

Design Technology Curriculum & Progression

Our school is a beacon of light. A place where every child and adult is encouraged to shine brightly and reach their full potential. Through curiosity, courage, and compassion, we shine like a lamp in our classrooms, like a village on a hill in our community, and like shining stars across the wider world.

Year A Curriculum Overview

	Autumn Impact & Power		Spring Perspective & Empathy		Summer Celebration & Change	
Year 5/6	How can a powerful torch be made?		Are all floating structures powerful?		What is the impact of bag design vs function?	
Year 3/4	What is the power of a lever?		How powerful is the structure of an Anglo Saxon Home?		How does design impact a Coat of Arms?	
Year 1/2	What impact does design have on a weather dial?		How can design make a windmill work efficiently?		Why is the design of a puppet important?	
EYFS	What is your superpower?	Why am I marvellous?	What tales do we enjoy?	Why do we celebrate everyone?	What is it like in the great outdoors?	Where have I been and where will I go?

Year B Curriculum Overview

	Autumn Responsibility & Risk		Spring Culture & Diversity		Summer Reflection & Legacy	
Year 5/6	Can a well-designed structure eliminate risk?		How do Greek vases tell the story of a culture?		How do we engineer a legacy of safety?	
Year 3/4	How can we design a survival pouch for a Hunter-gatherer?		How has ancient diversity shaped British housing design?		How does a bridge reflect the engineering legacy that supports us today?	
Year 1/2	How can design help us in an emergency?		How can design help us celebrate?		How can design help us care for nature?	
EYFS	Where will our adventures take us?	How can we take care of living things?	What is lifelike around the world?	What makes us wonderfully different?	What is beyond our world?	How can we make our world better?

An Inclusive Design Technology Curriculum: Supporting Children with SEND

At Stelling Minnis CE Primary School, we believe all pupils should have the opportunity to learn to the best of their capabilities through a broad and balanced, inclusive curriculum. For our pupils with a Special Educational Need, we scaffold their learning to provide them with the strongest opportunities for success in our school. We believe firmly in the SEND Code of Practice's statement that 'every teacher is a teacher of SEN' and that our pupils with SEN should be provided with the same opportunities as their peers in our school. This means that, with their learning being personalised to meet their areas of need, they feel included in the classroom and make progress year on year. Reasonable adjustments are made in all lessons to enable this When planning for Design Technology, class teachers will adapt their lessons where necessary using ideas taken from this list, however it is important to remember this list is not exhaustive and other adaptations may be needed for children with specific needs

Resources	Multi Sensory	Teacher Communication	Assessment
• Displays for access of information • Design storage systems are easily identifiable and easy to access for all pupils where appropriate. • Tasks are made accessible using specialist equipment including specialist scissors, cutting tools, • Generic frames are used to help children hold down their work. • Within art, drawing aids such as grids, templates, viewfinders are available. • Pupils who have mobility/dexterity difficulties can access software to stimulate traditional materials and techniques	Pupils are given additional time to explore materials, tools and resources in order to process their purpose and use. • Real objects relating to the. • Pupils are given the opportunity to see tools and equipment being used by an adult prior to their activity. • Visual scaffolding, reminders and prompts are used to show pupils with processing difficulties how to safely use art and design equipment. • Pupils with fine motor control difficulties are encouraged to use hands and other more accessible objects to create their outcome. Avoid demonstrations or discussion when machines are running so that pupils with hearing impairments can hear instructions. • Hearing impaired pupils may find equipment or machinery very noisy and may choose to turn hearing aids/transmitters off	• Pupils design work are displayed to enhance pupil sense of achievement • Pre and over-learning of language is encouraged to support pupils with SEND and to enable them to access further learning. • Instructions are given clearly and reinforced visually where necessary. • Questions are worded at an age-appropriate level, avoiding complex vocabulary and sentence structures for pupils with SEND. • Alternative communication modes are utilised to meet pupil need e.g. signing, braille. • Text, visual aids are checked for clarity and accessibility for all pupils including pupils with SEND. • Support with subject specific vocabulary such as but not limited to; design brief, user, purpose, generate, annotate, prototype, evaluate, criteria, materials, components, mechanisms, structures, textiles, nutrition, function, durability, measure, mark out, assemble, modify, and improve.	• Assessment drives adaptation. Pre/over-learning is used to support pupils who have not made the expected progress. • Pupils are encouraged to express their design skills through multi-sensory approaches and techniques. • Assessment evidence may be collated in different ways and different parts of a design project not just a final outcome

