

Herne Junior School

Design and Technology Curriculum Progression

Our high-quality design and technology curriculum is planned as a 4-year journey across the school and, using creativity and imagination, our 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. Our pupils learn how to be 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. 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.

By the end of Key Stage 2, through a variety of creative and practical activities, our pupils will have been taught the knowledge, understanding and skills needed to engage in the process of designing and making. They will have worked in a range of relevant contexts, for example, the home, school, leisure, culture, enterprise, industry and the wider environment.

Our pupils are taught to:	
Design	<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
Make	<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
Evaluate	<ul style="list-style-type: none"> • 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 <p>understand how key events and individuals in design and technology have helped shape the world</p>
Technical knowledge	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

Learning Objectives	Year 3	Year 4	Year 5	Year 6
Food	<p style="text-align: center;">PASTA SALADS:</p> <p><u>Developing, Planning and Communicating Ideas</u></p> <ul style="list-style-type: none"> Investigate similar products to the one to be made to give starting points for a design. Develop more than one design or adaption of an initial design. <p><u>Food</u></p> <ul style="list-style-type: none"> Develop sensory vocabulary/knowledge using smell, texture and feel. Analyse the taste, texture, smell and appearance of a range of foods. Follow instructions. Make healthy eating choices from and understanding of a balanced diet. Join and combine a range of ingredients e.g. snack food. Work safely and hygienically. Measure and weigh ingredients appropriately. <p><u>Evaluation</u></p> <ul style="list-style-type: none"> Identify the strengths and weaknesses of their design ideas. Decide which design idea to develop. 		<p style="text-align: center;">SOUTH DOWNS OMELETTE</p> <p><u>Developing, Planning and Communicating Ideas</u></p> <ul style="list-style-type: none"> Investigate products/images to collect ideas Sketch and model alternative ideas Develop one idea in depth Record ideas using annotated diagrams Use models, kits and drawings to help formulate design ideas Make prototypes Use found information to inform decisions Draw plans that can be read/ followed by someone else Give a report using correct technical vocabulary <p><u>Food</u></p> <ul style="list-style-type: none"> Prepare food products taking into account the properties of ingredients and sensory characteristics Select and prepare foods for a particular purpose Taste a range of ingredients/food items to develop a sensory food vocabulary for use when designing Weigh and measure using scales Cut and shape ingredients using appropriate tools and equipment e.g. grating Join and combine food ingredients appropriately e.g. beating, rubbing in...etc. Decorate appropriately Work safely and hygienically 	<p style="text-align: center;">MAYAN FLATBREADS</p> <p><u>Developing, Planning and Communicating Ideas</u></p> <ul style="list-style-type: none"> Investigate products/images to collect ideas. Sketch and model alternative ideas. Develop one idea in depth. Plan the sequence of work using a storyboard. Record ideas using annotated diagrams. Use found information to inform decisions. Use a computer to model packaging designs. Draw plans that can be read / followed by someone else. Give a report using correct technical vocabulary. <p><u>Food</u></p> <ul style="list-style-type: none"> Prepare food products taking into account the properties of ingredients and sensory characteristics. Select and prepare foods for a particular purpose. Taste a range of ingredients/food items to develop a sensory food vocabulary for use when designing. Weigh and measure using scales. Cut and shape ingredients using appropriate tools and equipment e.g. grating.

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	<ul style="list-style-type: none">• Use glue gun with close supervision (one to one). <p>Sheet Material</p> <ul style="list-style-type: none">• Cut slots. <p>Evaluation</p> <ul style="list-style-type: none">• Identify the strengths and weaknesses of their design ideas.• Consider and explain how the finished product could be improved.	<ul style="list-style-type: none">• Decide which design idea to develop.• Consider and explain how the finished product could be improved.• Discuss how the finished product meets the design criteria and how well it meets the needs of the user.		
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Learning Objectives	Year 3	Year 4	Year 5	Year 6
Textiles	<p style="text-align: center;">CHRISTMAS DECORATION</p> <p><u>Developing, Planning and Communicating Ideas</u> Think ahead about the order of their work and decide upon tools and materials. Plan a sequence of actions to make a product. Record the plan by drawing (labelled sketched) or writing. Add notes to drawings to help explanations.</p> <p><u>Textiles</u> Understand seam allowance. Join fabrics using running stitch, over sewing and back stitch. Use appropriate decoration techniques e.g. applique (glued or simple stitches). Create simple pattern.</p> <p><u>Evaluation</u> Identify the strengths and weaknesses of their design ideas. Consider and explain how the finished product could be improved.</p>	<p style="text-align: center;">MINI BEAST BOOKMARKS</p> <p><u>Developing, Planning and Communicating Ideas</u> Investigate similar products to the one to be made to give starting points for a design. Draw/sketch products to help analyse and understand how products are made. Think ahead about the order of their work and decide upon tools and materials. Plan a sequence of actions to make a product. Record the plan by drawing (labelled sketched) or writing. Develop more than one design or adaptation of an initial design. Propose realistic suggestions as to how they can achieve their design ideas.</p> <p><u>Textiles</u> Understand seam allowance Join fabrics using running stitch, over sewing and back stitch Explore fastening and recreate some e.g. sew on buttons and make loops Prototype a product using J cloths Use appropriate decoration techniques e.g. applique (glued or simple stitches) Create simple pattern</p> <p><u>Evaluation</u> Decide which design idea to develop. Consider and explain how the finished product could be improved. Discuss how the finished product meets the design criteria and how well it meets the needs of the user.</p>	<p style="text-align: center;">GREEK TAPESTRY</p> <p><u>Developing, Planning and Communicating Ideas</u></p> <ul style="list-style-type: none"> Investigate products/images to collect ideas. Sketch and model alternative ideas. Develop one idea in depth. Record ideas using annotated diagrams. Use models, kits and drawings to help formulate design ideas. Use found information to inform decisions. <p><u>Textiles</u></p> <ul style="list-style-type: none"> Create 3D products using pattern pieces and seam allowance. Understand pattern layout. Decorate textiles appropriately often before joining components. Pin and tack fabric pieces together. Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (under close supervision). Combine fabrics to create more useful properties. Make quality products. <p><u>Evaluation</u></p> <ul style="list-style-type: none"> Use the design criteria to inform their decisions about ways to proceed. Justify their decisions about materials and methods of construction. Reflect on their work using design criteria stating how well the design fits the needs of the user. Identify what does and does not work in the product. Make suggestions as how their design could be improved. 	<p style="text-align: center;">CHRISTMAS FINGER PUPPET</p> <p><u>Developing, Planning and Communicating ideas.</u></p> <ul style="list-style-type: none"> Investigate products/images to collect ideas. Sketch and model alternative ideas. Develop one idea in depth. Plan the sequence of work using a storyboard. Record ideas using annotated diagrams. Use found information to inform decisions. Draw plans that can be read / followed by someone else. <p><u>Textiles.</u></p> <ul style="list-style-type: none"> Create 3D products using pattern pieces and seam allowance. Understand pattern layout. Decorate textiles appropriately often before joining components. Pin and tack fabric pieces together. Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (under close supervision). Combine fabrics to create more useful properties. Make quality products. <p><u>Evaluation.</u></p>

