



Frimley Church of England School

Design and Technology - Skills and Knowledge Progression



Intent

Through the teaching of Art and DT, the aim is to enable to improve children's engagement, creativity and provide them with opportunities to develop and extend their skills. All children will have the opportunity to express their individual ideas, thoughts and interests through a variety of mediums, equipment and resources. Children will become more confident artists and creators understanding that there is no 'wrong' result/outcome and develop resilience to improving their outcomes. They will learn more about different techniques and skills and have opportunities to practice these to become more confident inventors and creators of their own works of art and projects. Where possible activities will include child-choice and be child-led to develop creativity and independence further.

Implementation

Lessons are taught in blocks by the class or enrichment teachers. Planning will follow a small step approach to mastery. Children will be influenced through enrichment, after school clubs and assemblies to provide further opportunity for creativity and child-led approaches. Lessons will be exciting and creative where children can explore their ideas through different mediums, equipment and resources in a supportive style of small-step learning to build confidence and more positive outcomes.

Class teachers will take photographs of the children's work and submit a selection half-termly to enable skills and knowledge progression to be monitored. Monitoring will also be through flip scrutiny, sketchbook scrutiny and pupil/staff voice. The curriculum overview will show progression in line with the skills and knowledge progression document.

Impact

In classrooms you will see:

- Excitement, engagement and enthusiasm.
- Exploration of techniques and equipment.
- Children expressing their interests, ideas and thoughts with more confidence.
- Children will broaden and deepen their understanding in these areas and enjoy the varied creative opportunities.
- Evidence is collected through sketch books (where relevant) and photos (where appropriate).

Children will be able to:

- Become better creative risk takers.
- Become more resilient.
- Become more experimental and understand how to better their outcomes.
- Children will broaden and deepen their understanding in these areas and enjoy the varied creative opportunities.

Children leave Frimley:

- With a wide range of skills, knowledge and techniques
- Have the ability to express their own ideas, interests and thoughts on paper.
- With a confident approach to creative learning (being an individual).

Well equipped to plan and carry out creative learning and have developed their skills to achieve better outcomes

National curriculum expectations:

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

Pupils should be taught to:

Design	<ul style="list-style-type: none">• use 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.• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
Make	<ul style="list-style-type: none">• select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.• select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
Evaluate	<ul style="list-style-type: none">• investigate and analyse a range of existing products.• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.• understand how key events and individuals in design and technology have helped shape the world.
Technical language	<ul style="list-style-type: none">• apply their understanding of how to strengthen, stiffen and reinforce more complex structures.• understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).• understand and use electrical systems in their products (for example, series circuits, switches, bulbs, buzzers and motors).• apply their understanding of computing to program, monitor and control their products

Cooking and Nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

What Frimley offers to its pupils:

	Year 3	Year 4	Year 5	Year 6
Knowledge	Develop knowledge of: <ul style="list-style-type: none"> - Simple pneumatic system to create movement (In class - Dragons) - Textiles (In class -Superhero Capes) - 3D Models (In class - Bird box) - Food Technology (Enrichment) 	Develop knowledge of: <ul style="list-style-type: none"> - Levers and linkages to create movement - 3D Models (In class - Greek comedy and Tragedy masks) - Creating electrical circuits for a purpose (In class – light a bulb) - Food Technology (In class – Romans and Enrichment) 	Develop knowledge of: <ul style="list-style-type: none"> - Pulleys and gears to create movement (In class – Kites, Moving vehicles) - Understand and use mechanical systems in their products - Understand and use electrical systems in their products (Incorporating electrical circuits within products) (In class – moving vehicle) - Computing to program products - Food Technology (Enrichment) 	Develop knowledge of: <ul style="list-style-type: none"> - Cams, gears, pulleys, levers and linkages to create movement - Incorporating electrical circuits within products (In class – electric chairs) - Computing to program monitor and control products - Food Technology (Enrichment) (In class – savoury dishes and Enrichment)
Skills	<p>Design</p> <ul style="list-style-type: none"> • Begin to research design ideas with support. • Develop simple design criteria to inform the design of functional products that are fit for purpose. • Share ideas through discussion. • Begin to use sketches and diagrams. <p>Make</p> <ul style="list-style-type: none"> • Begin to select tools and equipment for the task. • Measure, mark out, cut and shape, assemble, join and 	<p>Design</p> <ul style="list-style-type: none"> • Carry out research gathering information about the needs and wants of particular individuals and groups. • Develop design criteria to inform the design of innovative and functional products that are fit for purpose. • Develop their own design criteria and use these to inform their ideas. • Share and clarify ideas through discussion. • Model their ideas using prototypes and pattern pieces. 	<p>Design</p> <ul style="list-style-type: none"> • Carry out research, using surveys and interviews. • Identify the needs, wants and preferences of particular individuals and groups. • Develop a design specification to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at particular individuals or groups. • Generate innovative ideas. • Make design decisions, taking account of constraints such as time. 	<p>Design</p> <ul style="list-style-type: none"> • 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 detailed design specification which can be justified with reasons. • Recognise when their products have to fulfil conflicting requirements. • Generate innovative ideas, drawing on research.

