Haydock English Martyrs Key Skills Progression: Design Technology

Level expected at the End of Foundation Stage

• Uses simple tools to effect changes to materials.
• Handles tools, objects, construction and malleable materials safely and with increasing control.
• Shows a preference for a dominant hand
• Shows understanding of how to transport and store equipment safely.
• Practices some appropriate safety measures without direct supervision.

Key Stage 1 National Curriculum Expectations

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

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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 2 National Curriculum Expectations

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

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- 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.

Intent

To build a Design Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more.

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To design a design technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design Technology Programmes of study, to fulfil the duties of the NC whereby schools must provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life

Implementation

- Clear and comprehensive scheme of work in line with the National Curriculum.
  The Design Technology National Curriculum and EYFS is planned for and covered in full within the EYFS, KS1 and KS2 school curriculum. Whilst the EYFS and National Curriculum forms the foundation of our curriculum, we make sure that children learn additional skills, knowledge and understanding and enhance our curriculum as and when necessary.
- Language - The promotion of a language rich Design Technology curriculum is essential to the successful acquisition of knowledge and understanding in Design Technology. The promotion and use of an accurate and rich vocabulary throughout school is planned in Design Technology.
- Knowledge Organisers - Children have access to key knowledge, language and meanings to understand Design Technology and to use these skills across the curriculum.
- Independent learning: In design technology, children may well be asked to solve problems and develop their learning independently. This allows the children to have ownership over their curriculum and lead their own learning in Design Technology.
- Basic skills -English, Maths and ICT skills are taught during discrete lessons but are revisited in Design Technology so children can apply and embed the skills they have learnt in a purposeful context.
- Enhancement - We plan termly visits, visitors and involvement in the community activity to provide first-hand experiences for the children to support and develop their learning. This can be linked to Design Technology (please see cultural capital overview). We recognise that to have impact planned cultural capital must be clearly linked to the statutory design technology skills and knowledge to be acquired and provide the opportunity for children to better understand the knowledge or apply what they already know.

Impact

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- Children will know more, remember more and understand more about Design Technology.
- The large majority of children will achieve age related expectations in Design Technology.
- As designers children will develop skills and attributes they can use beyond school and into adulthood

Skills	KS1		LKS2		UKS2	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Developing, planning and communicating ideas	Begin to draw on their own experience to help generate ideas and research conducted on criteria. Begin to understand the development of existing products: What they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do.	Start to generate ideas by drawing on their own and other people's experiences. Begin to develop their design ideas through discussion, observation, drawing and modelling. Identify a purpose for what they intend to design and make. Understand how to identify a target group for what they intend to design and	With growing confidence generate ideas for an item, considering its purpose and the user/s. Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product. Understand how well products have been designed, made, what materials have been used and the construction technique.	Start to generate ideas, considering the purposes for which they are designing link with Mathematics and Science. Confidently make labelled drawings from different views showing specific features. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative	Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Begin to use research and develop design criteria to inform the design of innovative, functional,	Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Use research and develop design criteria to inform the design of innovative, functional,

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	Understand how to identify a target group for what they intend to design and make based on a design criterion. Begin to develop their ideas through talk and drawings. Make templates and mock ups of their ideas in card and paper or using ICT.	make based on a design criterion. Develop their ideas through talk and drawings and label parts. Make templates and mock ups of their ideas in card and paper or using ICT.	Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. Start to understand whether products can be recycled or reused. Know to make drawings with labels when designing. When planning explain their choice of materials and components including function and aesthetics	methods of making, if the first attempts fail. Identify the strengths and areas for development in their ideas and products. When planning, consider the views of others, including intended users, to improve their work. Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground -breaking products. When planning explain their choice of materials and components according to function and aesthetic.	appealing products that are fit for purpose. With growing confidence apply a range of finishing techniques, including those from art and design. Draw up a specification for their design- link with Mathematics and Science. Use results of investigations, information sources, including ICT when developing design ideas. With growing confidence select appropriate	appealing products that are fit for purpose. Accurately apply a range of finishing techniques, including those from art and design. Draw up a specification for their design- link with Mathematics and Science. Plan the order of their work, choosing appropriate materials, tools and techniques. Suggest alternative methods of

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					materials, tools and techniques. Start to understand how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose	making if the first attempts fail. Identify the strengths and areas for development in their ideas and products. Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.
Working with tools, equipment, materials and components to make quality products	Begin to make their design using appropriate techniques. Begin to build structures, exploring how they can be made	Begin to select tools and materials; use correct vocabulary to name and describe them. Build structures, exploring how they can be made	Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components.	Select a wider range of tools and techniques for making their product safely. Know how to measure, mark out, cut and shape a range	Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately.	Confidently select appropriate tools, materials, components and techniques and use them.