Design Technology Skills Overview. This is an “at a glance” overview. More detailed progression may be found further down the document.							
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Design 	Explore ideas through play, talk and early drawings; choose materials freely	Draw and label simple ideas; design with a clear purpose	Create detailed designs; explain choices; consider the user	Use annotated sketches; adapt ideas; consider function and appearance	Research products; develop detailed plans; solve problems creatively	Design using user needs, research and constraints	Design innovative products using technical knowledge and digital tools
Make 	Join and build using basic tools; develop control and coordination	Cut, shape and join materials safely; follow instructions	Measure, cut and join with increasing accuracy	Use tools accurately and independently; improve finish	Select suitable materials and techniques confidently	Use tools, mechanisms and systems precisely	Create high-quality prototypes; manage time and resources effectively
Evaluate 	Talk about what they made; describe likes and dislikes	Say what worked well and what could improve	Evaluate using simple success criteria	Test products and explain strengths and weaknesses	Refine products using feedback and testing	Evaluate function and quality in detail	Test, analyse, refine and justify decisions using evidence

Design Technology Progression of Skills & Curriculum: Cooking & Nutrition

At Stelling Minnis our Cooking & Nutrition is taught through Farm School. Each year group visits the farm, finds out about p roduce, where it comes from, food miles, animal welfare, and nutrition. Then the children get to make something to eat - all local and sustainable. They even use ingredients grown in our own polytunnel

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cooking & Nutrition 	**Food Focus:** **Origin:** Wheat **Produce:** Flour **Product:** Healthy Biscuits	**Food Focus:** **Origin:** Wheat **Produce:** Flour **Product:** Pancakes	**Food Focus:** **Origin:** Chicken **Produce:** Eggs **Product:** Omelette	**Food Focus:** **Origin:** Chicken **Produce:** Chicken **Product:** Chicken Wraps	**Food Focus:** **Origin:** Sheep **Produce:** Lamb **Product:** Kebabs	**Food Focus:** **Origin:** Pig **Produce:** Pork **Product:** Pork Patties	**Food Focus:** **Origin:** Cow **Produce:** Beef **Product:** Beef Burgers
	Disciplinary Knowledge: Explore food preparation, hygiene and healthy choices	Disciplinary Knowledge: Prepare simple healthy foods; understand hygiene	Disciplinary Knowledge: Follow simple recipes; know where food comes from	Disciplinary Knowledge: Prepare savory dishes; understand balanced diet	Disciplinary Knowledge: Measure accurately; adapt recipes; understand seasonality	Disciplinary Knowledge: Understand nutrition; modify recipes for purpose	Disciplinary Knowledge: Plan and cook healthy meals considering dietary needs
	Substantive knowledge: -I know that flour comes from wheat -I know that flour is in some biscuits -I know hygiene is important in cooking -I know that reducing sugar in biscuits is a healthier choice	Substantive knowledge: -I know that wheat is a grain ground to make flour -I know that flour is in pancakes - I know that pancakes use 3 ingredients	Substantive knowledge: -I know that eggs come from chickens -I know how to prepare eggs -I know that eggs are part of a healthy diet	Substantive knowledge: -I know that chicken is a source of protein -I know that chicken is considered a savoury item - I know that protein is important in a balanced diet	Substantive knowledge: -I know how to use scales to measure ingredients -I understand that lambing in the UK takes place at certain times of the year.	Substantive knowledge: -I know that pork should be limited in a diet -I know that pork is a protein and has fat too -I know that some people do not eat pork	Substantive knowledge: -I know that burgers can be made from beef -I know that beef comes from a cow -I know that some people do not eat beef

Year Group	Core Concepts					
	Impact & Power (Term 1 and 2)		**Perception & Empathy** (Term 3 and 4)		**Celebration & Change** (Term 5 &6)	
EYFS Key Questions	What is your superpower?	Why am I marvellous?	What tales do we enjoy?	Why do we celebrate everyone?	What is it like in the great outdoors?	Where have I been and where will I go?
	Self portraits Explore colour Making meaning to marks	Cooking Christmas craft Develop small world play	Develop role play Create narratives Musical stories Building bridges and houses	African drumming African art Easter craft	Observational drawing Design and build bug hotels Printing- butterflies	Explore and refine a variety of artistic effects Drawing with detail
Key Vocabulary	Design, make, create, draw, plan, choose, colour, shape, materials, tools, cut, stick, join	Ingredients, recipe, mix, stir, pour, measure, weigh, roll, shape, bake, decorate, construct, natural materials	Build, construct, structure, bridge, wall, roof, base, strong, stable, balance, connect, join, improve, test	Design, pattern, texture, materials, tools, cut, fold, attach, join, decorate, assemble, create	Design, plan, build, purpose, materials, natural, wood, sticks, shelter, structure, strong, arrange, join, evaluate	Design, plan, select, tools, materials, technique, shape, join, adapt, refine, improve, evaluate, purpose
Age & Stage	3-4 Year Olds		Reception		Early Learning Goals	
Development Matters Statements	Expressive Arts and Design • Make imaginative and complex 'small worlds' with blocks and construction kits. • Explore different materials freely. • Develop their own ideas and then decide which materials to use to express them. • Join different materials and explore different textures. • Create closed shapes with continuous lines and begin to use these shapes to represent objects. Physical Development • Use large muscle movements to paint and make marks. • Choose the right resources to carry out their plan. • Use one-handed tools and equipment.		Expressive Arts and Design • Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills. Physical Development • Develop their small motor skills, so that they can use a range of tools competently, safely and confidently.		Creating with Materials (Expressive Art and Design) • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. Fine Motor Skills (Physical Development) • Use a range of small tools, including scissors, paintbrushes and cutlery. • Begin to show accuracy and care when drawing.	

