Design Technology Curriculum: Progression Ladder

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Early Years Foundation Stage	**Design Technology**							
	Skills: • To handle, manipulate and enjoy using materials by stretching, pulling, twisting, squeezing. • To explore different materials freely, in order to develop ideas about how to use them and what to make. • To make simple representations of animals and people.	**Media:** • play-dough • construction • sand • clay **Knowledge:** • To know what materials can be used or twisted for a particular purpose.	**Skills:** • To safely handle, manipulate and enjoy using a variety of materials, tools and techniques. • To make representations of animals or people using a 3D structure. • To adapt and refine ideas. • To use different techniques for joining. • To use a variety of tools, including different size / shape of brushes and tools e.g. sponges, fingers, twigs.	**Media:** • play-dough • clay • construction • junk modelling • natural materials **Knowledge:** • To know that materials can be manipulated to create new affects. • To know which materials to use when joining (e.g glue, cellotape, masking tape, split pins) • To know how to look at and talk about what they have produced, describing simple techniques and media used.				
Designing and Making	**Designing**							
	• Begin to design functional and purposeful products based on a simple design brief. • Generate, develop and communicate their ideas through talking and drawing. • Begin to consider the audience and purpose for their product.	• Design functional, purposeful and appealing products based on a simple design brief. • Generate, develop, model and communicate their ideas through talking, drawing and making templates and mock ups. • Use IT to plan products that they are designing. • Consider the audience and purpose of their product in their design.	• Identify the purpose and audience for their product. • Begin to develop an understanding of design briefs and their purpose. • Generate, develop, model and communicate their product using increasingly more formal sketches and annotations. • Consider the order of construction and make simple plans for this. • Begin to make suggestions on how we might begin the design process. • Begin to use existing products to help inform the intended design. • Begin to research and rehearse design techniques outlined in the technical progression	• Identify the purpose and audience for their product. • Begin to develop an understanding of design briefs and their purpose. • Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams and prototypes. • Identify from a range of planned ideas, which one will be taken forward. • Plan the order of construction record simple step by step plans for this. • Make suggestions on how we might begin the design process. • Begin to use existing products to help inform the intended design. • Research and rehearse design techniques outlined in the technical progression • Begin to seek the views and opinions of the intended audience. • Begin to identify where problems might arise and how we could overcome them.	• Work collaboratively to plan and enhance their plans through discussion. • Use design briefs to ensure that their plans meet a specified criteria. • Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams, computer aided design and prototypes. • Begin to draw up specifications for their design using increasingly more accurate specifications (e.g. millimetres, millilitres) • Identify from a range of planned ideas, which one will be taken forward. • Make further improvements, following discussion, to their final product – produce final designs. • Plan the order of construction record simple step by step plans for this. • Make suggestions on how we might begin the design process. • Use existing products to help inform the intended design. • Research and rehearse design techniques outlined in the technical progression • Seek the views and opinions of the intended audience and reflect this in their product designs. • Identify where problems in production will arise and plan for ways to overcome these. • Consider how to ensure that their product is appealing and finished.	• Work collaboratively to plan and enhance their plans through discussion. • Use design briefs to ensure that their plans meet a specified criteria. • Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams, computer aided design and prototypes. • Produce specifications for their design using increasingly more accurate specifications/ measurements (e.g. millimetres, millilitres) • Identify from a range of planned ideas, which one will be taken forward. • Make further improvements, following discussion, to their final product – produce final designs. • Plan the order of construction in detail, including identifying where challenges may arise. • Make suggestions on how to begin the design process. • Use existing products to inform the intended design. • Research and rehearse design techniques outlined in the technical progression. • Use technical skills proficiently. • Seek the views and opinions of the intended audience and reflect this in their product designs. • Identify where problems in production will arise and plan for ways to overcome these. • Plan how to ensure that their product is appealing and finished well.
