



Morichard Bishop CE Primary School

Design Technology Curriculum Plan

Our curriculum statements are designed to be used as a supportive tool to plan teaching and learning across our school. The key skills are derived from the National Curriculum and split into individual year groups to support a progressive approach and mixed age classes.

The concept of future and innovation underpins our design and technology curriculum - we want pupils to view themselves as designers: risk taking, trialling, and evaluating sitting centrally to their experience. Pupils are encouraged to exercise their creativity through our designing, making and evaluating cycle. Combining designing and making skills, with knowledge and understanding ensures pupils have a rounded, progressive experience and provides skills that can be drawn upon for life. Evaluation is an integral part of the design process, allowing children to improve and adapt their product and providing a platform to build and practice resilience. Capturing pupil interests and providing cross-curricular opportunities to embed D&T develops motivation and embeds understanding in a meaningful way.

Vocabulary

Children’s command of vocabulary is fundamental to learning and progress across the curriculum. Vocabulary is developed actively, building systematically on pupil’s current knowledge and deepening their understanding of etymology and morphology (word origins and structures) to increase their store of words. Simultaneously, pupils make links between known and new vocabulary, and discuss and apply shades of meaning. In this way, children expand the vocabulary choices that are available to them. It is essential to introduce technical vocabulary which define each curriculum subject. Vocabulary development is underpinned by an oracy culture and a tiered approach. High value is placed on the conscious, purposeful selection of well-chosen vocabulary and appropriate sentence structure to enrich access to learning and feed into written work across the curriculum.

KS1 D&T Vocabulary List

Design	Assemble, join & combine	Hygiene/hygienically
Product	Food plant names	Intended user
Idea	Animals that produce/give food	Measure, mark out
Template	Names of different food ingredients	Mock-up

Labelled diagrams	Structures	Finishing techniques
Names of different materials & textiles	Names of tools for cutting, peeling and grating	Slider, lever, hinge
Eatwell Plate – fruit and vegetables, potatoes, bread, rice, pasta and other starchy carbohydrates, beans, pulses, fish, eggs, meat and other proteins, dairy and alternatives, oils and spreads		Wheel, axel & chassis

KS2 D&T Vocabulary List

Purpose	Levers and linkages	Electrical circuits, switches, buzzers
Design features	Pneumatic systems	Programming
Intended users	Movement	Structures: Reinforce and strengthen, stronger, stiffer and steadier.
Prototype	Healthy diet	Computer aided programmes: program, monitor and control
Mock-up	Cross-sectional drawing	Complex electrical circuits
Pattern piece	Cams, pulleys, gears	Motor, battery
Annotated sketches & diagrams	Recycled	Conductor, insulator
Design criteria	Reused	Crocodile clips
Components	Exploded diagram	

The design technology curriculum is based around the mixed aged planning from Kapow, we are currently trying out these plans and amending them to fit in with our planning cycle.

Each of the key areas links to the technical knowledge section of the Design and technology National Curriculum or reinforces principles learnt through exploring various methods and techniques. From KS1 to KS2, the technical knowledge descriptors build upon prior learning and/or introduce new learning. Food technology is supported by the school's kitchen manager, this is part of the school's aim to provide the children with high quality, locally sourced food developed from a sound understanding of healthy eating and food preparation.

	Structures	Mechanisms	Textiles	Electrical systems KS2 only*	Digital world KS2 only*	Cooking and nutrition
KS1	Build structures such as windmills and chairs, exploring	Recognise where mechanisms such as these exist in toys	Explore different methods of joining fabrics and	Create functional electrical products that use series	Learn how to develop an electronic product	Understand where food comes from, for example plants

	<p>how they can be made stronger, stiffer and more stable. Recognise areas of weakness through trial and error. Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs</p>	<p>and other familiar products</p>	<p>experiment to determine the pros and cons of each technique</p>	<p>circuits, incorporating different components such as bulbs, LEDs, switches, buzzers and motors. Consider how the materials used in these products can:</p> <ul style="list-style-type: none"> ● Protect the circuitry. ● Reflect light. ● Conduct electricity. ● Insulate 	<p>with processing capabilities. Apply Computing principles to program functions within a product including to control and monitor it. Understand how the history and evolution of product design lead to the on-going Digital revolution and the impact it is having in the world today.</p>	<p>and animals. Learn about the basic rules of a healthy and varied diet to create dishes</p>
KS2	<p>Continue to develop KS1 exploration skills, through more complex builds such as pavilion and bridge designs. Understand material selection and learn methods to reinforce structures</p>	<p>Extend pupils understanding of individual mechanisms, to form part of a functional system, for example: Automatas, that use a combination of cams, followers, axles/shaft, cranks and toppers</p>	<p>Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types, including their:</p> <ul style="list-style-type: none"> ● Strength. ● Appropriate use. ● Design. 			<p>Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods. Understand what is meant by seasonal foods. Know where and how ingredients are sourced</p>

Risk assessments for these units can be downloaded and amended

The National Curriculum

Key stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

§ design purposeful, functional, appealing products for themselves and other users based on design criteria

§ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

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

§ select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Evaluate

§ explore and evaluate a range of existing products

§ evaluate their ideas and products against design criteria

Technical knowledge

§ build structures, exploring how they can be made stronger, stiffer and more stable

§ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

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

§ 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.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

§ use the basic principles of a healthy and varied diet to prepare dishes

§ understand where food comes from.

Key stage 2

§ 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.

