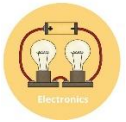
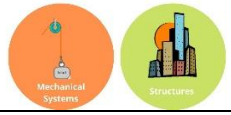
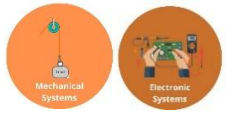
DT Skills and Knowledge Progression

Practical Knowledge: which is about developing technical proficiency.
Theoretical Knowledge: which is the cultural and contextual content that pupils learn about products and designers.
Disciplinary Knowledge: which is when pupils learn about how a product or design is studied, discussed and judged.

Early Years Foundation Stage			
Expressive Art and Design			**Children at the expected level of development will:**
Stage One	**Stage Two**	**Stage Three**	
- Explores the feel of a range of everyday objects. 	- Explores a range of everyday objects and can talk about similarities and differences between them. 	- Makes judgements about properties of different materials and their suitability for construction. 	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
- Develops knowledge about design through play with objects. 	- Draws what they are going to make. 	- Tests out the properties of materials. 	
- Can talk about what they are going to make. 	- Chooses appropriate tools. 	- Draws what they are going to make and explains designs. 	
- Manipulates basic tools. 	- Explains what they are happy with in a product and how they will tweak the design to improve it. 	- Experiments with designs and materials. 	
- Uses trial and error to develop understanding. 	- Knows how to select, cut, assemble, tear, stick and collage different material. 	- Uses tools safely. 	
- Reflects on a product, saying what they like. 	- Can sort art by its medium. 	- Describes how a product is made up of many different parts. 	
- Makes accidental representations (creates a form and then decides it is like something).		- Experiments with a wide variety of materials.	

 - Identifies artworks that appeal to them.  - Explored colours and how colours can be changed  - Understand that they can use lines to enclose a space and then begin to use lines to represent objects.  - Know how to use a paintbrush to create a desired effect.  - Realise that a tool can be used for a purpose.  - Use simple tools and techniques appropriately.  - Explore what happens when you mix colours.  - Experiment with different textures.  	- Explores colour and colour mixing.  - Is beginning to use painting and drawing to represent actions and objects.  - Is beginning to use art to demonstrate feelings.  - Uses tools for a specific purpose.  - Safely use and explore a variety of materials, tools and techniques.  - Experiment with colour, design, texture, forms and functions.  - Understand that different media can be combined to create new effects. -  	 - Can use art to represent feelings.  - Makes intentional representations, deciding beforehand what they want to depict.  - Safely use and explore a variety of materials, tools and techniques.  	
Key Knowledge: - *Name several different mediums* - *Name several primary and secondary colours* - *Name several different mediums and materials* - *Name different types of materials* - *Can start to recognise that different materials have different properties* - *Know that materials can be linked or attached using different methods*	***Key Knowledge:*** - *Know how to select colour for purpose* - *Know the names of all primary colours and secondary colours.* - *know how to mix primary colours to create some secondary colours* - *know how to use a variety of tools when painting (e.g. brush, sponges, fingers, hands, sticks, sponge rollers)* - *know who artists are within the local community and/or wider world and how they inspire others*	***Key Knowledge:*** - *know how to select, cut, assemble, tear, stick and collage different materials* - *know how to manipulate malleable materials that are both soft or rigid (for example clay, plasticine and dough)* - *Draw a person with clear features.* - *know how to use paint to lighten or darken a colour* - *Can recall what colours to mix to create secondary colours*	**Key Vocabulary:** *Draw, pencil, line, chalk, pen, red, blue, yellow, orange, green, paint, brush, sponge, material, cardboard, paper, plastic, mixing, print, pattern, brushes, strokes, sketch, shape, light, dark, self-portrait, texture, colours, cut, print, collage, pattern, stamp, pinch, roll,*

