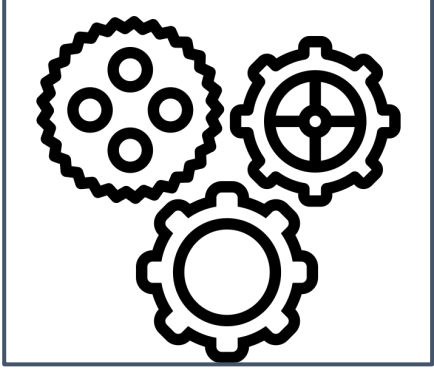
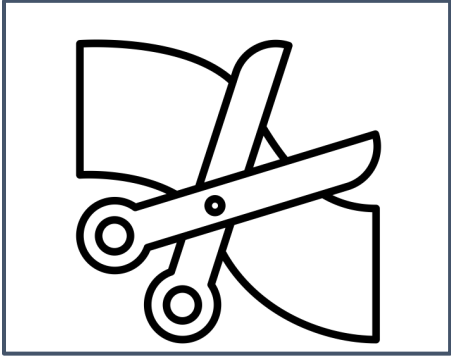
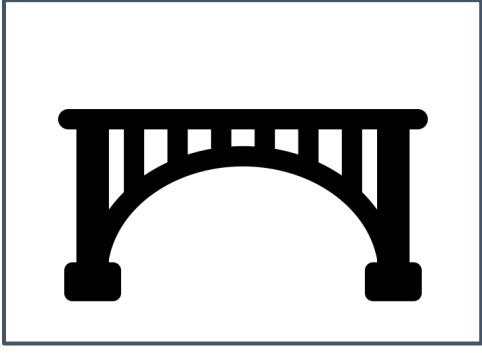
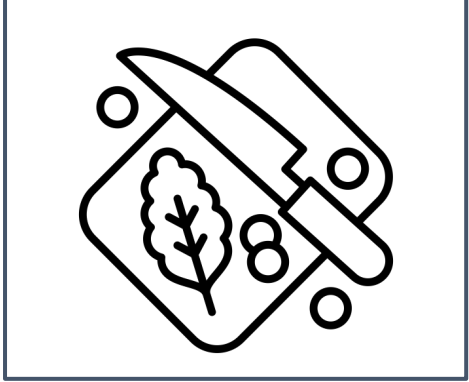

