

Design Technology

INTENT – To what do we aspire for our children?
- Vision - Design - Aspirations for our curriculum

Our Vision

‘We are a Family of Friends who LEARN together.’

Our Goal

Our vision for excellence within our design and technology curriculum is created in line with the National Curriculum Purpose of Study and aims to provide:




- a high-quality design technology education that will help pupils to gain a coherent knowledge and understanding of how functional products are designed and made within the real world
- a curriculum that inspires pupil’s curiosity to know more about how the everyday items that they use are made
- teaching that will equip pupils to think critically and innovatively when making design choices
- a learning journey that helps pupils to understand why products are made for specific target audiences, the processes involved in the making of a product and how an evaluation can contribute to the improvement of a product

Our intention is to:

- engage, inspire, motivate, support and challenge
- ensure our learners progress academically and become more expert as they progress through the curriculum
- develop successful, informed, engaged, thoughtful, confident learners, who make a positive contribution to the community and society – both now and in the future

Our Values & Curriculum Drivers

At Hove Learning Federation, design technology is driven by the following values:

	<p>Love of Learning</p>	<ul style="list-style-type: none"> • Inspire children’s curiosity about how everyday items are designed and made • Encourage children’s ability to think critically about existing products and implement their findings during the design stage • Encourage innovative thinking that is inspired by the products that are explored • Embrace the creativity involved in designing and making their own product • Develop children’s skills in carrying out practical tasks such as cutting, shaping, joining and finishing • Promote children’s enjoyment of experimenting with flavours and textures in food • Establish children’s understanding of the processes involved in designing and making a product • Introduce children to a range of jobs and professions that involve design technology • Support children to learn about designers and inventors who have shaped our world
	<p>Equality, Diversity & Inclusion</p>	<ul style="list-style-type: none"> • Encourage all children to see themselves as designers and inventors • Celebrate the differences in children’s ideas and unique designs • Promote children’s awareness of how different success can look
	<p>Aiming High</p>	<ul style="list-style-type: none"> • Encourage children to ask how and why questions when exploring existing products • Develop children’s critical thinking about existing products and designs • Support children to evaluate the effectiveness of existing products to inform their own designs • Inspire children’s creativity and innovation within their own designs and make

	<p>Respect and Well-being</p>	<ul style="list-style-type: none"> • Encourage children to respect each other's ideas, designs and finished products • Promote children's understanding of the hard work and long processes that have gone into making the simple things that they use each day, including buildings • Promote children's understanding about how food and drink can impact well-being
	<p>Nurture and Citizenship</p>	<ul style="list-style-type: none"> • Encourage children to consider how products have been made and whether or not they are eco-friendly • Develop children's awareness of how certain designs and inventions have impacted our way of life

Our Curriculum Design
Meet the needs of every child across the whole curriculum









Equity	Inclusion	Learning Behaviours	Personal Development	Skills	Knowledge and Understanding	Creative and critical thinking	Cultural Capital
<p>Equality of opportunity. All children to succeed no matter their entry point.</p>	<p>Every child, whatever their individual abilities or needs, is equally valued.</p>	<p>Attitudes and attributes for learning and life.</p>	<p>Equip children to become global citizens, who live happy and healthy lives and know how to achieve their goals.</p>	<p>Curriculum mapped to include the subject specific skills required to attain and excel. Children develop learning to learn skills such as metacognition.</p>	<p>Deep learning of the key concepts of our curriculum and the National Curriculum.</p>	<p>Both are nurtured. Children are challenged to question, reason and express themselves.</p>	<p>Is a golden thread, woven through everything we do to teach children well?</p>

Learning Characteristics Animals

Underpinning Hove Learning Federation's curriculum are our learning characteristic's animals:

Independence	Perseverance	Curiosity	Imagination	Co-operation

Design Technology Long Term Sequence Features

Sequencing	Small Steps	Spiral	Long Term Memory	Making New Links	Cognitive Load	Key Concepts	Substantive and Disciplinary Knowledge
							
<p>Our curriculum design deliberately sequences units of learning from EYFS to Year 6 to ensure children develop their skills in designing and making and increase their knowledge in the various areas of design technology through a variety of creative and practical activities.</p>	<p>Learning is chunked into small steps that allow children to build knowledge and deepen understanding lesson to lesson, unit to unit and year to year.</p>	<p>The spiral design of our curriculum means children will return to key learning points and concepts. For example, when working with food, children revisit the idea of a healthy diet year upon year and gradually build on their understanding, starting with what foods we should only eat sometimes and gradually working towards an understanding of what each food type does for our bodies.</p>	<p>The progression of knowledge in design technology has been clearly mapped across each year group to ensure children will transfer new learning to long term memory. The ultimate goal is to make the learning stick!</p>	<p>The acquisition of knowledge into long term memory means that children are able to make links with new learning more easily. Our curriculum overview shows how new learning is carefully imparted over time.</p>	<p>Our long-term sequence for design technology reduces cognitive load by mapping out opportunities for children to review learning from previous units and years. All staff are aware of the units and lessons covered in previous years in order to refer back.</p>	<p>Children develop knowledge about key concepts in design technology which allow them to create their own products from start to finish. They will develop a strong understanding of the process involved in the designing and making of products that we use every day.</p>	<p><u>Substantive Knowledge</u> The subject knowledge and explicit vocabulary used to learn about the content.</p> <p><u>Disciplinary Knowledge</u> The knowledge about how designers, inventors, architects and other product creators go from an idea to a finished product. It is through disciplinary knowledge that children become able to think like a designer.</p>

Purpose of the Sequence Progression

Our curriculum is sequenced in line with the EYFS Statutory Framework (2021), Development Matters (2021) and the National Curriculum for Design Technology (2013).

