

## **Shoreham Village School**

### **National Curriculum – Design and Technology**

#### **EYFS –**

Pupils should be taught to:

- develop their small motor skills to use a range of tools competently, safely, and confidently
- explore collections of materials
- explore how things work
- develop their ideas and decide which materials to use
- join different materials and explore different textures

#### **Key stage 1**

Pupils should be taught to:

- design purposeful, functional appealing products based on design criteria
- generate, develop, model, and communicate their ideas
- select and use a range of tools and equipment to perform practical tasks
- select from and use a wide range of materials and components according to their characteristics
- evaluate their ideas and products against design criteria and a range of existing products
- build structures, exploring how to make them stronger, stiffer, and more stable
- explore and use mechanisms

#### **Key stage 2**

Pupils should be taught to:

- use research and develop design criteria to inform their designs of functional appealing products that are fit for purpose
- generate, develop, model, and communicate their ideas through discussion, sketches, cross-sectional diagrams, prototypes, pattern pieces and computer-aided design
- select and use a wider range of tools and equipment to perform practical tasks accurately
- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria
- understand how key events and individuals in design and technology have helped shape the world
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures

understand and use mechanical and electrical systems in their products  
apply their understanding of computing to program, monitor and control their products

## **Cooking and Nutrition**

### **Key stage 1**

Pupils should be taught to:

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

### **Key stage 2**

Pupils should be taught to:

- understand and apply the principles of a health 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 Knowledge Overview							
Reception A	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Structures	To learn to construct with a purpose in mind.	To use Junk modelling as a way of experimenting with construction	To use tools carefully and safely with purpose.	Explore materials when making, show freedom of experimenting Begin to know what a design/plan is	Begin to talk about changes made during the making process. What went well or not so well and why that may have been.	Know if their project matches their plan	Talk about their project and develop critical thinking.
Term 4 Joining materials	Investigate and experiment with different joining methods and materials. Know different techniques for joining materials	Know and use a variety of methods to join materials.	Select and use different materials to build. Know which materials to choose to construct with for a purpose	Use different ways of recording their planning/designing e.g., drawing, mock-ups. Know different ways of designing and planning a project	To learn how to use a range of tools safely. Use a variety of tools safely and with control. Know different techniques to construct/make a project	Look at product and decide where it worked well or could be improved. Know how to evaluate project and suggest ways to improve it	Talk about what they would improve. To design, plan and make (do) a project
Term 6 Cooking and Nutrition	Children to have basic hygiene awareness, food hygiene, food types and healthy eating.	To begin to understand some of the tools, techniques and processes involved in food preparation.	Develop fine motor skills, cutting/chopping . Working as a team, sharing equipment.	Explore – colour, function, tools, techniques, design, and form. Begin to plan/design a product	Learn to combine ingredients	Being able to say what is good or bad about work and why. to formulate foundations of evaluative skills	Begin to think about how it could be made better

Year 1&2 A	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Structures Build simple structures and explore their stability.	Go on a walk and/or look at photographs of the local area to explore structures Know the vocabulary to be used in the project know the simple working characteristics of materials and components to be used in their design	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Know what tools are used for and which tools to use. Know to measure materials needed Know some safety rules	Develop, model, and communicate their ideas through talking, mock-ups and drawings. Know some joining techniques Know some joining techniques which will work best for their design	Build and explore a variety of freestanding structures using construction kits Know to test their structure	Fold paper or card in different ways to make freestanding structures, know which materials to use to strengthen their structures	Use simple finishing techniques Know to evaluate their design	Apply their understanding of how to strengthen structures
Term 4 Explore and use sliders and levers.	Explore and evaluate a collection of books and everyday products that have moving parts, Know the technical vocabulary relevant to the project.	Generate ideas based on simple design criteria. Know the different types of mechanisms and know that different mechanisms produce different types of movement	Develop, model, and communicate their ideas through drawings and mock-ups with card and paper Know the difference between fixed and loose pivots	Create moving pictures for their design. Know to assemble, join, and combine components	Modify, adapt, and improve their product. know simple finishing techniques to improve the appearance of their product	Evaluate the final product against design criteria. Know to evaluate their product against simple design criteria	Understand and use mechanical products in their products

