Hallaton CE Primary School – The Big Picture – Design & Technology

Our Over-arching Intent	That every child grows and flourishes through enjoying learning and has access to a rich, rounded, connected, coherent and progressive curriculum				
Aims of our Curriculum – by the end of their time with us at Hallaton we aim…	To develop successful, engaged children, who enjoy learning and who are knowledgeable and skilled, make progress and achieve to their highest potential	To develop independent, confident, articulate individuals, who can lead safe, healthy and fulfilling lives in the communities in which they live now and in the future	To develop responsible, happy citizens of the world who have the capacity to make positive contributions to society		
Core School Value	**Learn, Grow, Flourish**				
Learning Powers	**Be Responsible**	**Be Respectful**	**Be Resilient**	**Be Reflective**	**Be Remarkable**

The Intrinsic Core of D&T – our Intent – what we seek to achieve for in our children as developing citizens.	Develop the creative and practical expertise needed to design high-quality prototypes and products for a wide range of users.	To develop the technical and practical expertise needed to make high-quality prototypes and products for a wide range of users.	To critique, evaluate and test their ideas and products and the work of others.	To build and apply a repertoire of knowledge in order to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
We will develop the knowledge and skills that children need to succeed	**Develop children's vocabulary acquisition and oracy skills so that they can articulate their thoughts both verbally and in written form, in order to communicate effectively in a range of situations.**		**Provide opportunities for children to be exposed to a wide variety of cultures, topics, themes and points of view to counter-balance the lack of diversity in our local demographic at our largely white British school, in order to prepare them for life in modern Britain.**	

How we organise learning in D&T, through the development of Big Ideas

Explore and Investigate Whole School Big Ideas

Structures

Materials have both functional and aesthetic properties and these are important to consider when designing and making a product:

- Build structures, exploring how they can be made stronger, stiffer and more stable.
- Recognise areas of weakness through trial and error. Understand material selection and learn methods to reinforce structures.

Mechanisms

Natural movements can be mimicked using mechanisms with our designs:

- Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs.
- Recognise where mechanisms such as these exist in toys and other familiar products.
- Extend pupils understanding of individual mechanisms, to form part of a functional system, for example: automata that use a combination of cams, followers, axles/shaft, cranks and toppers.

Textiles

Fabric techniques can be functional or decorative and these are important to consider when designing and making a product:

- Explore different methods of joining fabrics including running stitch, cross-stitch, blanket stitch and appliqué.
- Experiment to determine the pros and cons of each technique. Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types, including their: strength, appropriate use, and design.

Cooking and Nutrition

Understand and apply the principles of nutrition and learn how to cook.

- Learn about the basic rules of a healthy and varied diet to create dishes.
- Understand where food comes from, for example plants and animals.
- Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods.
- Understand what is meant by seasonal foods.
- Know where and how ingredients are sourced.

The Big Ideas are developed through the understanding of Key Themes or Schema, developed from EYFS to Year 6

Explore and Investigate Key Themes (Schema)	Design	Make	Evaluate	Technical Knowledge
	• Research products and user requirements. • Use design criteria (e.g. tailoring to an audience/user). • Generate ideas (e.g. annotated sketches, cross-section diagrams). Develop ideas (e.g. templates, pattern pieces). • Use models and prototypes (both virtual and physical) to inform design. • Create innovative, fit-for-purpose and functional product solutions to design problems.	• Select and use appropriate tools and equipment. • Understand and select materials and components (including ingredients) based on their aesthetic and functional properties. • Carry out practical tasks with increasing accuracy and precision. Understand the importance of, and follow the health and safety rules.	• Explore existing products. Evaluate against a list of design criteria. • Evaluate, investigate and analyse existing products. • Evaluate their own and others' ideas. • Understand how key events and individuals have helped to shape the world of D&T. • Consider feedback to make improvements.	• Each stage of the design process (design, make, evaluate) is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding, required for each strand.

Implementation: How do we deliver our Curriculum?

Progression	**Progression in Learning from Reception to Year 6 is outlined in our D&T Overview and End Points document.**
Early Years	Children's development will be supported as they make sense of their physical world and their community through a variety of activities and experiences that reflect upon the Characteristics of Effective Teaching and Learning, including opportunities to explore, observe and find out about people, places, technology and the environment. A full outline of the EYFS specifically linked to DT can be found in our DT Overview and End Points document

EYFS themes

	Structures: Junk modelling	**Textiles: Bookmarks** Introduce running stitch and use to join fabrics. Decorate a Bookmark using weaving and running stitch.	**Structures: Boats** (Under the Sea Topic)	**Cooking & Nutrition: Design a rainbow salad**

Key Stage 1 - Year 1 & Year 2

Big Ideas – Planned Progression of Components for Key Stage One	**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.