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<tr><td></td><td colspan="2">Use a comfortable grip with good control when holding pens and pencils.
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</td><td colspan="2">Key Question: How can design make a windmill work efficiently?
</td><td colspan="2">Key Question: Why is the design of a puppet important?
</td></tr>
<tr><td colspan="2">Learning Objectives
To explore different types of dials and understand their purpose.
To explore and test different mechanisms that make dials move.
To design a weather dial with moving parts for a specific purpose.
To make and evaluate my weather dial, explaining what works well and what could be improved.</td><td colspan="2">Learning Objectives
To investigate what makes a good windmill design and how different windmills spin.
To design a windmill that spins easily.
To build a windmill using different materials.
To test and evaluate our windmill design.</td><td colspan="2">Learning Objectives
To discover different puppet designs and how they move.
To design a finger puppet for a class puppet show.
To make a finger puppet that matches my design.
To evaluate how well my puppet works and how it could be improved.</td></tr>
<tr><td>Disciplinary Knowledge Year 1
Explore and use mechanisms such as sliders and levers.

-Begin to use simple design criteria to communicate ideas.

-Use simple tools safely and effectively to make a product.

-Begin to evaluate ideas and products.</td><td>Disciplinary Knowledge Year 2
-Explore and use mechanisms, including wheels, axles, and pivots.

-Select from and use a range of tools and materials to perform practical tasks.

-Generate, develop, model, and communicate ideas through talking, drawing, and mock-ups.</td><td>Disciplinary Knowledge Year 1
-Explore how things move using simple mechanisms (e.g. wheels and axles).

=Investigate different materials and say which are suitable for a purpose.

-Build simple structures and begin to join materials together.

-Talk about what they like and dislike about a product.</td><td>Disciplinary Knowledge Year 2
-Explore and use mechanisms such as sliders and levers.

-Begin to use simple design criteria to communicate ideas.

-Use simple tools safely and effectively to make a product.

-Begin to evaluate ideas and products.</td><td>Disciplinary Knowledge Year 1
-Explore and use mechanisms, including wheels, axles, and pivots.

-Select from and use a range of tools and materials to perform practical tasks.

-Generate, develop, model, and communicate ideas through talking, drawing, and mock-ups.</td><td>Disciplinary Knowledge Year 2
-Explore how things move using simple mechanisms (e.g. wheels and axles). Investigate different materials and say which are suitable for a purpose.

-Build simple structures and begin to join materials together.

-Talk about what they like and dislike about a product.