	Know the safety precautions when working with tools						
Term 6 Cooking and Nutrition	Discuss healthy eating advice, including eating more fruit and vegetables, using the eatwell plate. Know where food comes from (plants and animals) and that it is farmed	Examine a range of fruit/vegetables , handle, smell and taste fruit and vegetables Know the five food groups	Use talk and drawings to plan for a product. Know the basic principles of a healthy and varied diet	Use simple utensils and practise food processing skills Discuss different effects achieved by different processes. Know which simple tools, utensils, and techniques to use	Select from a range of fruit and vegetables according to their characteristics e.g., colour, texture and taste to create a chosen product. Know how to prepare a simple dish	Evaluate the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed. Know to evaluate their product against simple design criteria	Know basic principles of a healthy and varied diet to prepare dishes
Year 3&4 A	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Shell structures using CAD	Investigate and evaluate a collection of different shell structures including packaging. Know and use technical vocabulary relevant to the	Use drawing software such as Techsoft 2D Primary or Microsoft Word. Explore the interface and drawing tools to practise drawing and	Develop a design using computer-aided design (CAD) software to create nets. Know which tools to use most effectively.	Practise making nets out of card, comparing different nets Know to cut, shape and score materials with some degrees of accuracy Know the safety rules when	Explore strengthening techniques Know to investigate different techniques for stiffening a variety of materials and explore	Use computer-generated finishing techniques Know to test their structure effectively for stability Know how to evaluate their product	Apply their understanding of how to strengthen and stiffen structures

	project	manipulating shapes. know the more detailed working characteristics of materials and components to be used in their design		working with tools	different methods of enabling structures to remain stable. Know joining techniques Know which joining technique will work best for their design	against their original design criteria	
Term 4 Electrical systems, Simple programming , and control – Nightlight	Investigate and disassemble different examples of relevant battery powered products Know technical vocabulary relevant to the project. Known safety rules when using tools and equipment	Investigate examples of switches, which work in different ways Know the different types of switches and know that different switches produce different types of movement.	Develop a design brief and generate a range of ideas. Know that mechanical and electrical systems have an input, process and an output.	Follow stages and assemble product. Know techniques and the functional and aesthetic qualities of a wide range of materials to plan how to use them and in what order based on their functional properties and aesthetic qualities.	Write, test and debug programs that will control the electrical product they have made switching off after a period of time. Know appropriate finishing techniques	Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Know to evaluate their product against their original design criteria	Understand and use electrical systems in their products e.g., circuits incorporating switches, bulbs, buzzers, and motors
Term 6 Cooking and nutrition	Find out how a variety of ingredients used in products are	Discuss and communicate ideas, researching existing	Plan the main stages of a recipe, listing ingredients,	Select and use appropriate utensils and equipment to prepare and	Use appropriate heat sources to prepare and cook food.	Evaluate as the assignment proceeds and the final	Know principles of a healthy and varied diet to

	grown and harvested, reared, caught, and processed Know technical vocabulary relevant to the project.	products, drawing annotated sketches, generating design criteria. Develop and agree on design criteria. Know and understand the principles of a healthy and varied diet	utensils, and equipment. Know and understand seasonality	combine ingredients. Know safety rules when using tools and equipment. Know some ways to prepare ingredients safely and hygienically		product against the intended purpose and user, reflecting on the design criteria previously agreed. Know to evaluate their product against original design criteria	prepare dishes
Year 5&6 A	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Structures - Frames	Research key events and individuals related to frame structures. Know the vocabulary to be used in the project know in depth the working characteristics of materials and	Investigate and make annotated drawings of a range of portable and permanent frame structures Develop a simple design specification Know a range of tools and equipment to perform practical tasks	Use construction kits to compare strengths and weaknesses of struts Produce a detailed, step-by-step plan, listing tools and materials. Know joining techniques and which joining technique will work best for their design and give reasons	Use tools to accurately measure, mark out, cut, shape, and join construction materials to make frameworks. Know a wide range of methods to strengthen, stiffen and reinforce complex structures and use them accurately and justify their selection.	Use finishing and decorative techniques suitable for the product they are designing and making. Know to test their structure effectively for stability and reliability	Critically evaluate their products against their design specification. Know to critically evaluate the quality of design, manufacture, and fitness for purpose of the product they have designed and made	Apply their understanding of how to strengthen and stiffen more complex structures

