



Harvington C.E. First and Nursery School

Design Technology

Intent and Implementation

Progression of Knowledge and Skills for Design Technology

Curriculum Intent Statement:

At Harvington C E First and Nursery School we believe Design and Technology prepares children to participate in the development of a changing world. Creative thinking encourages children to make positive changes to their quality of life.

Design and Technology prepares children to take part in the development of today's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become independent and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems.

Through the study of Design and Technology they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past Design and Technology, its uses and its impacts. Design and Technology helps all children to become discriminating and informed consumers and potential innovators.

We believe that a broad and balanced Design Technology education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability.

Our curriculum intent includes planned opportunities to ensure all children:

- Produce creative work, exploring their ideas and recording their experiences.
- To reinforce the Christian values and vision statement
- Ensure a love and desire to learn Design Technology
- Become resilient, positive, aspirational learners
- Develop 'pupil voice' and children as leaders in their learning
- Close all learning gaps
- Develop ambitious vocabulary choices
- Develop a voice to promote change and a confidence to speak out about issues that are important to us.
- Develop the social, moral, spiritual and cultural development of all our learners.
- Develop mastery skills by engaging in repetition and practice activities.
- Develop imaginative thinking to enable them to talk about what they like and dislike when designing and making;
- Talk about how things work, and know how to draw and model their ideas;
- Select appropriate tools and techniques for making a product, whilst knowing how to follow safe procedures;
- Explore attitudes towards the made world and how we live and work within it;
- Develop an understanding of technological processes, products, and their manufacture, and their contribution to our society;
- Foster enjoyment, satisfaction and purpose in designing and making.
- All pupils will be given equal access to the experience of the design technology regardless of the gender, race or disability.

Design Technology Curriculum Implementation:

The Design Technology curriculum follows the National Curriculum objectives for each year group, long term planning grids ensure all objectives are covered over the course of the year. We use the Kapow scheme to ensure coverage and progression throughout the school. Each year group has a set programme of learning for each term from the following areas: Structures, Mechanisms, Electrical Systems, Cooking and Nutrition or Textiles.

Each design technology lesson follows the same design technology objectives –Design, Make and Evaluate. These skills are developed throughout each year group as children become more critical thinkers and can understand the impact that their product has.

Design Technology is taught as a progression of lessons each term (this alternates with art and design). Each year group is provided with key skills, key knowledge and vocabulary to ensure progression.

Design Technology Curriculum Impact

Children will know more, remember more and understand more about Design Technology.

The large majority of children will achieve age related expectations in Design Technology.

As designers' children will develop skills and attributes they can use beyond school and into adulthood.

Planning:

Early Years

The development of children's artistic and cultural awareness supports their imagination and creativity. At Harvington C E First and Nursery School it is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe. We use the seven key features of effective practice within our planning. EYFS do have set topics to cover but will also add in extra projects over the course of the year as part of continuous provision.

Expressive Arts and Design – Three and Four Year Olds

Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.

- Explore different materials freely, in order to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Create closed shapes with continuous lines, and begin to use these shapes to represent objects.

Expressive Arts and Design – Reception

Explore, use and refine a variety of artistic effects to express their ideas and feelings.

- Return to and build on their previous learning, refining ideas and developing their ability to represent them.
- Create collaboratively, sharing ideas, resources and skills.

ELG for Expressive Arts and Design

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.

Creating with Materials

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.
- Make use of props and materials when role playing characters in narratives and stories

Designing and Making

When designing and making, pupils should be taught to:

Key stage 1

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 ingredient, 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

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
- Prepare and cook a variety of dishes using a range of cooking skills.

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

Assessment:

Early Years – EYFS staff assess progress based on their professional knowledge and record judgements on their spreadsheet tracking document. In Nursery the checkpoints from 'Development Matters' document will be used to assist judgements. Remarkable learning moments are shared with parents and parents are encouraged to share learning moments from home.

Staff know what the children's next steps are and ensure activities are incorporated into daily provision.

KS1 and KS2 – progress is assessed through use of attainment targets and programmes of study as set out in the National Curriculum for England (2014). At the end of each theme the class teacher will update the class assessment spreadsheet and indicate whether children are considered to be below, working towards, working at or working at greater depth for their year group expectations. Assessment will take place through the following forms: observation, use of photographic evidence, discussion with children and reflection through the pupil's work in their DT books and end of unit knowledge checkers. During subject monitoring cycles, the subject lead will request and collate examples of work for moderation and collation into a portfolio of evidence.