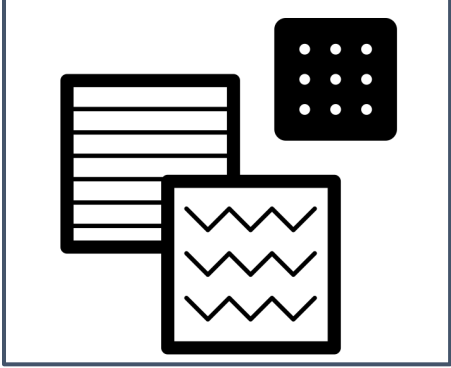


Big Ideas

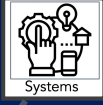
Core Discipline	Description
 <p data-bbox="218 799 615 867">Mechanisms</p>	<p data-bbox="748 420 1683 501">Pupils will explore, understand and use mechanical systems in their products.</p> <p data-bbox="748 545 1249 586">KS1: Sliders, levers, axles, wheels</p> <p data-bbox="748 630 1567 670">KS2: Hinges, gears, pulleys, cams, levers and linkages]</p>
 <p data-bbox="293 1263 537 1331">Textiles</p>	<p data-bbox="748 904 1707 985">Pupils will select from and use a wider range of textiles according to their functional properties and aesthetic qualities.</p> <p data-bbox="748 1019 1633 1060">In KS1 they will learn how to join, stiffen and strengthen fabrics.</p> <p data-bbox="748 1094 1726 1175">In KS2 pupils explore fixings and fastening and consider the durability of different fabrics.</p> <p data-bbox="748 1209 1738 1290">In both Key stages pupils consider the to re-purpose clothing and how to reduce waste.</p>
 <p data-bbox="255 1704 578 1771">Structures</p>	<p data-bbox="748 1372 1720 1453">Pupils will build structures, exploring how they can be made stronger, stiffer and more stable</p> <p data-bbox="748 1487 1738 1568">In KS1 they learn about free standing structures and how to strengthen a paper structure.</p> <p data-bbox="748 1602 1707 1717">In KS2 pupils design structures using a frame to make them stronger. They learn how frames are strengthened reinforced and made rigid. Pupils learn about bridges and how they are used to span gaps.</p>
 <p data-bbox="144 2171 685 2239">Food & Nutrition</p>	<p data-bbox="748 1805 1714 1920">Pupils use the basic principles of a healthy and varied diet to prepare predominantly savoury dishes. They understand where food comes from and understand seasonality.</p> <p data-bbox="748 1954 1733 2070">In KS1 pupils explore food senses. They learn about nutrients and why vegetables are healthy. They learn the difference between fresh and processed foods.</p> <p data-bbox="748 2103 1683 2266">In KS2 pupils learn about food as medicine and consider how food affects the way you feel. They learn about balanced diets and the benefits of fresh food. Pupils explore food choices and consider cultural influences on people's food choices.</p>
 <p data-bbox="282 2673 548 2740">Systems</p>	<p data-bbox="748 2286 1738 2402">KS2 pupils understand and use electrical systems in their products. They apply their understanding of computing to program, monitor and control their products.</p>
 <p data-bbox="269 3188 565 3255">Materials</p>	<p data-bbox="748 2815 1683 2984">In KS1 pupils consider the suitability of different materials in designing and making products. They select and manipulate materials when considering how you can build with bread and how you can waterproof a hat.</p>

DT Learning Journey



Can food affect the way we feel?

Can street foods save us?



Y6

Can switches perform more than one function?

How strong is a piece of spaghetti?

How can we keep ourselves safe on the road?

How are frames strengthened, reinforced and made rigid?

Y5



Which fabric is ideal for creating a lunch bag?

How can you lift a car onto a roof?

What can you learn from different culture's diets?

How many ways are there to open a door?

How useful are switches?

What's really in our food?



Y4

How do you keep a tea towel from slipping off a hook?

What shapes will give a structure stability?

How can you make a box out of cloth?

How can you do a lot of work with little effort?



Y4

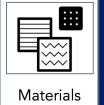
How does food affect your body and mind?

What makes a bridge strong?

How are things powered?

Are bigger wheels always better?

How can you waterproof a hat?



Y2

How strong is a piece of paper?

What does healthy mean?

How can you re-purpose and item of clothing?

Can a picture move?

How does food affect your senses?



Y1

How can you stop a tower toppling over?

Can you build with bread?

How can two squares of fabric keep you warm?

Creating with Materials: Share their creations, explaining the process they have used.







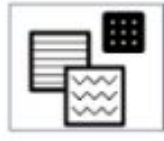
EYFS





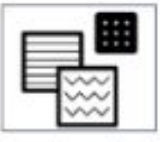
Creating with Materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function





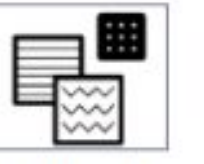






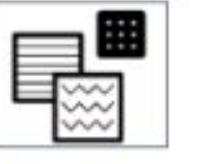
welcome





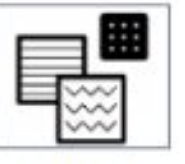
Cumulative End Goals





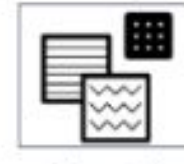
<u>Year 1</u>	 Mechanisms	 Structures	 Textiles	 Food & Nutrition	 Materials
Know:	<p>Common uses of sliders.</p> <p>Different methods to create card sliders</p> <p>How sliders can create simple mechanisms.</p>	<p>A freestanding structure is a structure that stands on its own foundation or base without attachment to anything else.</p>	<p>Fabric can be joined together using a running stitch.</p> <p>The types and names of tools needed for sewing.</p>	<p>Why colourful food can be healthier.</p> <p>How different foods can affect their senses.</p>	<p>Building materials have different properties which enable them to be used for different purposes.</p>
Be able to:	<p>Design and make a slider product</p> <p>Evaluate the success of their outcomes and recommend improvements</p>	<p>Build structures that are freestanding using a range of different materials.</p>	<p>Create a running stitch.</p> <p>Select tools for sewing.</p> <p>Thread a needle.</p>	<p>Peel, chop and grate a selection of vegetables.</p> <p>Modify food to suit their food senses.</p>	<p>Identify, sort and select materials that can be used in construction.</p> <p>Combine materials.</p>

