



# Westleigh Methodist Primary School

## Design Technology Progression of Skills and Knowledge

With God, all things are possible – Matthew 19:26

Love Teamwork Thankfulness Generosity Peace Forgiveness Equality Justice



### Early Years

#### **Educational Programme**

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.

#### **ELG: Fine Motor Skills**

Use a range of small tools, including scissors, paint brushes and cutlery.

- Begin to show accuracy and care when drawing

#### **ELG: 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.

### National Curriculum

#### **Purpose of study**

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

## **Aims**

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

## **Subject Content**

### **Key Stage 1**

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 and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to:

#### **Research**

- explore and evaluate a range of existing products

#### **Design**

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

#### **Make**

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

#### **Evaluate**

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

#### **Technical knowledge**

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

### **Key Stage 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 and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:

**Research**

- investigate and analyse a range of existing products

**Design**

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

**Make**

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

**Evaluate**

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

**Technical knowledge**

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

**Researching and Designing**

Year Group	Key Knowledge and Skills	Key vocabulary
2-3 Years	<ul style="list-style-type: none"> <li>• Explore different materials, using all their senses to investigate them. Manipulate and play with different materials</li> <li>• Explore different materials freely, to develop their ideas about how to use them and what to make.</li> <li>• Develop their own ideas and then decide which materials to use to express them.</li> <li>• Draw with increasing complexity and detail, such as representing a face with a circle and including details</li> </ul>	

<b>3-4 Years</b>	<ul style="list-style-type: none"> <li>• I can select a picture of something that I like and want to create</li> <li>• I can experiment with blocks, colours and marks</li> <li>• I can test building things out of different materials- ie stacking bricks and balancing them on top of each other</li> <li>• I can say what I am going to make before I do it</li> </ul>	Copy, create, picture, experiment, blocks, colours, draw, marks, stacking, building, explore, balance, plan
<b>Reception</b>	<ul style="list-style-type: none"> <li>• I can think about and explain what I am going to make and then carry it out</li> <li>• I can plan what I am going to make by drawing it first</li> <li>• I can use a tick list to say what resources I am going to need</li> </ul>	Plan, design, implement, draw, tick list, resources, explore
<b>Year One</b>	<p>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</p> <ul style="list-style-type: none"> <li>• design products that have a clear purpose and an intended user</li> <li>• Know that before something is made, it has to be designed.</li> <li>• Know that products are usually made in factories, often by machinery but sometimes by hand (people).</li> </ul>	designed, design, designers, product, audience, factories, machinery, idea
<b>Year Two</b>	<p>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</p> <p>☑ make products, refining the design as work progresses</p> <ul style="list-style-type: none"> <li>• Know that a product has to be designed for a reason/ purpose and audience</li> <li>• Know that the chosen design is always discussed and improved before the final design is chosen.</li> <li>• Know that products are usually made in factories, often by machinery but sometimes by hand (people).</li> <li>• Develop, model and communicate ideas through talking, mock-ups and drawing.</li> </ul>	designed, design, designers, reason, purpose, product, audience, improved, final design, factories, machinery, manually

<b>Year Three</b>	<p>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>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <ul style="list-style-type: none"> <li>• Know that research is used and carried out in order to inform the design of a product.</li> <li>• Know that there can be a number of different reason/ purposes/ target groups/ key audiences a product is designed for and understand the reasons why.</li> <li>• Know how to start using research to inform basic design criteria.</li> <li>• Know that the chosen design is always discussed and improved before the final design is chosen.</li> </ul>	<p>reasons, purposes, target groups, key audience, product, designed, design, design criteria, outcomes, research, final design, improved, modified, produce, annotation, design features</p>
<b>Year Four</b>	<p>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>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <ul style="list-style-type: none"> <li>• Know how to develop own design criteria for a product.</li> <li>• Know how to use annotation in order to communicate design features and ensure design criteria has been met.</li> <li>• Know how to carry out own research in order to inform the design of a product.</li> <li>• Know that from this, design criteria are created in order for the product to meet the outcomes from the research.</li> <li>• Know what design criteria are</li> <li>• Know how to suggest ways in which a design can be improved/ modified.</li> <li>• Know how to produce more than one design through drawing.</li> </ul>	<p>reasons, purposes, target group, key audience, product, design, designed, research, inform, product, design criteria, outcomes, improved, modified, produce, annotation, design features</p>

