

DT Progression of skills KS1

KS1 National Curriculum objectives: In this unit, children will be taught to:

Designing – Understanding contexts, users and purposes

- D1 work confidently within a range of contexts, such as imaginary, story- based, home, school, gardens, playgrounds, local community, industry and the wider environment
- D2 state what products they are making
- D3 say whether their products are for themselves or other users
- D4 describe what their products are for
- D5 say how their products will work
- D6 say how they will make their products suitable for their intended users
- D7 use simple design criteria to help develop their ideas

Designing – Generating, developing, modelling and communicating ideas

- D8 generate ideas by drawing on their own experiences
- D9 use knowledge of existing products to help come up with ideas
- D10 develop and communicate ideas by talking and drawing
- D11 model ideas by exploring materials, components and construction kits and by making templates and mockups
- D12 use ICT, where appropriate, to develop and communicate their ideas

Making – Planning

- M1 plan by suggesting what to do next
- M2 select from a range of tools and equipment, explaining their choices
- M3 select from a range of materials and components according to their characteristics

Making – Practical skills and techniques

- M4 follow procedures for safety and hygiene
- M5 use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components
- M6 measure, mark out, cut and shape materials and components
- M7 assemble, join and combine materials and components
- M8 use finishing techniques, including those from art and design

Technical knowledge – Making products work

- T1 about the simple working characteristics of materials and components
- T2 about the movement of simple mechanisms such as levers, sliders, wheels and axles
- T3 how freestanding structures can be made stronger, stiffer and more stable
- T4 that a 3-D textiles product can be assembled from two identical fabric shape
- T5 that food ingredients should be combined according to their sensory characteristics
- T6 the correct technical vocabulary for the projects they are undertaking

Evaluating – Own ideas and products

- E1 talk about their design ideas and what they are making
- E2 make simple judgements about their products and ideas against design criteria
- E3 suggest how their products could be improved

Evaluating – Existing products

- E4 explore what products are and who or what they are for.
- E5 explore how products work and how or where they might be used.
- E6 explore what materials products are made from
- E7 explore what they like and dislike about products

Cooking and nutrition – Where food comes from

- C1 that all food comes from plants or animals
- C2 that food has to be farmed, grown elsewhere (e.g. home) or caught

Cooking and nutrition – Food preparation, cooking and nutrition

- C3 how to name and sort foods into the five groups in The Eatwell Plate
- C4 that everyone should eat at least five portions of fruit and vegetables every day
- C5 how to prepare simple dishes safely and hygienically, without using a heat source
- C6 how to use techniques such as cutting, peeling and grating

DT Progression of skills Lower KS2

Lower KS2 National Curriculum objectives: In this unit, children will be taught to:

Designing – Understanding contexts, users and purposes

- D1 work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment
- D2 describe the purpose of their products
- D3 indicate the design features of their products that will appeal to intended users
- D4 explain how particular parts of their products work
- D5 gather information about needs and wants of particular individuals and groups
- D6 develop their own design criteria and use these to inform their ideas

Designing – Generating, developing, modelling and communicating ideas

- D7 share and clarify ideas through discussion
- D8 model their ideas using prototypes and pattern pieces
- D9 use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas
- D10 use computer-aided design to develop and communicate their ideas
- D11 generate realistic ideas, focusing on the needs of the user
- D12 make design decisions that take account of the availability of resources

Making – Planning

- M1 select tools and equipment suitable for the task
- M2 explain their choice of tools and equipment in relation to the skills and techniques they will be using
- M3 select materials and components suitable for the task
- M4 explain their choice of materials and components according to functional properties and aesthetic qualities
- M5 order the main stages of making

Making – Practical skills and techniques

- M6 follow procedures for safety and hygiene
- M7 use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components
- M8 measure, mark out, cut and shape materials and components with some accuracy
- M9 assemble, join and combine materials and components with some accuracy
- M10 apply a range of finishing techniques, including those from art and design, with some accuracy

Evaluating – Own ideas and products

- E1 identify the strengths and areas for development in their ideas and products
- E2 consider the views of others, including intended users, to improve their work
- E3 refer to their design criteria as they design and make
- E4 use their design criteria to evaluate their completed products

Evaluating – Existing products

Pupils will be taught to investigate and analyse:

- E5 how well products have been designed and made
- E6 why materials have been chosen
- E7 what methods of construction have been used
- E8 developed ground-breaking products

Technical knowledge – Making products work

- T1 how to use learning from science and maths to help design and make products that work
- T2 that materials have both functional properties and aesthetic qualities
- T3 that materials can be combined and mixed to create more useful characteristics
- T4 that mechanical and electrical systems have an input, process and output
- T5 use the correct technical vocabulary for the projects they are undertaking
- T6 how mechanical systems such as levers and linkages or pneumatic systems create movement
- T7 how simple electrical circuits and components can be used to create functional products
- T8 how to program a computer to control their products
- T9 how to make strong, stiff shell structures
- T10 that a single fabric shape can be used to make a 3D textiles product