Progression of Key Skills

Key skills

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.		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.			
	Can I use my senses to explore a wide range of familiar products? Can I take products apart and talk about the parts and how they work? Can I talk about and/or use words and pictures to plan my design? Can I talk about what I am doing/making?	Can I use knowledge of existing products to support my plan for a similar product? Can I include some knowledge of materials and techniques in my design? Can I explore and investigate products I have disassembled? Can I use construction kits, pictures and captions to plan my design? Can I talk about and describe the tools and materials I need and order the key tasks within my plan?	Can I generate, develop and explain ideas for products to meet the needs of a specific audience? Can I choose appropriate tools and techniques based on those shown? Can I disassemble and investigate everyday products to see how they are fit for purpose? Can I communicate design ideas in different ways (eg verbally, written, in a labelled diagram) Can I plan what I am going to do next based on how my product is developing?	Can I use my knowledge of a range of products to inform my plans and designs? Can I include a range of suitable materials and options in my plans and suggest alternative ways to make their product? Can I talk about and disassemble products and describe their function? Can I use prototypes, labelled sketches and instructions in my plans and designs? Can I talk in depth about my ideas, plans and reasons for choices?	Can I generate plans and designs based on ideas and information that takes account of the users' views and the intended purpose? Can I look at mechanical products to see how they function and meet the user's needs? Can I consider safety and reliability when planning my product? Can I use simple prototypes to test ideas? Can I plan what to do next, suggesting a detailed sequence of actions and alternatives if needed?	Can I generate ideas by collecting and using information, from a number of sources, including ICT based sources? Can I produce detailed designs and plans using prototypes, commentary and diagrams that include measurements and are drawn from different view points? Can I investigate, disassemble and evaluate a range of products and describe in detail their parts and their function? Can I clarify my ideas through discussion, drawing upon and using a range of sources of information? Can I use detailed plans from different views? Can I modify my plans effectively?
Make	Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.		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.			
	Can I use simple tools and materials with support, eg, scissors to cut paper? Can I use my senses to explore and talk about materials? Can I join with tape or glue? Can I cut paper/card using scissors? Can I roll paper and card to form a tube? Can I add paper and card shapes to products?	Can I use simple tools to cut and join a range of materials, eg. scissors, stapler, masking tape? Can I use a range of simple ways to improve the appearance of my product? Can I join by edge to edge using glue? Can I curl paper? Can I use a hole punch?	Can I select the appropriate tool to cut or join a range of materials? Can I use tools and equipment to measure, mark out and shape materials and components? Can I select an appropriate way to improve the appearance of my product? Can I make gluing tabs? Can I insert paper fasteners for card linkages? Can I use a hack saw and bench hook? Can I make simple paper models, mock-ups and templates?	Can I select a range of appropriate tools to cut or join materials? Can I use tools and equipment to measure, mark out and shape materials and components with greater accuracy and control? Can I produce a well-finished product that fulfils the function it is designed for? Can I join and combine materials in permanent and temporary ways? Can I use a G clamp? Can I make increasingly complex mock-ups and templates?	Can I select a range of appropriate tools to cut or join materials with accuracy and precision? Can I use a range of tools and equipment to measure, mark out and shape materials and components accurately? Can I identify and apply an appropriate finishing technique to ensure a high quality end product? Can I join and combine a range of materials in permanent and temporary ways? Can I use a drill to make an off-centre hole? Can I make complex mock-ups and templates?	Can I select a range of appropriate tools to cut or join materials with accuracy and precision? Can I use a range of tools and equipment to measure, mark out and shape materials and components accurately? Can I use a variety of finishing techniques eg. collage, paint, embroidery and embellishments? Can I use appropriate finishing techniques to strengthen and improve the appearance, using a range of equipment and ICT to make a product which is finished to a high standard, using the appropriate tools and following a detailed plan?
Evaluate	Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.		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.			
	Can I use my senses to explore a wide range of familiar products? Can I talk about familiar products and what they do? Can I talk about what I am making and what I have done?	Can I talk about and describe features of existing products? Can I talk about what I am doing and what I might do next? Can I suggest ways in which I could improve my work?	Can I use my knowledge of common products, their characteristics and properties to support my work? Can I talk about how the changes I have made have improved by product? Can I identify the ways in which my product meets my design plan?	Can I identify the ways in which I have used my knowledge of products and materials to inform my work? Can I take the function of the product into account when planning? Can I identify the parts of my project that are progressing well and parts that could be improved? Can I identify where evaluation has	Can I test and evaluate products to identify the variants which may affect the function of my product? Can I check my work as it develops and modify may plans if any changes are made? Can I take into account the original criteria when evaluating my product?	Can I carry out appropriate tests before making any improvements, including testing and evaluating products and information sources? Can I give reasons for the success of aspects of my project and provide considered solutions to resolve those parts that could be improved? Can I take into account the original

In order to assess impact - a guide

At the beginning of each unit children will be given knowledge organisers which will form a baseline for assessment.

1. Children will develop:

- An excellent attitude to learning and independent working. (*School learning behaviour Independent Learner*)
- The ability to use time efficiently and work constructively and productively with others. (*School learning behaviours self manager and team worker*)
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. (*School learning behaviour Independent enquirer*)
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. (*School learning behaviour effective participator*)
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge and skills accurately. (*School learning resourceful thinker*)
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject and a love of food.

Assessment of children's learning in Design Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher, throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children.