<b>Year Five</b>	<p>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>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <ul style="list-style-type: none"> <li>• Know the key audience for whom you are designing your enterprise product for.</li> <li>• Know and understand the target group/ key audience in order to develop a suitable product for them.</li> <li>• Know how to use a set of design criteria based on research surrounding the target group/ key audience.</li> </ul>	<p>key audience, designing, enterprise product, target group, product, design criteria, research, cross sectional exploded diagram, prototype, diagrams, process, Computer Aided Design, 2D designs, 3D designs</p>
<b>Year Six</b>	<p>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>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <ul style="list-style-type: none"> <li>• Know what a prototype is.</li> <li>• Know how to use Computer Aided Design to make a 2D or 3D design.</li> <li>• Know how to use diagrams and prototypes in the process.</li> <li>• Know what a cross sectional exploded diagram is</li> </ul>	<p>key audience, designing, enterprise product, target group, product, design criteria, research, cross sectional exploded diagram, prototype, diagrams, process, Computer Aided Design, 2D designs, 3D designs</p>

<b>Making</b>		
<b>Year Group</b>	<b>Key Knowledge and Skills</b>	<b>Key vocabulary</b>
<b>2-3 Years</b>	<ul style="list-style-type: none"> <li>•</li> </ul>	
<b>3-4 Years</b>	<ul style="list-style-type: none"> <li>• Explore paint, using fingers and other parts of their bodies as well as brushes and other tools</li> <li>• Join different materials and explore different textures.</li> </ul>	<p>stack, balance, push, blocks, colours, model, test, building, explore, balance, top, bottom, next to describe, texture, materials, push, pull, change, feel,</p>

<b>Reception</b>	<ul style="list-style-type: none"> <li>• I can choose the resources I need for my activity.</li> <li>• I can handle tools and equipment effectively.</li> <li>• I can safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• I can use what I have learnt about media and materials in original ways, thinking about uses and purposes.</li> <li>• I can represent my own ideas, thoughts and feelings through design and technology.</li> <li>• I can select appropriate materials to use to make functioning products such as a boat that will float or an instrument that makes a sound.</li> <li>• I can use a tick list to create my product</li> <li>• Begin to cut with scissors</li> <li>• Use glue to join materials together</li> </ul>	Push, pat, explore, test, materials, build, strong, weak, describe, texture, , create, resources, tools, equipment, safely, techniques, experiment, plan,
<b>Year one</b>	<p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <ul style="list-style-type: none"> <li>• Explore objects and designs and identify likes and dislikes of the designs</li> <li>• Begin to make their design using appropriate techniques.</li> <li>• With help measure, mark out, cut and shape a range of materials</li> <li>• Know how to correctly hold a pair of scissors.</li> <li>• Know how to cut accurately along different sizes and shapes of lines.</li> <li>• Select an appropriate material to join materials together- blu tack, sellotape, glue</li> </ul>	sizes, shapes, lines, simple lines, join, materials, glue, sellotape, blu-tack, thread, equipment, hole punched holes
<b>Year Two</b>	<p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <ul style="list-style-type: none"> <li>• Know that product designs can be made out of a range of materials.</li> <li>• Know that certain materials are used for a specific purpose and are chosen for those reasons.</li> <li>• Begin to select tools and materials; use correct vocabulary to name and describe them</li> <li>• Learn to use hand tools safely and appropriately.</li> </ul>	product, designs, materials, purpose, tracing, simple lines, shapes, patterns, template, create, cut, scissors, investigate, methods, joining, equipment,