-Draw simple designs and explain ideas verbally</td></tr>
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			-Draw simple designs and explain ideas verbally			
	Substantive Knowledge I know how a dial mechanism can make a weather dial function. I know that design serves a purpose and can have impact on the user. I know how to plan, create, and evaluate a purposeful product.		**Substantive Knowledge** I know that windmills use wind to turn blades. I know that these clades rotate around a central point called an axle. I know that size, shape and material of blades affect how easily a windmill spins. I know that a stable structure helps a windmill work effectively.		**Substantive Knowledge** I know puppets are designed for a purpose and that the design of the puppet affects how well it works. I know that materials have different properties which will affect its use. I know a finger puppet must fit securely and be easy to move.	
	Links with NC: -Generate, develop, model, and communicate ideas through talking, drawing, and templates.		**Links with NC:** -Select from and use a range of tools and materials to perform practical tasks. -Evaluate their ideas and products against design criteria.		**Links with NC:** -Design purposeful, functional, appealing products for themselves based on design criteria. -Explore and evaluate a range of existing products.	
	Vocabulary Design, dial, mechanism, move, wheel, pivot, slider, lever, measure, pointer, rotate, weather, impact, purpose, evaluate.		**Vocabulary** Wind, blade, axle, rotate, spin, friction, structure, stable, design, material, join, mechanism, base, test, evaluate, improve.		**Vocabulary** Design, puppet, finger puppet, material, fabric, felt, join, attach, cut, stick, decorate, structure, fit, stable, evaluate, improve, character, movement, flexible, purpose, performance.	
Year 3/4	**Key Question:** What is the power of a lever? 		**Key Question:** How powerful is the structure of an Anglo Saxon Home? 		**Key Question:** How does design impact a Coat of Arms? 	
	Learning Objectives 1. To explore how a Shaduf works and why it is useful. 2. To design a model of a Shaduf 3. To build a working Shaduf 4. To evaluate a Shaduf against its purpose		**Learning Objectives** 1. To explore the features and function of Anglo-Saxon houses 2. To test materials and joinings to build a stable model 3. To design a model of an Anglo Saxon house using appropriate materials 4. To build and evaluate a model of an Anglo-Saxon house and evaluate against design criteria		**Learning Objectives** 1. To understand the purpose and meaning of Viking shields and symbols 2. To develop a symbolic design based on research 3. To construct the shield using textile materials to assemble accurately 4. To evaluate and reflect on the process and meaning of the design	
	Disciplinary Knowledge	**Disciplinary Knowledge**	**Disciplinary Knowledge**	**Disciplinary Knowledge**	**Disciplinary Knowledge**	**Disciplinary Knowledge**

	Year 3 - Investigate how simple machines work - Select and use tools and materials	Year 4 - Investigate and test levers to understand how they work - Select and use tools and materials appropriately -	Year 3 - Compare modern and historical structures - Experiment with natural materials - Evaluate the strength and join of materials - Select materials and justify choices - Build a 3D structure from a 2D plan - Evaluate work based on design criteria	Year 4 - Use secondary sources to research structures - Investigate materials for strength and joining - Construct using appropriate techniques and tools - Evaluate strength of model	Year 3 - Thread a needle - Do basic running stitch - Cut, shape and layer fabric accurately - Join fabric using stitching or glue - Evaluate product and suggest improvements	Year 4 - Thread a needle independently - Use a running stitch to join fabrics together accurately - Use a layering technique - Evaluate work and make improvements
	Substantive Knowledge - I know that a Shaduf is a type of lever - I know how to use lever mechanisms - I know how a lever works - I know the difference between fixed and loose pivots - I know that different materials perform differently		Substantive Knowledge - I know Anglo-Saxon houses were made from wood, straw and mud - I know Anglo-Saxon houses were built for function and needed strength and shelter - I know that houses were rectangular with sloped roofs and no windows. - I know that Anglo-Saxon houses had one room with a fire in the middle and a smoke hole - I know roofs need internal wooden beams to keep it up.		Substantive Knowledge - I know the use and meaning behind Viking shields - I know the cultural significance of colour and pattern - I know how symbols and patterns represent identity - I know that textiles can be joined using stitching or glue	
	Links with NC Understand and use mechanical systems in their products		Links with NC Apply understanding of how to strengthen more complex structures.		Links with NC Use research and develop design criteria to inform the design Select and use a wide range of materials including textiles Perform practical tasks like cutting and joining accurately	
	Vocabulary Shaduf, fulcrum, lever, effort, irrigation		Vocabulary Structure, strengthen, stability, shape, join		Vocabulary	

