

Year 4 - Progression of Knowledge and Skills DT

Term	Knowledge	Skills
Autumn Cooking and nutrition: Adapting a recipe Adapting basic biscuit recipes for a new audience while considering the cost of ingredients and other expenses against a set budget.	• That a problem or need is something that a designer can help to solve. • That empathy is thinking about what someone else might like. • That a target audience is a group of people that might like the idea. • That thinking together can help generate ideas. • That not everything can be made in the classroom. • That ordering the steps of a build can make it easier. • That form is the look and shape of something. • That function is what something does and how it works. • That different pieces of equipment will be used at different stages in a plan. • That different tools and equipment have different dangers. • That creating accurate shapes improves how they look and sometimes their function.	• Noticing simple problems or needs in their everyday life. • Conducting simple surveys. • Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences. • Taking part in structured idea-generation sessions. • Coming up with more ideas and considering the feasibility of their ideas in the classroom. • Developing designs by adding detail and justifications about materials, tools, methods. • Ordering the main stages of making into a plan. • Selecting materials, components or ingredients from a wider choice but within a limited design space (e.g. seasonal) • Selecting materials, components or ingredients based on their form as well as their functional properties. • Explaining their choices (function and form). • Selecting equipment required for a series of tasks based on the plan. Explain why each piece is suitable for each stage.

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Autumn Cooking and nutrition: Adapting a recipe Adapting basic biscuit recipes for a new audience while considering the cost of ingredients and other expenses against a set budget.	- To know: - That some products are more successful than others because of their function. - That designers and inventors create products. - That the choices of materials and equipment can affect the final product. - That feedback is ideas and suggestions from other people that can help improve their work. - That good suggestions help give better feedback. - That they can choose to use feedback or not. - To know: - That cooking instructions are known as a 'recipe'.	- Suggesting simple safety rules based on their understanding of tool dangers. - Participating in discussions about classroom safety procedures. - Following detailed safety instructions. - Choosing shapes to suit the function of a product. - Investigating and analysing a range of existing products by looking at their functionality and appeal. - Analysing why specific products, designers or inventors are successful. - Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements. - Evaluating how effective their chosen materials and tools were in fulfilling the design brief. - Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. - Reflecting on feedback to decide if and how it could be used to improve future iterations. - Following the instructions within a recipe. - Following a baking recipe. - Cooking safely, following basic hygiene rules.

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Spring Mechanical systems: Mechanical cars Building and testing prototype cars to identify effective design features.	• To know: Extra information on drawings or diagrams can help the user understand a design or idea. • An exploded diagram shows how the parts of a product fit together. • A prototype is a detailed model that helps users understand how a product will work. • A problem or need is something that a designer can help to solve. • A target audience is a group of people that might like the idea. • To know: • Different tools and equipment have different dangers. • A ruler can be used to measure length. • Scissors are useful for cutting out. • A hot glue gun can be used to join materials. • Different pieces of equipment will be used at different stages in a plan. • To know: • The better the suggestions, the better the feedback.	• Taking part in structured idea generation sessions. • Developing drawing and sketching skills with a focus on clarity and simplicity. • Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. (e.g. sketches, cross-sectional diagrams, thumbnail sketches and exploded diagrams). • Creating prototypes using materials with similar properties to their final design. • Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences. • Developing designs by adding details and justifications about materials, tools and methods. • Following detailed safety instructions. • Using a ruler as a measuring tool with increasing accuracy by creating spaced marks using millimetres and measuring lengths of objects. • Handle different sizes and types of scissors with confidence.

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Spring Mechanical systems: Mechanical cars Building and testing prototype cars to identify effective design features.	• They can choose to use feedback or not. • Some products are more successful than others because of their function. • Designers and inventors create products. • Choices of materials and equipment can affect the final product. • Feedback is ideas and suggestions from other people that can help improve their work. • To know: • A mechanical system can allow us to move something more easily. • Mechanical systems have more than one mechanism that moves to make them work. • Mechanical systems are often hidden in products to make them look more appealing.	• With close supervision, using a hot glue gun to join wooden materials (e.g. lolly sticks). • Selecting equipment required for a series of tasks based on the plan and explaining why each piece is suitable for each stage. • Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. • Reflecting on feedback to decide if and how it could be used to improve future iterations. • Investigating and analysing a range of existing products by looking at their functionality and appeal. • Analysing why specific products, designers or inventors are successful. • Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements. • Evaluating how effective their chosen materials and tools were in fulfilling the design brief.

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Summer Electrical systems: Exploring electrical products Building simple circuits with switches. Designing their own electrical product using a cross-sectional diagram.	• To know: A problem or need is something that a designer can help to solve. • A target audience is a group of people that might like the idea. • Not everything can be made in the classroom. • Extra information on drawings or diagrams can help the user understand a design or idea. • A cross-sectional diagram shows the inside of a product. • To know: Form is the look and shape of something. • Function is what something does and how it works. • To know: • Some products are more successful than other because of their function. • Designers and inventors create products. • Choices of materials and equipment can affect the final product. • To know: • An electrical system is a group of parts (components) that work together to transport electricity around a circuit.	• Noticing simple problems or needs in their everyday life. • Using empathy and conducting simple surveys to recognise the needs of others. • Coming up with more ideas and considering the feasibility of their ideas in the classroom. • Developing drawing and sketching skills with a focus on clarity and simplicity. • Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. (eg. sketches, cross-sectional diagram, thumbnail sketches and exploded diagrams) • Selecting materials, components or ingredients from a wider choice but within a limited design space (e.g. seasonal ingredients from May and June in the UK). • Explaining their choices with regard to function and form. • Following detailed safety instructions.

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Summer Electrical systems: Exploring electrical products Building simple circuits with switches. Designing their own electrical product using a cross-sectional diagram.	• Some common features of an electric product (e.g. switch, battery, plug, dials, buttons, etc). • A battery contains stored electricity that can be used to power products. • An electrical circuit must be complete for electricity to flow. • A switch can be used to complete and break an electrical circuit.	• Investigating and analysing a range of existing products by looking at their functionality and appeal. • Analysing why specific products, designers or inventors are successful. • Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. • Recognising and exploring everyday electrical products. • Identifying some electrical components. • Using batteries and other electrical components safely. • Creating a working electrical circuit. • Incorporating switches into circuits.