Manor Drive

Design Technology Curriculum

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Whole-school definition of Design Technology

Design Technology is the study of design, structures, mechanisms, electrical control and a range of materials, including food. It encourages creativity and encourages children to think about important issues.

*'**It's where you stand with a foot in two worlds- the world of technology and the world of people and human purposes- and you try to bring the two together.**'*

Mitchell Kapor

Working as a Designer			
Design	**Make**	**Evaluate**	**Apply**
The art or process of deciding how something will look or work.	Create something by combining materials or putting parts together.	Form an opinion of the value or quality of something after careful thought.	Use something or make something work in a particular situation.

Year 1/2 Cycle A Overview

Autumn	**Understanding Materials Block D** How can you waterproof a hat?
Spring	**Food and Nutrition Block E** How healthy is your food?
Summer	**Structures Block F** How strong is a piece of paper?

Year 1/2 Cycle A Key Concepts

Autumn **Understanding Materials Block D** How can you waterproof a hat?	**Spring** **Food and Nutrition Block E** How healthy is your food?	**Summer** **Structures Block F** How strong is a piece of paper?
• Exploration and testing of materials • Reference to other designers • Exploration of materials and properties • Application of knowledge and skills to fulfil a brief • Evaluation	• Explicit teaching and revisiting of culinary skills and techniques • Exploring the nutritional value of food • Applying culinary skills and techniques • Evaluating outcomes	• Explicit teaching of skills • Exploring materials • Application of skills • Evaluation and adaptation
Know: • Materials can be modified to become waterproof • Origami comes from the Japanese words: ori – folding and kami – paper **Be able to:** • Make paper waterproof • Transform flat paper by folding and creasing to form a hat	**Know:** • The difference between fresh food and ultra-processed foods **Be able to:** • Shape and form ingredients to make delicious food • Use a range of culinary techniques	**Know:** • Paper becomes stronger when it is folded • A load is the amount of weight a structure must carry **Be able to:** • Fold paper to increase strength and stability • Test and record how much weight paper can hold
Core Knowledge Vocabulary manipulate, flexible, barrier **Technical Vocabulary** waterproof, resist, absorbent	**Core Knowledge Vocabulary** ingredients, fibre, protein **Technical Vocabulary** processed, vitamins, starch	**Core Knowledge Vocabulary** paper, crease, corrugated **Technical Vocabulary** pillar, storey, load

Year 1/2 Cycle B Overview

Autumn	**Mechanisms Block A** How can you make a picture move?
Spring	**Food and Nutrition Block C** How does food affect your senses?
Summer	**Textiles Block E** How can two squares of fabric keep you warm?

Year 1/2 Cycle B Key Concepts

Autumn **Mechanisms Block A** How can you make a picture move?	**Spring** **Food and Nutrition Block C** How does food affect your senses?	**Summer** **Textiles Block E** How can two squares of fabric keep you warm?
• Exploring sliders and their applications • Developing practical skills • Experimenting with different slider systems • Developing designing and problem-solving skills • Evaluating Outcomes	• Exploring sensory qualities of food • Experimenting with new flavours and textures • Explicit teaching of culinary skills and techniques • Applying skills • Evaluating outcomes	• Identification of the problem • Exploring materials • Explicit teaching of skills relating to the brief • Application of skills • Evaluation and adaptation
Know: • Common uses of sliders • Different methods to create card sliders • How sliders can create simple mechanisms **Be able to:** • Design and make a slider product • Evaluate the success of their outcomes and recommend improvements	**Know:** • Why colourful food can be healthier • How different foods can affect their senses **Be able to:** • Peel, chop and grate a selection of vegetables • Modify food to suit their food senses	**Know:** • Fabric can be joined together using a running stitch • The types and names of tools needed for sewing **Be able to:** • Create a running stitch • Select tools for sewing • Thread a needle
Core Knowledge Vocabulary slider, slot, bridge **Technical Vocabulary** push, pull, rigid	**Core Knowledge Vocabulary** senses, vitamins, sensory **Technical Vocabulary** ribboning, caramelize, marinade	**Core Knowledge Vocabulary** Binca, sewing, felt **Technical Vocabulary** running stitch, attach, pouch

Year 3/4 Cycle A Overview	
Autumn	**Food and Nutrition Block A** What's really in your food?
Spring	**Structures Block D** Which shapes will give a structure stability?
Summer	**Electrical Systems Block E** How useful are switches?