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<tr><td></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">Viking, symbol, shield, identity, design, pattern, assemble, accuracy, evaluate, Norse Symbols, needle, thread, pins, joinings</td></tr>
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</td><td colspan="2">Key Question: Are all floating structures powerful?
</td><td colspan="2">Key Question: What is the impact of bag design vs function?
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<tr><td colspan="2">Learning Objectives
1. I can explore and evaluate Existing Torch products.
2. I can understand and use electrical circuits and switches
3. I can design a functional torch with electrical circuits and a switch
4. I can construct and evaluate my designed torch.</td><td colspan="2">Learning Objectives
1. I can investigate floating structures and evaluate their effectiveness.
2. I can design a floating structure for a specific purpose and user.
3. I can construct a floating structure following a design specification.
4. I can test and evaluate a floating structure against agreed success criteria.</td><td colspan="2">Learning Objectives
1. I can investigate how bags have been designed over time to meet different users' needs and purposes.
2. I can generate and develop design ideas for a bag based on a given design brief.
3. I can choose and use appropriate textiles, tools and sewing techniques to construct a functional bag.
4. I can evaluate my finished bag against the design brief and suggest improvements.</td></tr>
<tr><td>Disciplinary Knowledge Year 5
- Explore existing products by handling and discussing how they work.
- To identify basic strengths and weaknesses of a product.
- Generate ideas through labelled sketches.
- Develop simple design criteria based on purpose.</td><td>Disciplinary Knowledge Year 6
- To critically analyse existing products considering user, function and design decisions.
- To explain why specific materials and switches have been used.
- Develop innovative ideas responding to a design brief.
- To produce detailed annotated</td><td>Disciplinary Knowledge Year 5
- Explore and discuss existing floating structures.
- Identify what makes a structure stable or unstable.
- Generate ideas through annotated sketches.
- Measure, mark and cut materials with increasing accuracy.
- Test their structure in water.
- To observe how well it floats and balances.</td><td>Disciplinary Knowledge Year 6
- Analyse existing products to understand design decisions.
- To investigate how shape, structure and materials affect performance.
- To develop and refine design ideas independently.
- Work accurately and independently from a specification.</td><td>Disciplinary Knowledge Year 5
- Identify key features and user needs
- Plan the making process including materials and tools
- Measure, cut and join fabric
- Use stitching to help assemble the bag
- Evaluate the design and bag made against a design criteria.</td><td>Disciplinary Knowledge Year 6
- Identify existing products for function and appeal
- Plan the making process including materials, tools and steps
- Measure, cut and join fabric with increased accuracy
- Use stitching to assemble and decorate the bag`
- Critically evaluate products against design criteria and intended user needs.</td></tr>
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	- To assemble electrical components to create a working circuit. - Use tools safely with supervision. - Comment on what worked well and what did not.	designs showing electrical layout. - To construct accurate and reliable electrical circuits. - Explain how well the product meets user needs.	- To evaluate what worked well and what did not work well. -	- To apply strengthening or waterproofing techniques. - To measure performance systematically. - To evaluate the boats performance against a measurable criteria.		
	Substantive Knowledge - I know products are designed for a specific purpose and the purpose of a torch is to provide light using an electrical power source. - I know that electricity flows only when there is a complete electrical circuit. - I know metals are good conductors, while materials such as plastic are insulators. - I know tools and equipment must be used safely and accurately.		Substantive Knowledge - I know that objects float or sink depending on buoyancy. - I know hull shapes affect the boats speed, stability, and handling. - I know that structures must balance strength, stability and weight. - I know that Joining techniques affect structural strength. - I know products need to be tested to check how well they meet design criteria.		Substantive Knowledge - I know that a successful bag must be fit for purpose (e.g. strength, size, comfort, storage). - I know how bags have changed over time due to materials, technology and social needs. - I know difference between natural and synthetic textiles. - I know that sewing joins fabrics together.	
	Links with NC - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, - understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] - investigate and analyse a range of existing products.		Links with NC - generate, develop, model and communicate their ideas through discussion, annotated sketches, - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.		Links with NC - 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 key events and individuals in design and technology have helped shape the world - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	

	Vocabulary Function, purpose, design, electrical circuit, switch, light emitting diode (LED), battery, series circuit, battery, bulbs	Vocabulary Three-dimensional shapes, shell structure, buoyancy, reinforce, joining, adhesives, properties	Vocabulary Seam, stitch, pattern pieces, fastenings, needle, thread, template

Year Group	Scheme of Learning & Progression: Year B Whole School Core Concepts					
	Responsibility & Risk (Term 1 and 2)		Culture & Diversity (Term 3 and 4)		Reflection & Legacy (Term 5 &6)	
EYFS Key Questions	Where will our adventures take us?	How can we take care of living things?	What is life like around the world?	What makes us wonderfully different?	What is beyond our world?	How can we make our world better?
	Self portraits Explore colour Making meaning to marks	Explore and design animal habitats Rangoli art & Diwa lamps Christmas craft Develop small world play	Cooking Develop role play Create narratives Musical stories African art	Under the sea art Self portraits Easter craft Cooking	Space art Rocket building Observational drawing Printing- butterflies	Explore and refine a variety of artistic effects Drawing with detail Junk modelling- recycling
Key Vocabulary	Design, make, create, draw, plan, choose, colour, shape, materials, tools, cut, stick, join	Design, habitat, shelter, structure, natural materials, strong, stable, build, construct, join, attach, shape, decorate, improve	Ingredients, recipe, prepare, mix, stir, pour, measure, weigh, chop, taste, texture, healthy, decorate, pattern, evaluate	Design, plan, select, ingredients, recipe, measure, mix, cut, fold, shape, assemble, join, decorate, evaluate	Design, plan, construct, rocket, structure, materials, tools, strong, stable, balance, attach, join, test, improve	Design, purpose, reuse, recycle, materials, select, tools, create, adapt, refine, improve, evaluate, sustainable
Age & Stage	3-4 Year Olds		Reception		Early Learning Goals	
Development Matters Statements	Expressive Arts and Design • Make imaginative and complex 'small worlds' with blocks and construction kits. • Explore different materials freely. • Develop their own ideas and then decide which materials to use to express them. • Join different materials and explore different textures. • Create closed shapes with continuous lines and begin to use these shapes to represent objects. Physical Development • Use large muscle movements to paint and make marks.		Expressive Arts and Design • Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills. Physical Development • Develop their small motor skills, so that they can use a range of tools competently, safely and confidently.		Creating with Materials (Expressive Art and Design) • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. Fine Motor Skills (Physical Development) • Use a range of small tools, including scissors, paintbrushes and cutlery. Begin to show accuracy and care when drawing.	

