

Design Technology Skills Progression

EYFS	Characteristics of effective learning:	Early Learning Goals:
	• Show curiosity about objects, events and people. • Question why things happen. • Engage in open-ended activities. • Think of ideas. • Find ways to: solve problems, do new things, test their ideas. • Use senses to explore the world around them. • Create simple representations of events, people and objects. • Plan and make decisions about how to approach a task. • Solve a problem and reach a goal. • Check how well their activities are going. • Change their strategy as needed. • Review how well their approach worked.	• Choose resources they need for their chosen activities. • Handle equipment and tools effectively. • Children know the importance of good health and of a healthy diet. • They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. • They represent their own ideas, thoughts and feelings through design and technology.

Structures

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	• Make verbal plans and material choices. • Develop a junk model. • Use knowledge from exploration to inform design.	• Learn the importance of a clear design criteria. • Include individual preferences and requirements in a design.	• Generate and communicate ideas using sketching and modelling. Learn about different types of structures found in the natural world and everyday objects.	• Design a structure with key features that appeal to a specific person/purpose. • Draw and label their design using 2D shapes labelling the 3D shapes that will create the features, materials needed and colours. Design and/or decorate a structure on CAD software.	• Design a stable structure that is aesthetically pleasing and selecting materials to create a desired effect. Build frame structures designed to support weight.	• Design a stable structure that is able to support weight. • Create a frame structure with a focus on triangulation.	• Design a structure with a variety of different features giving careful consideration to how the structures will be used. • Consider effective and ineffective designs.
Make	• Improve fine motor skills/scissor skills with a variety of materials. • Join materials in a variety of ways (temporary and permanent). • Join different materials together. • Describe their structures and how they intend to put it together.	• Make stable structures from card. • Follow instructions to cut and assemble their structure. • Find the middle of an object. • Make functioning turbines and axles. • Add weight to structures. Create supporting structures. Cut evenly and carefully.	• Make a structure according to a design criteria. • Create joints and structures from paper/card and tape. Build a strong and stiff structure by folding paper.	• Construct a range of 3D geometric shapes using nets. • Create special features for individual designs. • Make features from a range of recycled materials.	• Create a range of different shaped frame structures. • Make a variety of free standing structures of different shapes and sizes. • Select appropriate materials to build a strong structure and cladding. • Reinforce corners to strengthen a structure. • Create a design in accordance with a plan. • Learn to create different textural effects with materials.	• Build a wooden structure. Independently measure and mark wood accurately. Select appropriate tools and equipment for particular tasks. Use the correct techniques to saw safely. Identify where a structure needs reinforcement and use card corners for support. • Explain why selecting appropriate materials is an important part of the design process.	• Build a range of structures drawing upon new and prior knowledge of structures. Measure, mark and cut wood to create a range of structures. • Use a range of materials to reinforce and add decoration to structures.

Evaluate	• Give a verbal evaluation of their own and others' structures with adult support. • Check to see if their structure matches their plan. • Consider what they would do differently if they were able to do it again. Describe their favourite and least favourite part of their structure. Test their design and reflect on what they could have done differently.	• Evaluate a structure according to the design criteria. • Test whether a structure is strong and stable and altering it if it isn't. Suggest points for improvement.	• Explore the features of structures. • Compare the stability of different shapes. • Test the strength of own structures. • Identify the weakest part of a structure. • Evaluate the strength, stiffness and stability of their own structure.	• Evaluate their own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggest points for modification of the individual designs.	• Evaluate structures made by the class. • Describe what characteristics of a design and construction made it the most effective. • Consider effective and ineffective designs.	• Adapt and improve their own structures by identifying points of weakness and reinforcing them as necessary. Suggest points for improvements for their own structures and those designed by others.	• Improve a design plan based on peer evaluation. Test and adapt a design to improve it as it is developed. Identify what makes a successful structure.
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Textiles