Year 3/4 Cycle A Key Concepts

Autumn **Food and Nutrition Block A** What's really in your food?	**Spring** **Structures Block D** Which shapes will give a structure stability?	**Summer** **Electrical Systems Block E** How useful are switches?
• Exploring nutrition • Explicit teaching of culinary skills and techniques • Evaluating outcomes • Exploring bread making • Exploring how to make soup • Modifying and improving	• Exploration of the key question • Exploration of materials and techniques • Conducting investigations relating to the key question • Application of knowledge and skills • Evaluating and modifying	• Revisit switches and circuits and the associated vocabulary • Explore different types of switches and how they are used • Create a simple game involving an interruption in a circuit
Know: • Processed foods have many added ingredients **Be able to:** • Make, roll and shape bread dough • Make a soup	**Know:** • Triangles provide stability in a structure • Structural engineers work with architects to ensure structures withstand forces **Be able to:** • Make triangles to form and join trusses • Identify the forces that affect structures	**Know:** • A switch is an interruption in a circuit • Switches are widely used in a range of products **Be able to:** • Incorporate different types of switches into circuits to perform a function
Core Knowledge Vocabulary ingredients, processed, bread **Technical Vocabulary** gluten, knead, ferment	**Core Knowledge Vocabulary** structural engineer, geodesic, gravity **Technical Vocabulary** truss, compression, tension	**Core Knowledge Vocabulary** switch, circuit, component, current **Technical Vocabulary** interruption, unbroken, conductor, multi-purpose

Year 3/4 Cycle B Overview	
Autumn	**Textiles Block A** How can you make a box out of cloth?
Spring	**Mechanisms Block C** How can you do a lot of work with little effort?
Summer	**Systems – Block E** How are things powered?

Year 3/4 Cycle B Key Concepts

Autumn **Textiles Block A** How can you make a box out of cloth?	**Spring** **Mechanisms Block C** How can you do a lot of work with little effort?	**Summer** **Systems – Block E** How are things powered?
• Identification of the problem • Exploring materials • Explicit teaching of skills relating to the brief • Application of skills • Evaluation and adaptation	• Exploring levers and their applications • Developing practical skills • Exploring linkages and their applications • Developing practical skills • Developing design skills • Making a linkages and levers product • Evaluating outcomes	• Understand what energy is and why we need it • Identify types of energy • Understand how types of energy influence design choices • Explore energy in the context of design choices
Know: • Fabric can be stiffened • Stiffened fabric can hold a form **Be able to:** • Select and apply solutions to stiffen fabric • Make a box using stiffened fabric	**Know:** • Types of levers and linkages • Key terminology relating to levers and linkages • How levers and linkages can change the direction of movement **Be able to:** • Design and make simplistic lever and linkage products • Evaluate the success of their outcomes and recommend improvements	**Know:** • Different types of energy • Why designers need to carefully consider energy sources **Be able to:** • Identify how things are powered • Suggest appropriate energy sources for design problems
Core Knowledge Vocabulary starch, PVA glue, gelatin **Technical Vocabulary** stiffen, interfacing, cloth	**Core Knowledge Vocabulary** lever, linkage, mechanism **Technical Vocabulary** force, load, effort	**Core Knowledge Vocabulary** Energy, energy source, types of energy **Technical Vocabulary** turbine, source, intermittent, renewable

Year 5/6 Cycle A Overview	
Autumn	**Structures Block D** How strong is a piece of spaghetti?
Spring	**Electrical Systems Block E** Can switches perform more than one function?
Summer	**Textiles Block F** How can you reduce, recycle and repurpose?