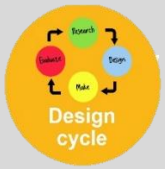
	- *know and comment on the aspects that they like/dislike about their own work and the work of famous artists* - *Children consider how the natural environment can be used to create art work* - *Is beginning to use painting and drawing to represent actions and objects.* - *Begin to draw simple features of a person.* - *Know that materials look, feel, and behave differently (e.g., cardboard is stiff, fabric is soft, plastic can be waterproof).* - *Know how to handle and carry tools like scissors, hole punches, staplers, and rolling pins safely without hurting themselves or others.* - *Know how to talk about a design idea and verbally plan what they want to make before starting.*	- *Know how to choose the right materials and resources to carry out their own specific plans or ideas.* - *Know how to use one-handed tools competently, such as making accurate snips in paper with scissors.* - *Know that materials can be linked or attached using different methods like tape, glue, split pins, and string.* - *Know that they are constructing with a specific purpose or goal in mind (e.g., building a bridge to support a toy car).* - *Know how to share their final creations and explain the step-by-step process they used to build it* - *Know that structures need a stable base so they do not fall over*	*squeeze, 2D shape, 3D shape, mould*

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design Briefs	**Cooking and Nutrition:** Children will design, make and evaluate a healthy sandwich for a child in foundation stage to have during lunch time.  **Mechanisms:** Children will design, make and evaluate a moving vehicle for a fictional character 	**Structures:** Children will design, make and evaluate playground equipment for our school.  **Textiles:** Children will design, make and evaluate a puppet for a young child.  **Mechanisms:** Children will design, make and evaluate a congratulations card to be sent to someone. 	**Textiles:** Children will design, make and evaluate a key ring for a Year Six child. 	**Cooking and Nutrition:** Children will design, make and evaluate their own Greek inspired meal for a lunch at school.  **Electronics** Children will design, make and evaluate their own bedroom light for a child's bedroom. 	**Textiles:** Children will design, make and evaluate a mobile phone carrier for a child in Year Five.  **Structures:** Children will, deign, make and evaluate packaging for a mobile phone carrier.  **Structures and Mechanical Systems:** Children will design, make and evaluate a moving toy for a child in Year One. 	**Mechanical and Electrical Systems:** Children will design, make and evaluate a new fairground ride for a local visiting circus.  **Electrical Systems:** Children will design, make and evaluate a pedometer for an athlete. 
Key Vocabulary	**Cooking and Nutrition:** Fruit, vegetables, hygiene, nutrients, pith, salad, peeling, cutting, slicing, reared grown and caught	**Structures:** Freestanding structure, frame structure, shell structure, buttress, brick bonding and mock-up	**Textiles:** Mock-up, pattern, template, seam allowance, specification, tacking and working drawings.	**Cooking and Nutrition:** Appearance, texture, finishing, seasonality, sour, sweet, salty, knead, dough, yeast, germs, bacteria,	**Textiles:** Mock-up, specification, fastenings, CAD and CAM. **Structures:**	**Mechanical and Electrical Systems:** Pulley, gear, gearing up or down, mechanical systems, driver and follower.