Key Stage One Disciplinary Knowledge - In the context of…	Year 1/2 (Year A – 2025-6)	Year 1/2 (Year B - 2024-5)
	Mechanisms: Moving Story Book - Explore an existing product. - Draw a simple design. - Make a story page which has at least one moving mechanism. - Start to understand what design criteria are used for. - Evaluate what they did well on their product. **Space Moving Picture** **Textiles: Hand Puppets** (e.g. Dragon/Knight, Castles) - Design, make and decorate a puppet using a template. - Join fabrics together using pins, staples or glue. **Structures: Constructing a Lighthouse** (Eco link with sea wind farms) - Design, decorate and build a lighthouse - Develop understanding of different types of lighthouses, how they work and their key features. - Use an axel in their design **Cooking and nutrition: Smoothies** (DT Day cross curricula PSHCE) - Describe fruits and vegetables and explain how to identify fruits. - Name a range of places that fruits and vegetables grow. - Chop and cut fruits and vegetables to make a smoothie.	**Mechanisms: Wheels and Axles** (Fire engines, Fire, Fire) - Understand how wheels move and what stops them from turning. - Design and build a moving vehicle. **Textiles: A Mother's Day/Easter gift** To use textiles to create a suitable Mother's Day/Easter present, joining materials. Running and over stitch **Mechanisms: Fairground Wheel** - Design and create their own Ferris wheels, considering how the different components fit together so that their wheels rotate and their structures stand freely. - - Select appropriate materials and develop their cutting and joining skills to create a final product. **Food and Nutrition: A Balanced Diet** (Cross Curricula – Japan Topic and Science) - Explore what makes a balanced diet and learn about the term 'hidden sugars'. - Taste test food combinations of different food groups. - Make sushi that includes a healthy mix of protein, vegetables and carbohydrate.

Lower Key Stage 2 - Year 3 & Year 4

Big Ideas – Planned Progression of Components for Lower Key Stage Two		
	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 growing range of tools and equipment to perform practical tasks, for example, cutting, shaping, joining and finishing, with increasing accuracy. Select from and use a growing range of materials and components, including construction materials, textiles and ingredients, beginning to consider 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. 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. Begin to understand and use mechanical systems in their products, for example, gears, pulleys, cams, levers and linkages. Begin to understand and use electrical systems in their products, for example, series circuits and bulbs. Begin to apply their understanding of computing to program, monitor and control their products.

Lower Key Stage Two Disciplinary Knowledge - In the context of…	Year 3/4 (Year A – 2025-6)	Year 3/4 (Year B – 2024-5)
	Cooking and Nutrition: **Design a Chocolate Bar** (Changing States and The Mayans; Links to science, History and English. Cadbury's World trip) - Writing a recipe - Advert - Packaging - 3D prototypes **Mechanisms: Sling shot car** - Attempt to reduce air resistance through the design of a suitable shape. - Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. - Construct car bodies effectively. - Conduct a trial accurately and draw conclusions and improvements from the results **Textiles: Book sleeve** (World Book Day) - Identify the features, benefits and disadvantages of a range of fastening types. - Design and create a template for a book sleeve. - Assemble their book sleeve using any stitch or joining technique they are comfortable with and choose fastening.	**Mechanisms: Pneumatic Toys** - Design and create a toy with a pneumatic system, learning how trapped air can be used to create a product with moving parts. - Introduce thumbnail sketches and exploded diagrams. **Structures: Constructing a Pyramid Puzzle Toy** (Ancient Egypt) - Combine multiple shapes (2D and 3D) to form a strong and stable structure. - Construct 3D shapes from nets. - Design and construct a pyramid puzzle toy then evaluate the final product. **Textiles: Cushions** (Incredible India) - Introduce cross-stitch and appliqué. - Apply this knowledge to the design, decoration and assembly of their own cushions.

Upper Key Stage 2 - Year 5 & Year 6

Big Ideas – Planned Progression of Components for Upper Key Stage Two		
	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.

Upper Key Stage Two Disciplinary Knowledge - In the context of…	Year 5/6 (Year A – 2025-6)	Year 5/6 (Year B – 2024-5)
	Cooking and Nutrition: Come Dine with Me (Fair Trade Fortnight) - Follow a recipe, including using the correct quantities of each ingredient. - Explain where certain key foods come from before they appear on the supermarket shelf. **Textiles: Christmas Decorations** - Use a template to mark and cut out a design. - Use a running stitch to join fabric to make a decoration to sell. - Attach a secure fastening, as well as decorative objects. **Structures: Eco House** (Local Community Project) - Learn about different types of buildings and explore how the strength of structures can be affected by the shapes used. - Design their own Eco House. - use Tinkercad to create plans (3D CAD skills) **Structures: Viking Longships** - Planning, designing and creating 3D Viking longships out of a variety of materials and testing buoyancy.	**Structures: Bridges** (Victorians – Isambard Kingdom Brunel, Civil engineer) - Develop understanding of secure structures and introduce to skills for measuring, sawing and joining wood accurately. - Learn about different types of bridges and explore how the strength of structures can be affected by the shapes used. - Create own wooden bridge and test its durability. Introduce to skills for measuring, sawing and joining wood accurately. **Cooking and Nutrition: Healthy Savoury recipe** (North America) - Focusing on nutrition and what constitutes a healthy, balanced diet, research and modify a traditional North American savoury recipe to make it healthier. - Cook their new and improved versions (ensuring appropriate food hygiene and health and safety standards), conduct taste-tests and score their food. **Mechanisms: Pop-Up Book** (Coast) - Making mechanisms and/or structures using sliders, pivots and folds to produce movement.

Impact	Most children achieve the expected End Point Milestones for DT		
	Children become…		
	Reflective, engaged learners who enjoy learning and who are knowledgeable and skilled, make progress and show how **remarkable** they are.	**Resilient**, articulate, independent individuals, who can lead safe, healthy and fulfilling lives in the communities in which they live now and in the future.	**Responsible** and **respectful** citizens of the world who have the capacity to make positive contributions to society.