6.4 DT

Strategic intent

The National Curriculum for design and technology aims to ensure that all pupils:

- 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.

We offer a structure and sequence of lessons to help teachers ensure they have covered the skills required to meet the aims of the national curriculum. The intent is to ensure all pupils produce creative, well designed projects.

Design and Technology encourages children to become designers and problem solvers, who can work independently or as a member of a team. We encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs. In order to ensure the children can tackle real problems the curriculum combines skills, knowledge, concepts and values. Our DT curriculum provides children with opportunities to research, represent their ideas, explore and investigate, develop their ideas, make products and evaluate their work. Children will be exposed to a wide range of media including ICT, woodwork, textiles and food. The children are also given opportunities to reflect upon and evaluate their designs and are encouraged to become innovators and risk-takers.

Implementation

Content and sequence

In ensuring high standards of teaching and learning in design and technology, we implement a curriculum that covers knowledge and understanding, key skills and willingness to take risks or recognise where changes need to be made. The children engage in an iterative process of designing and making through creative and practical activities. Key skills and key knowledge for design and technology have been mapped across the school to

ensure progression between year groups. Teachers are provided with additional planning time throughout the year to plan their curriculum. As part of the planning process, they work alongside other teachers within their key stage to plan the following:

KS1

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria.
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.

Evaluate

- explore and evaluate a range of existing products.
- evaluate their ideas and products against design criteria.

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable.
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

KS2

Design

- 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.

Make

- 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

- 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 knowledge

- 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 incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Impact

We ensure the children build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality products for a wide range of users. The children build skills to evaluate and test their ideas and the work of others. They develop the creative, technical and practical expertise needed to carry out everyday tasks and participate in our technological world. Children design and make different products including learning how to cook safely. The product should be finished to a good quality and activities made appropriate to the age and ability of the child. Children learn how to take risks, become resourceful, enterprising and capable citizens. They gain an understanding of the impact technology has on daily life and the wider world through evaluating and testing. High-quality design and technology education makes an essential contribution to the creativity, culture and well-being of the nation. End points of our curriculum are deemed to be at the end of Key Stage 2. Data for the last three years is presented below.

Nearly all children leave Hanging Heaton CE (VC) J&I School having achieved at least the expected standard with some also going on to achieve a greater depth within the standard.

SEND children make at least expected progress and reach their attainment targets.

Disadvantaged children make progress that is in line with their peers.

Children leave Hanging Heaton VC (CE) J&I School with a positive attitude towards Design and Technology.

	17-18		**18-19**		**19-20**	
	EXS	**GDS**	**EXS**	**GDS**	**EXS**	**GDS**
End of KS1	**90%**	**10%**	**90%**	**7%**	**94%**	**0%**
End of KS2	**100%**	**0%**	**100%**	**0%**	**100%**	**0%**

Hanging Heaton Design Technology Progression Map

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Developing, planning and communicating ideas	- Constructs with a purpose in mind, using a variety of resources - Listens and responds to ideas expressed by others in conversation or discussion. - Uses talk to organise, sequence and clarify thinking and ideas. Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.	- Draw on their own experiences to help generate ideas - Begin to understand how to identify a target group for what they intend to design and make based on a criteria - Suggest ideas and explain what they are going to do - Develop their design ideas applying findings from their earlier research	- Generate ideas by drawing on their own and other people's experiences - Develop their ideas through discussion, observation, drawing and modelling - Identify a purpose for what they intend to design and make - Identify simple design criteria and target group for what they intend to design - Make simple plans and label parts	- Select and use relevant resources and references to develop ideas - Identify a purpose and establish criteria for a successful product - Plan the order of their work before starting - Knows about, and be able to demonstrate, how tools they have chosen to work with, should be used effectively with safety - Make drawings with labels when designing	- Generate ideas, considering the purposes for which they are designing - Make labelled drawings from different views showing specific features - Investigate the nature and qualities of different materials and processes systematically - Independently select and effectively use relevant processes in order to create a successful design	- Generate ideas through brainstorming and identify a purpose for their product - Draw up a specification for their design - Suggest alternative methods if first attempts fail - Systematically investigate, research and test ideas and plans using appropriate approaches	- Communicate ideas through detailed labelled drawings - Develop a design specification - Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways - Knows about the technical vocabulary and techniques for modifying the qualities of different materials and processes

