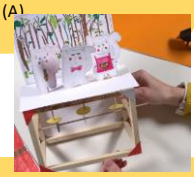
UKS2 Design Technology Curriculum and Knowledge Map

KS3

Pentecost

Electrical Systems: Steady hand game – 4 weeks
NC: Design – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Evaluate – investigate and analyse a range of existing products
Technical Knowledge – understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

- I can research and analyse a range of children's toys and use this to develop a design criteria (D)
- I can identify and label components in my design. (B)
- I can apply my knowledge of electrical components to create a working circuit for my game. (A)



Lent

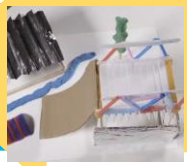
Digital World: Navigating the World – 4 weeks
NC: Design – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Technical Knowledge – apply their understanding of computing to program, monitor and control their products.

- I can write a program for a cardinal compass and describe its key functions. (B)
- I can demonstrate my 3D CAD skills to produce a virtual model. (A)
- I can propose a design brief and criteria based on a client request (linked to sustainability). (D)

Advent 2

Structure: Playgrounds – 4 weeks
NC: Desing - 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 - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

- I can **propose** a playground with a variety of structures (D)
- I can **apply** knowledge of strengthening and shaping materials to create a range of structures. (A)
- I can **point out** ways that I can improve my structures (A)



Advent 1

Mechanical systems: Automata toys (woodwork) – 4 weeks
NC: Design – 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
Technical Knowledge – understand and use mechanical systems in their products [for example, gears, pulleys,
cams, levers and linkages]

- I can **investigate** the relationship between cam profiles and follower movement, to inform a design decision. (D)
- I can **apply** my knowledge of measuring, marking and cutting to prepare wood for assembly. (A)
- I can **assemble** frame components with the help of an exploded-diagram (A)

Year 6

Pentecost

Cooking and Nutrition: What could be healthier? (farm to fork) – 4 weeks
NC: Cooking and Nutrition - understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand and apply the principles of a healthy and varied diet

- I can **describe** where food comes from (B)
- I can **define** the term 'healthy' (B)
- I can **compare** the nutritional value to two recipes and make adaptions (A)

Electrical Systems: Doodlers – 3 weeks
NC: Design –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
Evaluate – investigate and analyse a range of existing products
Technical Knowledge – understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

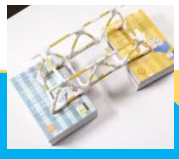
- I can **describe** how motors are used in electrical products (B)
- I can **explore** existing products and define the factors that affect form and function. (B)
- I can **apply** my findings from my research into designing my product. (A)

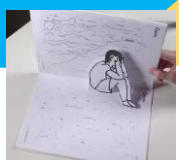
Advent 2

Structures: Bridges – 4 weeks
NC: Make – select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
Evaluate – investigate and analyse a range of existing products
Technical Knowledge – apply their understanding of how to strengthen, stiffen and reinforce more complex structures

- I can **identify and label** the features and shapes used in beam arch and truss bridges (B)
- I can **compare and contrast** the structure of beam, arch and truss bridges (A)
- I can **demonstrate** how to safely use tools to build a wooden truss bridge. (A)

Significant individual: Isambard Kingdom Brunel





Lent

Digital World: Monitoring Devices – 4 Weeks
NC: Design – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Evaluate - understand how key events and individuals in design and technology have helped shape the world
Technical Knowledge – apply their understanding of computing to program, monitor and control their products.

- I can **define** a design criteria based on research. (B)
- I can **apply** my knowledge of Micro:Bit to write a program to monitor the temperature, including an alert. (A)
- I can use 3D CAD to **demonstrate** ideas for a Micro:Bit case, stand or housing. (A)

Advent 1

Mechanical systems: Pop-up book (levers, sliders and layers) – 3 weeks
NC: Make - select from and use a wider range of tools and equipment to perform practical tasks[for example, cutting, shaping, joining and finishing], accurately
Evaluate – evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
Technical Knowledge - understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

- I can **describe** the movement that sliders, pivot and fold mechanisms produce (B)
- I can **define** what my design should include to meet the needs to the target audience. (B)
- I can **apply** my knowledge of sliders, pivots and folds to produce a high-quality moving picture book. (A)

Year 5

LKS2