Resources:

The design technology resources are organised centrally. They are reviewed, maintained and updated regularly by the subject lead.

There are a range of different resources to support with all design technology learning objectives.

There are a range of books in our library as well as in the resource area to support all topic areas.

We also use Purple Mash to support with children's learning of design technology.

The teaching of design technology is also enriched through:

- Theme/Cross curricular lessons
- Whole school design technology days
- Key stage design technology days
- Trips
- Cookery club for KS1 and KS2
- Cookery activities
- Roots and Shoots
- Forest School

Monitoring:

Design Technology is monitored by the Design Technology Lead following the Monitoring policy. This includes observations of lessons, discussions with children and analysing assessments. The Design Technology Lead is responsible for writing, updating and evaluating the Design Technology Action plan.

Nursery-DT- Cycle 1

Autumn -Hibernation Boxes	Spring -Hanging Egg Decoration	Summer -Fruit Salad
<u>Learning Objectives</u> - To design and make a hibernation box. - To understand what hibernation needs and why some animals hibernate	<u>Learning Objectives</u> To design and create a hanging Easter egg decoration	<u>Learning Objectives</u> - To design a fruit salad recipe - To create a fruit salad and talk about the importance of healthy eating.
<u>EYFS Outcomes</u> Understanding the world - Explore the natural world around them. - Describe what they see, hear and feel whilst outside. - Understand the effect of the changing seasons on the natural world around them. Expressive arts and design - Explore, use and refine a variety of artistic effects to express their ideas and feelings.	<u>EYFS Outcomes</u> Physical development - Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Expressive arts and design - Explore, use and refine a variety of artistic effects to express their ideas and feelings. - Return to and build on their previous learning, refining ideas and developing their ability to represent them.	<u>EYFS Outcomes</u> Personal, social and emotional development - Know and talk about the different factors that support their overall health and wellbeing: healthy eating. Understanding the world - Explore the natural world around them. Communication and language - Learn new vocabulary. - Use new vocabulary throughout the day.
<u>Key Vocabulary</u> - hibernate - hibernation - temperature - weather - seasons - habitat - design - create - resources - junk	<u>Key Vocabulary</u> - easter egg - felt pens - crayons - tissue paper - card - cotton wool - foil - beads - sequins - stick - glue - tape - hole punch	<u>Key Vocabulary</u> - different fruits - design - label - knife - blade - cut - bowl - chopping board - taste - texture

Nursery-DT- Cycle 2

Autumn – creating a stable	Spring -Flower Threading	Summer -Rainbow Salad
<u>Learning Objectives</u> - To mark make/ draw representation of characters in the Christmas story - To develop cutting skills	<u>Learning Objectives</u> To use a range of tools and techniques to create a threaded spring flower.	<u>Learning Objectives</u> - To design a rainbow salad recipe - To create a rainbow salad and talk about the importance of healthy eating.
<u>EYFS Outcomes</u> Expressive arts and design - Explore, use and refine a variety of artistic effects to express their ideas and feelings. - Return to and build on their previous learning, refining ideas and developing their ability to represent them.	<u>EYFS Outcomes</u> Physical development - Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Expressive arts and design - Explore, use and refine a variety of artistic effects to express their ideas and feelings. - Return to and build on their previous learning, refining ideas and developing their ability to represent them.	<u>EYFS Outcomes</u> Personal, social and emotional development - Know and talk about the different factors that support their overall health and wellbeing: healthy eating. Understanding the world - Explore the natural world around them. Communication and language - Learn new vocabulary. - Use new vocabulary throughout the day.
<u>Key Vocabulary</u> - chimney - wax crayons - felt tips - oval - rectangle - cut - stick - glue - paper - slide - decorate	<u>Key Vocabulary</u> - flowers - card - pencil - scissors - hole punch - wool - colours - shapes - thread - cut	<u>Key Vocabulary</u> - different vegetables - design - label - knife - blade - cut - bowl - chopping board - taste - texture