Working with tools, equipment, materials and components to make quality products (inc-food)	- Experiment with 3D junk modelling. - Talk about their model. - Experience and test different materials.	- With support, measure, mark out, cut and shape a range of materials - Use tools such as scissors safely - Assemble, join and combine materials and components together using a variety of temporary methods e.g. glue/tape - Use simple finishing techniques to improve the appearance of their product - Know how to prepare simple dishes safely and hygienically without using a heat source. - know how to use techniques such as cutting.	- Begin to select tools and materials; use vocab' to name and describe them - Measure, cut and score with some accuracy - Assemble, join and combine materials in order to make a product - Cut, shape and join fabric - Follow safe procedures for food safely and hygiene - Choose and use appropriate finishing techniques - Demonstrate how to prepare simple dishes safely. - know how to use techniques such as cutting, peeling and grating.	- Select tools and techniques for making their product - Measure, mark out, cut, score and assemble components with more accuracy - Think about their ideas as they make progress and be willing to change things if this helps them improve their work - Use finishing techniques to improve the appearance of their product - Begin to understand how to use a range of techniques such as chopping, slicing, mixing, spreading, kneading and baking	- Select appropriate tools and techniques for making their product - Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques - Join and combine materials and components accurately in temporary and permanent ways - Begin to understand how to use a range of techniques such as chopping, slicing, mixing, spreading, kneading and baking	- Select appropriate materials, tools and techniques - Measure and mark out accurately - Use skills in using different tools and equipment safely and accurately - Weigh and measure accurately e.g. dry ingredients - Apply the rules for basic food hygiene and other safe practices e.g.hazzards - Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source	- Select appropriate tools, materials, components and techniques - Assemble components to make working models - Use tools safely and accurately - Construct products using permanent joining techniques - Make modifications as they go along - Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source
Evaluating processes and products	- They develop their own narratives and explanations by connecting ideas or events. Selects appropriate resources and adapts work where necessary.	- Evaluate their product by discussing how well it works in relation to the purpose - Discuss their work e.g. talk about what went well, why they chose certain textiles and what they would change to improve next time Ask and answer questions about their product	- Evaluate against their design criteria - Evaluate their products as they are developed, identifying strengths and possible changes they might make - Talk about their ideas, saying what they like and dislike about them	- Evaluate their product against original design criteria e.g. how well it meets its intended purpose - Disassemble and evaluate familiar products	- Evaluate their word both during and at the end of the assignment - Evaluate their products carrying out appropriate tests	- Evaluate and independently take action to refine their technical and craft skills in order to improve their mastery of materials and techniques - Evaluate it personally then seek evaluation from others	- Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests - Record their evaluations using drawings and labels - Evaluate against their original criteria and suggest ways that their product could be improved

Design Technology overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Class 1	Art	Sewing	Use of materials and media	Clay	Food technology	Mechanisms
Class 2	Art	Sewing	Use of materials and media	Clay	Food technology	Mechanisms
Class 3	Masks	Art	Art	Food technology	Art	Art
Class 4	Net designs	Art	Working model of a volcano	Art	Food technology	Art
Class 5	Water containers	Art	Art	Assembling materials	Food technology	Art

Class 1 – D & T

Key Objective/Topic	Dinosaurs	My local area	Out of this world	Food glorious food	Significant People	Travel & Tourism
	Painting and sketching	Patterns Sewing	DT Use of media and materials	DT Clay	Responding to the work of an artist	DT Mechanisms
Reception						
Constructs with a purpose in mind, using a variety of resources						
Listens and responds to ideas expressed by others in conversation or discussion						
Uses talk to organise, sequence and clarify thinking and ideas						
Use what they have learnt about media and materials in original ways, thinking about uses and purposes						
Experiment with 3D junk modelling						
Talk about their model						
Experience and test different materials						
Develop own narratives and explanations by connecting ideas or events						
Select appropriate resources and adapt work where necessary						
Know how to use techniques such as cutting.						
Year 1						
Draw on their own experiences to help generate ideas						
Begin to understand how to identify a target group for what they intend to design and make based on a criteria						
Suggest ideas and explain what they are going to do						
Develop their design ideas applying findings from their earlier research						
With support, measure, mark out, cut and shape a range of materials						
Use tools such as scissors safely						
Assemble, join and combine materials and components together using a variety of temporary methods e.g. glue/tape						
Use simple finishing techniques to improve the appearance of their product						
Know how to prepare simple dishes safely and hygienically without using a heat source.						
Know how to use techniques such as cutting.						
Evaluate their product by discussing how well it works in relation to the purpose						
Discuss their work e.g. talk about what went well, why they chose certain textiles and what they would change to improve next time						
Ask and answer questions about their product						
How to thread a needle, cut, glue and trim material						

