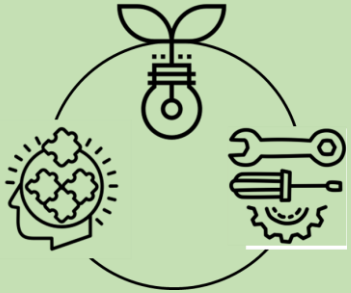
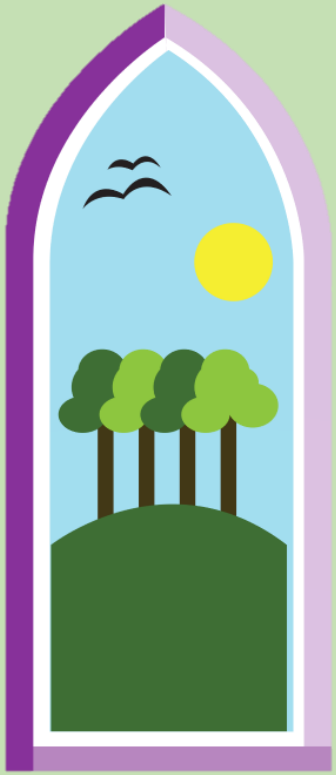


Design and Technology Intent



Strength in difference, together we are one, together we fly high

At Dunbury we want our children to be curious and resilient; Design technology is a subject which teaches you to be those things. Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts whilst considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Our vision of strength in difference, together we are one, together we fly high drives our Design and Technology curriculum. We are passionate that children are able to solve problems like sustainability and social equity through design and technological solutions.

Design and Technology Intent

Design and Technology

Design and technology is logical, creative and practical.

We organise our knowledge into key concepts

Design Process

- Identifying the problem
- Conducting research
- Generating ideas
- Modelling ideas
- Planning the making of a product
- Making and testing a product
- Improving the product
- Evaluating the process and the product

Technical Knowledge

- Structures
- Mechanisms and mechanical systems
- Electronic Systems
- Program, monitor and control
- Food preparation, cooking and nutrition
- Textiles

Practical Capabilities

- How to select tools.
- How to handle tools.
- How to select materials.
- How to handle materials.

Design Skills

As designers, we use these lenses to investigate.

User

Having a clear idea of who the product is being designed for. Considering their needs, wants, values, interests and preferences

Purpose

Products should be designed and made to perform a certain task.

Functionality

Designers must investigate the functionality of existing products and create products that work/function.

Design Decisions

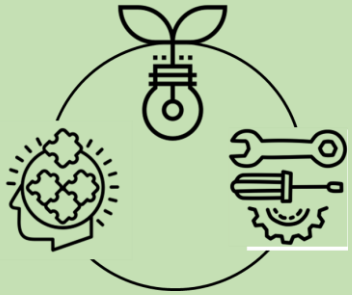
Deciding on the form the product will take demonstrating the designers creative, technical and practical expertise.

Innovation

Designers need scope to be original with their designs.

Authenticity

Products should be believable, real and meaningful.



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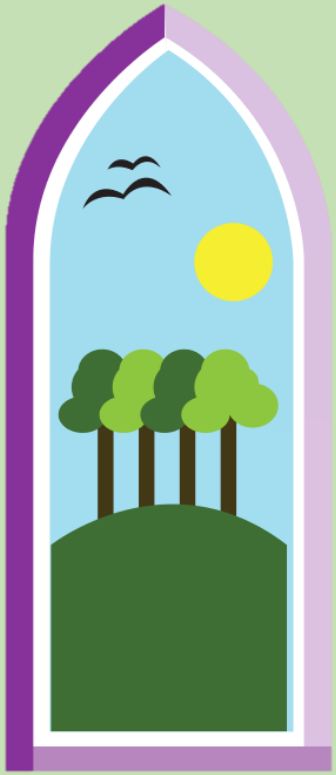
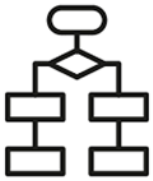


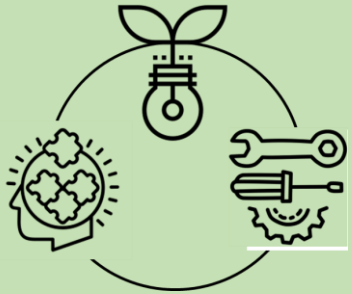
Our knowledge is organised into key concepts and disciplinary concepts. The core knowledge is laid out in coherent, sequential progression documents which detail the end points which we aim children to achieve. The foundations for the art curriculum are laid in Early Years. This is built on in KS1 as novice artists and designers, leading to more expert in KS2. This provides the firm building blocks for children to become discipline artists and designers in KS3 and beyond.