	Making: including using tools, joining techniques							
	• Attach wheels and axles using simple joining techniques. • Select appropriate materials to use including construction materials and ingredients. • Select appropriate simple tools to use perform simple tasks. • Use simple techniques for cutting, shaping and joining the materials for their product. • Explore a variety of techniques to cut, join and shape materials.	• Attach wheels and axles using simple joining techniques. • Use sewing needles to create a running stitch. • Join two pieces of material together. • Select appropriate materials to use including construction materials (cardboard, paper) and textiles. • Select appropriate simple tools to use perform simple tasks. • Use simple techniques for cutting, shaping, finishing and joining the materials for their product. • Explore a variety of techniques to cut, join, finish and shape materials. • Use cutting and joining techniques with a wider variety of materials.	• Begin to use planned specifications, using standard measurements. • Begin to discuss a variety of joining technics beyond simple glues e.g. fasteners. • Begin to follow intended plans in sequence. • Follow intended plans in sequence and begin to discuss guidance from adults on how challenges may be overcome. • Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza. • Use a growing range of techniques to shape materials e.g. slicing, chopping, cutting. • Use a growing range of tools and utensils for shaping materials, including, pizza slices, simple knives, scissors. • Begin to consider how much of each material/ ingredient will be needed.	• Use sewing needles to create a cross stitch. • Create patterns and designs using coloured thread. • Use planned specifications, using standard measurements. • Follow intended plans in sequence. Discuss with adults how challenges and problems could be overcome. • Begin to make minor changes to plans to enhance the final product. • Begin to make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joins and measurements. • Use known electrical items (based on the science curriculum) to enhance their product and achieve the design brief. • Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza. • Use a growing range of techniques to shape materials e.g. slicing, chopping, cutting. • Use a growing range of tools and utensils for shaping materials, including, pizza slices, simple knives, scissors. • Begin to consider how much of each material/ ingredient will be needed.	• Begin to use planned specifications, using more detailed standard measurements. • Follow detailed plans in sequence and begin to overcome hurdles as they arise independently by suggesting other solutions. • Use more advanced tools for constructing with stronger materials, including drills, saws, clamps. • Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles) • Make appropriate changes to plans to enhance the final product. • Make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joins and measurements. • Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product. • Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring, • Use a wide range of tools and utensils to shape materials, including, saws, Stanlee knives, bread knives, hand held drills. • Organise and collect adequate amounts of appropriate materials for their product.	• Use sewing needles to create a zig zag stitch and ladder stitch. • Join two pieces of fabric together using an 'invisible stitch'. • Enhance textile products using 'filling' e.g. foam, cotton wool. • Use planned specifications accurately, using more detailed standard measurements. • Follow detailed plans in sequence and overcome hurdles as they arise independently, by finding other solutions. • Use more advanced tools for constructing with stronger materials, including drills, saws, clamps. • Create algorithms to program, monitor and control physical devices that children have created. • Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles) • Make appropriate changes to plans to enhance the final product. • Use a wider variety of electrical items to enhance their product and achieve the design brief – robotics. • Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product. • Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring • Use a wide range of tools and utensils to shape materials, including, saws, Stanlee knives, bread knives, hand held drills. • Organise and collect adequate amounts of appropriate materials for their product.

Design Technology Curriculum: Progression Ladder (continued)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evaluation	• Begin to explore a range of existing products, sharing their likes and dislikes. • Say what they like and don't like about their products. • Suggest ways that they could have made their product better.	• Explore a range of existing products and evaluate these against their intended use and audience. • Evaluate their products success against a simple design brief. • Begin to evaluate their work taking into consideration the intended audience. • Suggest ways that they could improve their product, relating this to the design brief and key technical knowledge.	• Investigate and analyse existing products and begin to evaluate them against the intended audience and purpose • Begin to suggest improvements, that relate specifically to the design brief, to their products. • Listen to the feedback of others. • Begin to discuss how products they are studying have impacted on everyday lives. • Begin to identify similarities and differences between their products and those of others. • Make suggestions on how other's work could be improved. • Identify the strengths in others work.	• Investigate and analyse existing products and evaluate them against the intended audience and purpose • Suggest improvements, that relate specifically to the design brief, to their products. • Listen to the feedback of others. • Begin to discuss how products they are studying have impacted on everyday lives. • Begin to identify similarities and differences between their products and those of others. • Make suggestions on how other's work could be improved, beginning to link this to the design criteria. • Identify the strengths in others work, beginning to link this to the design criteria.	• Investigate and analyse existing products, paying particular attention to design elements such as joining techniques, materials and technical knowledge. • Draw on existing products to make decisions about their own products. • Identify strengths and area for development in their product, suggesting ways it could be improved, taking into account the intended audience's feedback. • Identify precise next steps that relate directly to the design criteria. • Discuss in detail how some products and designers have impacted on people's lives, including industry. • Compare and contrast their product with others, in relation to the design brief. • Provide detailed and accurate feedback, that relates to the design criteria to others.	• Investigate and analyse existing products, paying particular attention to design elements such as joining techniques, materials and technical knowledge. • Draw on existing products to make decisions about their own products. • Identify strengths and area for development in their product, suggesting ways it could be improved, taking into account the intended audience's feedback. • Identify precise next steps that relate directly to the design criteria. • Discuss in detail how some products and designers have impacted on people's lives, including industry. • Compare and contrast their product with others, in relation to the design brief. • Provide detailed and accurate feedback, that relates to the design criteria to others.
