



Design and Technology Curriculum Intent Statement

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Intent:

At Sutton on Sea Community Primary School, we intend to build a Design and Technology (D.T) curriculum which is inspiring, rigorous, and practical. We want our children to use creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum. We want Design and Technology to prepare our children; to give them the opportunities, responsibilities, and experiences they need to be successful in later life. Develop transferrable skills which enrich their learning and benefit them in the wider world e.g. teamwork, leadership, creative thinking, decision-making and performance skills.

Implementation:

Design and Technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high-quality Design and Technology curriculum.

This is implemented through:

- A well thought out, whole school, yearly overview of the D.T curriculum which allows for progression across year groups in all areas of D.T (textiles, mechanisms, structures, food and electrical systems)
- Well planned and resourced projects providing children with a hands-on and enriching experience
- A range of skills being taught ensuring that children are aware of health and safety issues related to the tasks undertaken



- Teachers being given ownership and flexibility to plan for Design and Technology; often teaching D.T as a block of lessons to allow the time needed for the children to be critical, inventive and reflective on their work.
- Each project from Year 1 to Year 6 addressing the principles of designing, making, and evaluating and incorporating relevant technical knowledge and understanding in relevant contexts.

Impact:

By the time our pupils leave us at the end of KS2, they will:

Design and technology encompass many cross-curricular links and children can apply what they learn in other areas of the curriculum and in opportunities out of school and within their lives. We measure the impact of our curriculum through reflecting on standards achieved against the planned outcomes, pupil discussions about their learning and through collaboration of teachers and the subject leader through monitoring, pupil voice and lesson observations.

Links to Research

Publication	Selected Recommendations	How are we applying these to our Curriculum?
Research review series: art and design - GOV.UK	The art and design curriculum in schools sets out how pupils can 'get better' at the subject. Pupils can develop practical knowledge of how to create art, craft and design, for example by learning the methods and techniques that artists, craft-makers and designers use. They can also build theoretical knowledge of the tools, materials and history of art, craft and design. In addition, pupils can acquire disciplinary knowledge of the	Kapow Primary's Design and technology scheme of work is built around the following six key areas: • Cooking and nutrition: discovering where food comes from; creating a balanced diet; following kitchen hygiene and safety; developing preparation and cooking skills; following a recipe. • Mechanisms: using cams, followers, levers and sliders to mimic natural movements. • Structures: learning about the properties of materials; improving a structure's strength and stability; reinforcing structures.



	concept of art itself, such as the ways it is judged, valued and evaluated.	• Textiles: using fabric techniques to fasten, sew and decorate. • Electrical systems: creating electrical products using series circuits, circuit components, circuit diagrams and symbols. • Digital world: programming products to perform tasks; developing 2D and 3D designs and models using CAD software.
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How learning in the Early Years Foundation Stage provides a range of experiences and a secure knowledge base, on which the curriculum in Design and Technology builds.

Child-led learning plays a large part in the Early Years curriculum, and rightly so. Supporting children in following and exploring their own interests allows for a greater depth of learning and understanding and much higher levels of wellbeing and involvement.

As teachers, we know that the difficulty with child-led D&T projects often arises when the pupils are not equipped to properly plan their creation or execute their ideas in the way that they wish, sometimes meaning that they will spend a very short amount of time at the workshop or junk modelling area before moving on. To plan, design, make and develop skills and knowledge are all a fundamental part of our D&T scheme.

Rather than creating artificial learning opportunities during these times of child-led play, instead wait until you observe that a child or group of children have shown a particular interest in a topic. Offer to help them enhance their chosen area of exploration by providing additional resources, demonstrating how to use existing resources or even using the computer.