Why do we have a long-term sequence? What is its purpose?

- It is our intention for children to deepen their knowledge and understanding in design technology over time through thoughtfully sequenced exposure to a progression of substantive and disciplinary knowledge.
- Our spiral curriculum is designed on the principles of instruction and is influenced by our understanding of how the memory works and cognitive load theory.
- Research shows that this will ensure knowledge is transferred to long term memory and making links with new learning is more accessible.

EYFS:

In Early Years, our children are guided through opportunities to express their ideas and feelings. They will be encouraged to explore the things around them to inspire their own making and will be able to safely use and explore a variety of materials, tools and techniques through free play. They will begin to develop an understanding of our technologically diverse world.

KS1:

The sequence in KS1 guides children to understand how and why certain products are made and what things are considered in the process of designing and making, including the purpose. This will underpin their understanding of how everyday objects that we used are made.

In food, children will start by making a fruit salad and considering why we must all eat our 'five a day'. They will then go on to make a sandwich, thinking more closely about where food originates from and what happens to it before we eat it.

Their knowledge of healthy eating will be further developed later on when they make pizza for a picnic. Within this unit, they will name and sort foods into the five groups and will use the 'Eat Well' guide to design and prepare a balanced dish.

In mechanics, children will begin by making a moving dragon, thinking about how movement can be created with sliders. They will then move onto making movement with a simple lever when designing and creating a superhero card with a moving element. As well as this, they will create a spinning motion, first with a windmill and second with a moon buggy. They will progress to learning about how an axle impacts the movement of the wheel.

In textiles, children will first design and make their own hand puppet, learning how to cut, shape and join fabrics. They will later move onto using more complex stitches and will create their own sunglasses case after making a mock-up with paper.

In construction, children will make various structures, considering how to make these strong and stable. Firstly, they will make a model castle, using their understanding of appropriate materials and tools for cutting, assembling and measuring.

Lower KS2:

In lower KS2, children will get to grips with the process involved in designing and creating a new product.

They will further their skills and understanding across the different areas of design technology and learn about some jobs that are associated with design technology.

In food, children will make oatcakes and look into what processes food goes through before we eat it. They will then move onto making bread, focusing more closely on how a healthy and varied diet can be created.

In mechanics, children will create pop-up books using more complicated levers and linkages. They will later experiment with making their own innovative pulley systems to lift heavy objects.

In construction, children will design and make Roman temples, looking closely at how to create a strong frame structure.

In computing, children will explore how to create their own Mayan buildings using computer software.

In electronics, children will create their own light up signs using complete circuits and will build their own switches.

Upper KS2:

In upper KS2, children will gain a strengthened understanding of the process involved in designing and creating a new product. They will deepen their skills and understanding across the different areas of design technology and learn more about jobs and specific figures in the design technology world.

In food, children will make apple pies and will learn about seasonality, as well as how to safely store food.

In mechanics, children will use CAMS to create a rotary motion within their own fairground rides.

In textiles, children will start by making a sturdy, functional money container with various fasteners. They will then go on to create their own T-Shirt bag, looking more closely at using embellishments to alter the aesthetics.

In construction, children will learn more about how to make a sturdy shell structure whilst designing and building their own Anderson shelters.

HLF Design Technology Long Term Plan

Our curriculum starts in EYFS and ends in Y6. Our long-term plans include the unit, concept question and small step, lesson by lesson progression.