<u>Year 2</u>	 Mechanisms	 Structures	 Textiles	 Food & Nutrition	 Materials
Know:	<p>How wheels and axles work together</p> <p>The size and position of wheels affects how they move</p>	<p>Paper becomes stronger when it is folded</p> <p>A load is the amount of weight a structure must carry.</p>	<p>How to cut out shapes which have been created by using a template</p> <p>How to use a range of basic sewing skills</p>	<p>Why vegetables are so important to our health</p> <p>What processed foods are</p>	<p>Materials can be modified to become waterproof</p> <p>Origami comes from the Japanese words: ori – folding and kami – paper</p>
Be able to:	<p>Create a simple wheel mechanism</p> <p>Use wheel mechanisms to propel a simple vehicle</p>	<p>Fold paper to increase strength and stability</p> <p>Test and record how much weight paper can hold</p>	<p>Use a template to transfer a pattern</p> <p>Cut out and join fabric shapes using a template</p>	<p>Prepare a range of salad vegetables</p> <p>Shape and season a bread snack</p>	<p>Make paper waterproof</p> <p>Transform flat paper by folding and creasing to form a hat</p>

Year 3	 Mechanisms	 Structures	 Textiles	 Food & Nutrition	 Materials
Know:	<p>Types of levers and linkages</p> <p>Key terminology relating to levers and linkages</p> <p>How levers and linkages can change the direction of movement</p>	<p>Bridges are structures that allow people and vehicles to cross over an open space</p> <p>Towers, piers and arches provide strength to a bridge</p>	<p>Fabric can be stiffened</p> <p>Stiffened fabric can hold a form</p>	<p>How food can help their body and mind</p> <p>How to prepare and cook a range of vegetables</p>	<p>Different types of energy</p> <p>Why designers need to carefully consider energy sources</p>
Be able to:	<p>Design and make simplistic lever and linkage products</p> <p>Evaluate the success of their outcomes and recommend improvements</p>	<p>Design and build a beam bridge that can hold the weight of 100 pennies</p> <p>Identify and name parts of a bridge</p>	<p>Select and apply solutions to stiffen fabric</p> <p>Make a box using stiffened fabric</p>	<p>Peel and grate a range of vegetables</p> <p>Add flavour and texture to foods</p>	<p>Identify how things are powered</p> <p>Suggest appropriate energy sources for design problems</p>

Year 4	 Mechanisms	 Structures	 Textiles	 Food & Nutrition	 Materials
Know:	<p>Types of hinges and the related terminology</p> <p>Common uses for hinges</p>	<p>Triangles provide stability in a structure</p> <p>Structural engineers work with architects to ensure structures withstand forces</p>	<p>Fastenings have different functions</p> <p>A shank provides a small amount of space between the button and fabric</p>	<p>Processed foods have many added ingredients</p>	<p>A switch is an interruption in a circuit</p> <p>Switches are widely used in a range of products</p>
Be able to:	<p>Make a variety of model hinges</p> <p>Make and evaluate hinged products using modelling materials</p>	<p>Make triangles to form and join trusses</p> <p>Identify the forces that affect structures</p>	<p>Select appropriate fastenings and attach them to fabric</p> <p>Make a shank for a button</p>	<p>Make, roll and shape bread dough</p> <p>Make a soup</p>	<p>Incorporate different types of switches into circuits to perform a function</p>

Year 5	 Mechanisms	 Structures	 Textiles	 Food & Nutrition	 Materials
Know:	<p>Types of gears and terminology relating to gears</p> <p>Common uses of pulleys and gears</p> <p>How pulleys and gears can change the direction of movement</p>	<p>Engineers use a range of methods to strengthen and reinforce structures</p>	<p>How to waterproof cotton fabric</p> <p>Which fabrics are both functional and hardwearing</p>	<p>Some foods and key ingredients from other cultures</p> <p>How other cultures' food can be nutritious</p>	<p>Technology can be used to program and control a product</p>
Be able to:	<p>Design and make products that use pulleys and gears to lift loads</p> <p>Evaluate the success of their outcomes and recommend improvements</p>	<p>Identify and describe ways that frames are strengthened and reinforced</p>	<p>Use beeswax to waterproof cotton fabric</p> <p>Repurpose a pair of jeans</p>	<p>Make, roll and cook a flatbread</p> <p>Prepare a range of vegetables</p> <p>Present foods to a high standard</p>	<p>Combine elements of their design knowledge to fulfil a brief</p>