This could mean:

- Providing encouragement and support Introducing new vocabulary through informal conversation
- Encouraging children to create together as a group
- Starting to create on your own, encouraging others (pupils) to join in Scaffolding the planning, designing and creating process
- Using familiar, everyday objects to create models
- Learning about different artistic techniques from around the world



- Looking at books that showcase different topics e.g.. houses and buildings from around the world
- Learning and practising new techniques together
- Using a safe search engine to find out more information or facts about particular topics Finding out about different customs/festivals that are important to the children and are influencing their idea
- Drawing pupils' attention to posters or other sources of information, like our poster on different types of joins

EYFS Music Curriculum

Autumn 1	Autumn 2	Spring 1
Cooking and nutrition - Soup	Book marks	Structures - Junk Modelling
Exploring the differences between fruits and vegetables using their senses (taste, texture, smell etc.). They listen to the story 'The best pumpkin soup' and discuss the key ingredients the characters used before developing a class-based vegetable soup recipe..	Developing and practising threading and weaving techniques using various materials and objects. They look at the history of the bookmark from Victorian times versus modern-day styles. The pupils apply their knowledge and skills to design and sew their own bookmarks.	Exploring and learning about various types of permanent and temporary join. Children are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.
Spring 2	Summer 1	Summer 2
Structures - Junk Modelling	Structures - Boats	Structures - Boats
Exploring and learning about various types of permanent and temporary join. Children are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.	Children explore what is meant by 'waterproof,' 'floating,' and 'sinking,' then experiment and make predictions with various materials to carry out a series of tests. They learn about the different features of EYFS boats and ships before investigating their shape and structures to build their own.	Children explore what is meant by 'waterproof,' 'floating,' and 'sinking,' then experiment and make predictions with various materials to carry out a series of tests. They learn about the different features of EYFS boats and ships before investigating their shape and structures to build their own.



Key Stage 1 Design and Technology Curriculum Overview

	Year 1/2	
	Cycle A	Cycle B
Autumn 1		
Autumn 2	Structures: Constructing a windmill Why this, why now? The children will: - Follow design criteria to meet the needs of a user. - Make a stable structure. - Make functioning sails/blades that attach to the supporting structure. - Improve their windmill.	Mechanisms: Making a moving monster Why this, why now? The children will: - Identify the correct terms for levers, linkages and pivots. - Analyse popular toys with the correct terminology. - Create functional linkages that produce the desired input and output motions. - Design monsters suitable for children, which satisfy most of the design criteria. - Evaluate their two designs against the design criteria, using this information and the feedback of their peers to choose their best design. - Select and assemble materials to create their planned monster features. - Assemble the monster to their linkages without affecting their functionality.
Spring 1		



Spring 2	Textiles: Puppets	Textiles: pouches
	Why this, why now? The children will: • Join fabrics together using pins, staples or glue. • Design a puppet and use a template. • Join their two puppets' faces together as one. • Decorate a puppet to match their design.	Why this, why now? The children will: • Sew a running stitch with regular-sized stitches and understand that both ends must be knotted. • Prepare and cut fabric to make a pouch from a template. • Use a running stitch to join the two pieces of fabric together. • Decorate their pouch using the materials provided.
Summer 1		
Summer 2	Cooking and nutrition: Smoothies	Cooking and nutrition: Balanced diet
	Why this, why now? The children will: • Describe fruits and vegetables and explain how to identify fruits. • Name a range of places that fruits and vegetables grow. • Describe basic characteristics of fruit and vegetables. • Prepare fruits and vegetables to make a smoothie.	Why this, why now? The children will: • Name the main food groups and identify foods that belong to each group. • Describe the taste, feel and smell of a given food. • Think of three different wrap ideas, considering flavour combinations. • Construct a wrap that meets the design brief and their plan.

