

South Molton Community Primary School - Progression of skills- Design and technology



National Curriculum Objectives

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Three to Four Years Old	Reception
<p>Personal, Social and Emotional Development:</p> <ul style="list-style-type: none"> • Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them. <p>Physical Development:</p> <ul style="list-style-type: none"> • Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors. <p>Understanding the World:</p> <ul style="list-style-type: none"> • Explore how things work. <p>Expressive art and design:</p> <ul style="list-style-type: none"> • Make imaginative ‘small worlds’ with blocks/construction kits, such as a city with different buildings & 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. 	<p>Physical Development:</p> <p>Progress towards a more fluent style of moving, with developing control and grace.</p> <ul style="list-style-type: none"> • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. <p>Expressive Arts and Design</p> <ul style="list-style-type: none"> • 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.

Early Learning Goals

The most relevant statements for DT are taken from the following areas of learning and learnt through the cheating imaginative ‘small worlds. :

Physical Development and Expressive Arts and Design:

Physical Development: Fine Motor Skills

- Use a range of small tools, including scissors, paintbrushes and cutlery.

Expressive Arts and Design: 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.

Key Stage One

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

- 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

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.

Cooking and nutrition

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key Stage Two

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

- 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.

	DT Progression of skills								
	Reception	Year 1	Year 2	End of KS1 expectations	Year 3	Year 4	Year 5	Year 6	End of KS2 expectations
D e s i g n	<ul style="list-style-type: none"> *Select appropriate resources *Use gestures, talking and arrangements of materials and components to show design * Use contexts set by the teacher and myself *Use the language of designing and making (join, build, shape, longer, shorter, heavier etc.) 	<ul style="list-style-type: none"> * have own ideas * 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 *research similar existing products 	<ul style="list-style-type: none"> * have own ideas and plan what to do next * explain what I want to do and describe how I may do it * explain purpose of product, how it will work and how it will be suitable for the user * describe design using pictures, words, models, diagrams, begin to use ICT * design products for myself and others following design criteria * choose best tools and materials, and explain choices * use knowledge of existing products to produce ideas 	<p>Design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>*Generate, develop, model and communicate their ideas through talking, drawing, templates, mockups and, where appropriate, information and communication technology</p>	<ul style="list-style-type: none"> *begin to research others' needs * show design meets a range of requirements * describe purpose of product * follow a given design criteria * have at least one idea about how to create product * create a plan which shows order, equipment and tools *describe design using an accurately labelled sketch and words * make design decisions *explain how product will work * make a prototype 	<ul style="list-style-type: none"> * use research for design ideas * show design meets a range of requirements and is fit for purpose *begin to create own design criteria *have at least one idea about how to create a product and suggest improvements for design. * produce a plan and explain it to others *say how realistic the plan is. *include an annotated sketch *make and explain design decisions considering availability of resources *explain how product will work * make a prototype *begin to use computers to show design. 	<ul style="list-style-type: none"> *use internet and questionnaires for research and design ideas *take a user's view into account when designing * begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose *create own design criteria * have a range of ideas *produce a logical, realistic plan and explain it to others. *use cross-sectional planning and annotated sketches * make design decisions considering time and resources. *clearly explain how parts of product will work. *model and refine design ideas by making prototypes 	<ul style="list-style-type: none"> * draw on market research to inform design * use research of user's individual needs, wants, requirements for design * identify features of design that will appeal to the intended user * create own design criteria and specification * come up with innovative design ideas *follow and refine a logical plan. *use annotated sketches, cross sectional planning and exploded diagrams * make design decisions, considering, resources and cost * clearly explain how parts of design will work, and how 	<ul style="list-style-type: none"> *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

					* begin to use computers to show design		and using pattern pieces. *use computer-aided designs	they are fit for purpose * independently model and refine design ideas by making prototypes and using pattern pieces * use computer-aided designs	
M a k e	<ul style="list-style-type: none"> *Construct with a purpose, using a variety of resources *Use simple tools and techniques *Build / construct with a wide range of objects *Select tools & techniques to shape, assemble and join *Replicate structures with materials / components *Discuss how to make an activity safe and hygienic *Record experiences by drawing, writing, voice recording *Understand different media 	<ul style="list-style-type: none"> *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 *choose suitable materials and explain choices *try to use finishing techniques to make product look good 	<ul style="list-style-type: none"> *explain what I am making and why it fits the purpose *make suggestions as to what I need to do next. *join materials/components together in different ways *measure, mark out, cut and shape materials and components, with support. *describe which tools I'm using and why *choose suitable materials and explain choices depending on characteristics. *use finishing techniques to 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> *select suitable tools/equipment, explain choices; begin to use them accurately * select appropriate materials, fit for purpose. * work through plan in order *consider how good product will be * begin to measure, mark out, cut and shape materials/components with some accuracy * begin to assemble, join and combine materials and 	<ul style="list-style-type: none"> * select suitable tools and equipment, explain choices in relation to required techniques and use accurately *select appropriate materials, fit for purpose; explain choices * work through a plan in order. * realise if product is going to be good quality * measure, mark out, cut and shape materials/components with some accuracy *assemble, join and combine materials and components with some accuracy 	<ul style="list-style-type: none"> * use selected tools/equipment with good level of precision * produce suitable lists of tools, equipment/materials needed *select appropriate materials, fit for purpose; explain choices, considering functionality * create and follow detailed step-by-step plan * explain how product will appeal to an audience * mainly accurately measure, mark out, cut and shape materials/components *mainly accurately assemble, join and 	<ul style="list-style-type: none"> *use selected tools and equipment precisely *produce suitable lists of tools, equipment, materials needed, considering constraints * select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics * create, follow, and adapt detailed step-by-step plans *explain how product will appeal to audience; make changes to improve quality * accurately measure, mark out, 	<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately *Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