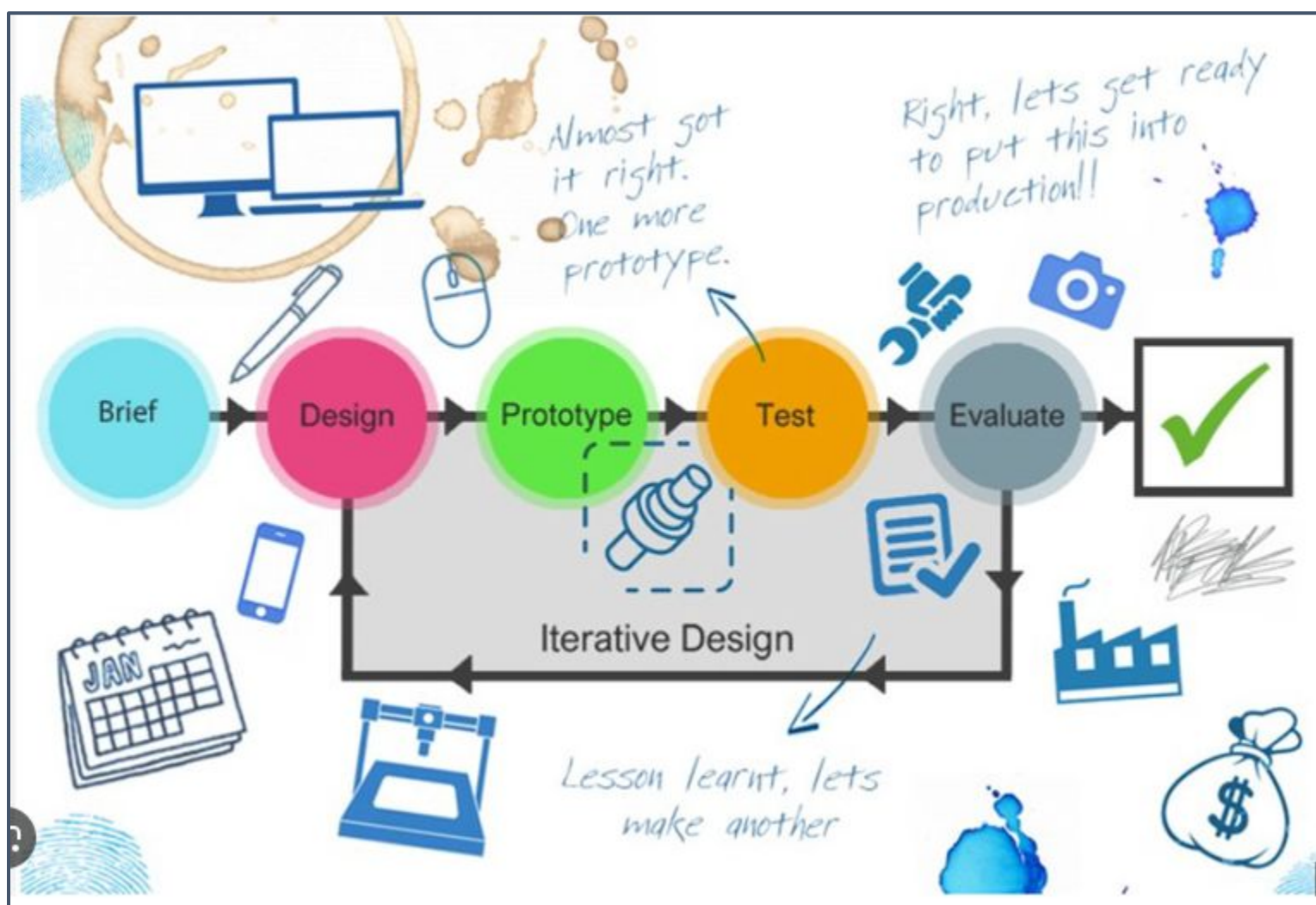
Year 6	 Mechanisms	 Structures	 Textiles	 Food & Nutrition	 Materials
Know:	<div style="background-color: #cccccc; height: 100px; width: 100%;"></div>	<p>Structures can be supported with guy lines and flying buttresses</p> <p>The shorter the piece of spaghetti, the stronger it will be</p>	<div style="background-color: #cccccc; height: 100px; width: 100%;"></div>	<p>What street foods are</p> <p>How snacks can be good foods to eat</p>	<p>More than one switch can be used to change the functionality of a product</p>
Be able to:	<div style="background-color: #cccccc; height: 100px; width: 100%;"></div>	<p>Construct a flying buttress to support a tower</p> <p>Use appropriate lengths of spaghetti to increase strength and stability</p>	<div style="background-color: #cccccc; height: 100px; width: 100%;"></div>	<p>Make a burrito</p> <p>Make and roll bread dough</p> <p>Make a savoury pastry</p>	<p>Use switches to adapt a product in response to a design brief</p>