Key concepts

Key concepts support children in developing an understanding of their experience, a system of categorisation, and how they learn and use these systems. In this way, children build a schema of knowledge about some of the key themes through which they can reason and talk about the world and its diversity. Key concepts shape the overarching enquiry question for the spine. We have two main concepts in art and design: creating and studying art, which sub divide into further key concepts.

Design Process	Technical Knowledge	Practical Capabilities
• Identifying the problem • Conducting research • Generating ideas • Modelling ideas • Planning the making of a product • Making and testing a product • Improving the product • Evaluating the process and the product	• Structures • Mechanisms and mechanical systems • Electronic Systems • Program, monitor and control • Food preparation, cooking and nutrition	• How to select tools. • How to handle tools. • How to select materials. • How to handle materials



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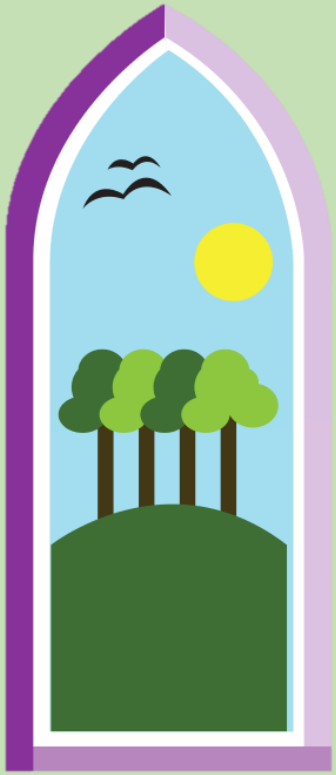
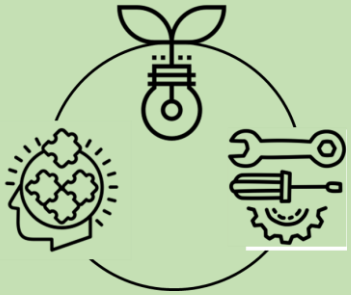


Our enquiry spines will seek to develop knowledge in both main key concepts, reinforcing the knowledge that art is about the creative medium and skills as an interpretation and/ or a response to a theme or existing piece of art.

	Design Process	Technical Knowledge						Practical capabilities
		Structures	Mechanisms and Mechanical systems	Electronic Systems	Program, monitor and control	Cooking and Nutrition	Textiles	
EYFS	Talk about what they're going to make, how they will make it and what they have made.	Junk modelling	Construction kits			Preparing fruit and vegetables	Experiment with fabric	Use scissors & glue to cut and join.
KS1	Design purposeful, functional and appealing products.	Free standing structures	Sliders and levers Wheels and axles			Preparing fruit and vegetables	Template and joining techniques	Use saws to make simple cuts; use knives, graters and peelers; join fabric with simple stiches.
Lower KS2	Investigate existing products to create design criteria to help create successful products.	Shell structures	Pneumatics	Simple circuits and switches		A healthy and varied diet	2-D shape to 3-D product	Refine use of tools such as saws, drills, knives, graters, peelers, needles and scissors.
Upper KS2	Tackle challenges which are increasingly sophisticated; think like a designer applying technical knowledge to situations	Frame structures	Pulleys and gears	Complex switches	Control systems	Seasonal food, cooking and nutrition	Combining different fabric shapes	Select appropriate tools for use with specific materials.