	components to be used in their design	Know to cut, shape, and score a range of materials with precision and accuracy Know all the safety rules when working with tools					
Term 4 Textiles	Carry out research, investigate, disassemble, and evaluate existing products and consulting 'real life' designers.	Develop and communicate ideas through drawing, templates, mock-ups, and prototypes and, where appropriate, computeraided design.	Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.	Develop skills of 2-D paper pattern. Pin a pattern on to fabric ensuring limited wastage,  Develop skills of computer-aided design (CAD) by using on-line pattern making software to generate pattern pieces.	Make product and develop skills of sewing textiles, investigate how to sew, and shape curved edges attach wadding or stiffening and how to start and finish off a row of stitches	Evaluate and compare final product to the original design specification. Test product with intended user and critically evaluate the quality of the design, manufacture, functionality, and fitness for purpose.	Know how a 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Know how fabrics can be strengthened , stiffened, and reinforced where appropriate.
Term 6 Cooking and nutrition	Carry out research into existing products and	Generate innovative ideas through research and	Develop a design brief include relating to nutrition and	Write a step-by-step recipe, including a list of ingredients,	Select and use appropriate utensils and equipment	Evaluate the product against the intended	Knowledge of preparation and cooking techniques of

	key chefs and how they have promoted seasonality, local produce, and healthy eating. Know examples of food that is grown, reared, and caught where and how a variety of ingredients are grown, reared, caught, and processed	discussion. Know technical vocabulary relevant to the project.	healthy eating. Knowledge and understanding about food hygiene, nutrition, healthy eating, and a varied diet.	equipment, and utensils. Know about seasonality and how this may affect the food availability and plan recipes according to seasonality .	accurately to measure and combine appropriate ingredients. Make and present the food product for the intended user and purpose. Known safety rules when using tools and equipment. Know some ways to prepare ingredients safely and hygienically	purpose and user Know to critically evaluate the quality of design, manufacture, and fitness for purpose of products as they design and make	savoury dishes.
Cycle B							
EYFS	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Structures	Choose from a variety of materials and use glue to join. Know that glue can be used to join materials	Investigate and use a variety of products and techniques to join materials. Know that there are different ways	Experiment with different materials to make a product. Know different materials available to construct	Plan/draw/design their house before making it. Know what a design/plan is	Experiment and use a variety of tools. Know what tools are used for	Know if their project matches their plan	Talk about their project

		to join materials					
Term 4 Joining materials	Investigate and experiment with different joining methods and materials. Know different techniques for joining materials	Use a variety of methods to join materials. Know a variety of ways to join materials	Select and use different materials to build. Know which materials to choose to construct with for a purpose	Use different ways of recording their planning/designing e.g., drawing, mock-ups. Know different ways of designing and planning a project	Use a variety of tools safely and with control Know to use tools safely. Know different techniques to construct/make a project	Look at product and decide where it worked well or could be improved. Know how to evaluate project and suggest ways to improve it	Talk about what they would improve. To design, plan and make (do) a project
Term 6 Cooking and Nutrition	Children to have basic hygiene awareness, food hygiene, food types and healthy eating.	To begin to understand some of the tools, techniques and processes involved in food preparation.	Develop fine motor skills, cutting/chopping . Working as a team, sharing equipment.	Explore – colour, function, tools, techniques, design, and form. Begin to plan/design a product	Learn to combine ingredients	Being able to say what is good or bad about work and why. to formulate foundations of evaluative skills	Begin to think about how it could be made better
Y1/2 B	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Mechanical Systems- Wheels and axels – moving vehicles	Using construction kits with wheels and axles explore and evaluate a range of wheeled products.	Identify a user and purpose for the product and generate simple criteria.	Generate initial ideas and simple design criteria. Develop and communicate ideas through drawings and mock-ups.	Make their wheel and axle product using their design ideas and criteria	Add finishing techniques to their product with reference to their design ideas and criteria.	Evaluate their finished product, communicating how it works and how it matches their design criteria, including any	Distinguish between fixed and freely moving axles