	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
	Bears, Bears, Bears!	Wonderful & Wild!	To infinity and beyond!	Portals Through the Ages	The Roamin' Romans	Brighton Rocks!	A Great American Road Trip
AU1	Unit ?	Make fruit salad (Food)	Design and make a moon buggy (Mechanics)	Make oat cakes (Food)	Make bread for a Roman banquet (Food)	Design and make a fairground ride using CAMS (Mechanics)	Make apple pie (Food)
	CQ ?	What makes a healthy and varied diet?	How are wheels and axles used to create movement?	What processes do ingredients go through before we eat them?	How can we make sure our diet is healthy and varied?	How are CAMS used to create movement?	Why is some food not available at certain times of the year? How do we safely store food?
	Steps			1) Looking at where food comes from 2) Tasting other oat cakes 3) Planning oat cakes 4) Making oatcakes 5) Evaluating the finished product	1) Looking at a balanced diet and what the Romans ate 2) Planning bread 3) Making bread 4) Designing a banquet menu 5) Evaluating the finished product	1) Looking at different fairground rides on the Brighton Pier 2) Looking at what CAMS are and how they work 3) Designing a fairground ride using CAMS 4) Making a fairground ride 5) Evaluating the finished product	1) Looking at a balanced diet and how to safely store food 2) Planning a recipe and ordering ingredients 3) Making an apple pie 4) Evaluating the finished product
	Bears, Bears, Bears!	Wonderful & Wild!	Heroes and Villains	Portals Through the Ages	The Roamin' Romans	Brighton Rocks!	A Great American Road Trip
AU2	Unit ?	Make a sandwich (Food)	Design and make a superhero card (Mechanics)				
	CQ ?	Where does food come from?	What are the parts of a lever?				
	Steps						
	The Secret Garden	Into the Jungle	Trash to Treasure	Vicious Vikings?	The Mighty and Mysterious Maya	A World At War	
SP1	Unit Design and make an emergency vehicle (Construction)	Design and make a moving dragon (Mechanics)		Design and make pop up books (Mechanics)	Design and make flag poles (Mechanics)	Design a Mayan building using CAD (Computing)	Design and make Anderson shelters (Construction)
	CQ How can different materials be joined?	How are sliders used to create movement?		How are levers and linkages used to create movement?	How are pulleys used to create movement?	How is CAD (computer aided design) used to create buildings?	How is a strong shell structure built?
	Steps			1) Looking at other pop-up books and how they work 2) Practising skills for making a pop-up book 3) Designing a pop-up book 4) Making a pop-up book 5) Evaluating the finished product	1) Looking at pulleys in the real world and how they work 2) Exploring materials to make a pulley 3) Designing a flag pole with a pulley 4) Making a flag pole 5) Evaluating the finished product	1) Looking at buildings in ancient Maya and the shapes etc. 2) Exploring 2D Design tools 3) Designing a Mayan building 4) Creating a Mayan building on 2D Design 5) Evaluating the finished product	1) Looking at Anderson shelters and what made them so strong 2) Designing an Anderson shelter 3) Making a prototype structure 4) Making the Anderson shelter 5) Evaluating the finished product
	The Secret Garden	Into the Jungle	Trash to Treasure	Vicious Vikings?	The Mighty and Mysterious Maya	A World At War	
SP2	Unit Explore textiles through countries (Textiles)	Design and make a castle (Construction)	Design and make rainforest instruments (Construction)				
	CQ What different fabrics and textiles can be found around the world?	How are castles designed and built?	How is sound created through instruments?				
	Steps						
	Castles and Caves	Beside the Seaside!	Roamin' Romans	Walk Like An Egyptian	The Groovy Greeks	The Windrush Generation	
S1	Unit Make a Gingerbread Man (Food)	Design and make a secret garden windmill (Mechanics)	Make a pizza for a picnic (Food)	Design and make a Roman temple (Construction)	Design and make a light up sign (Electronics)	Design and make a money container (Textiles)	Design and make a bag using an old T-Shirt (Textiles)
	CQ What are healthy foods?	How do windmill sails spin?	How can a variety be used for a meal?	How is a strong frame structure built?	How do light up signs work?	How can different fabrics and stitches make a product sturdier?	How can textiles be used to change the aesthetics of a product?
	Steps			1) Looking at Roman architecture 2) Practising skills for making frames 3) Designing a temple 4) Making a temple 5) Evaluating the finished product	1) Looking at light up signs 2) Practising making circuits 3) Designing a light up sign 4) Making a light up sign 5) Evaluating the finished product	1) Looking at money containers 2) Designing a money container 3) Making a prototype container 4) Practising stitches 5) Making a money container 6) Evaluating the finished product	1) Looking at bag designs 2) Practising embellishment techniques 3) Designing a bag 4) Making a bag 5) Evaluating the finished product
	Castles and Caves	Beside the Seaside!	Roamin' Romans	Walk Like An Egyptian	The Groovy Greeks	The Windrush Generation	
S2	Unit ?	Design and make an animal puppet (Textiles)	Design and make a sunglasses case (Textiles)				
	CQ ?	How are fabrics joined?	What different ways can fabrics be opened and closed?				
	Steps						

HLF Subject Progression Ladders

Our Subject Leads created our Subject Progression Ladders to ensure the National Curriculum is taught step by step. They illustrate the progression of skills, knowledge and vocabulary taught through EYFS, Key Stage 1 and Key Stage 2.

Breaking down the National Curriculum objectives allows our teachers to plan for progression and provide all of our learners with the small steps they need. Identifying knowledge and skill progression in this way enables our teachers to plan an ambitious and effective spiral curriculum through the key stages which results in long term learning.

Subject and Year Leads use the Subject Progression Ladders to design and plan assessments and for monitoring.

They illustrate the progression of skills, knowledge and vocabulary taught through EYFS, Key Stage 1 and Key Stage 2.

Plain text = Curriculum Expectations (please **DO NOT** change or delete these), *Italic* = Additional WHIS/HIS

Year R (Creating with Materials, Being Imaginative & Expressive)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Nursery	Reception							
Design	<p>By the end of Reception: Through a variety of creative and practical activities, pupils should be taught how to express their ideas and feelings.</p> <p>Explore different materials freely.</p> <p>Develop his/her own ideas and decide which materials to use to express them.</p> <p>Return to and build on his/her previous learning, refining ideas and developing his/her ability to represent them.</p> <p>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</p> <p>(ELG)</p>		<p>By the end of Year 2: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing.</p> <p>They should work in a range of relevant contexts. Children design purposeful, functional, appealing products for themselves and other users based on design criteria. They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p>		<p>By the end of Year 6: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing.</p> <p>They should work in a range of relevant contexts.</p> <p>Children 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.</p> <p>They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p>			
		Understand and follow simple design criteria.	Develop and follow simple design criteria.	Develop and follow simple design criteria.				
		Use their knowledge of existing products and their own experience to help generate their ideas.	Use their knowledge of a broad range of existing products to help generate their ideas.	Use their knowledge of a broad range of existing products to help generate their ideas.				
		Design products that have a purpose and are aimed at an intended user.	Design innovative and appealing products that have a clear purpose and are aimed at a specific user.	Design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user.				
			Identify the design features of their products that will appeal to intended customers.	Use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market.				
			When designing, explore different initial ideas before coming up with a final design.	Generate a range of design ideas and clearly communicate final designs.				
			Plan and test ideas using templates and mock-ups. <i>(Y1: moving dragons, windmills, puppets)</i> <i>(Y2: moon buggies, superheroes, sunglasses case)</i>	Test ideas out through using prototypes. <i>(Y3: pop-up books, Roman temples)</i> <i>(Y4: flag poles)</i>	Test ideas out through using prototypes. <i>(Y5: fairground rides, money containers)</i> <i>(Y6: Anderson shelters)</i>			
			Explain how particular parts of their products work.	Explain how particular parts of their products work.				
			Use annotated sketches and cross-sectional drawings to develop and communicate their ideas.	Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas.				
			When planning, start to explain their choice of materials and components including function and aesthetics.	Consider the availability and <i>costings</i> of resources when planning out designs. <i>(Y6: apple pie ingredients)</i>				
		Use computer-aided design to develop and communicate their ideas. <i>(Y5: Mayan buildings)</i>						
	Work in a range of relevant contexts, for example imaginary, story-based, home, school and the wider environment.	Work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.	Work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.					
Vocabulary	idea, design, materials, use	idea, design, plan, materials, product, purpose, use, function, test	design brief, design criteria, innovative, functional, appealing, purpose, user, annotated, prototype, aesthetic qualities					