	can be combined for a purpose	*work in a safe and hygienic manner	make product look good *work safely		components with some accuracy * begin to apply a range of finishing techniques with some accuracy	*apply a range of finishing techniques with some accuracy	combine materials/components * mainly accurately apply a range of finishing techniques * use techniques that involve a small number of steps * begin to be resourceful with practical problems	cut and shape materials/components * accurately assemble, join and combine materials/components * accurately apply a range of finishing techniques * use techniques that involve a number of steps * be resourceful with practical problems	
E v a l u a t e	*Adapt work if necessary *Dismantle, examine, talk about existing objects/structures *Consider and manage some risks *Practise some appropriate safety measures independently *Talk about how things work *Look at similarities and differences between existing objects / materials / tools	*talk about my work, linking it to what I was asked to do * talk about existing products considering: use, materials, how they work, audience, where they might be used *talk about existing products, and say what is and isn't good * talk about things that other people have made	* describe what went well, thinking about design criteria * talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion *evaluate how good existing products are *talk about what I would do differently if I were to do it again and why	Explore and evaluate a range of existing products. *Evaluate their ideas and products against design criteria	* look at design criteria while designing and making *use design criteria to evaluate finished product * say what I would change to make design better *begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they	*refer to design criteria while designing and making *use criteria to evaluate product * begin to explain how I could improve original design *evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * discuss by whom, when and where	*evaluate quality of design while designing and making *evaluate ideas and finished product against specification, considering purpose and appearance. *test and evaluate final product * evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * begin to evaluate how much products	*evaluate quality of design while designing and making *evaluate ideas and finished product against specification, considering purpose and appearance. *test and evaluate final product * evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose	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

	<p>*Show an interest in technological toys</p> <p>*Describe textures</p>	<p>*begin to talk about what could make the product better</p>			<p>have been made, fit for purpose</p> <p>* begin to understand by whom, when and where products were designed</p> <p>* learn about some inventors/designers/ engineers/chefs/manufacturers of groundbreaking products</p>	<p>products were designed</p> <p>* research whether products can be recycled or reused</p> <p>* know about some inventors/designers / engineers/ chefs/manufacturers of ground-breaking products</p>	<p>cost to make and how innovative they are</p> <p>*research how sustainable materials are</p> <p>*talk about some key inventors/designers/ engineers/ chefs/manufacturers of groundbreaking products</p>	<p>* begin to evaluate how much products cost to make and how innovative they are</p> <p>*research how sustainable materials are</p> <p>*talk about some key inventors/designers / engineers/ chefs/manufacturers of groundbreaking products</p>	
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Technical vocabulary : Autumn term- structures								
Reception	Year 1	Year 2	End of KS1 expectations	Year 3	Year 4	Year 5	Year 6	End of KS2 expectations
	<ul style="list-style-type: none"> *begin to measure and join materials, with some support *describe differences in materials *suggest ways to make material/product stronger 	<ul style="list-style-type: none"> *measure materials *describe some different characteristics of materials *join materials in different ways *use joining, rolling or folding to make it stronger *use own ideas to try to make product stronger 	<p>Build structures, exploring how they can be made stronger, stiffer and more stable</p>	<ul style="list-style-type: none"> *use appropriate materials *work accurately to make cuts and holes * join materials *begin to make strong structures 	<ul style="list-style-type: none"> *measure carefully to avoid mistakes *attempt to make product strong *continue working on product even if original didn't work *make a strong, stiff structure 	<ul style="list-style-type: none"> *select materials carefully, considering intended use of product and appearance *explain how product meets design criteria *measure accurately enough to ensure precision *ensure product is strong and fit for purpose *begin to reinforce and strengthen a 3D frame 	<ul style="list-style-type: none"> *select materials carefully, considering intended use of the product, the aesthetics and functionality. *explain how product meets design criteria *reinforce and strengthen a 3D frame 	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p>

