests



Learning Objective

Lesson outline

Lesson 1: Investigate/ practical

LO: To be able to critically evaluate the quality of the design, manufacture and fitness for the products as they design and make

DT Skills: Develop a design specification

Look at videos of robot wars and explain the design criteria

What features do you like?

What must your robot do?

How will you strengthen it? What weapons will it have?

Lesson 2: Investigate/ practical

Gears and how they work- use electrical equipment to make a gear and show how it can be used to move an axel.

A gear is a wheel with teeth, or cogs, around the edges. Gears are used in cars, watches,

<p>LO: To be able to use electrical programmable circuits and gears</p> <p>DT Skills: Assemble components make working models</p>	<p>carousels, tin openers and more! Sometimes, gears are called 'cogs. As gears turn, energy is transferred. Gears are useful for changing speed or force.</p> <p>Recap pneumatics, crumble controllers, circuits, strengthening structures</p>	
<p>Lesson 3: Design</p> <p>LO: To design a vehicle with gears and other computer-controlled elements</p> <p>DT Skills: Communicate their ideas through detailed labelled drawings</p>	<p>Design a robot wars vehicle to meet the design criteria.</p> <p>There should be an overall design and an exploded diagram showing how the gear works.</p> <p>The design should also include measurements.</p>	
<p>Lesson 4/5: Making</p> <p>LO: To be able to make a high-quality product incorporating gears and a programmable electrical system</p> <p>DT Skills: Select appropriate tools, materials, components and techniques</p> <p>Assemble components make working models</p> <p>Use tools safely and accurately</p>	<p>Make the vehicle structure and gears</p> <p>Add extra components such as pneumatic moving parts, flashing lights etc</p>	
<p>Lesson 6: Evaluate</p> <p>LO: To be able to evaluate their ideas against an original design specification</p> <p>DT Skills: Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests</p>	<p>Evaluate and demonstrate vehicle</p>	
<p>Working towards</p>	<p>End of unit assessment</p> <p>Working at Age related expectations</p>	<p>Working at a greater depth</p>