Make	<p>By the end of Reception: Through a variety of creative and practical activities, pupils should be taught how to safely use and explore a variety of materials, tools and techniques.</p> <p>Begin to create, exploring shape and texture with modelling materials.</p> <p>Begin to manipulate materials to achieve a planned effect.</p> <p>Explore a variety of techniques.</p> <p>Practice using small tools, including scissors and paint brushes.</p> <p>With support from adults, develop proficiency, control and confidence.</p> <p>Measure using non-standard units of measurement.</p> <p>(ELG)</p>		<p>By the end of Year 2: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.</p> <p>Children select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).</p> <p>They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p>		<p>By the end of Year 6: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.</p> <p>Children select from and use a wider range of tools and equipment to perform practical tasks, accurately.</p> <p>They 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.</p>		
			Place the main stages of making in a systematic order.	Independently plan by suggesting what to do next.			
			With growing confidence, carefully select from a range of tools and equipment, explaining their choices.	Create step-by-step plans as a guide to making.			
		Begin to select from a range of hand tools and equipment.	With growing confidence, select from a wide range of tools and equipment, explaining their choices.	Learn to use a range of tools and equipment safely and appropriately. <i>(Y4: flag poles – saws)</i>	Learn to use a range of tools and equipment safely and appropriately.		
		Select from a range of materials, textiles and components according to their characteristics.	Select from a range of materials and components according to their functional properties and aesthetic qualities.	Select from a range of materials and components according to their functional properties and aesthetic qualities.	Select from a range of materials and components according to their functional properties and aesthetic qualities.		
		Use a range of materials and components.	Use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components.	Use a full range of materials and components, including construction materials and kits, textiles, and mechanical components.			
		With help, measure and mark out.	With growing independence, measure and mark out to the nearest cm and millimetre.	Independently take exact measurements and mark out, to within 1 millimetre.			
		Cut, shape and score materials with some accuracy.	Cut, shape and score materials with some degree of accuracy.	Cut a range of materials with precision and accuracy.	Shape and score materials with precision and accuracy.		
		Assemble, join and combine materials or components.	Assemble, join and combine material and components with some degree of accuracy.	Assemble, join and combine materials and components with accuracy.			
		Demonstrate how to cut, shape and join fabric to make a simple product. <i>(Y1: puppets)</i> <i>(Y2: sunglasses case)</i>	Demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product. <i>(Y4: flag poles)</i>	Demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product. <i>(Y5: money containers)</i> <i>(Y6: T-Shirt bags)</i>			
Manipulate fabrics in simple ways to create the desired effect. <i>(Y1: puppets)</i> <i>(Y2: sunglasses case)</i>							
Use a basic running stitch. <i>(Y1: puppets)</i> <i>(Y2: sunglasses case)</i>	Join textiles with an appropriate sewing technique. <i>(Y4: flag poles)</i>	Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch. <i>(Y5: money containers)</i> <i>(Y6: T-Shirt bags)</i>					
Begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations.	Begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics.	Refine the finish of a product, using techniques to improve the appearance, such as sanding or a more precise scissor cut after roughly cutting out a shape.					
Vocabulary	make, cut, rip, tear, join, measure	cut, shape, join, finish, measure, score, materials, characteristics, embellish	cut, shape, join, finish, measure, score, materials, assemble, adhesives, template, pattern, tacking	cut, shape, join, finish, measure, score, materials, template, pattern, pinking shears, fastening, mock up, seam allowance, aesthetics, wadding, reinforce			



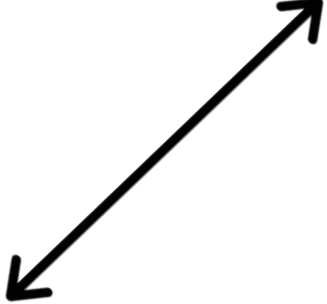
Substantive Knowledge

This is the subject knowledge and explicit vocabulary used throughout the different areas of design technology.

Golden Thread – 3D Curriculum Curriculum Drivers & Substantive Concept Mapping

Our curriculum drivers and our design technology substantive concepts are the ‘golden thread’ running through our design technology curriculum. Children learn abstract concepts through meaningful examples and repeated encounters in different contexts across the curriculum. This explicit planning supports children to transfer their knowledge across the curriculum and use it to frame future learning. This supports our work towards a 3D curriculum that promotes remembering. Our 3D curriculum is designed so that knowledge is built upon term by term, year by year and between topics across a variety of year groups. This enables our children to gain and retain more knowledge and understanding.