<ul style="list-style-type: none"> • E9 how well products work to achieve their purposes • E10 how well products meet user needs and wants • E11 who designed and made the products • E12 where and when products were designed and made • E13 whether products can be recycled or reused <p><u>Evaluating – Key events and individuals</u></p> <ul style="list-style-type: none"> • E14 about inventors, designers, engineers, chefs and manufacturers who have 	<ul style="list-style-type: none"> • T11 that food ingredients can be fresh, pre-cooked and processed <p><u>Cooking and nutrition – Where food comes from</u></p> <ul style="list-style-type: none"> • C1 that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens • C2 and cattle) and caught (such as fish) in the UK, Europe and the wider world <p><u>Cooking and nutrition – Food preparation, cooking and nutrition</u></p> <ul style="list-style-type: none"> • C3 how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • C4 how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • C5 that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell Plate • C6 that to be active and healthy, food and drink are needed to provide energy for the body
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DT Progression of skills Upper KS2

Upper KS2 National Curriculum objectives: In this unit, children will be taught to:

Designing – Understanding contexts, users and purposes

- D1 work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment
- D2 describe the purpose of their products
- D3 indicate the design features of their products that will appeal to intended users
- D4 explain how particular parts of their products work
- D5 carry out research, using surveys, interviews, questionnaires and web-based resources
- D6 identify the needs, wants, preferences and values of particular individuals and groups
- D7 develop a simple design specification to guide their thinking

Designing – Generating, developing, modelling and communicating ideas

- D8 share and clarify ideas through discussion
- D9 model their ideas using prototypes and pattern pieces
- D10 use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas
- D11 use computer-aided design to develop and communicate their ideas
- D12 generate realistic ideas, focusing on the needs of the user
- D13 make design decisions that take account of the availability of resources

Evaluating – Own ideas and products

- E1 identify the strengths and areas for development in their ideas and products
- E2 consider the views of others, including intended users, to improve their work
- E3 critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
- E4 evaluate their ideas and products against their original design specification

Evaluating – Existing products

Making – Planning

- M1 select tools and equipment suitable for the task
- M2 explain their choice of tools and equipment in relation to the skills and techniques they will be using
- M3 select materials and components suitable for the task
- M4 explain their choice of materials and components according to functional properties and aesthetic qualities
- M5 produce appropriate lists of tools, equipment and materials that they need
- M6 formulate step-by-step plans as a guide to making

Making – Practical skills and techniques

- M7 follow procedures for safety and hygiene
- M8 use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components
- M9 accurately measure, mark out, cut and shape materials and components
- M10 accurately assemble, join and combine materials and components
- M11 accurately apply a range of finishing techniques, including those from art and design
- M12 use techniques that involve a number of steps
- M13 demonstrate resourcefulness when tackling practical problems

Technical knowledge – Making products work

- T1 how to use learning from science and maths to help design and make products that work
- T2 that materials have both functional properties and aesthetic qualities
- T3 that materials can be combined and mixed to create more useful characteristics
- T4 that mechanical and electrical systems have an input, process and output
- T5 the correct technical vocabulary for the projects they are undertaking
- T6 how mechanical systems such as cams or pulleys or gears create movement
- T7 how more complex electrical circuits and components can be used to create

<p>Pupils will be taught to investigate and analyse:</p> <ul style="list-style-type: none"> • E5 how well products have been designed and made • E6 why materials have been chosen • E7 what methods of construction have been used • E8 how well products work to achieve their purposes • E9 how well products meet user needs and wants • E10 how much products cost to make • E11 how innovative products are • E12 how sustainable the materials in products are • E13 what impact products have beyond their intended purpose <p><u>Evaluating – Key events and individuals</u></p> <ul style="list-style-type: none"> • E14 about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products 	<p>functional products</p> <ul style="list-style-type: none"> • T8 how to program a computer to monitor changes in the environment and control their products • T9 how to reinforce and strengthen a 3D framework • T10 that a 3D textiles product can be made from a combination of fabric shapes • T11 that a recipe can be adapted by adding or substituting one or more ingredients <p><u>Cooking and nutrition – Where food comes from</u></p> <ul style="list-style-type: none"> • C1 that 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 • C2 that seasons may affect the food available • C3 how 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> <ul style="list-style-type: none"> • C4 how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • C5 how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • C6 that recipes can be adapted to change the appearance, taste, texture and aroma • C7 that different food and drink contain different substances – nutrients, water and fibre – that are needed for health
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