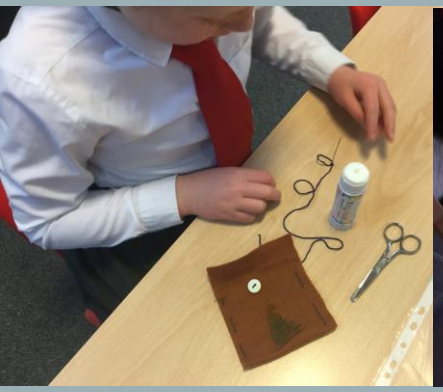
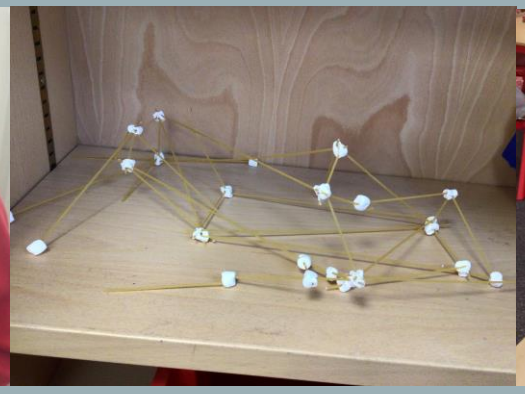
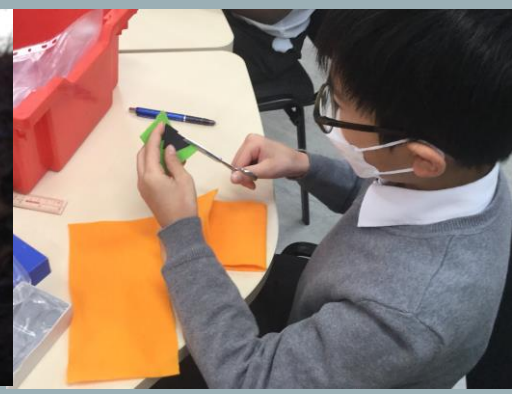



DESIGN AND TECHNOLOGY AT SEC

NATIONAL CURRICULUM – KS1/KS2

The National Curriculum for Design and Technology aims to ensure that all pupils:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- Critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook.

NATIONAL CURRICULUM – KS1

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.

NATIONAL CURRICULUM – KS2

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.

NATIONAL CURRICULUM

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.

OUR ETHOS - INTENT

At St. Edmund Campion, we aim to engage, inspire and challenge pupils within a Design & Technology curriculum which ensures children acquire the knowledge and skills outlined in the NC. Children should use this to design, create and evaluate their own products.

We strive to support children in their learning of how to design and make products in order to solve problems in a real life situation. Through visual, tactile and sensory experiences alongside a range of subject knowledge from Maths, Science, Computing and Art, D&T enables our children to become resourceful and innovative learners.

Design & Technology impacts daily life and the world we live in and as a result the D&T curriculum supports children to think critically and develop a deeper understanding of the world around them whilst being inspired to produce a range of structures, mechanisms, textiles and food products.

OUR ETHOS - IMPLEMENTATION

At SEC there is a detailed progression of skills through a whole school overview which includes a clear structure of topics across the Design, Make, Evaluate and Technical Knowledge strands of D&T including Structures, Textiles, Mechanisms, Electrical Systems (KS2 only) and Food and Nutrition.

Children are taught D&T through a well-structured but adaptable approach to make it purposeful and relevant. Lessons should allow children to research existing products then follow the design, make and evaluate process whilst embedding the technical knowledge (specific skills). Staff have access to Design & Technology Association resources (DATA) to support and enhance their planning of each topic.

Children are encouraged to work both independently and collaboratively to design and make products. The design process should be rooted in real life, relevant contexts to give meaning to their learning. As designers children will first make links to previously taught skills through retrieval before acquiring new skills. They will also learn the importance of Health and Safety when using tools and food hygiene through food topics.

OVERVIEW OF THE YEAR

Autumn

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Box Modelling	Mechanisms (Levers & Sliders) Christmas Cards	Mechanisms (Wheels & Axels) Moon Buggy Toy	Structures Shell structures (including computer aided design) Christmas Gift Box for enterprise	Textiles (2-D shape to 3-D product) Purse/Bag/Apron for Enterprise	Structures (Frame structures) Small scale bird hide	Textiles Combining different fabric shapes (including computer aided design) Stitched Christmas decoration

Spring

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Food	Textiles (Templates & Joining Techniques) Animal Puppets	Structures (Free standing) Bridges Science Link - Rivers	Mechanical Systems (Pneumatics) Moving Monsters Science Link - Forces	Electrical Systems Simple circuits and switches (including programming and control) Nightlight Science Link - Electricity	Mechanical systems (Pulleys and Gears) Toy vehicle gears and pulleys	Electrical Systems Using more complex switches and circuits (include programming, control and monitoring) Lighting up a Theatrical stage

Summer

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Make a Musical Instrument	Food & Nutrition - (Preparing Fruit & Vegetables) Fruit Kebabs	Food & Nutrition - (Preparing Fruit & Vegetables) Smoothie	Mechanical Systems (Levers & linkages) Moving Picture Story	Food & Nutrition (Healthy and varied diet) Pizza Making	Mechanical systems (CAMS) Make a wooden toy with oscillating/rotating movement	Food & Nutrition (Food celebrating culture and seasonality) Savoury snacks for Yr 6 Picnic

Each term children research a specific area of D&T where they go on to design, make and evaluate a product for a person with a specific purpose, e.g. making a moving toy.