Mechanical systems				<ul style="list-style-type: none"> • Use the design criteria to inform their decisions about ways to proceed. • Reflect on their work using design criteria stating how well the design fits the needs of the user. • Make suggestions as how their design could be improved.
			<p style="text-align: center;">MARS BUGGIES</p> <p><u>Developing, Planning and Communicating Ideas</u></p> <ul style="list-style-type: none"> • Investigate products/images to collect ideas • Sketch and model alternative ideas • Develop one idea in depth • Combine modelling and drawing to refine ideas • Record ideas using annotated diagrams • Use models, kits and drawings to help formulate design ideas • Use found information to inform decisions • Draw plans that can be read/followed by someone else • Give a report using correct technical vocabulary <p><u>Construction</u></p> <ul style="list-style-type: none"> • Use hand drill to drill tight and loose fit holes. • Cut strip wood, dowel, square section wood accurately to 1mm. • Join materials using appropriate methods. • Use a cam to make an up and down mechanism. • Build frameworks using a range of materials. 	

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			<ul style="list-style-type: none"> Use glue gun with close supervision. <p>Sheet Material</p> <ul style="list-style-type: none"> Cut slots. Cut accurately and safely to a marked line. Join and combine materials with temporary, fixed or moving joining. Use a craft knife, cutting mate and safety ruler under one to one supervision if appropriate. Choose an appropriate sheet material for the purpose. <p>Evaluation</p> <ul style="list-style-type: none"> Use the design criteria to inform their decisions about ways to proceed Justify their decisions about materials and methods of construction Reflect on their work using design criteria stating how well the design fits the needs of the user Identify what does and does not work in the product Make suggestions as how their design could be improved 	
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Learning Objectives	Year 3	Year 4	Year 5	Year 6
Electrical systems		<p style="text-align: center;">IMAGINARY WORLD CREATION</p> <p><u>Developing, Planning and Communicating Ideas</u> Record the plan by drawing (labelled sketched) or writing</p> <p><u>Construction</u> Incorporate a circuit with a light or motor into a model or apply understanding of computing to program, monitor and control electrical components using Crumble Create shell or frame structure Make structures more stable by giving them wide base</p> <p><u>Evaluation</u> Consider and explain how the finished product could be improved Discuss how the finished product meets the design criteria and how well it meets the needs of the user</p>		<p style="text-align: center;">CONTROLLABLE VEHICLES</p> <p><u>Developing, Planning and Communicating Ideas</u></p> <ul style="list-style-type: none"> • Record ideas using annotated diagrams • Use models, kits and drawings to help formulate design ideas • Use found information to inform decisions • Draw plans that can be read/followed by someone else • Give a report using correct technical vocabulary • Use a computer to model designs <p><u>Construction</u></p> <ul style="list-style-type: none"> • Use hand drill to drill tight and loose fit holes. • Cut strip wood, dowel, square section wood accurately to 1mm. • Join materials using appropriate methods. • Incorporate motor and switch into a model. • Build frameworks using a range of materials. • Use glue gun with close supervision. <p><u>Sheet Material</u></p> <ul style="list-style-type: none"> • Cut slots. • Cut accurately and safely to a marked line. • Join and combine materials with temporary, fixed or moving joining. • Use a craft knife, cutting mate and safety ruler under one to one supervision if appropriate. • Choose an appropriate sheet material for the purpose. <p><u>Evaluation</u></p> <ul style="list-style-type: none"> • Use the design criteria to inform their decisions about ways to proceed

				<ul style="list-style-type: none">• Justify their decisions about materials and methods of construction• Reflect on their work using design criteria stating how well the design fits the needs of the user• Identify what does and does not work in the product• Make suggestions as how their design could be improved
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