Lower Key Stage 2 Design and Technology Curriculum Overview

Year 3/4



	Cycle A	Cycle B
Autumn 1	Pneumatic toys Why this, why now? The children will: • Define a mechanism as a system of parts working together to create movement and a pneumatic system can be used as part of this. • Describe how a pneumatic system forces air over a distance to create movement and identify pneumatic systems in a range of everyday objects. • Describe different types of drawings used in design to explain ideas clearly and explain why one may be more useful for a particular situation. • Develop design criteria from a design brief. • Begin to draw different types of diagrams to generate suitable ideas. • Recall different types of pneumatic systems used to design a toy and create one for a specific movement. • Build secure housing for a pneumatic system, consider sustainable resources and work with materials to create different effects by cutting, creasing, folding, etc. • Evaluate how well the design, materials and equipment help to achieve the design brief.	
Autumn 2		Mechanical cars Why this, why now? The children will: • Describe key design improvements in the history of the automobile. • Measure and compare the distance travelled by different mechanical cars. • Choose and use appropriate tools and materials to make mechanical cars. • Draw exploded diagrams and annotated sketches of my different mechanical cars. • Use a problem statement to identify the design criteria. • Assess the product against the design criteria. • Conduct market research into existing products. • Provide specific feedback and adjust my design to incorporate customer feedback.



Spring 1	Constructing a castle	
	Why this, why now? The children will: • Draw and label a simple castle that includes the most common features. • Recognise that a castle is made up of multiple 3D shapes. • Design a castle with key features which satisfy a given purpose. • Score or cut along lines on the net of a 2D shape. • Use glue to securely assemble geometric shapes. • Utilise skills to build a complex structure from simple geometric shapes. • Evaluate their work by answering simple questions.	
Spring 2		Textiles: Egyptian collars
		Why this, why now? The children will: • Demonstrate their ability to use cross-stitch as a decorative feature or to join two pieces of fabric together. • Develop appliqué designs based on design criteria. • Design, cut and shape their template for an usekh or wesekh collar with increasing accuracy. • Decorate their Egyptian collar using a variety of techniques, such as appliqué, cross-stitch, beads, buttons and pinking. • Measure and attach a ribbon with a running stitch. • Recognise different types and qualities of fabrics. • Explain the aesthetic and functional properties of some of their material choices.
Summer 1	Cooking and nutrition: Eating seasonally	
	Why this, why now?	



	The children will: • Explain that fruits and vegetables grow in different countries based on their climates. • Understand that seasonal fruits and vegetables grow in a given season. • Understand that eating seasonal fruit and vegetables positively affects the environment. • Design a tart recipe using seasonal ingredients.	
Summer 2		Pavilions
		Why this, why now? The children will: • Produce a range of free-standing frame structures of different shapes and sizes. • Design a pavilion that is strong, stable and aesthetically pleasing. • Select appropriate materials and construction techniques to create a stable, free-standing frame structure. • Select appropriate materials and techniques to add cladding to their pavilion.

Upper Key Stage 2 Design and Technology Curriculum Overview

	Year 4/5	
	Cycle A	Cycle B
Autumn 1	Textiles: Fastenings	Textiles: Stuffed toys
	Why this, why now? The children will: • Identify the features, benefits and disadvantages of a range of fastening types.	Why this, why now? The children will: • Design a stuffed toy, considering the main component shapes of their toy. • Create an appropriate template for their stuffed toy.



	• Write design criteria and design a sleeve that satisfies the criteria. • Make a template for their book sleeve. • Assemble their case using any stitch they are comfortable with.	• Join two pieces of fabric using a blanket stitch. • Neatly cut out their fabric. • Use appliqué or decorative stitching to decorate the front of their stuffed toy. • Use blanket stitch to assemble their stuffed toy, repairing when needed. • Identify what worked well and areas for improvement
Autumn 2		
Spring 1	Cooking: Adapting a recipe Why this, why now? The children will: • Describe features of biscuits using taste, texture and appearance. • Follow a recipe with support. • Use a budget to plan a recipe. • Adapt a recipe using additional ingredients.	Cooking: Developing a recipe Why this, why now? The children will: • Describe the process of beef production. • Research a traditional recipe and make changes to it. • Add nutritional value to a recipe by selecting ingredients. • Prepare and cook a version of bolognese sauce.
Spring 2		
Summer 1	Structure: Bridges Why this, why now? The children will: • Identify stronger and weaker shapes. • Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. • Identify beam, arch and truss bridges and describe their differences.	Gears Why this, why now? The children will: • Give examples of machines that use gears and/or pulleys. • Describe how gears and pulleys work and their purpose. • Design and make a gear and pulley system. • Write a problem statement.