PROGRESSION OF SKILLS - DESIGN

Design

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
* select my own resources * explore different materials and decide which materials to use to express own ideas * talk about what I want to make and can suggest different ways I can do it, with support * use my own ideas to confidently create my own pieces of work which I can talk about and evaluate * use language of designing and making (join, build, shape, longer, shorter, heavier etc.	* have own ideas to design something * explain to someone what I want to do * describe and explain what my product is for, and how it will work * use pictures and words to make a simple plan through teacher modelling * design a product for myself following design criteria * research similar existing products	* think of own ideas and plan what to do next * explain what I want to do and describe how I may do it * understand and explain purpose of product, how it will work and how suitable it is for the user * draw simple designs and label parts of products using words * design products for myself and others following a design criteria * use knowledge of existing products to produce ideas	* consider the purpose for a product and begin to research the users' needs * show design meets a range of requirements or specification * describe the purpose of a product and explain how it will work * have at least one idea about how to create product and follow a design criteria * create a plan which shows order, equipment and tools * draw annotated designs and describe by using an accurately labelled sketch and words to detail design decisions, material choices and suitability * make a prototype	* use research for design ideas to create a mood board of existing products * show design meets a range of requirements and is fit for purpose including how it will work * begin to create own design criteria and adapt work when original ideas don't work. * have at least one idea about how to create product and suggest improvements for design. * produce a plan and explain the use of materials, equipment and processes. * communicate ideas using an annotated sketch	* design with a range of ideas using the internet, questionnaires and existing products for design ideas accounting for users viewpoint and appeal to user * begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose *create own design criteria *produce a logical, detailed and realistic step by step plan and explain how it will appeal to the audience and meet the design criteria * use cross-sectional planning (3D) and annotated sketches using appropriate paper e.g. squared * clearly explain how parts of product will work and its purpose * where appropriate use computer-aided designs	* draw on market research to inform design by exploring user's individual needs, wants and requirements for design * identify features of design that will appeal to the intended user and justify planning in a convincing way * create own design criteria and specification and follow/refine a logical plan * use annotated sketches, cross-sectional planning and where appropriate exploded diagrams for finer details * clearly explain how parts of design will work, and how they are fit for purpose * independently model and refine design ideas by making prototypes and using pattern pieces * where appropriate use computer-aided designs

The skills overviews covering every year group are Design, Make and Evaluate.

Each year the children will have the opportunity for retrieval within a specific topic which then develops with new skills.

PROGRESSION OF SKILLS - FOOD

Technical Knowledge – Food & Nutrition

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
* Begin to understand some food preparation tools, techniques and processes * Practise stirring, mixing and pouring * Discuss how to make an activity safe and hygienic * Discuss use of senses * Understand need for variety in food * Begin to understand that eating well contributes to good health	* know where some fruit and vegetables come from and why they are healthy * describe differences between some food groups (i.e. sweet, vegetable etc.) * describe the textures of fruit and vegetables * discuss how fruit and vegetables are healthy * cut fruit and vegetables safely, with support * use basic food handling hygiene practice and personal hygiene	* follow safe procedures for food safety and hygiene * say where food comes from (plant or animal) * explain the food groups on the eat well plate and say which are healthy or not * describe "five a day" * cut, peel and grate safely with increasing confidence		* demonstrate hygienic food preparation and recognise safe practices in the kitchen to prepare and cook dishes identifying hazards (e.g. oven) * carefully select ingredients and think about presenting product in interesting/ attractive ways * know which season certain foods are at their best and when food is ready for harvesting * begin to understand about food being grown, reared or caught in the UK or wider world * use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking * weigh ingredients and follow a recipe to create a dish		* be hygienic/safe in the kitchen and follow own rules * weigh and measure accurately * work within a budget * know how to prepare a meal by collecting ingredients and by adding/substituting to change taste, texture, appearance or aroma * name some types of food that are grown, reared or caught in the UK or wider world * differentiate between a savoury or sweet meal * prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source. * confidently use a range of techniques such as peeling, slicing, chopping, grating, mixing, spreading, kneading and baking.

Through the areas of Technical Knowledge such as Structures, Textiles etc. skills are spread across the year groups through their time at school. For example Food and Nutrition in KS2 is taught in Yr 4 and 6 but Mechanisms is taught in Yr 3 and 5.

OUR ETHOS - IMPACT

We want children to have enjoyment, confidence and pride in their products and achievements within Design & Technology. They will ultimately know, remember and understand more about Design & Technology when given the opportunity to apply skills and overcome challenges themselves.

