The Ribblesdale Federation of Schools

Design Technology Curriculum Handbook Year B

(Updated for 2023 - 2024 Curriculum)

Design and Technology

Aim:

- 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. (2014 N.C)

Intent

At the Ribblesdale Federation of Schools, we intend to build a Design Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more.

We intend to design a design technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design Technology Programmes of study, to fulfil the duties of the NC whereby schools must provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life

EYFS

This subject leader handbook is for the national curriculum. There is a separate EYFS handbook which shows the EYFS long-term curriculum. The EYFS curriculum is holistic and therefore a number of areas of learning will link to this subject and support children to be immersed in Design Technology.

Implementation

Clear and comprehensive scheme of work in line with the National Curriculum. The Design Technology National Curriculum and EYFS is planned for and covered in full within the EYFS, KS1 and KS2 school curriculum. Whilst the EYFS and National Curriculum forms the foundation of our curriculum, we make sure that children learn additional skills, knowledge and understanding and enhance our curriculum as and when necessary.

Delivery of design and technology projects with a clear structure. Each class will undertake a construction topic, a textile topic and a food/drink topic.

Projects follow the design process where each project fulfils the following: research, design, make and evaluate.

Each class has a garden plot/ planter and takes ownership and responsibility for cultivating the relevant crops.

A range of skills will be taught ensuring that children are aware of health and safety issues related to the tasks undertaken

Clear and appropriate cross curricular links to underpin learning in multi areas across the curriculum giving the children opportunities to learn life skills and apply skills to ‘hands on’ situations in a purposeful context.

Children will undertake design tasks and use skills from across the curriculum to fully explore the design process evaluating work ensuring that it is of the highest possible quality. These project books will be thoroughly assessed against the curriculum objective. Children are also asked to self-evaluate their work.

Design Technology displays in every school alongside the three-dimensional creations. These displays celebrate exceptional practice and exemplify terminology and vocabulary used.

Independent learning: In design technology children may well be asked to solve problems and develop their learning independently. This allows the children to have ownership over their curriculum and lead their own learning in Design Technology.

Collaborative learning: In design and technology children may well be asked to work as part of a team, learning to support and help one another in order to achieve challenging, yet rewarding goal.

Impact

Children will have a clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum.

Children will ultimately know more, remember more and understand more about Design Technology, demonstrating this knowledge when using tools or skills in other areas of the curriculum and in opportunities out of school.

The large majority of children will achieve age related expectations in Design Technology.

As designers' children will develop skills and attributes they can use beyond school and into adulthood

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Curriculum Overview

Year 1 (A)	Windmills (Yr1 Structure)	Soup (Yr R nutrition)	Moving Pictures (Yr 1 Mechanisms)
Year 1 (B)	Bookmarks (Yr 1 textiles)	Smoothies (Yr 1 nutrition)	Wheels and Axles (Yr 1 Mechanisms)
Year 2 and 3 (A)	Purses (Yr2 Textiles)	Packed Lunch (Nutrition)	Castles (Yr 3 Structures)
Year 2 and 3 (B)	Electric Poster (Yr 3 Electrics)	Eating seasonally (Yr3 Nutrition)	Fairground Wheel (Y2 Mechanisms)
Year 4, 5 and 6 (A)	Stuffed Toys (Yr5 Textiles)	Sling Shot Cars (Yr4 Mechanical)	Come Dine with Me (Yr6 Food)
Year 4, 5 and 6 (B)	Mindful Moments (Yr 4 Digital World	Adapting a recipe (Yr 4 nutrition)	Doodler (Yr 5 Electrics)

Year 4, 5 and 6 (C)	Fastenings (Yr 4 Textiles)	Bridges (Yr 5 Structures)	Navigating the World (Yr 6 Digital)

Year 1 Topics

Bookmarks – Class 1

In Reception we…	In Year 1 we…
Physical development Develop their small motor skills so that they can use a range of tools competently, safely and confidently. **ELG: Fine Motor Skills:** Use a range of small tools, including scissors, paint brushes and cutlery. Expressive arts and design **ELG: Creating with materials:** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Characteristics of effective learning > Playing and exploring > Active learning	**Key Knowledge and skills** • To develop threading and weaving skills. • To practise and apply weaving skills to a specific material e.g. paper. • To practise and apply threading skills with specific materials e.g. hessian and wool. • To use threading or sewing to design a product (bookmark). • To create a textiles product (bookmark) following their own design. • To reflect with children on how they have achieved their aims.

Smoothies– Class 1

In Reception we…	In Year 1 we…
	Key Knowledge • To identify fruits. • To describe where fruits and vegetables grow. • To practise food preparation skills. • To select ingredients for a recipe. • To apply food preparation skills to a recipe. • To evaluate against the design brief. **Key Skills** • Name fruits and vegetables. • Identify seeds. • Can sort fruits and non-fruits. • Name places where fruits and vegetables grow. • Decide whether a fruit or vegetable will grow aboveground or underground. • Make predictions about where edible parts of plants will grow. • Use a fork to hold foods I am cutting. • Use a table knife to cut soft foods.