	Mechanisms Axle, axle holder, dowel, chassis and friction	**Textiles:** Applique, design, embroider, evaluate, fray, glove puppet, mock –up, template, stitch, seam and sew **Mechanisms** Mechanism, lever, slider, slot, guide and bridge.		carbohydrates, protein, vitamins and minerals, dairy, fats and sugars. **Electronics:** Circuit, conductor, insulator, prototype, push to break switch, push to make switch, system, output and input device.	Shell structure, edge, face, vertex, font, net, cube, cuboid and prism. **Structures and Mechanical Systems:** Rotary movement, oscillating movement, reciprocating movement, CAM, follower, lever, slide, spacer and guide.	**Electronic Systems:** Program, microcontroller, light emitting diode, system, output and input device and process.
	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Design appealing products for a particular user based on simple design criteria. Communicate these ideas through talk and drawings to explain how they would make their product through making a simple plan Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.	Children will generate, develop, model and communicate their ideas through talking and drawing. Children will explore and evaluate a range of existing products evaluate their ideas and products against design criteria Develop, model and communicate their ideas through talking, mock-ups and drawings. Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. .	Children will 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. Children will generate and develop their ideas through discussions, annotated sketches and cross-sectional diagrams where appropriate. Children will 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. Design a product and make sure it looks attractive by choosing materials that are suitable considering the appearance of the material **Textiles:** Learn about the impact William Morris had on the textiles industry and how this influenced design.	Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Produce a plan and explain it and persevere and adapt plans when original ideas do not work **Cooking and Nutrition:** Understand how key chefs (Jamie Oliver) have influenced eating habits to promote varied and healthy diets. **Electronics:** Know and use technical vocabulary relevant to the project as well as key	Children will generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. Children will 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. Children will investigate and analyse a range of existing products. Children will consider the suitability of a number of different 3D shapes and their strength. Generate innovative ideas through research including surveys, interviews and questionnaires. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer-aided design. Generate innovative ideas by carrying out research including surveys.	Children will generate, develop, model and communicate their ideas through discussion, annotated sketches, exploded diagrams and prototypes. Children will 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. Children will investigate and analyse a range of existing products. Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. Develop a simple design specification to guide their thinking and justify their designs in a convincing way Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **Electrical Systems:** Learn about Sir Jonathan Ive and his influence on design today

				designers and scientist such as Thomas Edison.	Develop a simple design specification to guide their thinking. Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Produce a detailed step by step plan **Mechanism:** Investigate famous manufacturing and engineering companies relevant to the project.	
	**Mechanisms:** Name and consider a range of 3D shapes being used in a design. Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. **Cooking and Nutrition:** Children will understand where food comes from and use the basic principles of a healthy to plan healthy dishes. Children will being to understand what a balanced diet is and the benefits of it on the human body. Children will understand where food comes from and start to gain an understanding as to the cost of these food products. Understand the difference between a savoury and sweet dish Select from a range of fruit and vegetables according to their	**Mechanisms** Explore and used mechanisms such as flaps, sliders and levers. Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots **Textiles:** Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons **Structures:** Know how to make freestanding structures	**<u>Textiles:</u>** Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, back stitch, glue, over stitch, stapling.	**Cooking and Nutrition:** Children will understand seasonality, and know where and how a variety of ingredient are grown, reared, caught and processed. Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary. Explain how food ingredients should be stored and give reason **Electronics:** Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. Apply their understanding of computing to program and control their products.	**Textiles** Children will use a range of stitches effectively and be able to name them (running stitch, basting stitch, backstitch, slip stitch and overcast stitch) Children will be able to attach embellishes to the material securely. A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate. **Structures:** Understand what CAD is and use this to develop and enhance the quality of a product. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D Shapes.	**Mechanical and Electrical Systems:** Children will understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. Children will understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. Experience of axles, axle holders and wheels that are fixed or free moving. Basic understanding of electrical circuits, simple switches and components. Experience of cutting and joining techniques with a range of materials including card, plastic and wood. An understanding of how to strengthen and stiffen structures.