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	- Discuss what a good design needs. - Design a simple pattern with paper. - Choose from available material.	- Use a template to create a design. - Draw initial design ideas onto paper.	- Create a class criteria for a product. - Design a product to meet certain criteria.	Design and make a template from an existing product and apply individual design criteria.	- Write design criteria for a product articulating decisions made. - Design personalised products.	- Design a stuffed toy considering the main component shapes required and create an appropriate template. - Consider the proportions of individual components.	- Design a product in accordance to a specification linked to a set of design criteria. - Annotate designs to explain their decisions.
Make	- Develop fine motor/cutting skills with scissors. - Explore fine motor/threading and weaving with a variety of materials. - Use a prepared needle and wool to practice threading.	- Cut fabric/materials neatly with scissors. - Use joining methods to decorate. - Sequence steps for construction.	- Select and cut fabrics for sewing. - Decorate using fabric glue or running stitch. - Thread a needle. Sew running stitch with evenly spaced, neat stitches to join fabric. - Neatly pin and cut fabric using a template. - Use a variety of methods to join materials. - Select materials with differing textures.	- Follow design criteria to create a product. Select and cut fabrics with ease. - Thread needles with greater independence. - Tie knots with greater independence. - Sew cross stitch to join fabrics. - Decorate fabric using applique. - Complete design ideas with stuffing and/or sewing the edges.	- Make and test a paper template with accuracy and in keeping with the design criteria. - Measure, mark and cut fabric using a paper template. - Select a stitch style to join fabric. - Work neatly by sewing small, straight stitches. - Incorporate a fastening to a design.	- Create a 3D stuffed toy from a 2D design. - Measure, mark and cut fabric accurately and independently. - Create strong and secure blanket stitches when joining fabric. - Thread needles independently. - Use applique to attach a piece of fabric decoration. - Sew blanket stitch to join fabric. - Apply blanket stitch so the spaces between the stitches are even and regular.	- Use a template when cutting fabric to ensure they achieve the correct shape. - Use pins effectively to secure a template to fabric without creases or bulges. - Mark and cut fabric accurately in accordance with their design. - Sew a strong running stitch making small, neat stitches and follow the edge. - Tie strong knots. - Decorate a product, attaching features (such as applique) using thread. - Learn different decorative stitches. - Sew accurately with evenly spaced, neat stitches.

Evaluate	Reflect on a finished product and compare to their design.	Reflect on a finished product, explaining likes and dislikes.	- Troubleshoot scenarios posed by the teacher. - Evaluate the quality of the stitching on others' work. - Discuss as a class the success of their stitching against the success criteria. - Identify aspects of their peers' work that they particularly like and why.	Evaluate an end product and think of other ways in which to create similar items. Discuss with others how a product could be improved. Discuss what they found easy and difficult about each step of the design, make and evaluate process.	- Test and evaluate an end product against the original design criteria. - Decide how many criteria should be met for a product to be considered successful. - Suggest modifications for improvement. - Articulate the advantages and disadvantages of different fastening types.	Test and evaluate an end product and give points for further improvement.	Reflect on their work continually throughout the design, make and evaluate process.
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Cooking and Nutrition

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	- Design a recipe as a class. - Design packaging for a product.	- Design food packaging by hand. - Draw ideas for their products using colour.	- Design ideas based on a food combination which works well together. - Begin to draw labelled diagrams of their products.	- Design a recipe. - Create detailed diagrams of their initial product ideas. - Describe how climate affects where food grows. - Design packaging for a product. - Manipulate card to create a box.	- Design a product drawing upon taste testing judgements. - Design packaging that targets a specific group. Conduct market research of products. Design a product within a given budget.	- Adapt a traditional recipe understanding the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. - Write an amended method for a recipe to incorporate the relevant changes to ingredients. - Design appealing packaging to reflect a recipe. - Research existing recipes to inform ingredient choices.	- Write a recipe explaining the key steps, method and ingredients. - Include facts and drawings from research undertaken. Suggest alternative ingredients.
Make	- Chop plasticine safely. - Chop vegetables and fruit with support.	- Chop ingredients safely. - Juice fruits safely to make a smoothie. - Select equipment to mix and join ingredients. - Use cooking facilities safely with the support of an adult.	- Chop foods safely. - Construct a product that meets a design brief. - Grate foods safely. Snip smaller foods instead of cutting. - Use cooking facilities safely with some support from adults.	- Follow the instructions within a recipe. - Taste seasonal ingredients. - Select seasonal ingredients. - Peel ingredients safely. - Cut safely with a vegetable knife. Choose ingredients base on a design brief.	- Follow a baking recipe, including the preparation of ingredients. - Cook safely following basic hygiene rules. - Adapt a recipe to meet the requirements of a target audience. - Use a cuboid net to create packaging.	- Cut and prepare ingredients safely. - Use equipment safely including knives, hot pans and hobs. - Understand how to avoid cross-contamination. - Follow a step-by-step method carefully to make a recipe. Create a menu.	- Follow a recipe including using the correct quantities of each ingredient. - Adapt a recipe based on research. - Work to a given timescale. - Work safely and hygienically with independence. Create a menu using research to underpin their ideas.