	• Use a juicer to get juice from fruits. • Work safely and follow instructions • Choose fruits and vegetables to taste. • Suggest fruits to put together based on taste. • Describe a food's taste. • Decide on three ingredients to create a recipe. • Gather the ingredients for a simple recipe. • Cut and juice fruits as part of a recipe. • Use my senses to compare my smoothie with my partner • Colour a template to create a carton design. • Choose my favourite recipe.

Wheels and Axles – Class 1

In Reception we…	In Year 1 we…
	Key Knowledge • To understand how wheels move. • To identify what stops wheels from turning. • To design a moving vehicle. • To build a moving vehicle. **Key Skills** • Identify what mechanism makes a toy or vehicle roll forwards. • Recall that in order for a wheel to move it must be attached to an axle. • Draw and label a diagram of an axle, wheel and axle holder. • Recall that a wheel needs an axle in order to move. • Fix a design so that the wheel can move. • Use appropriate vocabulary to describe which parts are moving or not. • Recall what makes a wheel and an axle work. • Design a moving vehicle. • Label my design using appropriate vocabulary.

	• Make a wheel and axle mechanism. • Evaluate my design to make it even better.

Year 2 and 3 Topics

Electric Posters – Class 2

In year 3 and 4 we…

Key Knowledge

To understand the purpose of information design.

To research a set topic to develop a range of initial ideas.

To develop an initial idea into a final design.

To assemble my final product and incorporate a simple circuit.

Key Skills

Name examples of information design.

Explain the purpose of information design.

Describe or explain the importance of information design.

Research and select a topic to inform my design ideas.

Write a paragraph about my chosen topic.

Sketch initial ideas for my electric poster that meet my design criteria.

Review my initial ideas against the design criteria.

Provide and respond to peer feedback.

Develop an initial idea into a final design.

Evaluate my final design against the design criteria.

Mount the final design to make it stiffer and stronger.

Build a simple circuit that includes a bulb.

- Test and evaluate my electric display board.
- Name and identify simple circuit components (bulb, battery and wires)

Eating Seasonally – Class 2

In years 2 and 3 we…

Key Knowledge

To explain why food comes from different places around the world.
To explain the benefits of seasonal foods.
To develop cutting and peeling skills.
To evaluate seasonal ingredients.
To design a mock-up using criteria.
To evaluate a dish.

Key Skills

Identify some fruits and vegetables that cannot be grown in the UK.
Label countries where different fruits and vegetables grow.
Know that importing food has an impact on the environment.
Match fruits and vegetables with the season in which they grow in the UK.
Find recipes containing seasonal foods.
Identify equipment used for preparing food.
Explain why food would or would not need to be prepared.
Describe the safety rules for preparation techniques.
Identify current seasonal foods.
Taste various fruits and vegetables and describe their flavours.
Design a puff pastry tart using seasonal vegetables and fruits.
Use colours to identify nutritional benefits.
Describe my puff pastry tart and the benefits of its ingredients.

Taste tarts and provide feedback.
Consider taste, texture, appearance and use of seasonal ingredients.
Receive feedback on tart and identify strengths.

Fair Ground – Class 2

In years 2 and 3 we…

Key Skills covered will include:

Selecting a suitable linkage system to produce the desired motions.

Designing a wheel.

Selecting appropriate materials based on their properties.

Selecting materials according to their characteristics.

Following a design brief.

Evaluating different designs.

Testing and adapting a design.

<u>Knowledge gained will include</u>

To know that different materials have different properties and are therefore suitable for different uses.

To know the features of a Ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder.

To know that it is important to test my design as I go along so that I can solve any problems that may occur.

Year 4, 5 and 6 Topics

Mindful Moments – Class 3
In Year 4, 5 and 6
Skills will include Writing design criteria for a programmed timer (micro:bit). Exploring different mindfulness strategies. Applying the results of research to further inform my design criteria.

Developing a prototype case for a mindful moment timer.

Using and manipulating shapes and clipart by using computer-aided design (CAD), to produce a logo.

Following a list of design requirements.

Creating a 3D using modelling materials.

Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press.

Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages.

Evaluating a program against points on a design criteria and amending them to include any changes made.

Documenting and evaluating a project.

Understanding what a logo is and why they are important in the world of design and business.

Testing a program for bugs (errors in the code).

Finding and fixing bugs (debug) in code.

Using an exhibition to gather feedback.

Gathering feedback from the user to make suggested improvements to a product

Knowledge gained will include:

To understand what variables are in programming.

To know some of the features of a micro:bit.

To know that an algorithm is a set of instructions to be followed by the computer.

To know that it is important to check code for errors (bugs).

To know that a simulator can be used as a way of checking code works before installing it onto an electronic device.