Thinking and working as a designer

Pupils make more sense and deeper understanding of the substantive concepts and knowledge by using what they know through disciplinary knowledge.

Teachers plan to model and teach how to think like a designer, developing the following areas of disciplinary knowledge over time:

	EYFS	Year 1 + 2	Year 3 + 4	Year 5 + 6
DESIGNING Understanding contexts, users and purposes	<ul style="list-style-type: none"> Constructs with purpose in mind. Chooses particular colours /materials to use for a purpose. Explains what they are making and who it is for. 	<ul style="list-style-type: none"> State what products they are designing and making. Say whether their products are for themselves or other users. Describe what their products are for. Say how their products will work. 	<ul style="list-style-type: none"> Work from a design brief - considering the needs and wants of particular individuals and groups. Describe the purpose of their products. Indicate the design features of their products that will appeal to intended users. Explain how particular parts of their products work. 	As Y3/4 + <ul style="list-style-type: none"> Carry out research, using surveys, interviews, questionnaires and web-based resources.
Generating, developing and communicating ideas	<ul style="list-style-type: none"> Uses available resources to make props for role-play. Creates simple representations of objects. Talk about what they are making and how they will make it. 	<ul style="list-style-type: none"> Generate ideas by drawing on their own experiences. Develop and communicate ideas by talking and drawing. 	<ul style="list-style-type: none"> Share and clarify ideas through discussion. Use annotated sketches, drawings and diagrams to develop and communicate their ideas. Make design decisions that take account of the availability of resources. Use knowledge of existing products to help come up with ideas. 	As Y3/4 + <ul style="list-style-type: none"> Generate innovative ideas, drawing on research/ knowledge of existing products.. Make design decisions, taking into account constraints such as time, resources and cost.
MAKING Planning	<ul style="list-style-type: none"> Select tools, materials and techniques appropriate to the task. Manipulates materials to achieve a planned effect. 	<ul style="list-style-type: none"> Plan by suggesting what to do next. Select from a range of tools and equipment, explain their choices. Select from a range of materials and components according to their characteristics. 	<ul style="list-style-type: none"> Select tools and equipment suitable for the task. Explain their choices of tools and equipment in relation to the skills and techniques they will be using. Select materials and components suitable for the task. Explain their choice of materials and components according to functional properties and aesthetic qualities. Order the main stages of making. 	<ul style="list-style-type: none"> Select tools and equipment suitable for the task. Explain their choices of tools and equipment in relation to the skills and techniques they will be using. Select materials and components suitable for the task. Explain their choice of materials and components according to functional properties and aesthetic qualities. Produce appropriate lists of tools and equipment suitable for the task. Formulate step-by step plans as a guide to making.
Practical skills and techniques	<ul style="list-style-type: none"> Joins construction pieces together to build and balance. Begin to understand some of the tools, techniques and processes involved in food preparation. 	<ul style="list-style-type: none"> Follow procedures for safety and hygiene. Measure, mark out, cut and shape materials and components. Use finishing techniques, including those from art and design. 	<ul style="list-style-type: none"> Follow procedures for safety and hygiene. Measure, mark out, cut and shape materials and components with some accuracy. Assemble, join and combine materials and components with some accuracy. Apply a range of finishing techniques, including those from art and design, with some accuracy. 	As Y3/4 but with increasing accuracy and with an increasing range of materials.
EVALUATING Own ideas and products	<ul style="list-style-type: none"> Adapts work where necessary. Can talk about what they are making. Can talk about what they like about their own product and what problems and challenges they faced and how they overcame them. 	<ul style="list-style-type: none"> Talk about their own design ideas and what they are making. Make simple judgements about their products and ideas against design criteria. Suggest how their products can be improved. 	<ul style="list-style-type: none"> Identify the strengths and areas for development in their ideas and products. Refer to their design criteria as they design and make. Evaluate and adapt their products as they work. Use their design criteria to evaluate their completed products. 	As Y3/4 + <ul style="list-style-type: none"> Consider the views of others, including intended users, to improve their work. Test, evaluate and adapt their products as they work. Begin to understand the iterative design process.
Existing products	<ul style="list-style-type: none"> Look closely at similarities and differences. Talk about why things happen and how things work. Talk about what they have observed in found objects. 	Explore: <ul style="list-style-type: none"> What products are and who and what products are for. How products work. How and where products are used. What materials products are made from. What they like and dislike about products. 	Investigate and analyse: <ul style="list-style-type: none"> How well products have been designed. How well products have been made. Why materials have been chosen. What methods of construction have been used. How well products work and how well they achieve their purposes and meet users wants and needs.. 	as Y3/4 + Investigate and analyse: <ul style="list-style-type: none"> How much products cost to make. How innovative products are and how sustainable the materials are.