	• Use triangles to create simple truss bridges that support a load (weight). • Cut beams to the correct size, using a cutting mat. • Smooth down any rough cut edges with sandpaper. • Follow each stage of the truss bridge creation as instructed by their teacher. • Complete a bridge, with varying ranges of accuracy and finish, supported by the teacher. • Identify some areas for improvement, reinforcing their bridges as necessary.	• Write questions for market research, provide feedback and research market competitors. • Write and use a design brief to guide design. • Evaluate a product against a set of design criteria, provide useful feedback and incorporate changes. • Draw and annotate an eco-gadget bike design.
Summer 2		

	Year 6	
	Cycle A	Cycle B
Autumn 1	Navigating the world	Come dine with me
	Why this, why now? The children will: • Incorporate key information from a client's design request such as 'multifunctional' and 'compact' in their design brief. • Write a program that displays an arrow to indicate cardinal compass directions with an 'On start' loading screen. • Identify errors (bugs) in the code and suggest ways to fix (debug) them. • Self and peer evaluate a product concept against a list of design criteria with basic statements. • Identify key industries that use 3D CAD modelling and why.	Why this, why now? The children will: • Find a suitable recipe for their course. • Record the relevant ingredients and equipment needed. • Follow a recipe, including using the correct quantities of each ingredient. • Write a recipe, explaining the process taken. • Explain where certain key foods come from before they appear on the supermarket shelf.



	- Recall and describe the name and use of key tools used in Tinkercad (CAD) software. - Combine more than one object to develop a finished 3D CAD model in Tinkercad. - Complete a product pitch plan that includes key information.	
Autumn 2		
Spring 1	Steady Hand Game Why this, why now? The children will: - Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works). - State what they like or dislike about an existing children's toy and why. - Learn about skills developed through play and apply this knowledge in a survey of one or more children's toys. - Identify the components of a steady hand game. - Design a steady hand game of their own according to their design criteria, using four different perspective drawings. - Create a secure base for their game, with neat edges, that relates to their design. - Make and test a functioning circuit and assemble it within a case.	Automata toys Why this, why now? The children will: - Mark, saw and cut out the components and supports of their toy with varying degrees of accuracy to the intended measurements. - Follow health and safety rules, taking care with the equipment. - Attempt a partial assembly of their toys using an exploded diagram following a teacher's demonstration. - Develop a design idea with some descriptive notes. - Explore different cam profiles and choose three for their follower toppers with an explanation of their choices. - Create neat, decorated follower toppers with some accuracy. - Measure and cut panels that fit with some inaccuracies to conceal the inner workings of the automata. - Decorate and finish the automata to meet the design criteria and brief. - Evaluate their finished product, making descriptive and reflective points on function and form.
Spring 1	Playgrounds Why this, why now? The children will: Create five apparatus designs, applying the design criteria to their work.	



	• Make suitable changes to their work after peer evaluation. • Make roughly three different structures from their plans using the materials available. • Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas. • Secure their apparatus to a base. • Make a range of landscape features using a variety of materials which will enhance their apparatus.	
Summer 1		Waistcoats
		Why this, why now? The children will: • Consider a range of factors in their design criteria and use this to create a waistcoat design. • Use a template to mark and cut out a design. • Use a running stitch to join fabric to make a functional waistcoat. • Attach a secure fastening, as well as decorative objects. • Evaluate their final product.
Summer 2		