Bryn Offa CE Primary School

Design and Technology Medium Term Plan

Design and Technology (D&T) Vision Statement

Our D&T Vision is to creatively design, make and evaluate products that solve real and relevant problems, considering the needs of others and themselves.

Design and Technology (D&T) Intent Statement

It is the intent of Bryn Offa CE Primary School for Design and Technology to be taught in all classes and year groups through at least one project per term. This will be differentiated so all children can access the project being taught, whilst also building on their knowledge from previous years.

The D&T curriculum at Bryn Offa should be progressive allowing the children to further develop their skills. The Medium Term Plan and Skill Progression Table should ensure this. Within Reception, D&T links to three strands of the Early Years Foundation Stage Framework: physical development, expressive arts and design, and understanding the world. D&T projects should be cross curricular wherever possible, with particular emphasis on science, computing and maths in KS2. With each project, the children must be encouraged to develop their designing and evaluating skills, as well as, develop their technical skills through making different products. The six essential areas of D&T: user, purpose, innovation, authenticity, functionality and design decisions should be considered by teachers when planning and delivering lessons. Children across the school will be encouraged to be creative, problem solve and develop their communication skills through D&T, regardless of their age. The children must be taught the correct vocabulary related to their project and encouraged to apply this terminology. Throughout KS2, children will be encouraged to research individual designers who have made a substantial impact on the world of technology.

Each year, one of the three projects taught will focus on food technology. Within KS1, children begin to learn how ingredients are grown, caught or reared. They will then use this knowledge in their cookery projects. Within KS2, emphasis will be placed on nutrition, providing a link to our PSHE curriculum.

Bryn Offa CE Primary School Design and Technology (D&T) Medium Term Plan

	Class 2	Class 3	Class 4	Class 5
Cycle A Even Academic Years (2020, 2022)	Mechanisms – Design, make and evaluate a mechanical system which has sliders and levers Structures – Design, make and evaluate a freestanding structure Food - Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Structures - Design, make and evaluate a shell structure (including Computer Aided Design) Dyson Design Box – What does a design engineer do? Mechanisms - Design, make and evaluate a mechanical system which has levers and linkages Food – Healthy and varied diet (including cooking and nutrition requirements for KS1 and 2) Jamie Oliver	Electrical systems - Design, make and evaluate an electrical system (circuits and switches) Lewis Latimer - Inventor Structures - Design, make and evaluate a shell structure (including Computer Aided Design) Food – Healthy and varied diet (including cooking and nutrition requirements for KS2) George Washington Carver	Electrical Systems - Design, make and evaluate and electrical system (more complex switches, including programming, monitoring and controlling) Garrett Morgan - Inventor Structures - Design, make and evaluate a frame structure Victorian Inventions Food - Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)
Cycle B Odd Academic Years (2019, 2021)	Mechanisms – Design, make and evaluate a mechanical system which has wheels and axles Food - Preparing fruit and vegetables (including cooking and nutrition requirements for KS1) Textiles – Design, make and evaluate a textile product which allows the children to explore making templates and joining textiles through a variety of techniques	Food – Healthy and varied diet (including cooking and nutrition requirements for KS1 and 2) Mechanisms – Design, make and evaluate a mechanical system which has wheels and axles What does an automotive designer do? Textiles - Design, make and evaluate a 2D shape to a 3D product (including Computer Aided Design) Clothes from the Past	Structures - Design, make and evaluate a frame structure The history of the Eiffel Tower Mechanisms - Design, make and evaluate a pneumatic system (pneumatics from Projects on a Page) Pneumatic system uses over time Food - Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Textiles - Design, make and evaluate a textile product which combines different fabric shapes, including CAD (Computer Aided Design) Laura Ashley Mechanisms - Design, make and evaluate a mechanical system which has pulleys and gears (including programming, monitoring and controlling) History of cars Food - Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)

As a school we have bought a resource called 'Projects on a Page' which supports the teaching of each project. All of our D&T projects allow the children to practise designing, making and evaluating different items. A food technology project is completed once a year which allows the children to develop a new culinary skill.

Each teacher can choose when to place each project throughout the year, the projects, wherever possible, have been placed to match with the units in our Science curriculum. This allows the children to apply their scientific knowledge in other areas of the curriculum. The projects tend to be completed as a block at the end of the term.

Class 1 are predominately Reception children and these pupils follow the Early Years Foundation Stage (EYFS) framework. However, any Year 1 pupils will access the same projects as the children in Class 2.