Year Reception-DT

Summer -Structures-Boats	Spring- Cooking and Nutrition-Soup	Summer - Textiles-Bookmarks
<u>Key Skills</u> • Designing a junk model boat. • Using knowledge from exploration to inform design. • Making a boat that floats and is waterproof, considering material choices. • Making predictions about, and evaluating different materials to see if they are waterproof. • Making predictions about, and evaluating existing boats to see which floats best. • Testing their design and reflecting on what could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves	<u>Key Skills</u> • Designing a soup recipe as a class. • Designing soup packaging. • Chopping plasticine safely. • Chopping vegetables with support. • Tasting the soup and giving opinions. • Describing some of the following when tasting food: look, feel, smell and taste. • Choosing their favourite packaging design and explaining why	<u>Key Skills</u> • Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials • Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. • Using a prepared needle and wool to practise threading • Reflecting on a finished product and comparing to their design.
<u>Key Knowledge</u> • To know that ‘waterproof’ materials are those which do not absorb water.	<u>Key Knowledge</u> • To know that soup is ingredients (usually vegetables and liquid) blended together. • To know that vegetables are grown. • To recognise and name some common vegetables. • To know that different vegetables taste different. • To know that eating vegetables is good for us. • To discuss why different packages might be used for different foods	<u>Key Knowledge</u> • To know that a design is a way of planning our idea before we start. • To know that threading is putting one material through an object.
<u>Key Vocabulary</u> • waterproof • absorb • prediction • variable • experiment • investigation • float • sink • junk	<u>Key Vocabulary</u> • blender • chopping board • hob • boil • blend • mix • packaging • recyclable • metal • plastic • reusable • fruit • vegetables • safety • knife • blade • tool • edge • handle • chop • slice • cut • saucepan	<u>Key Vocabulary</u> • thread • weave • pattern • sew • sewing needle • embroider • design • evaluate

Year 1-DT

Autumn 1-Structures-Stable Structures		Spring 1-Textiles-Puppets		Summer 1-Cooking and Nutrition-Fruits and Veg	
<u>Key Skills</u> - Recognising that different structures are used for different purposes. - Exploring the features of structures. - Describing structures as buildings or freestanding structures. - Making stable structures from card. - Creating supporting structures to aid stability. - Using stable objects like cylinders to create structures.		<u>Key Skills</u> - Using a template to create a design for a puppet. - Cutting fabric neatly with scissors. - Using joining methods to decorate a puppet. - Sequencing steps for construction. - Reflecting on a finished product, explaining likes and dislikes.		<u>Key Skills</u> - Designing smoothie carton packaging by-hand or on ICT software. - Chopping fruit and vegetables safely to make a smoothie. - Identifying if a food is a fruit or a vegetable. - Learning where and how fruits and vegetables grow. - Tasting and evaluating different food combinations. - Describing appearance, smell and taste. - Suggesting information to be included on packaging	
<u>Key Knowledge</u> - Who they are designing for makes a difference to what they design. - Existing products can help when deciding what to design. - Drawings are a way to explain ideas. - A plan is deciding what to do first and next. - Spacing cuts or marks evenly can be useful. - Different glue can be used to join different things. - Their ideas or products can be made better. - A structure is something that has been made and put together. - Stable structures do not topple. - Shapes and structures with wide, flat bases or legs are the most stable. - Adding weight to the base of a structure can make it more stable.		<u>Key Knowledge</u> - To know that 'joining technique' means connecting two pieces of material together. - To know that there are various temporary methods of joining fabric by using staples, glue or pins. - To understand that different techniques for joining materials can be used for different purposes. - To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. - To know that drawing a design idea is useful to see how an idea will look		<u>Key Knowledge</u> - To understand the difference between fruits and vegetables. - To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). - To know that a blender is a machine which mixes ingredients together into a smooth liquid. - To know that a fruit has seeds and a vegetable does not. - To know that fruits grow on trees or vines. - To know that vegetables can grow either above or below ground. - To know that vegetables can come from different parts of the plant.	
<u>Key Vocabulary</u>		<u>Key Vocabulary</u>		<u>Key Vocabulary</u>	
- base - better - compare - design - freestanding	- stable - structure - unstable - user - worse	- decorate - design - fabric - glue - model	- hand puppet - safety pin - staple - stencil - template	- fruit - vegetable - seed - leaf - root - stem	- smoothie - healthy - carton - design - flavour - peel - slice