As children progress through the school we aim for them to begin to develop their understanding of the Iterative Design Process, in preparation for the next stage of their learning in KS3.

Early Foundations

What will pupils know and be able to do:	2 – 3 years	3 – 4 years	4 – 5 years
Range of materials	<ul style="list-style-type: none"> Explore different materials, using all of their senses to investigate them. Manipulate and play with different materials. Use their imagination as they consider what they can do with different materials. Use block play to begin to build and design. 	<ul style="list-style-type: none"> Explore different materials freely to develop their ideas about how to use them and what to make. Join different materials, beginning to explain choice linked to shape and texture / properties. Use various construction materials, e.g. joining pieces, stacking vertically and horizontally, balancing, making enclosures and creating spaces. 	<ul style="list-style-type: none"> Develop their own ideas through experimentation with a diverse range of materials. Increasingly choose more appropriate materials for the job, e.g. cotton reels / lids for wheels, wool / thread for hair. Join different materials explaining why they have chosen a specific fixing. Purposefully choose construction materials for a specific job.
Essential vocabulary	make, hard, soft, small, big	build, join, plastic, paper, cardboard	material, wood, foil, fabric, fixing

What will pupils know and be able to do?	2 – 3 years	3 – 4 years	4 – 5 years
Tools and fixings	<ul style="list-style-type: none"> Begin to use scissors and Sellotape cutters accurately. Use basic fixings, e.g. PVA glue, Pritt stick, masking tape, Sellotape (but may still get tangled). 	<ul style="list-style-type: none"> Use scissors accurately. Begin to use cutlery accurately. With supervision, use staplers and hole punches safely. Use masking tape, Sellotape (and cutter), elastic bands, Pritt stick and PVA glue accurately. Begin to use treasury tags. With supervision, begin to use an age-appropriate hammer and screws (goggles and gloves). 	<ul style="list-style-type: none"> Accurately use a range of small tools - scissors, cutlery, stapler, hole punch, trowel. Know how to use an age-appropriate hammer, screws, nails, hand drills, hand vice and a saw safely (goggles and gloves). Use a range of fixings explaining choices – staples / stapler, hole punch, treasury tags, split pins, different glues, Sellotape, masking tape.
Essential vocabulary	scissors, tape, glue, together, safe	stapler, hole punch, treasury tag, tools, goggles, safely	trowel, drill, vice, saw, split pins, safety equipment