	<ul style="list-style-type: none"> <li>• Know that tracing (of simple lines, shapes and patterns using pencil) can be used to make a template.</li> <li>• Know how to create differently shaped templates (using tracing and scissors).</li> <li>• Know how to cut accurately along lines and around template shapes using scissors.</li> <li>• Start to choose and use appropriate finishing techniques based on own ideas.</li> <li>• Start to look at some different joining techniques</li> </ul>	
<b>Year Three</b>	<p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>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> <ul style="list-style-type: none"> <li>• Know how to cut, fold, trace and shape accurately in order to produce a finished product.</li> <li>• Know what reclaimed and recycled materials are.</li> <li>• Know how to join and finish accurately by selecting and using a wide range of tools and equipment.</li> <li>• Explain their choice of tools and equipment in relation to the skills and techniques they will be using.</li> <li>• Measure, mark out, cut, score and assemble components with more accuracy.</li> <li>• Start to work safely and accurately with a range of simple tools.</li> <li>• Start to think about their ideas as they make progress</li> </ul>	Reclaimed, recycled, cut, fold, trace, shape, product, create, simple lever slider, pop-up book/card, join, finish, lever, measure, score, components
<b>Year Four</b>	<p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>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> <ul style="list-style-type: none"> <li>• Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques.</li> <li>• Select a wider range of tools and techniques for making their product safely.</li> <li>• Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</li> </ul>	cut, fold, trace, shape, produce, product, create, simple lever slider, pop-up book/card, join, finish, tools, equipment, make, equipment, techniques, reinforce, strengthen,
<b>Year Five</b>	<p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>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> <ul style="list-style-type: none"> <li>• Demonstrate how to use skills in using different tools and equipment safely and accurately with growing confidence cut and join with accuracy to ensure a good-quality finish to the product.</li> <li>• Begin to measure and mark out more accurately</li> </ul>	designs, investigate, investigations, thread materials, tools, pulleys, components, functional, aesthetic properties
<b>Year Six</b>	<p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p>	designs, investigate, investigations, tools, components, functional, pulleys, gears aesthetic properties

	<p>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> <ul style="list-style-type: none"> <li>• Aim to make and to achieve a quality product.</li> <li>• Confidently select appropriate tools, materials, components and techniques and use them.</li> <li>• Know how to consider functional and aesthetic properties.</li> <li>• Use tools safely and accurately.</li> <li>• Demonstrate when make modifications as they go along.</li> </ul>	
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Evaluating		
Year Group	Key Knowledge and Skills	Key vocabulary
2-3 Years		
3-4 Years		thought, good, bad, improve, different, change
Reception	Return to and build on their previous learning, refining ideas and developing their ability to represent them	good, bad, like, dislike, change, improve, alteration, evaluate, model, test, function
Year one	<p>Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria</p> <ul style="list-style-type: none"> <li>• Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria).</li> <li>• When looking at existing products explain what they like and dislike about products and why.</li> <li>• Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.</li> </ul>	Make better, What went well, purpose, function
Year Two	<p>Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria</p> <ul style="list-style-type: none"> <li>• Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.</li> <li>• Evaluate their work against their design criteria.</li> <li>• Look at a range of existing products explain what they like and dislike about products and why.</li> </ul>	evaluate, strengths, improve product

	<ul style="list-style-type: none"> <li>• With confidence talk about their ideas, saying what they like and dislike about them.</li> </ul>	
<b>Year Three</b>	<p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand how key events and individuals in design and technology have helped shape the world</p> <ul style="list-style-type: none"> <li>• Know how to evaluate own work in terms of strength and make suggestions.</li> <li>• Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose</li> <li>• Begin to disassemble and evaluate familiar products and consider the views of others to improve them.</li> </ul>	net, disassemble, packaging, shapes, strength, materials, evaluate, suggestions
<b>Year Four</b>	<p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand how key events and individuals in design and technology have helped shape the world</p> <ul style="list-style-type: none"> <li>• Evaluate their products carrying out appropriate tests.</li> <li>• Start to evaluate their work both during and at the end of the assignment</li> </ul>	net, disassemble, packaging, shapes, evaluate, durability, net design, strength, materials, suggestions
<b>Year Five</b>	<p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand how key events and individuals in design and technology have helped shape the world</p> <ul style="list-style-type: none"> <li>• Start to evaluate a product against the original design specification and by carrying out tests.</li> <li>• Evaluate their work both during and at the end of the assignment.</li> <li>• Begin to evaluate it personally and seek evaluation from others.</li> </ul>	decorative techniques, project, finishing techniques, triangulation, strength, evaluate, critically, improve, suggestions, design criteria/target group
<b>Year Six</b>	<p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand how key events and individuals in design and technology have helped shape the world</p> <ul style="list-style-type: none"> <li>• Evaluate against their original criteria and suggest ways that their product could be improved.</li> <li>• Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.</li> <li>• Evaluate their work both during and at the end of the assignment.</li> <li>• Record their evaluations using drawings with labels.</li> </ul>	decorative techniques, project, finishing techniques, triangulation, strength, evaluate, critically, improve, suggestions, design criteria/target group