	characteristics e.g. colour, texture and taste to create a chosen product. Describe the ingredients used when cooking	stronger, stiffer and more stable. Children will build structures, exploring how they can be made stronger, stiffer and more stable. .			Develop and use knowledge of how to construct strong, stiff shell structures. **Mechanisms:** Children will understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. Understand that mechanical systems have an input, process and an output. Understand how cams can be used to produce different types of movement and change the direction of movement. understand how cams can be used to produce different types of movement and change the direction of movement.	Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. **Electrical Systems:** Children will apply their understanding of computing to program, monitor and control their products. Understand and use electrical systems in their products. Understand the use of computer control systems in products. Apply their understanding of computing to program, monitor and control their products.
	**Mechanisms:** Children will select from and use a range of tools and equipment to perform practical tasks [for example, cutting, and joining]. Children will use scissors correctly in order to cut out a given shape. Children will select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Select from a variety of 3D shapes to produce a mock up of their final product. Children will build structures, exploring how they can be	**Mechanisms:** Gain experience of basic cutting, joining and finishing techniques with paper and card. Order the main stages of making. Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. Select from and use finishing techniques suitable for the product they are creating. Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.	**Textiles:** Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons Children will select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. Children will join fabrics using a range of stitches (running and backstitch) with increasing independence. Learn how to add further decoration to their work using buttons, beads, sequins etc	**Cooking and Nutrition:** Children will prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients. Know how to use utensils and equipment including heat sources to prepare and cook food. Weigh out ingredients an follow a given recipe to create a dish Present their dish in an interesting way Write a step-by-step recipe, including a list of ingredients, equipment and utensils	**Textiles:** Children will 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. Children will use a range of stitches effectively and be able to name them (running stitch, basting stitch, backstitch, slip stitch and overcast stitch). Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment, including	**Mechanical and Electrical Systems:** Children will 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. Children will apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.

	made stronger, stiffer and more stable. Children will explore and use mechanisms [for example, levers and sliders] in their products. **Cooking and Nutrition:** Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. Weigh ingredient to use in a recipe	Select from and use textiles according to their characteristics. Measure materials to use in a model or structure **Textiles:** Explore and evaluate a range of existing textile products relevant to the project being undertaken. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. **Structures:** Select new and reclaimed materials and construction kits to build their structures. Use simple finishing techniques suitable for the structure they are creating. Children will select from and use a wide range of materials and components, including construction materials and ingredients, according to their characteristics. Plan by suggesting what to do next. Select and use tools, skills and techniques, explaining their choices.	Follow a step by step plan choosing the right equipment and materials Work accurately to measure, make cuts and holes	Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. Make, decorate and present the food product appropriately for the intended user and purpose. **Electronics:** Construct a simple series electrical circuit in science, using bulbs, switches and buzzers. Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue. Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. Measure accurately	CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities. Produce detailed lists of equipment and fabrics relevant to their tasks. **Structures:** Use computer-generated finishing techniques suitable for the product they are creating. Select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. **Mechanisms:** Work within the constraints of time, resources and cost.	Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Know how to use any tool correctly and safely and know what each tool is used for. **Electrical Systems:** Create and modify a computer control program to enable their electrical product to respond to changes in the environment.
	Evaluate their ideas throughout and their products against original criteria. Evaluate ideas and finished products against design criteria, including intended user and purpose. **Mechanisms:**	Children will evaluate their ideas and products against design criteria. Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. Evaluate their ideas throughout and their final	Children will investigate and analyse a range of existing products. Children will design purposeful, functional, appealing products for themselves and other users based on a design criterion.	Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. **Cooking and Nutrition:** Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.	Children will evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Compare the final product to the original design specification. Test products with intended user, where safe and practical, and critically evaluate the	Children will understand how key events and individuals in design and technology have helped to shape the world. Children will evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

	Explore and evaluate a range of products with wheels and axles. **Cooking and Nutrition:** Test and evaluate a range of fruit and vegetables to determine the intended user's preferences.	products against original design criteria **Mechanisms:** Investigate and analyse books and, where available, other products with lever and linkage mechanisms **Textiles:** Explore and evaluate a range of existing textile products relevant to the project being undertaken **Structures:** Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.	Explain how to improve a finished model and understand why a model has or has not been successful **Textiles:** Explore and evaluate a range of existing textile products relevant to the project being undertaken	Understand how Jamie Oliver has influenced eating habits to promote varied and healthy diets. **Electronics:** Investigate and analyse a range of existing battery-powered products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	quality of the design, manufacture, functionality and fitness for purpose. **Textiles:** Investigate and analyse textile products linked to their final product. **Structures:** Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. (using 2Design)	Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Investigate famous manufacturing and engineering companies relevant to the project.