What will pupils know and be able to do?	2 – 3 years	3 – 4 years	4 – 5 years
Discussion and evaluation	<ul style="list-style-type: none"> Say what they have made. Use key words to assign meaning to their creations, e.g. dog, mummy, head, tail, face. Begin to talk about the colours they have used and why. Begin to name what they have used to create, e.g. box, paper, tape. 	<ul style="list-style-type: none"> Say what they like about their creations. Say what was hard and easy about their creations. Talk about the colours they have used and why. Use increasingly accurate vocabulary to name what they have used to create, e.g. egg box, cereal box, juice bottle, plastic, cardboard. Begin to talk to others about and share their creations showing increasingly more interest in what others have done. I like xxx because ... 	<ul style="list-style-type: none"> Share their creations explaining the process they have used, e.g. colours, fixings and materials using mostly accurate vocabulary. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Say what works well / why they are proud / pleased about their creation and what they might do to make it even better. Create collaboratively, sharing ideas, resources and skills.
Essential vocabulary	made, used, paper, box, tape / glue (plus colour language see painting section)	hard, easy, because, enjoyed, favourite (plus colour language – see painting section)	materials, fixings, better, proud, idea

Area of Learning and Development: Expressive arts and design				NATIONAL CURRICULUM
EDUCATIONAL PROGRAMME EYFS Framework	LANGUAGE children will encounter	OPPORTUNITIES + EXPERIENCES specific teaching	OPPORTUNITIES + EXPERIENCES continuous provision	Builds knowledge and understanding so pupils access Y1 DT
The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.				Design purposeful, functional, appealing products for themselves and other users based on design criteria. ·Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
Early Learning Goals: Creating with Materials 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. Make use of props and materials when role playing characters in narratives and stories.	Materials (wood paper card plastic) Fabric Fixings Join Names of tools Design Build Structure Idea Strong	Design and make story props. Junk model transport with moving parts Houses for 3 little pigs Making gingerbread	Junk modelling /loose parts Range of tools and fixings Construction kits Large scale construction- tyres / planks/crates/logs	Make ·Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ·Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Evaluate ·Explore and evaluate a range of existing products. ·Evaluate their ideas and products against design criteria. Technical knowledge ·build structures, exploring how they can be made stronger, stiffer and more stable. ·Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Assessment in DT

The assessment of pupils is formative and is based on pupil outcomes and questioning from each lesson. The following are used to assess pupils' knowledge and application of skills and techniques as well as their understanding and use of relevant vocabulary.

- *Cumulative end goals* for each of the Big Ideas for DT. These specify what pupils should know and be able to do at the end of each block.
- The *Point of reflection* section specifies the expected outcomes for each lesson.
- The *Questions for assessment* section in each block provides specific questions to be used with pupils to elicit their level of understanding of tools, techniques and effects, e.g. How have the properties of the cotton changed? Is the cotton now more or less functional?
- The *Oracy and Vocabulary tasks* provide ample opportunities for teachers to evaluate pupils' ability to:
 - use the language of design and technology effectively;
 - explain techniques, skills and processes;
 - evaluate their own and others' work.
- The *exemplifications* demonstrate the expected standard against which teachers can assess pupils' work.

The best form of assessment in design and technology is at the point of delivery, while pupils are working. This helps us to understand pupils' development as designers, rather than their ability to produce a prescribed end outcome. By encouraging pupils to articulate their thinking and reflections, we can understand which aspects of design and technology may require additional teaching and reshape teaching to support this.

At the end of each academic year, this all feeds into a final overall assessment judgement for Design Technology, which is reported to parents. This judgement reflects how secure the pupil's knowledge and understanding in the learning taught that year has been.

How do we measure the impact of our DT curriculum?

We evaluate the impact of our Design and Technology curriculum in the following ways:

- **Pupil Book Study:** Small groups of pupils from each class are asked to talk about what they remember about their learning in DT. These sessions are led by the DT Leader and provide an extremely useful insight into the impact of the curriculum on pupil's learning.
- **Lesson visits.** The DT leader visits a sample of lessons over the year to evaluate the quality of teaching and learning.
- **Book looks:** The subject leader looks at samples of DT books. Often this is done in conjunction with the Pupil Book Study.
- **Supported planning and teaching:** The DT leader works alongside the class teacher to support the planning and teaching, providing quality assurance.
- This all feeds into a termly subject leader evaluation.

How do we adapt our DT curriculum to include all learners?

It is our expectation that all pupils participate fully in DT lessons. A small number of pupils may be working towards adapted end points for DT or may be working at a pre-subject specific stage of development. Details of the provision for these pupils can be found in their individual learning plan.