Design technology 3D Curriculum

Vertical Links	Horizontal Links	Diagonal Links
<p>Concepts deliberately constructed within a subject that are encountered across year groups from EYFS to Y6 (for example: the concept of designing: this is explored from EYFS to Y6 in every design technology unit).</p> <div style="text-align: center;">  </div>	<p>Links between subjects, commonly known as cross-curricular, or themed (for example: creating a circuit in Y4 science, electricity unit, and creating a circuit for a product in Y4 design and technology).</p> <div style="text-align: center;">  </div>	<p>Concepts connected across both year groups and across subjects (for example: learning about healthy eating in PSHE and science as well as in design technology, and revisiting this several times from EYFS to Y6).</p> <div style="text-align: center;">  </div>





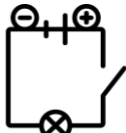

Design Technology Substantive Knowledge

Substantive knowledge is the carefully sequenced, factual knowledge that we learn through our curriculum; our life-long learning and other information that we learn alongside this. Children use prior knowledge to make links with new learning which is why our spiral structure ensures deepening understanding across our curriculum. Children need carefully planned opportunities to apply and make sense of what they have learnt. Prior knowledge is revisited and misconceptions actively diagnosed.

There are 6 areas that encompass the substantive knowledge which is developed within design technology across our school. We return to these across the topics within our spiral curriculum.

KS1: food, textiles, construction, mechanics

KS2: food, textiles, construction, mechanics, electronics, computing

Food	Textiles	Construction	Mechanics	Electronics	Computing
					
<p>Understand the principles of nutrition and apply them when learning how to cook. Select ingredients to make a recipe for a purpose.</p>	<p>Select materials from a range of textiles and the correct component pieces to produce a desired textile design. Confidently sew, attach and affix sections to create a whole end piece. Learn to consider the functional and aesthetic properties of fabrics.</p>	<p>Confidently select the right tools to perform practical tasks such as shaping, joining, cutting and finishing. Know how to use tools safely and prepare your workspace to do so.</p>	<p>Learn how to build structures investigating how they can be stronger, safer and more stable. Understand how to reinforce more complex structures. Explore and utilise mechanisms such as levers, sliders, wheels and axles to achieve a desired product design.</p>	<p>Create products that use electrical systems and show understanding of series circuits, incorporating switches, bulbs, buzzers and motors.</p>	<p>Design products that utilise understanding of computing to program, monitor and control. Be confident to participate in an increasingly digital world.</p>

Design Technology Disciplinary Knowledge

Disciplinary knowledge describes the varied types of questions that designers ask in order to design and make a new product. It is the skills children use when being a designer and the way in which we learn. In DT we learn through researching, designing, making and evaluating products. Within our design technology curriculum, children will consider the following disciplinary themes:

USER – to have a clear idea of who they are designing/making the product for.





PURPOSE – to be able to communicate the purpose of the product they are designing/making

FUNCTIONALITY – to design a product that works and functions effectively to fulfil the user’s needs

DESIGN DECISIONS – to make own design opportunities, explore their own decisions and choices

INNOVATION – opportunities to be original with their thinking, develop and explore their own ideas incorporating the essential skills involved in the process

AUTHENTICITY – to make products that are believable, real, and meaningful to themselves and others, not just replicating ideas.

Explore	Design	Make	Evaluate
			
This includes researching and finding about existing products and designers.	The art or process of deciding how something will look or work and developing initial ideas into a final design.	<p>Creating something by combining materials or putting parts together so that they follow the design set out.</p> <p>Changes made to the design during the making progress are recorded within the evaluating phase.</p>	<p>Use something or make something work in a particular situation.</p> <p>Form an opinion of the value or quality of something after careful thought.</p>

Local Knowledge, Enrichment & Cultural Capital

Local knowledge and community

At HLF, we value the importance of our local community. Within our design technology curriculum, we encourage local people to come in and discuss their jobs within this industry to help inspire our children.

Enrichment

We provide enrichment opportunities that can happen inside or outside of the school but that complement classroom instruction. The aim is for our children to try new and varied activities that help to develop character, resilience, and motivation, and that encourage our children to pursue their interests and become lifelong learners. We know that enrichment activities can empower children to develop skills, discover passions, and foster a well-rounded education.

Cultural Capital

These are the opportunities such as trips, visits, local walks and interactions with members of our local community that our woven through our curriculum that give children the essential knowledge needed to be educated citizens that have an appreciation of how human creativity and achievement in the past has, and continues to, influence our lives. However cultural capital is also derived from the learning opportunities in the classroom, the sources of inspiration for lessons carefully curated by our staff and the dialogue around design and evaluation that children are engaged with.

Implementation – How do we deliver the curriculum?

-The strategies and steps that we take every day to achieve our curriculum intent

Sequencing

Our design technology curriculum is taught across each year group in units which link to our topics. This enables our children to build a depth of knowledge, acquire and practise key skills and embed vocabulary. Each unit is strategically planned to build upon prior learning with opportunities to introduce and revisit key concepts woven throughout in order to deepen pupil understanding. An example of this is outlined below:

YR	Y1	Y2	Y3	Y4	Y5	Y6
<ul style="list-style-type: none"> . Bear, Bears, Bears . People Who Help Us . Great Adventures . Out of the Egg . Splish, Splash, Splosh 	<ul style="list-style-type: none"> . Wonderful and Wild . Castles and Caves . Secret Garden 	<ul style="list-style-type: none"> . To Infinity and Beyond . Welcome to the Jungle . Beside the Seaside 	<ul style="list-style-type: none"> . Portals through the Ages . Trash to Treasure . Roamin' Romans 	<ul style="list-style-type: none"> . Roamin' Romans . Vicious Vikings . Walk like an Egyptian 	<ul style="list-style-type: none"> . Brighton Rocks . The Mighty Maya . The Groovy Greeks 	<ul style="list-style-type: none"> . A Great American Road Trip . A World at War . The Windrush Generation
<ul style="list-style-type: none"> . Structures (Intro to fixings and making corners) . Structures (Sharing your model) . Structures / Fixings: (Design and make an Emergency Vehicle) . Textiles (through countries) . Food (Design and make a Gingerbread Man) . Sculpture (Where the Wild Things are) 	<ul style="list-style-type: none"> . Food (Fruit salad) . Food (Making a sandwich) . Structure & Mechanisms (Making a moving dragon) . Structures (Constructing a castle) . Structures (Secret Garden Constructing Windmills) . Textiles (Animal puppet) 	<ul style="list-style-type: none"> . Mechanisms (Moon Buggies) . Mechanical systems (Celebration Cards) . Mechanisms (Rainforest Instruments) . Food (Picnic pizza) . Textiles (Sunglasses Case) 	<ul style="list-style-type: none"> . Food (Oat cakes) . Mechanics (Levers) . Construction (Roman Temple) 	<ul style="list-style-type: none"> . Food (Bread) . Mechanics (Pulleys) . Electronics (Light up signs) 	<ul style="list-style-type: none"> . Mechanics (fairground rides) . Computing (Mayan buildings) . Textiles (Money containers) 	<ul style="list-style-type: none"> . Food (Apple pies) . Construction (Anderson shelters) . Textiles (T-Shirt bags)

Pedagogy

Key Principles for Effective Teaching & Learning at Hove Learning Federation

High expectations	Quality first and adaptive teaching	Developing learning behaviours	Relationships and environment	Quality of instruction
Inspire, support and challenge	Layered modelling to ensure access for all children	Subject knowledge and mastery	Effective questioning and feedback	'Making it stick' - transferring knowledge to long-term memory

Key Theories & Evidence Based Research to design lessons and units

Below are the key theories and research that underpin our approach to pedagogy and guide our curriculum design. They are used to promote high quality teaching and used in staff CPD to develop strategies that ensure constancy of standards and pedagogical understanding.

Sweller's cognitive load theory	Rosenshine's principles of instruction	Cain and Oakhill's vocabulary instruction	Maslow's Hierarchy of Needs
Fiorella and Mayer's generative learning practice	Ebbinghaus' forgetting curve	Interleaving and Spacing	Bloom's Taxonomy
Retrieval Practice	Bruner's Spiral Curriculum	Pupil Book Study	Education Endowment Foundation

Assessment

Assessment opportunities are continuous and form a key part of our teaching and learning.
Formative assessment – opportunities are planned throughout our lesson model (see examples below).
Summative assessment – opportunities are planned at the end of units and the end of the year.

Examples of in class formative assessment opportunities

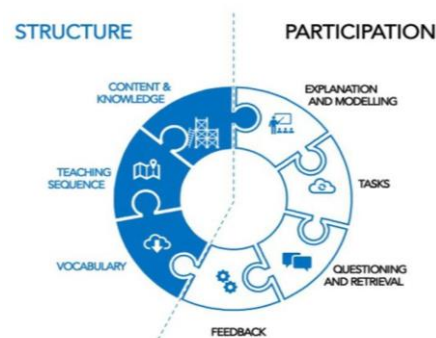
Deliberate practice and rephrasing of taught content	Cumulative quizzing within the learning sequence	Structured discussions in class	Retrieval and recall	Explaining and challenge partner talk
Self and peer assessment	Teacher feedback and summaries	Diagnostic questioning	Higher order thinking and exit tickets	Summarising and explaining the learning question from the sequence
Rephrasing and thinking out loud	Key vocabulary use and application	Professor prove it	Deep diver and submarine challenges	Lesson to lesson, unit to unit, term by term, end of year feedback & concept questions

Mapping and Planning – 7 Lenses

Alex Bedford's Pupil Book Study approach to quality assuring the curriculum helps us to evaluate curriculum structures, teaching methods, pupil participation and response through a dialogic model. When undertaking these tasks, we ask the following key questions:

- How well do our children remember the content that they have been taught?
- Do books and children's discussions radiate excellence?
- Does learning 'travel' with our children and can they deliberately reuse it in more sophisticated contexts?

To ensure our monitoring is thorough and targeted, we identify what is helping and hindering by looking at structure and participation (see table below).



Pupil Book Study 7 Lenses

STRUCTURE			PARTICIPATION			
Content and Knowledge	Teaching Sequence	Vocabulary	Explanation and Modelling	Tasks	Questioning and Retrieval	Feedback