Evaluate	• Taste their products and give opinions. • Describe some of the following when tasting food: look, feel, smell and taste. • Choose their favourite ingredient and explain why.	• Taste and evaluate different food combinations. • Describe appearance, smell and taste. Suggest information to be included on packaging. Compare their own products with someone else's.	• Describe the taste, texture and smell of fruit and vegetables. Taste test food combinations and final products. Describe the information that should be included on a label. Evaluate food by giving it a score.	• Establish and use design criteria to help test and review dishes. • Describe the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggest points for improvement when making a product. Describe the texture and flavour of ingredients.	• Evaluate a recipe considering taste, smell, texture and appearance. • Describe the impact of the budget on the selection of ingredients. • Evaluate and compare a range of food products. • Suggest modifications to a recipe.	• Identify the nutritional differences between different products and recipes. • Identify and describe healthy benefits of food groups. Explain the farm to fork process.	• Evaluate a recipe considering taste, smell, texture and origin of the food group. • Taste test and score final products. • Suggest and write up points of improvements when scoring others' dishes and when evaluating their own throughout the planning, preparation and cooking process. • Evaluating health and safety in production to minimise cross contamination.
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Mechanisms/Mechanical Systems

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design		- Draw ideas for their products using colour. - Explain how to adapt mechanisms using bridges or guides to control the movement. - Design a moving story book for a given audience. - Design a vehicle that includes wheels, axles and axle holders that allow the wheels to move. - Create clearly illustrated drawings that illustrate movement.	- Select a suitable linkage system to produce the desired motion. - Create a class design criteria. - Design a moving product for a specific audience in accordance with a design criteria.	- Develop design criteria from a design brief. - Generate ideas using sketches and diagrams. - Learn that different types of drawings are used in designs to explain ideas clearly.	- Draw a net to create a structure from. - Choose shapes for functionality and aesthetics. - Personalise a design. Develop drawing and sketching skills with a focus on clarity and simplicity. Add details and justifications to designs about materials, tools and methods.	- Design a product that uses a mixture of structures and mechanisms. - Name each mechanism, input and output accurately. - Map out ideas, labelling mechanisms accurately. Design a shape that reduces air resistance.	- Experiment with a range of cams creating a design based on the cam needed to give a desired movement. - Make things move at the same time. - Understand how linkages can change the direction of a force. - Draw cross-sectional diagrams to show the inner-workings of a design. Draw a net to create a structure form.
Make		- Follow a design to create moving models that use levers and sliders. - Adapt mechanisms when they do not work as they should, to fit their vehicle design, to improve how they work and to test their vehicle. - Choose materials to make a strong, sturdy product. - Join materials using glue, tape and paperclips.	- Select materials according to their characteristics. - Follow a design brief. - Make linkages using card for levers and split pins for pivots. - Experiment with linkages adjusting the widths, lengths and thicknesses of card used. - Cut and assemble components neatly.	Select materials due to their functional and aesthetic characteristics. Manipulate materials to create different effects by cutting, creasing, folding and weaving. Participate in classroom discussions about classroom safety procedures. Choose shapes to suit the function of a product. Paint and/or colour precisely to improve the finish.	- Measure, mark, cut and assemble with increasing accuracy. - Make a model based on a chosen design. Select equipment required for a series of tasks based on the plan. Explain why each piece is suitable for each stage. Cut out more complex shapes accurately. Make facades from a range of materials. Create different textural effects with a variety of materials.	- Follow a design brief to make a product neatly and accurately. - Make mechanisms using sliders, pivots and folds to produce movement. - Use layers and spacers to hide the workings of mechanisms for a pleasing look. Measure, mark, cut and assemble with increasing accuracy.	- Measure, mark and check the accuracy of the materials needed. - Measure, mark and cut components accurately using a ruler and scissors. Assemble components accurately to make a stable frame. Understand that materials need to be cut accurately for the frame to function effectively. Select appropriate materials to allow joins to dry quickly. - Choose shapes that increase or decrease speed as a result of air resistance.

