



WPS Design & Technology Progression of Skills



Early Years Framework	
Characteristics of Effective Learning	Early Learning Aspects
<ul style="list-style-type: none"> Show curiosity about objects, events and people Questions why things happen Engage in open-ended activity Thinking of ideas Find ways to solve problems/find new ways to do things/test their ideas Use senses to explore the world around them Create simple representations of events, people and objects Planning, making decisions about how to approach a task, solve a problem and reach a goal Checking how well their activities are going Changing strategy as needed Reviewing how well the approach worked 	<ul style="list-style-type: none"> Uses one-handed tools and equipment (PD 30-50m) Uses simple tools to effect changes to materials (PD 40-60+m) Handles tools, objects, construction and malleable materials safely and with increasing control (PD 40-60+m) Eats a healthy range of foodstuffs and understands need for a variety in food (PD 40-60+m) Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones (UoW 30-50m) Uses ICT hardware to interact with age-appropriate computer software (UoW 40-60+m) Uses various construction materials (EAD 30-50m) Joins construction pieces together to build and balance (EAD 30-50m) Realises tools can be used for a purpose (EAD 30-50m) Manipulates materials to achieve a planned effect (EAD 40-60+m) Constructs with a purpose in mind, using a variety of resources (EAD 40-60+m) Uses simple tools and techniques competently and appropriately (EAD 40-60+m) Selects appropriate resources and adapts work where necessary (EAD 40-60+m) Selects tools and techniques needed to shape, assemble and join materials they are using (EAD 40-60+m)

KS1 DT National Curriculum Objectives: In this unit, children will be taught to:	
<p><u>Designing – Understanding contexts, users and purposes</u></p> <ul style="list-style-type: none"> Work confidently within a range of contexts State what products they are designing and making Say whether their products are for themselves or other users Describe what their products are for Say how their products will work Say how they will make their products suitable for their intended users Use simple design criteria to help develop their ideas <p><u>Designing – Generating, developing, modelling and communicating ideas</u></p> <ul style="list-style-type: none"> Generate ideas by drawing on their own experiences Use knowledge of existing products to help come up with ideas Develop and communicate ideas by talking and drawing Model ideas by exploring materials, components and construction kits and by making templates and mock-ups Use ICT, where appropriate, to develop and communicate their ideas 	<p><u>Making – Planning</u></p> <ul style="list-style-type: none"> Plan by suggesting what to do next Select from a range of tools and equipment, explaining their choices Select from a range of materials and components according to their characteristics <p><u>Making – Practical skills and techniques</u></p> <ul style="list-style-type: none"> Follow procedures for safety and hygiene Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components Measure, mark out, cut and shape materials and components Assemble, join and combine materials and components Use finishing techniques, including those from art and design



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<p><u>Evaluating – Own ideas and products</u></p> <ul style="list-style-type: none">• Talk about their design ideas and what they are making• Make simple judgments about their products and ideas against design criteria• Suggest how their products could be improved <p><u>Evaluating – Existing products</u></p> <p>Across KS1 Pupils will explore:</p> <ul style="list-style-type: none">• What products are and who or what they are for• How products work and how or where they might be used• What materials products are made from• What they like and dislike about products	<p><u>Technical Knowledge – Making products work</u></p> <p>Across KS1 pupils should know:</p> <ul style="list-style-type: none">• About the simple working characteristics of materials and components• About the movement of simple mechanisms such as levers, sliders, wheels and axles• How freestanding structures can be made stronger, stiffer and more stable• That a 3D textiles product can be assembled from two identical fabric shapes• That food ingredients should be combined according to their sensory characteristics• The correct technical vocabulary for the projects they are undertaking
<p><u>Cooking and Nutrition – Where food comes from</u></p> <ul style="list-style-type: none">• That all food comes from plants or animals• That food has to be farmed, grown elsewhere (e.g. home) or caught <p><u>Cooking and Nutrition – Food preparation, cooking and nutrition</u></p> <ul style="list-style-type: none">• How to name and sort foods into the five groups in the Eatwell Guide• That everyone should eat at least five portions of fruit and vegetables every day• How to prepare simple dishes safely and hygienically, without using a heat source• How to use techniques such as cutting, peeling and grating	