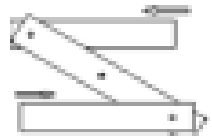
Children in EYFS are assessed within Create and Perform and their progress is tracked using the tracker system.

Teachers across KS1/2 assess children's knowledge, understanding and skills in Design and Technology by making observations of the children working during lessons. Immediate feedback is given to children by teachers or their peers throughout their learning so that their work is not marked in the process.

Children are also encouraged to evaluate their own work critically to develop a deeper understanding of the impact of their work. This is turn should highlight adaptations or the next steps needed to further develop products.

Ongoing monitoring takes place through termly planning logs, work trawls and learning walks which all contribute to uncovering the impact Design and Technology has within our school and showcase the hard work and efforts of the children.

MEDIUM TERM PLANNING



Prior learning:

- I am confident using a range of materials to help me create and build e.g. scissors, paintbrushes, split pins, hole punches etc.
- I can make careful observations of objects and begin to use increasing detail in my drawings.
- I can evaluate and adapt my work with support, defining my ideas and developing my ability to represent them.

Spring 2	Objective	Activities	Resources
1	Research similar existing products	We have been given a new challenge to create a puppet design. What are puppets? What are they used for? What type of puppets would you like to play with?   Look at some examples of different types of puppets – hand puppets, finger puppets etc. Puppets are brought to life usually by a person acting the character out. Think about - How has the puppet been put together? - What type of fabric has been used? - What has been added as extra? - Who might the puppet have been made for? - How well has it been made? - Would you play with this puppet and why?  Talk about what puppets are for and share the puppet presentation. Talk about the materials that each puppet is made of. Discuss together how they work. E.g. hand puppets use the hand where are Allow children to explore a set of puppets used for story telling by reinacting a scenario with a friend. Take pictures as they do to record some ideas. Label a sheet with the different types of puppets used around the world. List the materials they are commonly made with.	PowerPoint Puppet designs Labelling Puppets sheet.

Staff complete a MTP for each D&T topic. By first looking at the prior learning they can build retrieval in to the topic.

Topics usually begin by researching existing products.

MEDIUM TERM PLANNING

2	Have own ideas and explain what I want to do Explain what my product is for, and how it will work Use pictures and words to plan, begin to use models Design a product for myself following design criteria Choose suitable textiles	Think about the puppets and how they were made. Introduce that children will make an animal puppet linked to our topic on Animals in Science. Use Powerpoint of pictures to share what the puppets could look like.  Compile a list of materials we may use to make our hand puppet. Talk to the person next to you about what you would like to create. Discuss ideas of what materials could be used for the different parts. Children design their puppet on paper. Children label with colour and material. E.g. wool for the hair. Q – Who is your product for? Q – How will it work? This should be modelled during each stage so that the children understand the process of design and have an accurate plan. 	Plan template Puppets resources to see and handle to know what shapes etc to use.
3	Explain what I'm making and why Consider what I need to do next Select tools/equipment to cut, shape, join, finish and explain choices Measure, mark out, cut and shape, with support	Children use the design plan with materials needed to make their puppet design. Talk the children through the steps getting them to consider what would be the best thing to do next. Always encourage the children to work safely, considering how to hold equipment safely. Ensure fabric glue is used carefully with support and hygienically to ensure it is not on their fingers to go near eyes, mouth etc.  Children carefully select their two pieces of fabric and join appropriately (with support where necessary) using a simple running stitch.	Felt shapes Needles Thread Wool Ribbon Buttons Fabric pens Scissors Pipe cleaners

Then children use prior learning & knowledge from research to work to a design brief.

Next they create their own product either individually or in groups.

MEDIUM TERM PLANNING

4	Begin to measure and join materials, with some support Measure, cut and join textiles to make a product, with some support Choose suitable materials and explain choices Try to use finishing techniques to make product look good Work in a safe and hygienic manner	Children develop their design with appropriate finishing techniques such as buttons for eyes, ribbons or wool for hair/fur. Allow children to explain why they have chosen certain materials. Are there any additional ones that they wish to change now they have the resources out? Support children as they face any challenges through questioning. Take a picture of each child with their finished design ready for the evaluation.	Felt Wool Ribbon Buttons Fabric glue Fabric pens Scissors Pipe cleaners
5	Talk about my work, linking it to what I was planned to do Talk about things others have made Begin to talk about what could make product better Suggest ways to make product stronger	Children have a little puppet show with a partner and their animal puppets. Using their original plan to compare, children evaluate their finished product. Think about four main questions. Talk these through one by one and model how to answer these on the board. What worked well? What challenges did I face? What changes had to be made? How could you improve it? Children complete their evaluation sentences with their writing on what they did (ENGLISH LESSON)	Original Plans. Evaluation sheet. Powerpoint of questions to model with children. Star and Wish sheet.

The final stage of each topic is an evaluation. This is an opportunity for children to share their products with others and consider what worked well and what changes or improvements could be made if repeated.

THANK YOU