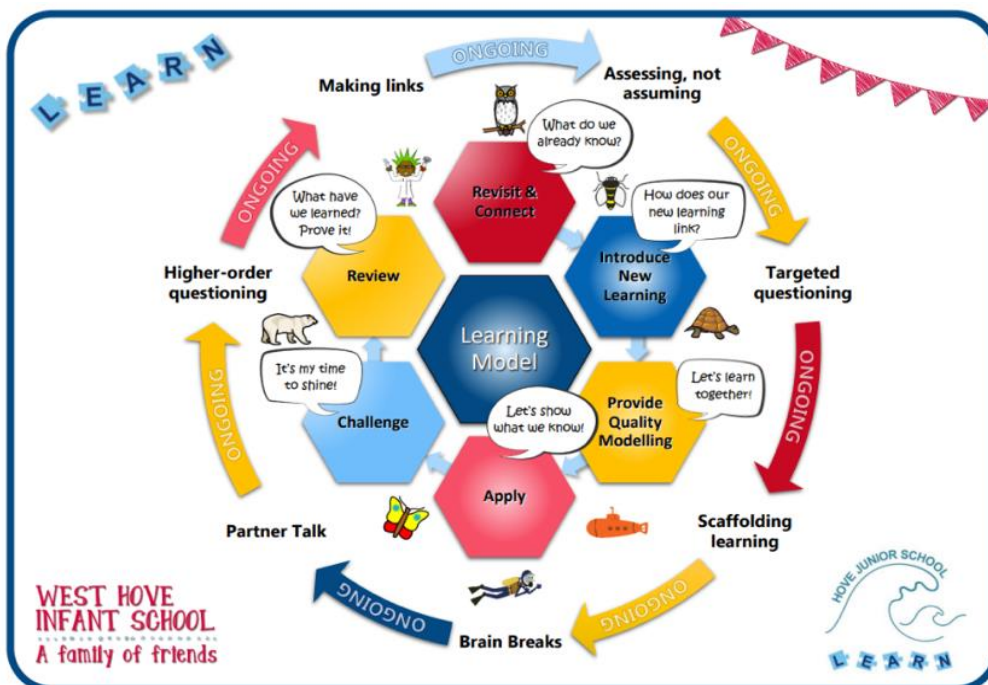
Lesson Structure/Model

Learning Model: The Enacted Curriculum

To ensure constant quality-first teaching across the curriculum we have developed the Hove Learning Federation Learning Model. As illustrated in our visual guide below, each stage of the model has been carefully crafted on the most up to date evidence based research. It is a model designed to give enable all children to:

- Revisit prior learning from previous lessons and linked units from past terms and years.
- Make links with this learnt knowledge and new learning.
- Access new learning through skilled teacher modelling.
- Apply new understanding and skills with partner and independent work.
- Experience challenge at their level.
- Review the learning for that day and be guided to see how their understanding has deepened.

Teachers do not make assumptions about children’s understanding but use a range of Assessment for Learning strategies to adjust lesson content and pace so that they are delivering the right knowledge and skills for the children they have in front of them. Learning is scaffolded to be inclusive to all and brain breaks and partner talk keep the learning engaging, accessible and challenging. Higher order questioning is used to guide children to make links and encourage considered thinking. Staff receive regular CPD on each element of the Learning Model. Areas for development are pinpointed through monitoring and targeted for improvement.



Environment and Resources

We utilise a plethora of high-quality images and diagrams within the teaching resources we provide for our children. These are carefully designed and dual coded to minimise cognitive overload and allow each child access to their learning in the most inclusive way. Wherever possible we use inspiring images, that can be zoomed in on to explain difficult concepts and images that spark discussion and challenge thinking. The use of all resources is modelled carefully by teachers so that every child knows how to succeed in each lesson.


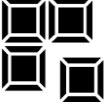









Diversity and Identity across the DT Curriculum

Through our planning and curriculum mapping, we celebrate the diversity within our community and the wider world and develop confidence in individual identity through our tailored curriculum. We promote equality and use examples of where this has not always been the case in the past to support learning and promote tolerance.

SEND & Inclusive Learning

We adapt the curriculum to meet the needs of all our children so that everyone can access the learning, build on their prior knowledge, and understand the skills needed to become historians.

We do this by:

	<p>Identifying the CRITICAL CORE CONTENT that pupils with SEND need to know and use.</p>
	<p>CHUNKING knowledge and knowledge notes/models in manageable sections.</p>
	<p>Teachers use structured RESPONSIVE FRAMEWORKS (including the use of stem sentences and sentence stems) to promote hard thinking.</p>
	<p>Teachers use structured DELIBERATE PRACTICE to increase attention and retention.</p>
	<p>Pupils with SEN are entitled to think hard. We use structured CHALLENGE FRAMEWORKS to promote hard thinking, drawing on the content, including explaining the word connections and sequenced thinking paths.</p>
	<p>Dual coding (using CIP and symbols from the Noun Project) is used to pre-teach tier 2 and 3 vocabulary and is included on all lesson slides, core knowledge files and knowledge strips in Key Stage 2, and all activity sheets in Key Stage 1.</p>
	<p>Higher level challenge partners and talking trios are used to ensure children with SEN and or EAL are provided with high quality talk and modelled language of history skills.</p>
	<p>Activities ensure children with SEN or EAL can access tasks appropriately and share their understanding.</p>
	<p>Differentiation and scaffolds are included where appropriate to enable access to learning and ensure children make at least expected progress.</p>
	<p>Pictures and quotes are taken from children with SEN and or EAL to ensure evidence is recorded in books and on The Portal (EYFS).</p>
	<p>EEF 5-A-Day approaches/strategies are reviewed and incorporated into our lessons 1 – Explicit instruction, 2 – Cognitive and metacognitive strategies, 3 – Scaffolding, 4 – Flexible grouping, 5 – Using technology.</p>




Impact – How do we know our curriculum is effective? Evidencing the standards of Teaching and Learning

In order to identify the impact our curriculum is having on our pupils, we check the extent to which learning has become permanently embedded in children’s long-term memory in addition to looking for excellence in their outcomes. At HLF, we use a number of tools to quality assure the implementation and impact of our curriculum such as:

- Pupil Book Studies (Subject Reviews & Shallow Splashes)
- Subject Meetings
- Subject analysis & Action plans
- Formative and Summative Assessment
- Learning observations/drop ins (subject lead, year/phase lead and SLT)
- CPD for all staff
- Governors
- Recent successes
- Next steps




Hove Learning Federation Impact

Children leave Hove Learning Federation as deeply knowledgeable and skilful learners who can set targets and believe in themselves to achieve them. They understand how to be socially, morally, spiritually and culturally responsible and aware. They are able to make positive contributions to the local and wider community and strive to be the best that they can be.