Year 2-DT

Autumn 2-Structures-Baby Bear's Chair		Spring 2-Mechanisms-Fairground Wheel		Summer 2-Textiles-Pouches	
<u>Key Skills</u> - Generating and communicating ideas using sketching and modelling. - Learning about different types of structures, found in the natural world and in everyday objects. - Making a structure according to design criteria. - Creating joints and structures from paper/card and tape. - Building a strong and stiff structure by folding paper. - Exploring the features of structures. - Comparing the stability of different shapes. - Testing the strength of their own structures. - Identifying the weakest part of a structure. - Evaluating the strength, stiffness and stability of their own structure.		<u>Key Skills</u> - Selecting a suitable linkage system to produce the desired motions. - Designing a wheel. - Selecting appropriate materials based on their properties. - Selecting materials according to their characteristics. - Following a design brief. - Evaluating different designs. - Testing and adapting a design		<u>Key Skills</u> - Designing a pouch. - Selecting and cutting fabrics for sewing. - Decorating a pouch using fabric glue or running stitch. - Threading a needle. - Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. - Neatly pinning and cutting fabric using a template. - Troubleshooting scenarios posed by teacher. - Evaluating the quality of the stitching on others' work. - Discussing as a class, the success of their stitching against the success criteria. - Identifying aspects of their peers' work that they particularly like and why.	
<u>Key Knowledge</u> - To know that shapes and structures with wide, flat bases or legs are the most stable. - To understand that the shape of a structure affects its strength. - To know that materials can be manipulated to improve strength and stiffness. - To know that a structure is something which has been formed or made from parts. - To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. - To know that a 'strong' structure is one which does not break easily. - To know that a 'stiff' structure or material is one which does not bend easily.		<u>Key Knowledge</u> - To know that different materials have different properties and are therefore suitable for different uses. - To know the features of a Ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder. - To know that it is important to test my design as I go along so that I can solve any problems that may occur.		<u>Key Knowledge</u> - To know that sewing is a method of joining fabric. - To know that different stitches can be used when sewing. - To understand the importance of tying a knot after sewing the final stitch. - To know that a thimble can be used to protect my fingers when sewing.	
<u>Key Vocabulary</u>		<u>Key Vocabulary</u>		<u>Key Vocabulary</u>	
- design criteria - man-made - natural - properties - structure	- stable - shape - model - test	- design - design criteria - wheel - Ferris wheel - pods	- axle - axle holder - frame - mechanism	- decorate - fabric - fabric glue - knot - needle	- needle threader - running stitch - sew - template - thread

Year 3-DT

Autumn 1- Cross Stitch and Applique- Egyptian Collar			Spring 1- DT-Cooking and Nutrition-Eating Seasonally		Summer 1-Structures-Constructing a Castle	
<u>Key Skills</u> - Designing and making a template for an Egyptian collar and applying individual design criteria. - Following their design criteria to create an Egyptian collar. - Selecting and cutting fabrics with ease using fabric scissors. - Threading needles with greater independence. - Tying knots with greater independence. - Sewing cross stitch to decorate or join fabric. - Decorating fabric using appliqué, beads (or other embellishments), ribbon and pinking scissors. - Evaluating an end product.			<u>Key Skills</u> - Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. - Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination. - Following the instructions within a recipe. - Establishing and using design criteria to help test and review dishes. - Describing the benefits of seasonal fruits and vegetables and the impact on the environment. - Suggesting points for improvement when making a seasonal tart.		<u>Key Skills</u> - Designing a castle with key features to appeal to a specific person/purpose. - Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. - Designing and/or decorating a castle tower on CAD software - Constructing a range of 3D geometric shapes using nets. - Creating special features for individual designs. - Making facades from a range of recycled materials. - Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. - Suggesting points for modification of the individual designs.	
<u>Key Knowledge</u> - To know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric. - To understand that a product's function relies on material choices. - To identify and explain some materials and explain their aesthetic and/or functional properties.			<u>Key Knowledge</u> - To know that not all fruits and vegetables can be grown in the UK. - To know that climate affects food growth. - To know that vegetables and fruit grow in certain seasons. - To know that cooking instructions are known as a 'recipe'. - To know that imported food is food which has been brought into the country. - To know that exported food is food which has been sent to another country. - To understand that imported foods travel from far away and this can negatively impact the environment. - To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. - To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. - To know safety rules for using, storing and cleaning a knife safely. - To know that similar coloured fruits and vegetables often have similar nutritional benefits.		<u>Key Knowledge</u> - To understand that wide and flat based objects are more stable. - To understand the importance of strength and stiffness in structures.	
<u>Key Vocabulary</u>			<u>Key Vocabulary</u>		<u>Key Vocabulary</u>	
- appliqué - cross-stitch - fabric - running stitch - patch - thread	- embellish - template - cotton - silk - polyester - wrinkle - tear	- water-resistant - breathable - matt - shiny - biodegrade - pinking	- climate - dry climate - exported - imported - mediterranean climate - nationality - nutrients	- polar climate - recipe - seasonal food - seasons - temperate climate - tropical climate	2d shapes 3d shapes - castle - design criteria - evaluate - façade - feature - flag	- net - recyclable - scoring - stable - strong - structure - tab - weak