Technical vocabulary : Spring term- Mechanisms								
Reception	Year 1	Year 2	End of KS1 expectations	Year 3	Year 4	Year 5	Year 6	End of KS2 expectations
	*begin to use levers or slides	*use levers or slides *begin to understand how to use wheels and axles	*Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	*select appropriate tools / techniques *alter product after checking, to make it better *begin to try new/different ideas *use simple lever and linkages to create movement	*select most appropriate tools/ techniques *explain alterations to product after checking it *grow in confidence about trying new / different ideas. *use levers and linkages to create movement *use pneumatics to create	*refine product after testing *grow in confidence about trying new / different ideas *begin to use cams, pulleys or gears to create movement	*refine product after testing, considering aesthetics, functionality and purpose *incorporate hydraulics and pneumatics *be confident to try new / different ideas *use cams, pulleys and	*Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

Technical vocabulary : Spring term- Electricity (KS2 only)					
Year 3	Year 4	Year 5	Year 6	End of KS2 expectations	
*use simple circuit in product *learn about how to program a computer to a control product.	*use number of components in circuit *program a computer to control a product	*incorporate switch into product *confidently use number of components in a circuit *begin to be able to program a computer to monitor changes in environment and control product	*use different types of circuit in product * think of ways in which adding a circuit would improve product * program a computer to monitor changes in environment and control product	*Understand and use electrical systems in their products [for example, series circuits	

Technical vocabulary : Summer Term- Cooking and nutrition								
Reception	Year 1	Year 2	End of KS1 expectations	Year 3	Year 4	Year 5	Year 6	End of KS2 expectations
<p>*Begin to understand some food preparation tools, techniques and processes</p> <p>*Practise stirring, mixing, pouring, blending</p> <p>*Discuss how to make an activity safe and hygienic</p> <p>*Discuss use of senses</p> <p>*Understand need for variety in food</p> <p>*Begin to understand that eating well contributes to good health</p>	<p>*describe textures</p> <p>*wash hands & clean surfaces</p> <p>*think of interesting ways to decorate food</p> <p>*say where some foods come from, (i.e. plant or animal)</p> <p>*describe differences between some food groups (i.e. sweet, vegetable etc.)</p> <p>*discuss how fruit and vegetables are healthy</p> <p>*cut, peel and grate safely, with support</p>	<p>*explain hygiene and keep a hygienic kitchen</p> <p>*describe properties of ingredients and importance of varied diet</p> <p>*say where food comes from (animal, underground etc.)</p> <p>*describe how food is farmed, home-grown, caught</p> <p>*draw eat well plate; explain there are groups of food</p> <p>*describe “five a day”</p> <p>*cut, peel and grate with increasing confidence</p>	<p>*Use the basic principles of a healthy and varied diet to prepare dishes</p> <p>*Understand where food comes from.</p>	<p>*carefully select ingredients</p> <p>*use equipment safely</p> <p>*make product look attractive</p> <p>*think about how to grow plants to use in cooking</p> <p>*begin to understand food comes from UK and wider world</p> <p>*describe how healthy diet= variety/balance of food/drinks</p> <p>*explain how food and drink are needed for active/healthy bodies.</p> <p>*prepare and cook some dishes safely and hygienically</p> <p>*grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>*explain how to be safe/hygienic</p> <p>*think about presenting product in interesting/ attractive ways</p> <p>*understand ingredients can be fresh, pre-cooked or processed</p> <p>*begin to understand about food being grown, reared or caught in the UK or wider world</p> <p>*describe eat well plate and how a healthy diet=variety / balance of food and drinks</p> <p>*explain importance of food and drink for active, healthy bodies</p> <p>*prepare and cook some dishes safely and hygienically</p> <p>*use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>*explain how to be safe / hygienic and follow own guidelines</p> <p>*present product well - interesting, attractive, fit for purpose</p> <p>*begin to understand seasonality of foods</p> <p>*understand food can be grown, reared or caught in the UK and the wider world</p> <p>*describe how recipes can be adapted to change appearance, taste, texture, aroma</p> <p>*explain how there are different substances in food / drink needed for health</p> <p>*prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</p> <p>* use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>*understand a recipe can be adapted by adding / substituting ingredients</p> <p>*explain seasonality of foods</p> <p>*learn about food processing methods</p> <p>*name some types of food that are grown, reared or caught in the UK or wider world</p> <p>*adapt recipes to change appearance, taste, texture or aroma.</p> <p>*describe some of the different substances in food and drink, and how they can affect health</p> <p>*prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p> <p>*use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>*Understand and apply the principles of a healthy and varied diet</p> <p>*Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>*Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>