<p>KS2 National Curriculum objectives: In this unit children will be taught:</p>	
<p><u>Designing – Understanding contexts, users and purposes</u></p> <p>Across KS2 pupils should:</p> <ul style="list-style-type: none">• Work confidently within a range of contexts• Describe the purpose of their products• Indicate the design features of their products that will appeal to intended users• Explain how particular parts of their products work <p>Lower KS2:</p> <ul style="list-style-type: none">• Gather information about the needs and wants of particular individuals and groups• Develop their own design criteria and use these to inform their ideas <p>Upper KS2:</p> <ul style="list-style-type: none">• Carry out research, using surveys, interviews, questionnaires and web-based resources• Identify the needs, wants and preferences and values of particular individuals and groups• Develop a simple design specification to guide their thinking	<p><u>Designing – Generating, developing, modelling and communicating ideas</u></p> <p>Across KS2 pupils should:</p> <ul style="list-style-type: none">• Share and Clarify ideas through discussion• Model their ideas using prototypes and pattern pieces• Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas• Use computer-aided design to develop and communicate their ideas <p>Lower KS2:</p> <ul style="list-style-type: none">• Generate realistic ideas, focusing on the needs of the user• Make design decisions that take account of the availability of resources <p>Upper KS2:</p> <ul style="list-style-type: none">• Generate innovative ideas, drawing on research• Make design decisions, taking account of constraints such as time, resources and cost



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Making – Planning

Across KS2 pupils should:

- Select tools and equipment suitable for the task
- Explain their choice of tools and equipment in relation to the skills and techniques they will be using
- Select materials and components suitable for the task
- Explain their choice of materials and components according to functional properties and aesthetic qualities

Lower KS2:

- Order the main stages of making

Upper KS2:

- Produce appropriate lists of tools, equipment and materials that they need
- Formulae step-by-step plans as a guide to making

Making – Practical skills and techniques

Across KS2 pupils should:

- Follow procedures for safety and hygiene
- Use wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components

Lower KS2:

- Measure, mark out, cut and shape materials and components with some accuracy
- Assemble, join and combine materials and components with some accuracy
- Apply a range of finishing techniques, including those from art and design, with some accuracy

Upper KS2:

- Accurately measure, mark out, cut and shape materials and components
- Accurately assemble, join, and combine materials and components
- Accurately apply a range of finishing techniques, including those from art and design
- Use techniques that involve a number of steps
- Demonstrate resourcefulness when tackling practical problems

Evaluating – Own ideas and products

Across KS2 pupils should:

- Identify the strengths and areas for development in their ideas and products
- Consider the views of others, including intended users, to improve their work

Lower KS2:

- Refer to their design criteria as they design and make
- Use their design criteria to evaluate their completed products

Upper KS2:

- Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
- Evaluate their ideas and products against their original design specification

Evaluating – Existing products

Across KS2 pupils should investigate and analyse:

- How well products have been designed and made
- Why materials have been chosen
- What methods of construction have been used
- How well products work, achieve their purposes and meet the user needs and wants

Lower KS2:

- Who designed and made the products
- Where products were designed and made
- When products were designed and made
- Whether products can be recycled or reused

Upper KS2:

- How much products cost to make
- How innovative products are
- How sustainable the materials in products are
- What impact products have beyond their intended purpose

Key events and individuals



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	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none">About the inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
<p><u>Technical Knowledge – Making products work</u></p> <p>Across KS2 pupils should:</p> <ul style="list-style-type: none">How to use learning from science and mathematics to help design and make products that workThat materials have both functional properties and aesthetic qualitiesThat materials can be combined and mixed to create more useful characteristicsThat mechanical and electrical systems have an input, process and outputThe correct technical vocabulary for the projects they are undertaking <p>Lower KS2:</p> <ul style="list-style-type: none">How mechanical systems such as levers and linkages or pneumatic systems create movementHow simple electrical circuits and components can be used to create functional productsHow to program a computer to control their productsHow to make strong, stiff shell structuresThat a single fabric shape can be used to make a 3D textiles productThat food ingredients can be fresh, pre-cooked and processed <p>Upper KS2:</p> <ul style="list-style-type: none">How mechanical systems such as cams or pulleys or gears create movementHow more complex electrical circuits and components can be used to create functional productsHow to program a computer to monitor changes in the environment and control their productsHow to reinforce and strengthen a 3D frameworkThat a 3D textiles product can be made from a combination of fabric shapes	<p><u>Cooking and Nutrition – Where food comes from</u></p> <p>Across KS2 pupils should know:</p> <ul style="list-style-type: none">That a recipe can be adapted by adding or substituting one or more ingredientsThat food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world <p>Upper KS2:</p> <ul style="list-style-type: none">That seasons may affect the food availableHow food is processed into ingredients that can be eaten or used in cooking <p><u>Cooking and Nutrition – Food preparation, cooking and nutrition</u></p> <p>Across KS2 pupils should know:</p> <ul style="list-style-type: none">How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat sourceHow to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading and kneading and baking <p>Lower KS2:</p> <ul style="list-style-type: none">That a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell GuideThat to be active and healthy, food and drink are needed to provide energy for the body <p>Upper KS2:</p> <ul style="list-style-type: none">That recipes can be adapted to change the appearance, taste, texture and aromaThat different food and drink contain different substances – nutrients, water and fibre – that are needed for health