Technical knowledge	• Understand how a wheel and axle work. • Know and recall where wheels and axles are used in everyday life. • Simple joining techniques using cellotape, masking tap, Prit Stick, PVA, sewing. • Understand how a product can be made stronger.	• Understand how a wheel and axle work. • Know and recall where wheels and axles are used in everyday life. • Simple joining techniques using cellotape, masking tap, Prit Stick, PVA, sewing. • Understand how a product can be made stronger, stiffer and more stable. • Explore and use levers, sliders and dials. • Use running stitch to attach two pieces of material together.	• Understand how more complex levers and pulleys can make objects move. • Explore how to include levers and pulleys in their designs. • Identify ways to strengthen and reinforce more complex structures that include levers and pulleys. • Understand how to use a wider range of linkage devices to construct more complex structures. • Understand how to knead a dough.	• Use cross stitch to create a product for a clear audience and purpose. • Identify how to strengthen, stgiffen and stabilise a product that has multiple tiers. • Explore a widening variety of joining techniques, including: hinge, slot, flange and gusset. • Use electrical items, including, buzzers, wires, cells and bulbs to create their product.	• Understand how to gears can be used to create every day products that we use in our homes and lives. • Identify how to strengthen, stiffen and stabilise more complex products, produced from a broadening range of materials (wood. Plastics) • Prepare and cook hot products that require cooking via, roasting, boiling and baking.	• Use zig zag and ladder stitch to create a product where the stitching is 'invisible'. • Use more complex electrical items, including motors, wires, control panels and cells to produce a physical product. • Use algorithms and computer programs to program, control and monitor an electrical, physical device. • Use materials to enhance products for a purpose, for example: warmth, comfort.
Nutrition	• Understand and discuss where common food comes from, including: milk, vegetables, milk, fish, fruit, yoghurt, butter, bread. • Understand the term healthy. • Identify and sort common foods into simple food groups. • Begin to use simple food preparation techniques, such as chopping, mixing, combining, measuring. • Understand the term seasonality.		• Begin to apply to the principles of a healthy and balanced diet to planned savoury dishes. • Prepare and cook a savoury dish. • Chop, grate, slice, shape, mix, combine, knead ingredients. • Prepare bread dough and understand the role of kneading and resting in the process. • Understand seasonality and how some ingredients are grown and reared in the UK. • Begin to explore a widening range of ingredients, including (allergy appropriate): vegetables (peppers, onions, sweetcorn), meats and cheeses. • Begin to understand the process for some foods and where they come from e.g. cheese originating from milk, or bread from wheat – to flour- to bread.		• Chop, grate, slice, blend, mix, combine, knead, measure accurately ingredients. • Understand the terms: blend, boil, mix, dissolve, grate, steam, bake, combine. • Trial tasting and using a wider range of ingredients e.g. lentils. • Understand the principles of a balanced diet. Develop quantities of ingredients to ensure balance of a meal. • Understand the role of kneading in preparation of bread and how bread provides carbohydrates . • Prepare and cook a savoury dish requiring a wider range of skills (soup) • Use a widening range of standardised measure for capacity and mass. • Understand seasonality of a wider range of ingredients and begin to understand the origin of some foods that are not in season in the UK. • Understand that some ingredients are reared and grown both in the UK and abroad and this is how we have a year round supply of most foods. • Begin to understand the term cross contamination and the need for separate food preparation techniques for different food groups.	
Safety	• Use simple strategies to prepare cold foods safely, including: washing fruit and vegetables, washing hands and cleaning surfaces. • Use simple tools safely, including, scissors and age-appropriate knives. • Articulate how to keep themselves and others safe when working. • Begin to identify potential dangers as they arise.		• Understand the importance of preparing a food preparation area. • Identify ways to maintain personal hygiene before preparing and cooking food. • Begin to identify, with adult support, how to operate an oven and handle hot equipment. • Identify potential dangers before beginning a process and recognise dangers as they arise. • Begin to use a wider range of cooking utensils, including: sharper knives, grates, spoons, mixing bowls, • Begin to use a wider range of age-appropriate tools including knives. • Identify ways that they can improve their own safety and that of others for a broadening range of situations in DT. • Begin to prepare and use needles and sewing tools safely, with adult support.		• Articulate, plan and use effective strategies to prepare an area for food preparation. • Understand the importance of different chopping boards for different types of food to avoid cross contamination. • Understand in depth the importance of personal hygiene when preparing food (hands, hair etc) • Use a widening range of food preparation tools safely and independently (knives, graters, blenders, oven gloves). • Identify potential dangers before beginning a process and recognise dangers as they arise, taking appropriate steps to maintain safety. • Use heating appliances, with growing independence, safely. • Use increasingly range of wood work tools safely, including saws, clamps, hand drills and sand paper. • Formally plan safety procedures to ensure the safety of themselves and that of others when working with DT tools – put these into place independently. • Begin to prepare and use needles and sewing tools safely, with adult support.	