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How can design help us celebrate?
</td><td colspan="2">Key Question:
How can design help us care for nature?
</td></tr>
<tr><td colspan="2">Learning Objectives
1 To explore the design features of emergency vehicles.
2. To develop a design a moving fire engine.
3. To construct a moving fire engine using wheels and axles.
4. To test and evaluate the effectiveness of my fire engine.</td><td colspan="2">Learning Objectives
1 To explore how lanterns are designed for celebrations.
2. To create a design for a Chinese New Year lantern.
3. To construct a lantern using joining and folding techniques.
4. To evaluate how well my lantern meets its purpose.</td><td colspan="2">Learning Objectives
1 To explore how bird feeders support wildlife.
2. To create a bird feeder that meets the needs of birds.
3. To construct a bird feeder using natural materials.
4. To evaluate how effectively my bird feeder helps wildlife.</td></tr>
<tr><td>Disciplinary Knowledge Year 1
- Explore how things move using simple mechanisms (e.g. wheels and axles).
- Investigate different materials and say which are suitable for a purpose.-Build simple structures and begin to join materials together.-Talk about what</td><td>Disciplinary Knowledge Year 2
- Explore and use mechanisms such as sliders and levers.
- Begin to use simple design criteria to communicate ideas.-Use simple tools safely and effectively to make a product. -Begin to evaluate ideas and products.</td><td>Disciplinary Knowledge Year 1
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- Explore how things move using simple mechanisms (e.g. wheels and axles).
- Investigate different materials and say which are suitable for a purpose.-Build simple structures and begin to join materials together. -Talk about what they like and dislike about a product.-Draw simple designs and</td><td>Disciplinary Knowledge Year 2
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	they like and dislike about a product.-Draw simple designs and explain ideas verbally			explain ideas verbally		
	Substantive Knowledge I know emergency vehicles are designed to help people quickly and safely. I know wheels and axles allow vehicles to move. I know good design helps solve problems.		**Substantive Knowledge** I know designers create products for a purpose. I know lanterns are used in many cultures to celebrate important events. I know Chinese lanterns are traditionally used during Chinese New Year and the Lantern Festival		**Substantive Knowledge** I know good design can leave a positive legacy. I know bird feeders are designed to help birds access food. I know wildlife needs food, water and shelter to survive.	
	NC Links • Explore and use mechanisms including wheels and axles. • Understand how mechanisms help products move. • Build products that are fit for purpose. • Evaluate their ideas and products against design criteria.		**NC Links** • Generate, develop, model and communicate their ideas through talking, drawing, templates and mock-ups. • Select from and use a range components according to their characteristics. • Evaluate their ideas and products against design criteria. Explore how structures can be made stronger, stiffer and more stable.		**NC Links** • Design purposeful, functional and appealing products for themselves and other users. • Select from and use a range of tools and equipment to perform practical tasks. • Explore and evaluate existing products. Explore how products are made more suitable for purpose.	
	Vocabulary Emergency, fire engine, firefighter, rescue, safety, community, vehicle, movement, rolling, stable.		**Vocabulary** Lantern, celebration, Chinese New Year, tradition, festival, decoration, pattern, symbol, tassel, template, join, fold, structure.		**Vocabulary** bird feeder, wildlife, habitat, seeds, pinecone, string, fat, perch, feeder, reflection, legacy, care, future, thrive, sustain.	
Year 3/4	**Key Question:** How can we design a survival pouch for a Hunter-gatherer? 		**Key Question:** How has ancient diversity shaped British housing design? 		**Key Question:** How does a bridge reflect the engineering legacy that supports us today? 	
	Learning Objectives **1.** I can explore existing designs and experiment with suitable materials to make a sewn pouch. **2.** I can design a pouch suitable for carrying small items **3.** I can make a pouch using suitable tools and materials, safely and accurately		**Learning Objectives** **1.** I can explore how people in the Iron Age built their homes. **2.** I can design an Iron Age Roundhouse using clues from the past and artefacts. **3.** I can make an Iron Age Roundhouse using framing, joining and natural materials/ Celtic techniques.		**Learning Objectives** **1.** I can explore different types of bridge around the world and say what makes them effective. **2.** I can design a bridge to support a designated weight.	