Year 4-DT

Autumn 2- Textiles-Fastenings		Spring 2- Mechanical Systems-Making a Sling Shot Car		Summer 2- Electrical Systems-Torches	
<u>Key Skills</u> • Writing design criteria for a product, articulating decisions made. • Designing a personalised book sleeve. • Making and testing a paper template with accuracy and in keeping with the design criteria. • Measuring, marking and cutting fabric using a paper template. • Selecting a stitch style to join fabric. • Working neatly by sewing small, straight stitches. Incorporating a fastening to a design. • Testing and evaluating an end product against the original design criteria. • Deciding how many of the criteria should be met for the product to be considered successful. Suggesting modifications for improvement. • Articulating the advantages and disadvantages of different fastening types		<u>Key Skills</u> • Designing a shape that reduces air resistance. • Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising a design. • Measuring, marking, cutting and assembling with increasing accuracy. Making a model based on a chosen design. • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.		<u>Key Skills</u> • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. • Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria • Evaluating electrical products. • Testing and evaluating the success of a final product.	
<u>Key Knowledge</u> • To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro. • To know that different fastening types are useful for different purposes. • To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.		<u>Key Knowledge</u> • To understand that all moving things have kinetic energy. • To understand that kinetic energy is the energy that something (object/person) has by being in motion. • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.		<u>Key Knowledge</u> • To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.	
<u>Key Vocabulary</u>		<u>Key Vocabulary</u>		<u>Key Vocabulary</u>	
• aesthetic • assemble • book sleeve • design criteria • evaluation • fabric • template	• fastening • mock-up • net • running-stitch • stencil • target audience • target customer	• aesthetic • air resistance • chassis • design • design criteria • function	• graphics • kinetic energy • mechanism • net • structure	• battery • bulb • buzzer • cell • component • conductor • copper • design criteria • electrical item	• electricity • electronic item • function • insulator • series circuit • switch • test • torch • wire

