

Design Technology DVSF 2023-2024

High Quality design and technology education makes an essential contribution to the **creativity, culture, wealth** and **well-being** of the nation.

Pupils within the Downland Village Schools Federation will continue to develop the 'characteristics of effective teaching and learning' throughout their primary school journey. The characteristics of effective teaching and learning will provide a structure for **how** our pupils will learn. All staff have regard to the characteristics of effective teaching and learning when teaching design technology to ensure that our high-quality design technology curriculum **excites, engages** and **includes** our pupils. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They will be able to think critically, and they will develop a more rigorous understanding of design technology.

Playing and exploring

- Finding out and exploring – our pupils will have numerous opportunities to find out about and explore existing products and designs. They will be taught to 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.
- Playing with what they know – pupils will become increasingly competent and confident in cooking, as cooking and nutrition is taught in all year groups, they will have repeated opportunities to use the skills and knowledge that they have already acquired.
- Being willing to have a go – staff do not pass negative judgements on pupil's design ideas; pupils are encouraged to self-reflect throughout the design and making process. This helps our pupils to feel a sense of success and develop a positive view of themselves as learners. As a result, they are all keen to have a go.

Active learning

- Keeping trying – within the DVSF we set high expectations for our pupils, as a result pupils are constantly developing their resilience as they bounce back from challenges and learn to persist when difficulties arise.
- Being involved and concentrating – we endeavour for our design technology lessons to link with the interests of our pupils, as we recognise that children show high level of focus when they are fascinated by something.
- Enjoying achieving what they set out to do – we recognise that learning is not linear children learn at different rates and have their own unique strengths and weaknesses. Our pupils enjoy learning for its own sake and not for external praise, after each DT lesson pupils are encouraged to reflect and evaluate their learning and set themselves challenges for next time.

Creating and thinking critically

- Having their own ideas – pupils are encouraged to be imaginative and creative through the design and making process, their unique ideas are valued and encouraged by all staff.
- Making links – our pupils will have opportunities to develop concepts and link them together, as they find meaning in sequence and in cause and effect.
- Choosing ways to do things – our pupils will be encouraged to make their own choices and decisions about how to approach tasks, planning and monitoring what to do, they will be able to change and adapt their strategies and design ideas throughout the making process.

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Designing	Key Stage 1	Key Stage 2
<p>Understanding contexts, users and purposes</p>	<ul style="list-style-type: none"> • Across KS1 pupils should: • Work confidently within a range of contexts, such as imaginary, story based, home, school, gardens, playgrounds, local community, industry and the wider environment. • State what products they are designing and making. • Say whether their products are for themselves or other users. • Describe what 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. 	<ul style="list-style-type: none"> • Across KS2 pupils should: • Work confidentiality within a range of contexts, such as home, school, leisure, culture, enterprise, industry and the wider environment. • 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. • Lower KS2: • Gather information about the needs and wants of particular individuals and groups. • Develop their own design criteria and use these to inform their ideas. • Upper KS2: • Carry out research, using surveys, interviews, questionnaires and web-based resources. • Identify the needs, wants, preferences and values of particular individuals and groups. • Develop a simple design specification to guide their thinking.
<p>Generating, developing, modelling and communicating ideas</p>	<p>Across KS1 pupils should:</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. 	<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.

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	<ul style="list-style-type: none"> • Model ideas by exploring materials, components and construction kits and by making templates and mock ups. • Use information and communication technology, where appropriate to develop and communicate their ideas. 	<ul style="list-style-type: none"> • Use computer aided design to develop and communicate their ideas. <p>Lower KS2:</p> <ul style="list-style-type: none"> • Generate 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. •
Making	Key Stage 1	Key Stage 2
Planning	<p>Across KS1 pupils should:</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>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • 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 <p>In Lower KS2 pupils should also:</p> <ul style="list-style-type: none"> • order the main stages of making <p>In Upper KS2 pupils should also:</p> <ul style="list-style-type: none"> • produce appropriate lists of tools, equipment and materials that they need • formulate step-by-step plans as a guide to making
Practical skill and techniques	Across KS1 pupils should:	Across KS2 pupils should:

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	<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 	<ul style="list-style-type: none"> • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components <p>In Lower KS2 pupils should also:</p> <ul style="list-style-type: none"> • 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 <p>In Upper KS2 pupils should also:</p> <ul style="list-style-type: none"> • 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	Key Stage 1	Key Stage 2
Own ideas and products	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • suggest how their products could be improved 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work <p>In Lower KS2 pupils should also:</p> <ul style="list-style-type: none"> • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products <p>In Upper KS2 pupils should also:</p>

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		<ul style="list-style-type: none"> 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
Existing products	<p>Across KS1 pupils should explore:</p> <ul style="list-style-type: none"> what products are who products are for what products are for how products work how products are used where products might be used what materials products are made from what they like and dislike about products 	<p>Across KS2 pupils should investigate and analyse:</p> <ul style="list-style-type: none"> how well products have been designed how well products have been made why materials have been chosen what methods of construction have been used how well products work how well products achieve their purposes how well products meet user needs and wants. <p>In Lower KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> 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 <p>In Upper KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> 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	Not a requirement in KS1	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
Technical Knowledge	Key Stage 1	Key Stage 2
Making products work	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> about the simple working characteristics of materials and components 	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> how to use learning from science to help design and make products that work

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- 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 3-D 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

- how to use learning from mathematics to help design and make products that work
- that materials have both functional properties and aesthetic qualities
- that materials can be combined and mixed to create more useful characteristics
- that mechanical and electrical systems have an input, process and output
- the correct technical vocabulary for the projects they are undertaking

In Lower KS2 pupils should also know:

- how mechanical systems such as levers and linkages or pneumatic systems create movement
- how simple electrical circuits and components can be used to create functional products
- how to program a computer to control their products
- how to make strong, stiff shell structures
- that a single fabric shape can be used to make a 3D textiles product
- that food ingredients can be fresh, pre-cooked and processed

In Upper KS2 pupils should also know:

- how mechanical systems such as cams or pulleys or gears create movement
- how more complex electrical circuits and components can be used to create functional products
- how to program a computer to monitor changes in the environment and control their products
- how to reinforce and strengthen a 3D framework

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		<ul style="list-style-type: none"> • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or substituting one or more ingredients
Cooking and nutrition	Key Stage 1	Key Stage 2
Where food comes from	<p>Across KS1 pupils should know:</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>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • 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 <p>In upper KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
Food preparation, cooking and nutrition	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> • how to name and sort foods into the five groups in The Eatwell plate • 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>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 source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking <p>In lower KS2 pupils should also know:</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 plate • that to be active and healthy, food and drink are needed to provide energy for the body <p>In upper KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that recipes can be adapted to change the appearance, taste, texture and aroma

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		<ul style="list-style-type: none">• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health
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DVSF Long Term Curriculum Map – 2 Year Cycle

In **reception** classes DT is seen in physical development, expressive arts and designs, understanding the world. Children will progress to a more fluent style of moving developing control. Develop their fine and gross motor skills so that they can use a range of tools competently, safely and confidently. Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them, creating collaboratively, sharing ideas, resources and skills.

Cycle A

	Autumn	Spring	Summer
Year 1 & 2	<u>Mechanisms</u> Wheels and axles	<u>Food</u> Preparing fruit and vegetables	<u>Textiles</u> Templates and joining techniques
Year 3 & 4	<u>Shell Structures</u> Including computer aided design	<u>Food</u> Health and varied diet Cooking and nutrition requirements for KS2	<u>Textiles</u> 2-D shape to 3-D product
Year 5 & 6	<u>Structures</u> Frame Structures	<u>Food</u> Celebrating culture and seasonality Including cooking and nutrition requirements for KS2	<u>Electrical systems</u> More complex switches and circuits (including programming, monitoring and control)

Cycle B

	Autumn	Spring	Summer
Year 1 & 2	<u>Structures</u> Free standing structures	<u>Food</u> Preparing fruit and vegetables	<u>Mechanisms</u> Sliders and levers
Year 3 & 4	<u>Mechanical systems</u> Levers and linkages	<u>Electrical systems</u> Simple circuits and switches including programming and control	<u>Food</u> Healthy and varied diet including cooking and nutrition requirements for KS2
Year 5 & 6	<u>Textiles</u> Combining different fabric shapes Including computer aided design	<u>Mechanical systems</u> Pulleys or gears	<u>Food</u> Celebrating culture and seasonality Including cooking and nutrition requirements for KS2