	4. I can test my finished product and evaluate it, suggesting suitable improvements.		**4.** I can evaluate my finished product and suggest suitable improvements.		**3.** I can experiment with different materials and techniques to make a prototype and a bridge to support a weight. **4.** I can test my finished product and evaluate it, suggesting suitable improvements.	
	Disciplinary Knowledge Year 3 - Thread a needle - Do basic running stitch - Cut, shape and layer fabric accurately - Join fabric using stitching or glue - Evaluate product and suggest improvements	Disciplinary Knowledge Year 4 - Thread a needle independently - Use a running stitch to join fabrics together accurately - Use a layering technique - Evaluate work and make improvements -	Disciplinary Knowledge Year 3 - Compare modern and historical structures - Experiment with natural materials - Evaluate the strength and join of materials - Select materials and justify choices - - Build a 3D structure from a 2D plan	Disciplinary Knowledge Year 3 - Thread a needle - Do basic running stitch - Cut, shape and layer fabric accurately - Join fabric using stitching or glue - - Evaluate product and suggest improvements	Disciplinary Knowledge Year 4 - Thread a needle independently - Use a running stitch to join fabrics together accurately - Use a layering technique - Evaluate work and make improvements -	Disciplinary Knowledge Year 3 - Compare modern and historical structures - Experiment with natural materials - Evaluate the strength and join of materials - Select materials and justify choices - - Build a 3D structure from a 2D plan
	Substantive Knowledge I know that products are designed for specific purposes and users, and that design features can affect functionality and appeal. I know how to select appropriate materials and components for a working product. I know the importance of a plan and design sketches. I know how to safely construct a product using tools and materials carefully. I know how to evaluate a product based on criteria such as effectiveness, appearance, and suitability for purpose.		Substantive Knowledge I know that products are designed for specific purposes and users, and that design features can affect functionality and appeal. I know how to select appropriate materials and components for a working product. I know the importance of a plan and design sketches. I know how to safely construct a product using tools and materials carefully for joining and reinforcing. - I know how to evaluate a product based on criteria such as effectiveness, appearance, and suitability for purpose.		Substantive Knowledge I know that products are designed for specific purposes and users, and that design features can affect functionality and appeal. I know how to select appropriate materials and components for a working product. I know the importance of a plan and design sketches. I know how to safely construct a product using tools and materials carefully for joining and reinforcing. - I know how to evaluate a product based on criteria such as effectiveness, appearance, and suitability for purpose.	
	NC Links Use research and develop design criteria to inform the design Select and use a wide range of materials including textiles		NC Links Use research and develop design criteria to inform the design Apply understanding of how to strengthen more complex structures.		NC Links Apply understanding of how to strengthen more complex structures. Understand and use mechanical systems in their products.	