Learning Behaviours	Emotional  Names and expresses emotions Manages impulses of personal behaviour	Shows pride in successes	Social  Focuses on learning in class Attentive to directions, listening to the teacher	Shows empathy and appreciates diversity	Cognitive  Organises time and space for own learning Sets goals and monitors own progress	Talks purposefully with peers, valuing other opinions			
Attitudes to Learning	Love of Learning and lifelong learners	Positive	Curious and Inquisitive	Independent	Able to work in teams	Motivated and Hardworking	Resilient	Proud	Ready for secondary school
Quality of Education	Evidence of learning	Attainment	Progress	Skills, knowledge and understanding	Personal Development	Relationships between pupils and staff	Learning atmosphere and environment	Professional Development	School Improvement

Pupil Book Studies – Subject Reviews & Shallow Splashes

At HLF, we have created our own monitoring systems that incorporate the key principles from the Pupil Book Study.

<p>Flip/PowerPoint and planning look</p> 	<ul style="list-style-type: none"> Planning for small steps Progress and learning over time Knowledge and skills based Child centred, active learning Consistency with the use of the HLF Learning Model across year groups and sites
<p>Book Look</p> 	<ul style="list-style-type: none"> Shows progress of knowledge and skills Shows development of learning and understanding Demonstrates a clear sequence of learning High expectations, consistency and pride in work
<p>Pupil Voice</p> 	<ul style="list-style-type: none"> Use precise vocabulary Show a deep understanding of the learning Are enthusiastic about their learning Talk through the learning sequence Highlight how the learning builds lesson to lesson and unit to unit

‘Implementation’). They are called Subject Reviews and Shallow Splashes. Through this form of monitoring, we quality assure each subject by carrying out:

- 1) Learning walks – subject teams and SLT support teaching and learning and record positives and good practice to share and inspire
- 2) Flip/PowerPoint and planning looks – to check planning & resources meet the needs of all of our learners. We check against our lesson model, Rosenshine’s Principles of Instruction and the key theories & research that underpin our teaching philosophy
- 3) Book looks - to check for incremental small steps, sequencing, task design, scaffolds, personalisation, knowledge & skill progression, vocabulary, access, support & challenge
- 4) Pupil voice – to discuss the learning and see the subject through the eyes of the child. Part of our questioning is designed to assess the impact of our lessons, that they provide enjoyment, that children can articulate their learning with key vocabulary and that learning is ‘sticking’ in the children’s long-term memory

Findings from our monitoring systems are categorised into positives and next steps. These can be specific to year group, to key stage or whole school (across the 3 sites). To ensure next steps are acted on, subject and year teams identify actions and assign responsibility. This monitoring feeds into our subject analysis and action plans (see ‘Subject analysis and Action plans’ below).

Subject Meetings

Subject team meetings are timetabled regularly throughout the year. Time is set aside during staff meetings, INSET days and yearly meetings with SLT. The aims of these meetings are to:

- Review current practise and impact
- Set targets, identify actions, and create plans
- Discuss the latest research and evidence to ensure our subjects are up to date and plans are in place to progress
- Work towards our school key priorities
- Give time to professional development and to offer support to our teachers

Subject analysis & Action plans

Each subject has an action plan for the academic year to monitor change and progress across a variety of objectives and goals within multiple areas (e.g., student, classroom, professional development, etc.). Using our school key priorities as a guide, our teams review and RAG their subjects throughout the year and set new targets each term. Each target is a story arc that shows how a subject leader has identified a next step, actioned it and reviewed the impact so that subject development is continuous and effective.

Each subject team uses the table below to reflect, plan, set actions, assess impact and discuss next steps.

What did you notice? (Why did you set this target?)	Action (What will you do?)	Intended Impact (What will this look like?)	Responsibility	By when	Evidence for Monitoring
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Formative and Summative assessments

Our assessment structures are designed to ensure that our children will know more, remember more and be able to do more. A mixture of formative and summative assessments allows us to evaluate if our curriculum helps or hinders the goal of achieving persistent change in the long-term memory of our children.

Formative Assessment

We assess formatively throughout each lesson using our learning model (see 'Implementation' section). This tool ensures each lesson is planned and delivered to maximise assessment opportunities. Teachers use this information to support, challenge and adapt the learning.

Each subject assesses in a range of different ways (see 'Implementation' section).

Summative Assessment

Our curriculum is a progressive, spiral model. Teachers use deliberate summative assessment to measure if children are making progress as they journey through the curriculum. The range of summative assessment methods that teachers use build a picture of children's understanding of:

- Content and knowledge
- Use of vocabulary
- Ability to access the curriculum and thrive

All information gained from assessments are used to tailor, target and adapt future planning, teaching and learning.

Continuous Professional Development for all Staff

'High quality teaching improves pupil outcomes, and effective professional development offers a crucial tool to develop teaching quality and enhance children's outcomes in the classroom.' - EEF

Through each element of the monitoring process described above and assessments, subject leads know how well their subject is being taught and areas for development. As a result, staff meetings and inset days are carefully considered to provide a range of tailored CPD opportunities guaranteeing consistency of expectations and practice, and ensuring the highest quality teaching is taking place to improve pupil outcomes. The content of this CPD is then factored into year group meetings for year group teams to explore further over time.

As a school, we use a range of development methods to meet the needs of our staff. This includes:

- 1:1 using mentoring or coaching
- Guided collaborative group work
- Use of research based think pieces
- Professional modelling

Governors

Our governors are with us on every step of our curriculum journey. They are critical friends who ask key questions, investigate patterns within the data, and support and challenge our reasoning when creating systems and devising new strategies.

Subject teams are given opportunities to feedback to governors about their subject development and planned next steps. The purpose of this close relationship is to ensure governors have an in-depth understanding of what is happening in the classrooms so that they can play an active role in school development. SLT work closely with governors so that there is a shared understanding of how high quality teaching is improving pupil outcomes at Hove Learning Federation and that these successes are celebrated.