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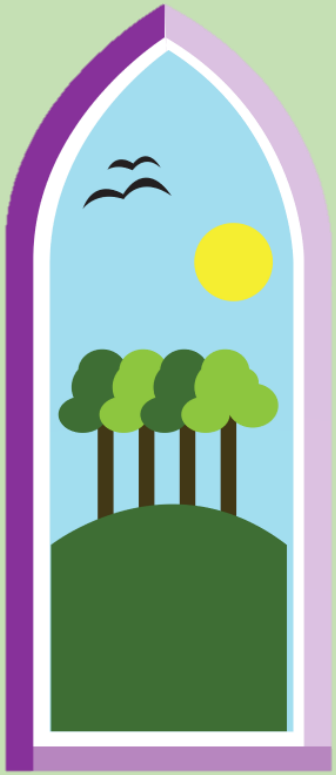

Disciplinary Concepts

Our curriculum is driven by curiosity, language and resilience. Pupils at Dunbury are encouraged to be curious about different styles of art and different medium they might work in. They use the disciplinary concepts (working as a geographer) to support their approach. These can be explored through asking disciplinary questions such as:

- How can I design a product for a specific user?
- How can I design a product for a specific purpose?
- How can I ensure my product is functional?
- How can I ensure my ideas are innovative?
- How can I ensure my product is authentic?

User

Having a clear idea of who the product is being designed for. Considering their needs, wants, values, interests and preferences

Purpose

Products should be designed and made to perform a certain task.

Functionality

Designers must investigate the functionality of existing products and create products that work/function.

Design Decisions

Deciding on the form the product will take demonstrating the designers creative, technical and practical expertise.

Innovation

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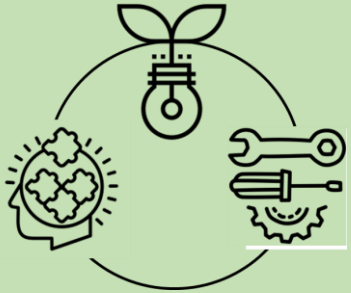

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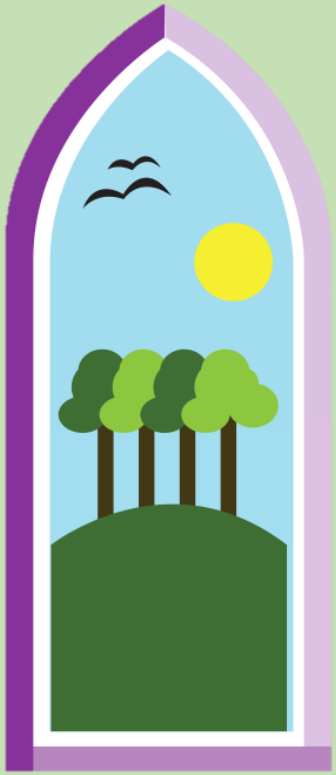


Children in Early Years lay the first building blocks for artistic knowledge and concepts. They develop their mark making and creativity learning how to fine tune their skills and improve their ideas

Novice	Expert	Disciplinary
KS1	KS2	KS3 +

Novice

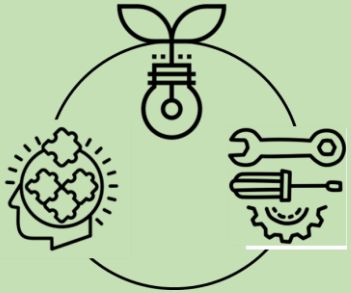
- Understand the design process.
- Safely use and explore a variety of materials and tools.
- Use a range of materials creatively to design and make authentic products.
- Evaluate products against a design criterion.

Expert

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- Critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook.

Disciplinary

- Develop a design brief in response to a problem which explores different possible solutions.
- Use CAD software to develop ideas.
- Correctly select appropriate tools and demonstrate correct use of the tools.
- Evidence of quality checks and steps taken to improve the final design.
- Evaluations which refer back to the original design brief.