## Structures

Year Group	Key Knowledge and Skills	Key vocabulary
<b>2-3 Years</b>		
<b>3-4 Years</b>	<ul style="list-style-type: none"> <li>• I can begin to construct stacking blocks vertically and horizontally, making enclosures and creating spaces.</li> <li>• I can join construction pieces together to build and balance.</li> <li>• I can balance blocks to build a bridge.</li> <li>• I can push and pull apart larger construction pieces, such as, Duplo.</li> </ul>	Push, construction, stack, balance, blocks, model, build, bridge, test, different, explore, top, turn, order, enclosure, space, create, join, pull, apart,
<b>Reception</b>	<ul style="list-style-type: none"> <li>• I can use blocks to build structures with balance, symmetry and with smaller detailed features.</li> <li>• I can construct with smaller bricks (such as Lego) to build models and add in details.</li> <li>• I can represent my own ideas, thoughts and feelings through design and technology.</li> <li>• I can build something that links to a theme.</li> </ul>	Balance, blocks, bridge, object, push, pat, pull, apart, test, material, building, explore, weight, strong, weak, stack, enclosure, create, space, join, structure, symmetry, model, detail
<b>Year one</b>	<p>Build structures, exploring how they can be made stronger, stiffer and more stable</p> <ul style="list-style-type: none"> <li>• Make a structure more stable by widening the base.</li> <li>• Construct a range of simple structures using simple construction kits.</li> <li>• Make a simple card hinge.</li> </ul>	construction, explore, slider, simple moving image
<b>Year Two</b>	<p>Build structures, exploring how they can be made stronger, stiffer and more stable</p> <ul style="list-style-type: none"> <li>• Deconstruct and assemble the net of basic 3D shapes.</li> <li>• Use materials to make simple joints, glue, tape and paper clips, masking tape</li> <li>• Know how to investigate different methods for joining materials</li> <li>• Know how to make a structure more stable</li> </ul>	Structure, stable, rigid, cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder
<b>Year Three</b>	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <ul style="list-style-type: none"> <li>• Make rectangular frames of different sizes using strip wood, reinforcing with cross braces.</li> <li>• Join 2D frames to create 3D structures.</li> <li>• Use a range of materials to make joints.</li> </ul>	reclaimed, recycled materials, purpose, structure,

	<ul style="list-style-type: none"> <li>Know that certain reclaimed/ recycled materials can be used for a specific purpose in order to make a structure.</li> </ul>	
<b>Year Four</b>	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <ul style="list-style-type: none"> <li>Create nets of increasingly complex 3D shapes which include the addition of gluing tabs.</li> <li>Reinforce and strengthen 3D framework using the concept of 'triangulation'.</li> <li>Explain in detail why some structures fail.</li> <li>Know what reclaimed and recycled materials are.</li> </ul>	reclaimed, recycled, materials, purpose, Girder, rafter, strut shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision
<b>Year Five</b>	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <ul style="list-style-type: none"> <li>Use a range of increasing methods to strengthen 3D structures and frames.</li> <li>Investigate measure and record the load tolerance of different structures and find ways of improving a structures loadbearing capacity.</li> <li>Create nets and templates accurately in a range of sizes.</li> <li>Build a range of structures using a wide range of effective materials.</li> </ul>	reclaimed, recycled, materials, purpose, Girder, rafter, strut shell structure, Net, template, structure, frame. Measure, record, strengthen, load, capacity, loadbearing, materials
<b>Year Six</b>	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <ul style="list-style-type: none"> <li>Apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods.</li> <li>Use a wider more complex range of materials, components and ingredients, taking into account their properties.</li> <li>Make use of specialist equipment to mark out materials.</li> <li>Select the most appropriate method to strength 3D structures and frames.</li> </ul>	Member, cross brace, cantilever, frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent

Textiles		
Year Group	Key Knowledge and Skills	Key vocabulary
<b>2-3 Years</b>		

<b>3-4 Years</b>	<ul style="list-style-type: none"> <li>• I can thread larger beads on to string.</li> <li>• I can push string in and out of a threading card.</li> </ul>	Thread, big, beads, pipe cleaner, small, string, push, in, out
<b>Reception</b>	<ul style="list-style-type: none"> <li>• I can push smaller beads on to a string.</li> <li>• I can weave string in and out on a threading card.</li> <li>• I can thread with wool.</li> </ul>	Control, object, push, thread, large, string, beads, pull, weave, wool
<b>Year one</b>	<p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <ul style="list-style-type: none"> <li>• Use a simple template.</li> <li>• Join fabrics using glue, staples and thread.</li> <li>• Apply an increasing range of finishing techniques</li> <li>• Talk about and begin to select textiles based on characteristics of an increasing range of materials.</li> </ul>	joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, thread, equipment, hole punched holes, cotton reels, shoelaces, create, peg board, pegs
<b>Year Two</b>	<p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <ul style="list-style-type: none"> <li>• Cut and join fabrics using a running stitch</li> <li>• Decorate fabric by applying beads and sequins.</li> <li>• Talk about the similarities and differences between textiles based on the characteristics of an increasing range of materials.</li> <li>• Use a simple pattern with increasing accuracy.</li> </ul>	joining and finishing techniques, tools, fabrics, template, pattern pieces, mark out, join, decorate, finish running stitch measure
<b>Year Three</b>	<ul style="list-style-type: none"> <li>• Join fabrics in a range of different ways using zips, tie clasp, toggles, press-studs and buttons.</li> <li>• Know how to use the threading grids to create simple threading patterns- cross stitch and running stitch.</li> <li>• Use a wide range of simple finishing techniques.</li> <li>• Know how to thread a wide eyelet needle using thread.</li> </ul>	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance, thread, wide eyelet needle, threading grids, threading patterns, cross stitch, running stitch
<b>Year Four</b>	<ul style="list-style-type: none"> <li>• I can create objects (such as a cushion) that employ a seam allowance.</li> </ul>	thread, wide eyelet needle, binka, simple sewing product, cross stitch, running

	<ul style="list-style-type: none"> <li>I can join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach decoration).</li> <li>Know how to choose a type of stitch for a purpose (e.g. cross stitch, running stitch, back stitch and whipping stitch).</li> <li>Identify the most effective finishing technique in order to maximise the aesthetic value of the product.</li> </ul>	stitch, back stitch, whipping stitch, weaving, loom, knit, casting on/off
<b>Year Five</b>	<ul style="list-style-type: none"> <li>I can create objects (such as a cushion) that employ a seam allowance.</li> <li>I can join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach decoration).</li> <li>Know how to choose a type of stitch for a purpose (e.g. cross stitch, running stitch, back stitch and whipping stitch).</li> <li>Identify the most effective finishing technique in order to maximise the aesthetic value of the product.</li> </ul>	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, thread, pinking shears, fastenings, , small eyelet needle, stitch, purpose, cross stitch, running stitch, back stitch, whipping stitch,
<b>Year Six</b>	<ul style="list-style-type: none"> <li>☑ Use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives.</li> <li>Investigate and develop skills in modifying the appearance of materials including textiles and other manufactured materials e.g. dyeing and applique</li> <li>Use CAD/CAM to produce and apply surface finishing techniques, e.g. using dye sublimation</li> </ul>	thread, small eyelet needle, stitch, purpose, cross stitch, running stitch, back stitch, whipping stitch, materials, dyeing, applique, CAD/CAM

## Mechanisms and mechanical systems

Year Group	Key Knowledge and Skills	Key vocabulary
<b>2-3 Years</b>		
<b>3-4 Years</b>	<ul style="list-style-type: none"> <li>I can use various construction materials.</li> <li>I can join construction pieces together to build.</li> <li>I can push and pull apart larger construction pieces, such as, Duplo.</li> </ul>	together, make, model, materials, use, join, build, push, pull
<b>Reception</b>	<ul style="list-style-type: none"> <li>I can use various construction materials, such as Mobilo to create moving creations.</li> <li>I know the properties of materials and their suitability for a particular purpose.</li> <li>I can use a split pin to create moving object.</li> </ul>	Control, push, pull, pat, object, apart, twist, on, off, lid, materials, create, moving, creation, split pin, open, close,