						changes they made	
Term 4 Textiles Templates and joining - Puppets	Generate ideas through talking and drawing based on own experiences. Develop design criteria	Draw, make and use a template to create two identical shapes.	Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining, and finishing	Use joining techniques e.g., running stitch, stapling, lacing, and gluing.	Use a variety of finishing techniques e.g., sewing buttons, 3-D fabric paint, gluing sequins, printing.	Evaluating the puppet with the intended user and against original design criteria.	To use a range of simple tools to cut and join materials safely
Term 6 Cooking and Nutrition Father's Day picnic	Evaluate existing products to determine what is best. Investigate preferences of their intended users/suitability for intended purposes	Discuss and agree on design criteria that can be used to guide the development and evaluation of products Discuss healthy eating advice.	Design appealing products for a particular user based on simple design criteria. Discuss basic food hygiene practices when handling food including the importance of following instructions to control risk.	Use simple utensils and practise food processing skills Discuss different effects achieved by different processes. Know which simple tools, utensils, and techniques to use	Prepare and make picnic, discussing, trying out and modifying the design.	Evaluate the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed. Know to evaluate their product against simple design criteria	Know basic principles of a healthy and varied diet to prepare dishes
Y3/4 B	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Mechanical Systems – sliders, levers	Investigate, analyse, and evaluate books and, where	Generate realistic ideas and their own design criteria	Draw and make detailed annotated sketches of their	Select from and use appropriate tools with some accuracy to cut,	Select from and use finishing techniques	Evaluate their own products and ideas against criteria	To understand and use lever and linkage

linages – greetings card	available, other products which have a range of lever and linkage mechanisms.	through discussion, focusing on the needs of the user	design including materials and tools to be used	shape and join paper and card.	suitable for the product they are creating.	and user needs, as they design and make	<b>mechanisms. Distinguish between fixed and loose pivots.</b>
Term 4 Textiles	Carry out research, investigate, disassemble, and evaluate existing products	Produce annotated sketches, prototypes, final product sketches and pattern pieces.	Plan the main stages of making using a flowchart or storyboard. Produce lists of equipment and fabrics relevant to their tasks.	Draw and produce pattern pieces.	Assemble their product using their existing knowledge, skills and understanding	Evaluate the process undertaken and the final product in relation to the design brief and criteria.	<b>Know how to strengthen, stiffen, and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Understand the need for patterns and seam allowances.</b>
Term 6 Cooking and Nutrition	Find out how a variety of ingredients used in products are grown and harvested, reared, caught, and processed Know technical vocabulary	Discuss and communicate ideas, researching existing products, drawing annotated sketches, generating design criteria.	Plan the main stages of a recipe, listing ingredients, utensils, and equipment. Know and understand seasonality	Select and use appropriate utensils and equipment to prepare and combine ingredients. Know safety rules when using tools and equipment. Know some ways	Use appropriate heat sources with control to prepare and cook ingredients.	Evaluate as the assignment proceeds and the final product against the intended purpose and user, reflecting on	<b>Know principles of a healthy and varied diet to prepare dishes. Start to understand seasonality,</b>

	relevant to the project.	Develop and agree on design criteria. Know and understand the principles of a healthy and varied diet		to prepare ingredients safely and hygienically		the design criteria previously agreed. Know to evaluate their product against original design criteria	
Y5/6 B	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 2 Applying Computing - Alarms	Know technical vocabulary relevant to the project.	Know basic computing to program and control their products.	Know the links to other subjects in their products	Know more complex electrical circuits and components can be used to create functional products	Know to program a computer to monitor changes in the environment and control their products	Critically evaluate the quality of the design, the manufacture, functionality, innovation shown and fitness for the intended user and purpose. Know how to critically evaluate the quality of design, manufacture, and fitness for purpose of products as they design and make	Apply their understanding of computing to program, monitor and control their products