Year 5-DT

Autumn 1- Structures-Bridges		Spring 1- Mechanical Systems-Making a Pop up Book		Summer 1- DT-Cooking and Nutrition-What Could be Healthier?	
<u>Key Skills</u> - Designing a stable structure that is able to support weight. Creating a frame structure with a focus on triangulation - Making a range of different shaped beam bridges. - Using triangles to create truss bridges that span a given distance and support a load. - Building a wooden bridge structure. - Independently measuring and marking wood accurately. - Selecting appropriate tools and equipment for particular tasks. - Using the correct techniques to saws safely. - Identifying where a structure needs reinforcement and using card corners for support. - Explaining why selecting appropriating materials is an important part of the design process. - Understanding basic wood functional properties. - Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary. - Suggesting points for improvements for own bridges and those designed by others.		<u>Key Skills</u> - Designing a pop-up book which uses a mixture of structures and mechanisms. - Naming each mechanism, input and output accurately. - Storyboarding ideas for a book. - Following a design brief to make a pop up book, neatly and with focus on accuracy. - Making mechanisms and/or structures using sliders, pivots and folds to produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. - Evaluating the work of others and receiving feedback on own work. - Suggesting points for improvement		<u>Key Skills</u> - Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. - Writing an amended method for a recipe to incorporate the relevant changes to ingredients. - Designing appealing packaging to reflect a recipe. - Cutting and preparing vegetables safely. - Using equipment safely, including knives, hot pans and hobs. - Knowing how to avoid cross-contamination. - Following a step by step method carefully to make a recipe. - Identifying the nutritional differences between different products and recipes. - Identifying and describing healthy benefits of food groups.	
<u>Key Knowledge</u> - To understand some different ways to reinforce structures. - To understand how triangles can be used to reinforce bridges. To know that properties are words that describe the form and function of materials. - To understand why material selection is important based on properties. - To understand the material (functional and aesthetic) properties of wood.		<u>Key Knowledge</u> - To know that mechanisms control movement. - To understand that mechanisms can be used to change one kind of motion into another. - To understand how to use sliders, pivots and folds to create paper-based mechanisms.		<u>Key Knowledge</u> - To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. - To know that I can adapt a recipe to make it healthier by substituting ingredients. - To know that I can use a nutritional calculator to see how healthy a food option is. - To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects	
<u>Key Vocabulary</u>		<u>Key Vocabulary</u>		<u>Key Vocabulary</u>	
- abutment - accurate - arched bridge - beam bridge - coping saw - evaluation - file - mark out - material properties - measure	- predict - reinforce - research - sandpaper - set square - suspension bridge - tenon saw - test - truss bridge - wood	- aesthetic - computer-aided design - caption - design - design brief - design criteria - exploded-diagram - function - input	- linkage - mechanism - motion - output - pivot - prototype - slider - structure - template	- beef - cross-contamination - diet - ethical issues - farm - healthy - ingredients - method - nutrients	- packaging - reared - recipe - research - substitute - supermarket - vegan - vegetarian - welfare

Design Technology Greater Depth:

Greater Depth

What does "Mastery in Design Technology" look like?

What is Mastery?

A child's ability to skilfully **apply** their learning in more in-depth ways is called **Mastery**. Mastery is not just knowing a fact, but it is using that fact in increasingly more complex situations to extend their learning. Mastery also enables children to work in ways which show a deeper understanding of a given task.

Creating the opportunity for greater depth in Design Technology involves allowing pupils the independence to apply their learning at a deeper level.

This means that pupils working at greater depth are expected to be able to...

- GD pupils will demonstrate a **creative response** to the problem (as long as the design brief is well thought out and provides some scope for originality)
- GD pupils will **stick tightly to the brief** and consider the end user's needs and preferences **throughout** the process
- GD pupils will naturally **think deeply and critically** about other products and also about their own product
- GD pupils will likely **amend their product** as they go to improve its outcome
- GD pupils will display **high quality presentation** and **precision** in their design and make

Examples of Cultural Capital in Design Technology

- Experience tasting and cooking / baking a range of different foods from different countries all over the world.
- Visitors into school to support with the teaching of food technology – Warburtons.
- Ask and answer questions to develop their knowledge and understanding.
- Designing, creating and evaluating for different purposes including different clients so children can understand the significance of design technology in everyday life.
- Use technical knowledge to support decisions made during construction.
- Educational visits – Pizza Express, residential visit, Bishops Wood, Blists Hill.
- Cross-curricular learning – cooking, use of IT, use of music, art and drama
- Use of resources to provide 'hands on' learning
- Learn about growing and harvesting food to eat through the Roots and Shoots programme of learning and giving the grown produce to our kitchen for school lunches.
- After school cooking club allows children to create their dinner for the evening and to understand the importance of a balanced diet.
- To develop resilient learners who are willing to try new things and to persevere even when challenging.
- Learn and use the correct design technology vocabulary as this is explicitly taught.
- The use of the outdoor learning environment including mud kitchens.
- Promote enjoyment and enthusiasm for learning about everyday design technology around them from an early age.

Examples of how Design Technology skills are relevant for future jobs:

Please use this list to suggest to children how these skills can be used. Suggest that this format is used to display with the learning objective:

Learning Objective:
How you can use this learning for a job when you are older:

- Landscape design – gardens, playgrounds, buildings
- Architect
- Interior designer or homes, offices or other space
- Dress maker
- Costume designer
- Advertising
- Card maker
- Calendar designer
- Packaging designer
- Food technology
- Food designer
- Chef
- Jeweller
- Glass artist
- Woodwork designer
- Joiner
- Weaver
- Ceramic designer
- Design teacher
- Teacher of woodwork, fashion, ceramics, glass design
- Web design
- Games developer
- Tattoo artist
- Portrait drawer and painter