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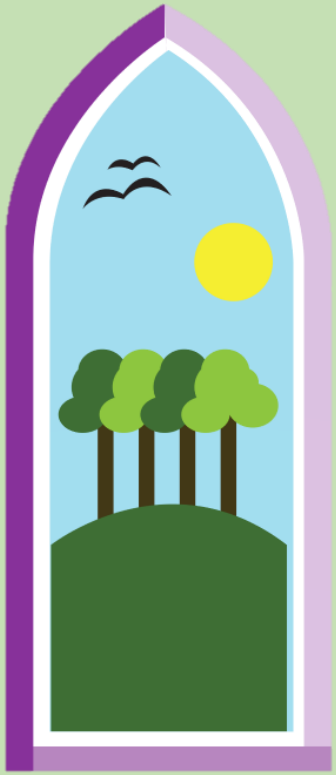
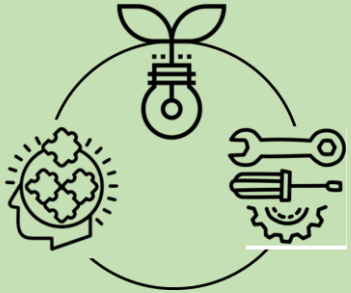


Planning:

Within the clear teaching sequence, individual lessons are designed around an enquiry question, which children are expected to be able to answer at the end of the lesson. Each lesson builds in small steps upon the previous, with prior learning referenced within the teaching sequence through a variety of means such as low stakes cumulative quizzing, structured talk and retrieval practice. This ensures that children are able to secure their learning in small steps, with teaching informed by continuous assessment of and for learning and misconceptions addressed at point in time. At the end of learning sequences, children use their accumulated knowledge to answer their key over arching enquiry question. Quizzes on essential knowledge are also sometimes used to support teacher understanding of their knowledge retention and to inform future planning.

Teachers plan lessons using a mastery teaching approach, driven by our curriculum drivers, following the sequence of learning indicated below:

Connect	Curiosity		Resilience		Spoken Language
Activate prior learning	Learning questions shaped the disciplinary concept.	Explicit instruction and modelling by teacher.	Guided Practice so that all children can access independent practice	Independent practice with tasks that match the learning question. Structured in small steps	Structured reflection for children to talk about what they know and their developing schema.
Recalling previous pertinent knowledge and building blocks.	How does this new knowledge fit into my existing art schema? How does it build to my final application questions?	What do I notice? How does this connect and build on my knowledge? What new vocabulary am I acquiring. What questions do I have? Do I feel confident enough to have a go?	How am I doing? How do I know? Are there sufficient models, examples and resources to help me have a go?	I can apply new learning through practicing what I was taught, shown or modelled.	I can talk about what I have learnt today, using new vocabulary and generalisations. I can talk about where my new knowledge fits into the spine and how it is building me as a artist.



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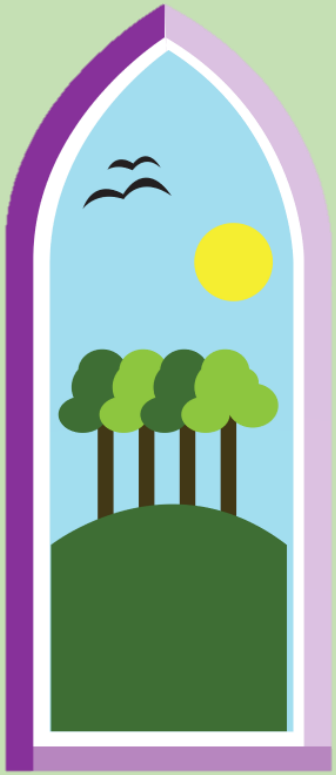

Vocabulary

Vocabulary is an essential building block to enable children to access the curriculum; within art teaching sequences we use explicitly planned vocabulary to teach tier 2 and 3 vocabulary to all children. Teachers ensure that all children understand the key vocabulary needed to access the learning, with careful scaffolding for children with SEND. To support their vocabulary acquisition, the etymology and morphology of key vocabulary is also taught explicitly in our spelling lessons throughout KS2.

Adaption for children with SEND

Following the expectations laid out by the SEN Code of Practise, the following adaptations are made for individuals who need something that is addition to or different from others in the class. (click here for document)

Impact

At Dunbury, children's sketchbooks show learning sequences that develop their artistic skills through a variety of rich tasks that make them think hard. Recorded work evidences snapshots of the learning sequence. Independent work shows the children's understanding of the lesson question and gives a snapshot of their learning throughout the overall lesson. Over time, sketchbook work shows children know more and can apply more.

We use the laid out essential knowledge in the progression table below to set the standard that we expect children to reach by the end of EY, KS1, lower KS2 and upper KS2.