<p>Term 4 Mechanical Systems – Pulleys and gears</p>	<p>Research, investigate, analyse, and evaluate existing everyday products and existing or pre-made toys that incorporate gear or pulley systems.</p>	<p>Develop a simple design specification. Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</p>	<p>Using construction kits, investigate combinations of two different sized pulleys to learn about direction and speed of rotation</p>	<p>Produce detailed lists of tools, equipment, and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</p>	<p>Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources, and cost.</p>	<p>Test products with intended user and critically evaluate the quality of the design, manufacture, functionality, and fitness for purpose.</p>	<p>Understand how gears and pulleys can be used to speed up, slow down or change direction of movement</p>
<p>Term 6 Cooking and Nutrition</p>	<p>Find out how a variety of ingredients used in products are grown and harvested, reared, caught, and processed. Know technical vocabulary relevant to the project.</p>	<p>Discuss and communicate ideas, researching existing products, drawing annotated sketches, generating design criteria. Develop and agree on design criteria. Know and understand the principles of a healthy and varied diet</p>	<p>Plan the main stages of a recipe, listing ingredients, utensils, and equipment. Know and understand seasonality</p>	<p>Select and use appropriate utensils and equipment to prepare and combine ingredients. Know safety rules when using tools and equipment. Know some ways to prepare ingredients safely and hygienically</p>	<p>Use appropriate heat sources to prepare and cook food.</p>	<p>Evaluate as the assignment proceeds and the final product against the intended purpose and user, reflecting on the design criteria previously agreed. Know to evaluate their product against</p>	<p>Know principles of a healthy and varied diet to prepare dishes. Know and understand seasonality</p>

						original design criteria	
<b>Vocabulary</b>	<b>Design</b>	<b>Making</b>	<b>Product</b>	<b>Evaluate</b>			
<b>EYFS</b>	Plan Draw Ideas Design	Make Build Combine Join Shape Tools	Complete Product Final	Change Like Dislike Next Time Better Worse Different Instead			
	<b>Design</b>	<b>Technical Knowledge and Making</b>	<b>Cooking and Nutrition</b>	<b>Evaluate</b>			
<b>KS1</b>	Plan Prepare Design Materials Ideas Use Model Development Market Research Survey Template	Fast Slow Faster Slower Up Downturn Wind up Design Draw Sketch Tools Fix Glue Attach Features Brick Wood Stone Cloth Metal Foam Felt Paper Tissue Newspaper Cardboard String Wool Clay Scissors Glue Tape Cut Stick Decorate	Healthy Unhealthy Source Fruit Vegetables Clean Safe Dirty Unsafe Amount Ingredients Recipe Weight Nutrients Vegetarian Dietary requirements	Change Improve Prefer Useful Unsuccessful Future Progress modify Alter Adapt Original Finished Article Evaluate Graphics			
<b>KS2</b>	Plan Organise Prototype Initial Ideas Criteria Diagrams Labels	Materials Mold Liquid Solid Form Shape Adhesive Lattice Mass- produce Hand-	Healthy Unhealthy Balanced Vitamins Disease Nutrition Healthy Eating	Assess Edit Improve Alter Outcome Develop Test Analyse Effective Fit for purpose Design			

	Annotate Brief Product Consumer Customer Target audience Purpose Application Constraints Client	made Packaging Presentation Machine made Dimensions Dura	Hygiene Diet Cross contamination Grams Storage Presentation Taste Texture Flavor Disinfect Bacteria	criteria Alternatives Models Quality Function Functionality

Term 6 Electrical systems - More complex switches	Research famous inventors related to the project e.g., Thomas Edison – light bulb and a range of products that respond to changes in the environment using a computer control program	Develop a design specification for a functional product that responds automatically to changes in the environment.	Produce detailed plans and lists of tools, equipment and materials needed. If appropriate, allocate tasks within a team.	Make high quality products	Create a computer control program to enable an electrical product to work automatically in response to changes in the environment.	Evaluate throughout and the final product, comparing it to the original design specification. Test the system to demonstrate its effectiveness for the intended user and purpose.	Understand and use electrical systems in their products and apply their understanding of computing to program, monitor and control their products.
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Term 4 Electrical Systems	Investigate and analyse a range of existing battery-powered products.	Gather information about needs and wants and develop design criteria to inform the design of products that are fit for purpose, aimed at individuals or groups.	Discussing ideas, drawing annotated sketches, cross sectional, and exploded diagrams, generating design criteria	Order the main stages of making. and test before assembling products. Test switches in a simple series circuit	Select from and use materials and components, including construction materials and electrical components according to their functional properties and	Evaluate throughout and the final products against the intended purpose and with the intended user, drawing on the design criteria	Understand and use electrical systems in products.
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					aesthetic qualities.	previously agreed.	
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