	<ul style="list-style-type: none"> <li>• I can safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• I can use what I have learnt about media and materials in original ways, thinking about uses and purposes.</li> <li>• I can represent my own ideas, thoughts and feelings through design and technology.</li> </ul>	safely, explore, tools, experiment, texture, represent
<b>Year one</b>	<p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <ul style="list-style-type: none"> <li>• Construct a simple slider independently.</li> <li>• Explore and use wheels, axles and axle holders.</li> <li>• Distinguish between fixed and freely moving axles.</li> <li>• Deconstruct a simple slider and describe how it works.</li> <li>• Understand that different mechanisms produce different types of movement.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards vehicle, wheel, axle, axle holder, chassis, body, cab
<b>Year Two</b>	<p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <ul style="list-style-type: none"> <li>• Know how to create a simple moving image using a lever.</li> <li>• Make a lever by joining card strips with paper fasteners.</li> <li>• Know and use technical vocabulary relevant to the project.</li> <li>• Know how to explore a range of simple levers for a specific purpose.</li> <li>• Know how to combine sliders and levers in one product.</li> </ul>	assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, names of tools, equipment and materials used, simple levers, simple moving image, lever, sliders
<b>Year Three</b>	<p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <ul style="list-style-type: none"> <li>• Construct a simple pneumatic system</li> <li>• Identify the cam within a simple mechanism and explain how movement is changed.</li> <li>• Understand and use lever and linkage mechanisms.</li> <li>• Deconstruct and reconstruct a range of sliders and levers.</li> <li>• Vary the position of the pivot point to lift a load using a lever.</li> </ul>	mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating
<b>Year Four</b>	<p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <ul style="list-style-type: none"> <li>• Construct a pneumatic with two moving parts.</li> <li>• Create a range of sliders and levers to produce horizontal and vertical movement.</li> <li>• Combine sliders and levers to produce a range of movements- ie 4 bar linkage</li> <li>• Describe the way in which a cam changes rotary motion into linear motion.</li> </ul>	Slider, lever, horizontal, vertical, pneumatic, cam, rotary, motion, linear

<b>Year Five</b>	<p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <ul style="list-style-type: none"> <li>• Know what a simple pulley system consists of.</li> <li>• Know that there can be different designs of pulley systems.</li> <li>• Know how to investigate different pulley systems.</li> <li>• Know how to use these investigations to make own simple pulley system.</li> <li>• Choose and use a range of sliders and levers accurately to create a range of effects.</li> <li>• Analyse and evaluate the efficiency of pneumatic systems.</li> <li>• Discuss the relationship between a cam and follower, an off-centre cam, a peg cam, a pear-shaped cam and a snail cam.</li> </ul>	<p>pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output designs, investigate, investigations,</p>
<b>Year Six</b>	<p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <ul style="list-style-type: none"> <li>• Construct and use compound gear trains to drive mechanical systems from a motor.</li> <li>• Make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</li> </ul>	<p>simple pulley system, designs, investigate, investigations, mechanical, motor, drill,</p>

## Electrical Systems

<b>Year Group</b>	<b>Key Knowledge and Skills</b>	<b>Key vocabulary</b>
<b>Year Four</b>	<p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <ul style="list-style-type: none"> <li>• I can create parallel circuits.</li> <li>• Explore and explain how the direction and speed of an electrical motor can be controlled.</li> <li>• Explore and program a simple control device.</li> <li>• Explore and describe how electrical circuits can be created and controlled.</li> <li>• Discuss in depth the hazards and safety issues associated with electricity.</li> <li>• Use a remote-controlled device to switch lights on and off. (including computer control packages)</li> </ul>	<p>series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device,</p>
<b>Year Five</b>	<p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <ul style="list-style-type: none"> <li>• I can create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</li> <li>• Explore and use an increasing range of complex control system, e.g., a light sensor.</li> </ul>	<p>Switch, circuit, current, component, light, sensor, electricity, , fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control,</p>

	<ul style="list-style-type: none"> <li>Explore and describe how switches can be used in a range of circuits to control components, e.g. lights in a lighthouse, a movement sensor in a burglar alarm.</li> <li>Apply appropriate safety measures when constructing circuits.</li> <li>Explore and discuss ways in which electricity can be used to control movement.</li> </ul>	program, system, input device, output device
<b>Year Six</b>	<p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <ul style="list-style-type: none"> <li>I can create circuits using electronics kits that employ a number of components with increasing confidence.</li> <li>I can control outputs such as actuators and motors.</li> <li>I can make use of sensors to detect heat, light, sound and movement.</li> <li>Apply computing and use of electronics to embed intelligence in products that respond to inputs.</li> </ul>	reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit

<b>Cooking and Nutrition</b>		
<b>Year Group</b>	<b>Key Knowledge and Skills</b>	<b>Key vocabulary</b>
<b>2-3 Years</b>		
<b>3-4 Years</b>	<ul style="list-style-type: none"> <li>I can feed myself competently with a spoon.</li> <li>I can drink well without spilling.</li> <li>I can squeeze, poke (using every finger), punch (hulk smash), roll into a sausage.</li> <li>I can pour from a jug with accuracy into a container or use a spade to fill a bucket.</li> <li>I understand that equipment and tools have to be used safely.</li> <li>I can usually manage washing and drying hands.</li> <li>I can ball dough, roll it out and spiral it (snail) and squeeze dough in between the back of my fingers (buckeroo) and shake the dough.</li> <li>I can pour from a jug into a larger measuring cylinder without spilling.</li> </ul>	Like, dislike, food, healthy, drink, try, new, texture, taste, hold, cup, spill, squash, pinch, dough, jugs, spades, spoon, fork, knife, squeeze, poke, punch, roll, pour, fill, equipment, tools, safely, wash, dry, ball, spiral, in between, shake, measuring cylinder, measure
<b>Reception</b>	<ul style="list-style-type: none"> <li>I know to put flour down to stop dough sticking to the work surface.</li> <li>I can use a knife to chop up some soft foods.</li> <li>I can follow instructions to create a fruit salad.</li> </ul>	ingredients, make, porridge, equipment, weigh, measure, stir, mix, describe, equipment, tools, safely, wash, dry, control, object, push, pour, measuring

	<ul style="list-style-type: none"> <li>• I can add flavour to a pancake by spreading on sauce or squeezing on juice.</li> <li>• I know how to melt chocolate. I can choose to eat a healthy range of foodstuffs and understand the need for variety in food.</li> <li>• can show some understanding about good practices with regard to eating and hygiene.</li> <li>• I can show understanding of the need for safety when tackling new challenges and consider and manage some risks.</li> <li>• I can control finer tools when playing with dough.</li> <li>• I can spread with a knife.</li> <li>• I can use jugs/scoops/spoons with more accuracy into smaller containers without spilling.</li> </ul>	<p>cylinder, measure, spill, flour, dough, sticky, surface, chop, soft, instruction, create, fruit salad, pancake, sauce, melt, chocolate, risk, scoops, dry, cutter, healthy, mark, beaker</p>
<b>Year one</b>	<p>Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from.</p> <ul style="list-style-type: none"> <li>• I can cut and squeeze (soft foods) ingredients safely and hygienically.</li> <li>• Know that meat comes from animals and fish comes from the sea.</li> <li>• Know that vegetables and fruit come from plants in the earth.</li> <li>• Know that dairy products such as yoghurt, cheese and milk come from animals.</li> <li>• Know that some foods are bad because they contain lots of sugar or fat and can give some examples.</li> <li>• Know how to suggest healthy and unhealthy snacks and be able to say whether these are good or bad for you.</li> <li>• Know which foods are healthy/ unhealthy on the eat well plate.</li> <li>• Know that the healthy foods outweigh the unhealthy foods on the eat well plate.</li> <li>• Know how to hold a knife correctly using a simple bridge hold.</li> <li>• Know how to peel, cut, chop and spread soft items such as bread, bananas, strawberries etc.</li> <li>• Know how to make a fruit smoothie.</li> </ul>	<p>meat, animals, fish, vegetables, fruit, plants, dairy products, yoghurt, cheese, milk, foods, sugar, fat, healthy, unhealthy, eat well plate, hold, knife, simple bridge hold, peel, cut, chop, spread, make</p>
<b>Year Two</b>	<p>Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from.</p> <ul style="list-style-type: none"> <li>• Know how to peel, cut and chop firmer foods (such as apples, carrots, cheese and tomatoes etc.) in order to make a salad.</li> <li>• Know which foods are healthy/ unhealthy on the 'eat well' plate and can state healthier food swap alternatives.</li> <li>• Know the proportions of each food group on the 'eat well' plate and why this is important.</li> <li>• I can measure or weigh using measuring cups or electronic scales.</li> <li>• Know the main sources of food (e.g. meat and dairy from animals, fruit and vegetables from plants etc.).</li> </ul>	<p>sources, food, meat, dairy, animals, fruit, vegetables, plants, farmed, grown, caught, natural food items, sugar, fat, man-made, artificial, healthy, unhealthy, snacks, teeth, eat well plate, healthier food swap alternatives, proportions, food group, hold, knife, simple bridge hold, peel, cut, chop, evaluate, food product, aspects, taste, smell, appearance</p>