To understand the terms ‘ergonomic’ and ‘aesthetic’.
To know that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas and make better decisions about size, shape and materials.
To know that an exhibition is a way for companies to showcase products, meet potential new customers and gather feedback from users.

Adapting a Recipe – Class 3

In Year 4, 5 and 6 we…

Skills will include

Evaluating and comparing a range of products.

Following a baking recipe.

Understanding safety and hygiene rules.

Identifying a target audience.

Designing a biscuit within a given budget.

Suggesting modifications.

Adapting a recipe.

Conducting market research.

Evaluating an adapted recipe.

Knowledge gained will include

That the amount of an ingredient in a recipe is known as the 'quantity'.

That safety and hygiene are important when cooking.

The following cooking techniques: sieving, measuring, mixing/stirring, cutting out and shaping.

The importance of budgeting while planning ingredients for a recipe.

That products often have a target audience.

Doodler – Class 3

In years 4, 5 and 6 we..

Skills will include

Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product.

Developing design criteria based on findings from investigating existing products.

Developing design criteria that clarifies the target user.

Altering a product's form and function by tinkering with its configuration.

Making a functional series circuit, incorporating a motor.

Constructing a product with consideration for the design criteria.

Breaking down the construction process into steps so that others can make the product.

Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses.

Determining which parts of a product affect its function and which parts affect its form.

Analysing whether changes in configuration positively or negatively affect an existing product.

Peer evaluating a set of instructions to build a product.

Knowledge gained will include

To know that, in a series circuit, electricity only flows in one direction.

To know when there is a break in a series circuit, all components turn off.

To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin.

To know a motorised product is one which uses a motor to function.

Agreed End Points

Key Stage One

DT	Year One	Year Two

Developing, planning and communicating ideas.	•Draw on their own experience to help generate ideas •Suggest ideas and explain what they are going to do •Model their ideas in card and paper • Develop their design ideas applying findings from their earlier research •	•Generate ideas by drawing on their own and other people's experiences •Develop their design ideas through discussion, observation , drawing and modelling •Make simple drawings and label parts
Working with tools, equipment, materials and components to make quality products (inc-food)	•Make their design using appropriate techniques •With help measure, mark out, cut and shape a range of materials •Use tools *eg scissors and a hole punch* safely •Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape •Select and use appropriate fruit and vegetables, processes and tools • Use basic food handling, hygienic practices and personal hygiene •Use simple finishing techniques to improve the appearance of their product	•Begin to select tools and materials; use vocab' to name and describe them •Measure, cut and score with some accuracy •Use hand tools safely and appropriately •Assemble, join and combine materials in order to make a product •Cut, shape and join fabric to make a simple garment. Use basic sewing techniques •Follow safe procedures for food safety and hygiene

Evaluating processes and products	•Evaluate their product by discussing how well it works in relation to the purpose •Evaluate their products as they are developed, identifying strengths and possible changes they might make •Evaluate their product by asking questions about what they have made and how they have gone about it	•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

Agreed End Points

Lower Key

Stage Two

DT	Year Three	Year Four

Developing, planning and communicating ideas.	•Generate ideas for an item, considering its purpose and the user/s •Identify a purpose and establish criteria for a successful product. •Plan the order of their work before starting •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 • Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail •Evaluate products and identify criteria that can be used for their own designs
Working with tools, equipment, materials and components to make quality products (inc-food)	• Measure, mark out, cut, score and assemble components with more accuracy •Work safely and accurately with a range of simple tools •Think about their ideas as they make progress and be willing change things if this helps them improve their work •Measure, tape or pin, cut and join fabric with some accuracy •Demonstrate hygienic food preparation and storage	•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 •Sew using a range of different stitches, weave and knit • Measure, tape or pin, cut and join fabric with improving accuracy.
Evaluating processes and products	•Evaluate their product against original design criteria *e.g. how well it meets its intended purpose*	•Evaluate their work both during and at the end of the assignment • Evaluate their products carrying out appropriate tests

	•Disassemble and evaluate familiar products	

Agreed End Points

Upper Key Stage Two

DT	Year Five	Year Six
Developing, planning and communicating ideas.	•Generate ideas through brainstorming and identify a purpose for their product •Draw up a specification for their design •Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail	•Communicate their ideas through detailed labelled drawings •Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways •Plan the order of their work, choosing appropriate materials, tools and techniques

Working with tools, equipment, materials and components to make quality products (inc-food)	•Measure and mark out accurately •Use skills in using different tools and equipment safely and accurately •Weigh and measure accurately (time, dry ingredients, liquids) •Apply the rules for basic food hygiene and other safe practices *e.g. hazards relating to the use of ovens*	•Select appropriate tools, materials, components and techniques •Assemble components make working models •Construct products using permanent joining techniques •Make modifications as they go along •Pin, sew and stitch materials together create a product •
Evaluating processes and products	•Evaluate a product against the original design specification •Evaluate it personally and seek evaluation from others •	•Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests •Record their evaluations using drawings with labels •Evaluate against their original criteria and suggest ways that their product could be improved •