Evaluate		- test a finished product seeing whether it moves as planned. Test wheel and axle mechanisms and recognise that a wheel needs an axle in order to move. Review the success of a product by testing it with its intended audience.	- evaluate their own designs against design criteria. Use peer feedback to modify a final design. - Test a finished product seeing whether it moves as planned and if not, explaining why and how it can be fixed. Test wheel and axle mechanisms identifying what stops the wheels from turning.	- Use the views of others to improve designs. - Test and modify the outcomes, suggesting improvements. - Understand the purpose of diagrams through the eyes of a designer and their client.	Evaluate the speed of a final product based on the effect of shape on speed and the accuracy of workmanship on performance. Explain why they think certain aspects of a peer's design are effective or why they suggested specific improvements. Evaluate how effective their chosen materials and tools were in fulfilling the design brief.	- Evaluate the work of others receiving feedback on their own work. - Suggest points for improvement in their own and others work.	- Apply points of improvement to their own work. - Describe the changes they would make if they were to complete the task again. Evaluate the speed of a final product based on the effect of shape on speed and accuracy of workmanship and performance.
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Electrical Systems (KS2 only)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design				- Carry out research based on a given topic to develop a range of initial ideas. - Generate a final design for the product with consideration to the clients' needs and design criteria. - Design a product that fits the requirements of a given brief.	- Design a product giving consideration to the target audience. - Create both design and success criteria focusing on features of individual design ideas.	- Identify factors that could be changed on existing products and explain how these would alter the form and function of the product. - Develop design criteria based on findings from investigating existing products. - Develop design criteria that clarifies the target user.	- Identify and name the components required for a product. - Draw a design from three different perspectives. - Generate ideas through sketching and discussion. - Model ideas through prototypes. - Understand the purpose of products, including what is meant by 'fit for purpose' and 'form over function'.
Make						Alter a product's form and function by tinkering with its configuration. Make a functional series circuit, incorporating a motor. Construct a product with consideration for the design criteria. Break down the construction process into steps so that others can make the product.	- Construct a stable base. - Accurately cut, fold and assemble a net. - Decorate the product to a high quality finish. - Make and test a circuit. - Incorporate a circuit into the base of a product.

Evaluate				- Learn to give and accept constructive criticism on own work and the work of others. - Test the success of initial ideas against the design criteria and justify opinions. Revisit the requirements of the client to review developing design ideas and check that they fulfil their needs.	- Evaluate electrical products. - Test and evaluate the success of a final product.	- Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. - Determine which parts of a product affect its function and which parts affect its form. Analysis whether changes in configuration positively or negatively affect an existing product. Peer evaluate a set of instructions to build a product.	- Test their own and others finished products, identifying what went well and making suggestions for improvement. - Gather images and information on similar existing products. - Analyse a selection of similar existing products.
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Digital World

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design				• Problem solve by suggesting which features of a Microbit might be useful and justify their reasoning. • Draw and maipulate 2D shapes. • Develop design ideas through annotated sketches. • Develop design criteria to meet to a set design brief.	• Write design crteria for a program. • Apply research results to further aid the design of their product. Design a prototype. Follow a list of design criteria.	• Research similar products to the task brief. • Develop design criteria based on research. • Understand what a virtual model is. • Place and move 3D objects using CAD.	• Develop a design brief to fulfill the needs of the target audience. • Develop a product through annotated sketches. • Change the properties and combine one or more 3D shapes using CAD.
Make				• Follow a list of design requirements. Write a program to control.	• Develop a prototype for their product. Use modelling materials to create 3D structures. Program a Microbit.	• Understand the funtional and aesthetic properties of plastic. Program their Microbit to suit their design criteria.	• Consider materials that are sustainable and recyclable for their product. • Explain their material choices.
Evaluate				• Evaluate and analyse wearable technology. • Use feedback from the class to improve their product and design.	• Analyse and investigate a range of timers. Evaluate their Microbit program against their design criteria and amend where necessary. Understand what a logo is and why they are important to a business. Test their program for errors in the code. • Find and fix any errors in their code. • Gather feedback from their peers to suggest improvements.	• Explain how to make more sustainable choices. • Explain key functions in their program. • Explain how their product would help people.	• Explain how their program and product meets the design brief. • Develop an awareness of sustainable design. • Explain how the product will benefit the target audience. Explain the key functions in their program. • Pitch their design to the rest of the class.