Design and Technology (D&T) Skill Progression Table

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing	• To represent their ideas verbally or as pictures *Children may design as they make in Reception*	*As Reception, and:* • To design products that appeal to themselves • To discuss their thought-out plans (How will it work?) and draw them before making	As previous years, and: • To design products with a user in mind (themselves or others) • To design according to agreed design criteria • To annotate diagrams of proposed designs.	*As previous years, and:* • To generate realistic designs with a product's purpose in mind • To generate their own simple design criteria • To draw an orthographic projection of their design • To use Computer Aided Design to help communicate their ideas	*As previous years, and:* • To design a practical product • To draw a labelled diagram with some measurements • To draw a cross-sectional diagram of their design	*As previous years, and:* • To conduct surveys and interviews to identify the needs, wants and values of individuals and groups • To design a product with specific ingredients or substitute appropriately • To draw an exploded diagram of their design, where appropriate	*As previous years, and:* • To generate detailed designs and explain their choices • To select appropriate materials and explain choices • To make design decisions considering time, resources and cost
Making *(use of saws and sewing may be covered in another year group due to our medium term plan catering for our mixed year classes)*	• To change and effect materials using simple tools • To use scissors safely • To use construction kits to build towers, wheeled vehicles and frameworks • To use different materials for different purposes	*As Reception, and:* • To use simple tools to effectively cut and shape materials needed for their products • To choose materials and components they need from those provided • To follow procedures for safety and hygiene • To use finishing techniques, including those from art and design	*As previous years, and:* • To measure and mark out materials with some accuracy • To use saws to cut wooden components • To select the appropriate material (at the design stage)	*As previous years, and:* • To order the main stages of making • To measure and mark out materials to the nearest cm • To cut, join and incorporate materials safely and with some accuracy • To be able to sew using a running stitch	*As previous years, and:* • To measure and mark out materials to the nearest mm • To model their designs using prototypes • To make different mechanisms that work smoothly	*As previous years, and:* • To gather, cut, assemble and join structures safely, securely and accurately • To produce appropriate lists of tools, equipment and materials needed • To make a working prototype to solve problems first	*As previous years, and:* • To demonstrate resourcefulness when tackling practical problems • To make well finished, attractive products • To be able to sew using at least 2 types of stitches e.g. running stitch and cross stitch • To use their computing knowledge to program, monitor and control their products

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evaluating	• To describe what they have made and its purpose • To discuss who a product is for whilst exploring existing products • To discuss what they like and dislike about existing products	*As Reception, and:* • To explore existing products to inform their own – How does it work? • To discuss what materials a product is made from? • To discuss what they like about their product	*As previous years, and:* • To observe features and properties of existing products • To use those observations in their designs • To suggest how their products could be improved	*As previous years, and:* • To identify clear strengths and suggest changes in their ideas and products • To discuss why a product has been made out of certain materials and the products method of construction • To name inventors, designers, engineers, chefs or manufacturers who have developed ground-breaking products related to their current project	*As previous years, and:* • To discuss how a product meets the needs of its user and its intended purpose • To discuss who, when and where existing products were designed and made • To consider the views of their intended user when considering how to improve their product • To evaluate their completed product against their design criteria	*As previous years, and:* • To discuss how innovative existing products are • To reflect on other user's comments on their own designs • To analyse the sustainability of products • To complete a sensory evaluation of existing food products or ingredients	*As previous years, and:* • To evaluate their own products and designs critically and adapt as necessary • To reflect on how technology has had an impact on designing and making products • To investigate and analyse how much a product costs to make
Technical knowledge *(some skills may be covered in another year group due to our medium term plan catering for our mixed year classes)*	• To know that different materials might be needed for different tasks	*As Reception, and:* • To build structures and discuss how they can be made better (more stable) • To make a simple moving mechanism	*As previous years, and:* • To explore ways to make structures stiffer, stronger and more stable • To produce a range of different moving mechanisms including: levers, sliders, wheels and axles • To use the correct technical vocabulary for their project	*As previous years, and:* • To apply their mathematic and scientific knowledge to help them design and make their products • To understand that materials have both functional and aesthetic qualities • To use a variety of mechanical mechanisms to create movement	*As previous years, and:* • To know that mechanical and electrical systems have an input, process and output • To know how an electrical circuit can be incorporated into a functional product • To know how to strengthen and stiffen a shell structure	*As previous years, and:* • To know how to reinforce and strengthen a 3D framework • To know that a 3D textiles product can be made from a combination of fabric shapes	*As previous years, and:* • To know how mechanical systems (pulleys or gears) create movement • To use coding to program, monitor and control their product • To know about different joints and ways to strengthen joins
Cooking & nutrition *(preparing and cooking bread products may be covered in another year group due to our medium term plan catering for our mixed year classes)*	• To understand the need for a healthy diet • To give an example of healthy/unhealthy food • To discuss the smell and taste of food • To wash their hands before tasting or making food products (following simple health and safety procedures)	*As Reception, and:* • To know about healthy diets • To know that food comes from plants or animals • To know how ingredients are weighed • To prepare simple dishes, safely and hygienically, without using a heat source	*As previous years, and:* • To design a healthy meal using scientific knowledge • To know about where food comes from (farmed, grown or caught) • To know that everyone should eat at least 5 portions of fruit and vegetables each day • To know how to use techniques such as cutting, grating and peeling	*As previous years, and:* • To know food can be fresh, pre-cooked and processed • To know that food is grown, reared and caught in the UK and the wider world • To know that a healthy diet is made up of a variety and balance of different foods and drinks (The eatwell plate) • To make a healthy lunchtime dish (wrap or sandwich)	*As previous years, and:* • To know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • To research traditional dishes of a country	*As previous years, and:* • To know how food is processed • To use a range of techniques to prepare and cook bread products • To understand that a recipe can be adapted by adding or substituting one or more ingredients	*As previous years, and:* • To know about other conditions that may affect food availability • To know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health • To know that recipes can be adapted to change the appearance, taste, texture and aroma