

Term	Project and context	NC objectives: Design, Make, Evaluate and Improve	Practical skills	Links to other curriculum objectives (Science/PSHCE)
<p style="text-align: center;">Year A Autumn 1</p>	<p>Mechanical systems – create a toy with moving parts</p> <p>Link to the human body (science)</p> <p>POAP Cams</p>	<p>KS2:</p> <p>Design</p> <ul style="list-style-type: none"> • 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 • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> • 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, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> • 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 		

<p style="text-align: center;">Year A Spring 1</p>	<p>Electrical systems – Design and make a fairground game, including use of microbits</p> <p>Link to electricity topic (science) Link to programming (computing)</p>	<p>Design</p> <ul style="list-style-type: none"> • 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 • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> • 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, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> • 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> • Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • Apply their understanding of computing to program, monitor and control their products. 	<p>Computing KS2</p> <ul style="list-style-type: none"> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
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DT Curriculum Map

Key Phase: Year 5/6



<p>Year A Summer 1</p>	<p>Textiles – Design and make a reuseable shopping bag.</p> <p>Sustainability link when discussing ocean pollution and plastics during Geography/Science units.</p>	<p>Design</p> <ul style="list-style-type: none">• 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• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design		
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Term	Project and context	NC objectives: Design, Make, Evaluate and Improve	Practical skills	Link to other curriculum objectives (Science/PSHCE)
<p>Year B Autumn 2</p>	<p>Food and nutrition – prepare a Mediterranean dish or bread for an Italian family who have moved to the area</p> <p>Link to biomes (geography)</p> <p>POAP Celebrating culture and seasonality</p>	<p>Cooking and Nutrition</p> <ul style="list-style-type: none"> Understand and apply the principles of a healthy and varied diet Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. <p>Design</p> <ul style="list-style-type: none"> 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 <p>Evaluate</p> <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> To understand how to weigh out different ingredients (water and flour – ml, g) How to use a set of weighing scales To safely use a cutlery knife to cut up ingredients To use a method to time the cooking duration 	<p>Y4 Maths - estimate, compare and calculate different measures</p> <p>PSHCE – link to ‘Healthy Me’ – nutrition and healthy eating / lifestyle</p> <p>Science: Animals, including humans Y6 (Recap on learning for year 6s – done in Year A)</p> <ul style="list-style-type: none"> recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function <p>Materials and their properties: Year 5 (Prior learning for Spring term)</p> <ul style="list-style-type: none"> explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

<p>Year B Spring 2</p>	<p>Mechanisms - Design and make a lifting device with pulleys and gears</p> <p>Link to Stone Henge (history)</p>	<p>Design</p> <ul style="list-style-type: none"> 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 Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> 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, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <p>Technical knowledge</p> <ul style="list-style-type: none"> Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 	<ul style="list-style-type: none"> To measure accurately with a ruler To be able to cut using scissors and saw as appropriate (and safely) To fix static components securely To recognise that some components will need to move freely and allow them to do this 	<p>Forces – Y5 (done in A year so recap for Year 6)</p> <ul style="list-style-type: none"> recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <p>Maths: UKS2 Y5</p> <ul style="list-style-type: none"> ♣ convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
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<p>Year B Summer 2</p>	<p>Structures – Design and build bridges</p> <p>Link to Isambard Kingdom Brunel (history)</p>	<p>Design</p> <ul style="list-style-type: none"> • 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 • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> • 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, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> • 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 • Understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<ul style="list-style-type: none"> • To measure accurately with a ruler • To be able to cut using scissors • To fix static components securely • To consider the aesthetics of a design 	<p>History: The work of Isambard Kingdom Brunel</p>
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KS2:

Design



DT Curriculum Map

Key Phase: Year 5/6



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

Make

- 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, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- 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
- Understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- Apply their understanding of computing to program, monitor and control their products.

Food

Structures

Textiles

Mechanisms

Electrical Systems



DT Curriculum Map

Key Phase: Year 5/6



Mechanical systems

UKS2 Science Objectives

Animals, including humans Y6

- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function

Properties and changes of materials Y5

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Forces Y5

- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Electricity Y6

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram.

PSHCE – link to ‘Healthy Me’ – nutrition and healthy eating / lifestyle

Computing KS2

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output



DT Curriculum Map

Key Phase: Year 5/6



- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

UKS2 Y5

- ♣ convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- ♣ understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- ♣ measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- ♣ calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes
- ♣ estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]
- ♣ solve problems involving converting between units of time
- ♣ use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

Y6

- ♣ solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
- ♣ use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- ♣ draw 2-D shapes using given dimensions and angles
- ♣ recognise, describe and build simple 3-D shapes, including making nets