Class 2 – D & T

Key Objective/Topic	Dinosaurs	My local area	Out of this world	Food glorious food	Significant People	Travel & Tourism
	Painting and sketching	Patterns Sewing	DT Use of media and materials	DT Clay	Responding to the work of an artist	DT Mechanisms
Year 1						
Draw on their own experiences to help generate ideas						
Begin to understand how to identify a target group for what they intend to design and make based on a criteria						
Suggest ideas and explain what they are going to do						
Develop their design ideas applying findings from their earlier research						
With support, measure, mark out, cut and shape a range of materials						
Use tools such as scissors safely						
Assemble, join and combine materials and components together using a variety of temporary methods e.g. glue/tape						
Use simple finishing techniques to improve the appearance of their product						
Know how to prepare simple dishes safely and hygienically without using a heat source.						
Know how to use techniques such as cutting.						
Evaluate their product by discussing how well it works in relation to the purpose						
Discuss their work e.g. talk about what went well, why they chose certain textiles and what they would change to improve next time						
Ask and answer questions about their product						
How to thread a needle, cut, glue and trim material						

Year 2						
Generate ideas by drawing on their own and other people's experiences						
Develop their ideas through discussion, observation, drawing and modelling						
Identify a purpose for what they intend to design and make						
Identify simple design criteria and target group for what they intend to design						
Make simple plans and label parts						
Begin to select tools and materials; use vocab' to name and describe them						
Measure, cut and score with some accuracy						
Assemble, join and combine materials in order to make a product						
Cut, shape and join fabric						
Follow safe procedures for food safely and hygiene						
Choose and use appropriate finishing techniques						

Demonstrate how to prepare simple dishes safely.						
Know how to use techniques such as cutting, peeling and grating.						
Evaluate against their design criteria						
Evaluate their products as they are developed, identifying strengths and possible changes they might make						
Talk about their ideas, saying what they like and dislike about them						
Stitch, knot and use other manipulative skills						

Class 3 – D & T

Key Objective/Topic	Ancient Egypt	It's news to me	Our wonderful world	Food	Our locality
Year 3					
Select and use relevant resources and references to develop ideas					
Identify a purpose and establish criteria for a successful product					
Plan the order of their work before starting					
Knows about, and be able to demonstrate, how tools they have chosen to work with, should be used effectively with safety					
Make drawings with labels when designing					
Select tools and techniques for making their product					
Measure, mark out, cut, score and assemble components with more accuracy					
Think about their ideas as they make progress and be willing to change things if this helps them improve their work					
Use finishing techniques to improve the appearance of their product					
Begin to understand how to use a range of techniques such as chopping, slicing, mixing, spreading, kneading and baking					
Evaluate their product against original design criteria e.g. how well it meets its intended purpose					
Disassemble and evaluate familiar products					
Year 4					
Generate ideas, considering the purposes for which they are designing					
Make labelled drawings from different views showing specific features					
Investigate the nature and qualities of different materials and processes systematically					
Independently select and effectively use relevant processes in order to create a successful design					
Select appropriate tools and techniques for making their product					

Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques					
Join and combine materials and components accurately in temporary and permanent ways					
Begin to understand how to use a range of techniques such as chopping, slicing, mixing, spreading, kneading and baking					
Evaluate their work both during and at the end of the assignment					
Evaluate their products carrying out appropriate tests					

Class 4 – D & T

Key Objective/Topic	Ancient Egypt	It's news to me	Our wonderful world	Food	Our locality
Year 4					
Generate ideas, considering the purposes for which they are designing					
Make labelled drawings from different views showing specific features					
Investigate the nature and qualities of different materials and processes systematically					
Independently select and effectively use relevant processes in order to create a successful design					
Select appropriate tools and techniques for making their product					
Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques					
Join and combine materials and components accurately in temporary and permanent ways					
Begin to understand how to use a range of techniques such as chopping, slicing, mixing, spreading, kneading and baking					
Evaluate their work both during and at the end of the assignment					
Evaluate their products carrying out appropriate tests					
Year 5					
Generate ideas through brainstorming and identify a purpose for their product					
Draw up a specification for their design					
Suggest alternative methods if first attempts fail					
Systematically investigate, research and test ideas and plans using appropriate approaches					
Select appropriate materials, tools and techniques					
Measure and mark out accurately					

Use skills in using different tools and equipment safely and accurately					
Weigh and measure accurately e.g. dry ingredients					
Apply the rules for basic food hygiene and other safe practices e.g. hazards					
Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source					
Evaluate and independently take action to refine their technical and craft skills in order to improve their mastery of materials and techniques					
Evaluate it personally then seek evaluation from others					

Class 5 – D & T

Key Objective/Topic	Ancient Egypt	It's news to me	Our wonderful world	Food	Our locality
Year 6					
Communicate ideas through detailed labelled drawings					
Develop a design specification					
Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways					
Knows about the technical vocabulary and techniques for modifying the qualities of different materials and processes					
Select appropriate tools, materials, components and techniques					
Assemble components to make working models					
Use tools safely and accurately					
Construct products using permanent joining techniques					
Make modifications as they go along					
Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source					
Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests					
Record their evaluations using drawings and labels					
Evaluate against their original criteria and suggest ways that their product could be improved					