	<p>combine materials, with some accuracy.</p> <p>Evaluate</p> <ul style="list-style-type: none"> • Begin to investigate existing products; identifying who made them and when, what they like and dislike about them. • Identify what they like and dislike about their products. • Identify what is the same/different from their original design. • Begin to consider the views of others. <p>Technical Knowledge</p> <ul style="list-style-type: none"> • Begin to apply their understanding of how to strengthen, stiffen and reinforce simple structures • Begin to understand how simple levers, linkages and pneumatic systems create movement. <p>Cooking and Nutrition</p> <ul style="list-style-type: none"> • Identify foods that are healthy and unhealthy. • Prepare and cook using simple cooking techniques modelled by a teacher. • Begin to identify where food comes from. 	<ul style="list-style-type: none"> • Begin to use annotated sketches, cross-sectional drawings and diagrams. <p>Make</p> <ul style="list-style-type: none"> • Select from a range of tools and equipment suitable for the task. • Measure, mark out, cut and shape, assemble, join and combine materials accurately. Begin to apply modelled finishing techniques. <p>Evaluate</p> <ul style="list-style-type: none"> • Investigate existing products; who made them and when, materials used, method of construction, strengths and weaknesses. • Identify strengths and weaknesses of their own products. • Identify whether they achieved their design criteria and give reasons why/why not. • Consider the views of others, including intended users. <p>Technical Knowledge</p> <ul style="list-style-type: none"> • Develop their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand how levers, linkages and pneumatic systems create movement. 	<ul style="list-style-type: none"> • Use annotated sketches, drawings and diagrams, cross-sectional exploded diagrams. <p>Make</p> <ul style="list-style-type: none"> • Produce lists of tools, equipment and materials they need, giving simple reasons for choices. • Measure, mark out, cut and shape to the nearest cm. • Assemble, join and combine materials following a method. • Apply a range of finishing techniques. <p>Evaluate</p> <ul style="list-style-type: none"> • Investigate and analyse existing products; who made them, when and where, materials used, method of construction, whether products meet users' needs and wants, can the products be recycled/ reused? • Evaluate the quality of their product in detail and refer to their own design criteria when evaluating, suggesting ways to improve. • Consider the views of others, including intended users to improve their work. <p>Technical Knowledge</p> <ul style="list-style-type: none"> • Develop their understanding of how to strengthen, stiffen and reinforce more complex structures 	<ul style="list-style-type: none"> • Make design decisions, taking account of constraints such as time, resources and cost. • Use annotated sketches, drawings and diagrams, cross-sectional exploded diagrams, prototypes, pattern pieces and computer-aided design. <p>Make</p> <ul style="list-style-type: none"> • Explain their choice of materials/components according to their functional and aesthetic qualities. • Measure, mark out, cut and shape to the nearest mm. • Assemble, join and combine materials in a sensible order. • Apply a range of finishing techniques, including those from art and design. <p>Evaluate</p> <ul style="list-style-type: none"> • Investigate and analyse existing products; who made them, when and where, materials used, method of construction, whether products meet users' needs and wants, how much they cost to make, how sustainable are the materials. • Evaluate the quality, manufacture and fitness for purpose of the product in detail and refer to own design criteria when evaluating, suggesting ways to improve.
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