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	stronger, stiffer and more stable. Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. With help measure, mark out, cut and shape a range of materials. Explore using tools e.g. scissors and a hole punch safely. Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape.	stronger, stiffer and more stable. With help measure, cut and score with some accuracy. Learn to use hand tools safely and appropriately. Start to assemble, join and combine materials in order to make a product. Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques. Start to choose and use appropriate finishing techniques based on own ideas	Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Start to understand that mechanical and electrical systems have an input, process and output. Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement. Know how simple electrical circuits and components can be used to create functional products. Measure, mark out, cut, score and assemble components with more accuracy.	of materials, using appropriate tools, equipment and techniques. Start to join and combine materials and components accurately in temporary and permanent ways. Know how mechanical systems such as cams or pulleys or gears create movement. Understand how more complex electrical circuits and components can be used to create functional products. Continue to learn how to program a computer to monitor changes in the environment and	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. Understand how mechanical systems such as cams or pulleys or gears create movement. Know how more complex electrical circuits and components can be used to create functional products and	Use tools safely and accurately. Assemble components to make working models. Aim to make and to achieve a quality product. With confidence pin, sew and stitch materials together to create a product. Demonstrate when make modifications as they go along. Construct products using

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	Begin to use simple finishing techniques to improve the appearance of their product		Start to work safely and accurately with a range of simple tools. Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. Start to measure, tape or pin, cut and join fabric with some accuracy.	control their products. Understand how to reinforce and strengthen a 3D framework. Now sew using a range of different stitches, to weave and knit. Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy. Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT	how to program a computer to monitor changes in the environment and control their products. Understand that mechanical and electrical systems have an input, process and output. Begin to measure and mark out more accurately. Demonstrate how to use skills in using different tools and equipment safely and accurately with growing confidence cut and join with accuracy to	permanent joining techniques. Understand how mechanical systems such as cams or pulleys or gears create movement. Know how more components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products. Know how to reinforce and

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					ensure a good - quality finish to the product. Weigh and measure accurately (time, dry ingredients, liquids). Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.	strengthen a 3D framework. Understand that mechanical and electrical systems have an input, process and output. Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT
Evaluating processes and products	Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria).	Evaluate their work against their design criteria. Look at a range of existing products explain what they like and dislike	Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose Begin to disassemble and evaluate familiar products and consider	Evaluate their products carrying out appropriate tests. Start to evaluate their work both during and at the end of the assignment.	Start to evaluate a product against the original design specification and by carrying out tests.	Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.

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	When looking at existing products explain what they like and dislike about products and why. Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.	about products and why. Start to evaluate their products as they are developed, identifying strengths and possible changes they might make. With confidence talk about their ideas, saying what they like and dislike about them	the views of others to improve them. Evaluate the key designs of individuals in design and technology has helped shape the world.	Be able to disassemble and evaluate familiar products and consider the views of others to improve them. Evaluate the key designs of individuals in design and technology has helped shape the world.	Evaluate their work both during and at the end of the assignment. Begin to evaluate it personally and seek evaluation from others. Evaluate the key designs of individuals in design and technology has helped shape the world.	Evaluate their work both during and at the end of the assignment. Record their evaluations using drawings with labels. Evaluate against their original criteria and suggest ways that their product could be improved. Evaluate the key designs of individuals in design and technology has helped shape the world.
Food and Nutrition	Begin to understand that all food comes from plants or animals.	Understand that all food comes from plants or animals.	Start to know that food is grown (such as tomatoes, wheat and potatoes), reared (such	Understand that food is grown (such as tomatoes, wheat and potatoes), reared	Understand that food is grown (such as tomatoes, wheat	Know that food is grown (such as tomatoes, wheat and

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	Explore the understanding that food has to be farmed, grown elsewhere (e.g. home) or caught. Start to understand how to name and sort foods into the five groups in 'The Eat well plate' Begin to understand that everyone should eat at least five portions of fruit and vegetables every day. Know how to prepare simple dishes safely and hygienically, without using a heat source. Know how to use techniques such as	Know that food has to be farmed, grown elsewhere (e.g. home) or caught. Understand how to name and sort foods into the five groups in 'The Eat well plate' Know that everyone should eat at least five portions of fruit and vegetables every day. Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source. Demonstrate how to use techniques such as cutting, peeling and grating.	as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Start to understand that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate'	(such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know that a healthy diet is made up from a variety and balance of different food and	and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Begin to understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where	potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically

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	cutting, peeling and grating.		Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.	drink, as depicted in 'The Eat well plate' Know that to be active and healthy, food and drink are needed to provide energy for the body.	appropriate, the use of a heat source. Start to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.	including, where appropriate, the use of a heat source. Understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know different food and drink contain different substances – nutrients, water and fibre – that are needed for health.