	Perform practical tasks like cutting and joining accurately		
	Vocabulary Cross section, design, plan, research. Annotated diagram, appearance, artefact, cross-section, design, design brief, dismantle, drawing tools, enlarged view, evaluation, function, primary source, research, adhesive, decoration, fabric, needle, thread, snap, fastening.	**Vocabulary** Roundhouse, framing, joining, cross section, annotated diagram, design, plan, research, appearance, artefact, brittle, cross-section, design, design brief, dismantle, drawing tools, crayons, marker pens, paints, pastels pencils, pens, compass, protractor, enlarged view, evaluation, function, portrait, primary source, research, adhesive, art straws, dowels, join, strengthen, reinforce, decoration, structural integrity.	**Vocabulary** Bridge, beam, span, pier, counterbalance, balance, weight, structure, cross section, annotated diagram, design, plan, research. Annotated diagram, appearance, artefact, brittle, cross-section, design, design brief, dismantle, drawing tools, enlarged view, evaluation, function, plan, planning, research, adhesive, art straws, mechanism, strengthen, stiffen, reinforce, modification.
Year 5 & 6	**Key Question:** **Can a well-designed structure eliminate the risks of an environment?**	**Key Question:** **How do Greek vases tell the story of a culture?**	**Key Question:** **How do we engineer a legacy of safety?**
	Learning Objectives 1. I can investigate how shelters are designed to protect people from the risks of extreme environments. 2. I can design a strong and stable shelter using a range of structural features and materials 3. I can select and join materials to build a shelter that is strong, stable and fit for purpose. 4.I can test and evaluate my shelter, explaining how effectively it reduces the risks **of the environment and how I could improve my design.**	**Learning Objectives** 1. I can investigate how the design and shape of Greek vases were influenced by their purpose and the culture of Ancient Greece. 2. I can design a Greek-inspired vase that is stable, functional and communicates an aspect of Ancient Greek culture. 3. I can select, shape and join materials to make a Greek-inspired vase that follows my design. 4. I can test and evaluate my vase against my design specification and explain how I could improve it	**Learning Objectives** 1. I can investigate how sensors, inputs and outputs are used in warning systems to keep people safe. 2. I can design a flood warning system with a sensor input and an appropriate warning output. 3. I can build and program a flood warning system so that it responds to changes in water level. 4. I can test and evaluate my system, making changes to improve its reliability and effectiveness.
	Disciplinary Knowledge Year 5 - Identify key features and user needs for a shelter. - Plan the making process including materials and tools	**Disciplinary Knowledge Year 6** - Identify existing products for function and appeal - Plan the making process including materials, tools and steps	**Disciplinary Knowledge Year 5** - Explore and discuss existing vases, vessels and research Ancient Greek pottery. . - Identify what makes a vessel stable or unstable.	**Disciplinary Knowledge Year 5** - Identify key features and user needs for a shelter. - Plan the making process including materials and tools	**Disciplinary Knowledge Year 6** - Identify existing products for function and appeal - Plan the making process including materials, tools and steps - Measure, cut and join fabric or	**Disciplinary Knowledge Year 5** - Explore and discuss existing vases, vessels and research Ancient Greek pottery. . - Identify what makes a vessel

	- Measure, cut and join fabric or chosen material - Carefully select materials to ensure they are fit for purpose, strong and stable. - Evaluate the design and shelter made against a design criteria. - Make suggestions for possible improvements to the design. -	- Measure, cut and join fabric or chosen material with increased accuracy - Confidently and carefully select materials to ensure they are fit for purpose, strong and stable. - Critically evaluate products against design criteria and intended user needs. -	- Generate ideas through annotated sketches. - Measure, mark and cut materials with increasing accuracy. - Test their structure with water or it's ability to stand alone. - To observe how well it stands as a vase. - Compare Ancient Greek designs and choose designs carefully. - To evaluate what worked well and what did not work well. -	- Measure, cut and join fabric or chosen material - Carefully select materials to ensure they are fit for purpose, strong and stable. - Evaluate the design and shelter made against a design criteria. - Make suggestions for possible improvements to the design. -	chosen material with increased accuracy - Confidently and carefully select materials to ensure they are fit for purpose, strong and stable. - Critically evaluate products against design criteria and intended user needs.	stable or unstable. - Generate ideas through annotated sketches. - Measure, mark and cut materials with increasing accuracy. - Test their structure with water or it's ability to stand alone. - To observe how well it stands as a vase. - Compare Ancient Greek designs and choose designs carefully. - To evaluate what worked well and what did not work well.
	Substantive Knowledge - I know that shelters are designed to protect people from different weather and environmental conditions. - I know that a strong structure needs to be stable and able to support weight without collapsing. - I know that the shape and design of a structure can make it stronger and more stable. - I know that different materials have different properties, so some materials		Substantive Knowledge - I know that Ancient Greeks used different types of vases for different purposes, such as storing, carrying and serving things. - I know that the shape and size of a Greek vase were often designed to suit its purpose. - I know that Greek vases can tell us about Ancient Greek life, beliefs, stories and traditions. - I know that a successful vessel needs to be carefully designed so that it is stable, strong and fit for its purpose.		Substantive Knowledge - I know that warning systems can use sensors to detect changes in the environment and help keep people safe. - I know that an electrical system can have an input, a process and an output. - I know that a programmed system can respond to an input by activating an output, such as a light, sound or message. - I know that engineers test and improve safety systems so that they work reliably when people need them.	

	are more suitable than others for building a shelter. - I know that good design can reduce the risks people face in extreme environments, but it cannot remove every risk.		
	NC Links - generate, develop, model and communicate their ideas through discussion, annotated sketches, - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - 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	NC Links - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	NC Links -use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, -understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] -investigate and analyse a range of existing products. - -understand how key events and individuals in design and technology have helped shape the world
	Vocabulary Stability, reinforce, triangulation, properties, load, joint, prototype, strength, support, specification, modify	Vocabulary Vessel, function, purpose, stability, structure, material, construct, shape, form, reinforce, prototype, evaluate, motif, narrative	Vocabulary Circuit, electrical, sensor, input, output, process, program, condition, trigger, detect, respond, reliable