Year 5/6 Cycle A Key Concepts

Autumn **Structures Block D** How strong is a piece of spaghetti?	**Spring** **Electrical Systems Block E** Can switches perform more than one function?	**Summer** **Textiles Block F** How can you reduce, recycle and repurpose?
• Identification of the problem • Testing materials • Explicit teaching of skills relating to the brief • Application of skills • Evaluation and adaptation	• Revisit switches and circuits and the associated vocabulary • Explore how multiple switches and components can be included in a circuit • Incorporate multiple switches and components into a product to meet a design brief	• Identification of the problem • Explicit teaching of skills • Exploring materials • Application of skills • Evaluation and adaptation
Know: • Structures can be supported with guy lines and flying buttresses • The shorter the piece of spaghetti, the stronger it will be **Be able to:** • Construct a flying buttress to support a tower • Use appropriate lengths of spaghetti to increase strength and stability	**Know:** • More than one switch can be used to change the functionality of a product **Be able to:** • Use switches to adapt a product in response to a design brief	**Know:** • Plastic waste can be recycled and repurposed into practical, useful items **Be able to:** • Make a crochet hook out of a chopstick • Use plastic bags and snack packets to create practical items
Core Knowledge Vocabulary guyed mast, flying buttress, load **Technical Vocabulary** aesthetic, edifice, constraints	**Core Knowledge Vocabulary** switch, parallel circuit, series circuit, component **Technical Vocabulary** functionality, multi-function, brief, simultaneous	**Core Knowledge Vocabulary** recycle, repurpose, reduce **Technical Vocabulary** chain, seal, skein

Year 5/6 Cycle B Overview	
Autumn1	**Systems Block B** How can we keep ourselves safe on the road?
Spring 1	**Food and Nutrition Block D** What can you learn from different cultures' diets?
Summer 1	**Mechanisms Block F** How can you lift a car onto a roof?

Year 5/6 Cycle B Key Concepts

Autumn **Systems Block B** How can we keep ourselves safe on the road?	**Spring** **Food and Nutrition Block D** What can you learn from different cultures' diets?	**Summer** **Mechanisms Block F** How can you lift a car onto a roof?
• Exploring nutrition • Explicit teaching of culinary skills and techniques • Exploring diets from different cultures • Evaluating outcomes • Exploring diets from different cultures • Applying skills • Modifying and improving	• Exploring diets from different cultures • Explicit teaching of culinary skills and techniques • Exploring how a stir-fry is nutritious • Exploring health qualities of spices • Applying skills • Evaluating outcomes	• Exploring pulleys and gears and their applications • Developing practical skills • Developing designing and problem-solving skills • Developing and applying practical skills • Evaluating outcomes
Know: • Some foods and key ingredients from other cultures • How other cultures' food can be nutritious **Be able to:** • Make, roll and cook a flatbread • Prepare a range of vegetables • Present foods to a high standard	**Know:** • How foods can be used as medicines • How eating food from different countries can help us be healthy **Be able to:** • Roll and shape ingredients • Slice and ribbon a range of vegetables • Stir-fry vegetables	**Know:** • Types of gears and terminology relating to gears • Common uses of pulleys and gears • How pulleys and gears can change the direction of movement **Be able to:** • Design and make products that use pulleys and gears to lift loads • Evaluate the success of their outcomes and recommend improvements
Core Knowledge Vocabulary culture, presentation, variety, smørrebrød, flatbread, mezze **Technical Vocabulary** fibre, knead, unleavened	**Core Knowledge Vocabulary** Culture, migration, spices **Technical Vocabulary** medicinal, fragrant, stir-fry	**Core Knowledge Vocabulary** gear, pulley, mechanism **Technical Vocabulary** gear train, driver gear, idler