	<ul style="list-style-type: none"> <li>• Know that some foods are farmed, grown or caught (giving examples) and that these are natural food items.</li> <li>• Know that some foods are bad because they contain lots of sugar or fat and can give some examples.</li> <li>• Know that the healthy foods outweigh the unhealthy foods on the 'eat well' plate. - lots, some of, a little of</li> <li>• Know how to hold a knife correctly using a simple bridge hold. (as part of daily routines)</li> <li>• Know how to evaluate a food product- salad against certain aspects (e.g. taste, smell, appearance)</li> </ul>	
<b>Year Three</b>	<p>Understand and apply the principles of a healthy and varied diet          Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques          Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <ul style="list-style-type: none"> <li>• Know how to plan a healthy sweet meal using knowledge of the eat well plate (containing fruit/s).</li> <li>• Know the importance of planning before preparing and cooking a food dish.</li> <li>• Know how to demonstrate and use a range of cooking techniques when preparing and cooking dishes (e.g. chopping, kneading, grating and mixing).</li> <li>• Know the difference between savoury and sweet foods.</li> <li>• Know where different food products come from and how they are made using research to inform own planning (e.g. where foods are grown, farmed or caught).</li> </ul>	<p>food health, safety, hygiene, health and safety rules, cooking, savoury foods, sweet foods, food products, research, plan, planning, grown, farmed, caught, eat well plate, carbohydrates, vegetables, fruits, key aspects, equipment, ingredients, instructions, preparing, cooking, prepare, cook, cooking techniques, chopping, kneading, grating, mixing</p>
<b>Year Four</b>	<p>Understand and apply the principles of a healthy and varied diet          Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques          Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <ul style="list-style-type: none"> <li>• Know how to plan a savoury meal using knowledge of the 'eat well' plate (containing carbohydrate and vegetables).</li> <li>• Know the importance of planning before preparing and cooking a food dish.</li> <li>• Know how to prepare and cook a dish following a pre- made plan or recipe.</li> <li>• Know the key aspects of planning a dish (e.g. equipment, ingredients and instructions).</li> </ul>	<p>food health, safety, hygiene, health and safety rules, cooking, savoury foods, sweet foods, food products, research, inform, planning, grown, farmed, caught, eat well plate, carbohydrates, vegetables, fruits, key aspects, equipment, ingredients, instructions preparing, cooking, prepare, cook, pre-made plan, recipe, cooking techniques, chopping, kneading, grating, mixing</p>
<b>Year Five</b>	<p>Understand and apply the principles of a healthy and varied diet          Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques          Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <ul style="list-style-type: none"> <li>• Know and check when a meat has been properly cooked (e.g. juices run clear and chicken is white not pink).</li> </ul>	<p>preparation, food products, raw meats, stored, prepare, cooking, packaging, cooked, create, plan, prepare, cook, heat source, cooking techniques, chopping, kneading, grating, mixing</p>

	<ul style="list-style-type: none"> <li>• Know the importance of cooking meat for the correct amount of time, based on packaging advice.</li> <li>• Know how raw meats should be safely stored e.g. bottom of the fridge).</li> <li>• Know how to prepare raw meat (e.g. different chopping board/ utensils and washing hands before and after).</li> <li>• Know the importance of this health advice when handling more than one type of meat.</li> <li>• Know how to demonstrate correct preparation of food products.</li> </ul>	
<p><b>Year Six</b></p>	<p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <ul style="list-style-type: none"> <li>• Know how to create, plan, prepare and cook a healthy evening meal using a heat source.</li> <li>• Know how to select and use appropriate cooking techniques for a healthy evening meal (e.g. chopping, kneading, grating and mixing).</li> <li>• Know how to demonstrate correct preparation of food products.</li> <li>• Know how raw meats should be safely stored e.g. bottom of the fridge).</li> <li>• Know how to prepare raw meat (e.g. different chopping board/ utensils and washing hands before and after).</li> <li>• Know the importance of this health advice when handling more than one type of meat.</li> <li>• Know the importance of cooking meat for the correct amount of time, based on packaging advice.</li> <li>• Know and check when a meat has been properly cooked (e.g. juices run clear and chicken is white not pink).</li> </ul>	<p>preparation, food products, raw meats, stored, prepare, cooking, packaging, cooked, create, plan, prepare, cook, heat source, cooking techniques, chopping, kneading, grating, mixing</p>