Biscovey Primary Academy
Design and Technology Curriculum

The place of Design & Technology in Primary Schools:

'WE ARE CURRENTLY PREPARING STUDENTS FOR JOBS THAT DON'T YET EXIST…USING TECHNOLOGIES THAT HAVEN'T BEEN INVENTED… IN ORDER TO SOLVE PROBLEMS WE DON'T EVEN KNOW ARE PROBLEMS YET.' (the National College)

Design and Technology National Curriculum Requirements

EYFS

Development matters

- Learn new vocabulary
- Use new vocabulary through the day
- Know and talk about the different factors that support their overall health and wellbeing.
- Develop their small motor skills so they can use a range of tools competently safely and confidently.
- Explore the natural world around them.
- Explore, use and refine a variety of artistic effects to express their ideas and feelings.

Early learning goals

Communication and language

ELG: Speaking

- *Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.*
- Offer explanations for why things may happen, making use of recently introduced vocabulary.

Physical development

ELG: Fine motor skills

- use a range of small tools, including scissors, paint brushes and cutlery.

Understanding the world

ELG: The Natural world

- Explore the natural world around them, making observations and drawing pictures of animals and plants.

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

KS1

Pupils should be taught to:

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.

Cooking and Nutrition

- use the basic principles of a healthy and varied diet to prepare dishes;
- understand where food comes from.

Biscovey Primary Academy Design and Technology Sequence of Learning
Key Stage 1

Reception – Autumn	Reception - *Spring*	Reception - *Summer*
Food/ Cooking and Nutrition	***Structures- Junk Modelling***	***Structure***
Skills: **Design:** To design a rainbow salad using their knowledge of fruits and vegetables and explore what it means to have a healthy balanced diet. **Make:** • How to select from and use a range of tools and equipment to perform practical tasks: for example, cutting. • How to select from and use a wide range of materials and cooking ingredients **Evaluate:** · Describing the taste, texture and smell of fruit and vegetables. · Taste testing food combinations and final products. · Evaluating food by giving a score **Knowledge:** · To understand what makes a balanced diet. · To understand that I should eat a range of different foods - To know that 'ingredients' means the items in a mixture or recipe.	**Skills:** **Design:** Making verbal plans and material choices. Describing their junk model and how they intend to put it together. Planning and selecting the correct resources needed to make a model **Make:** · Developing a junk model. · Improving fine motor/scissor skills with a variety of materials. · Joining materials in a variety of ways (temporary and permanent). · Joining different materials together. · Creating a model from their verbal plan · . **Evaluate:** Giving a verbal evaluation of their own and others' junk models with adult support. Checking to see if their model matches their plan. Considering what they would do differently if they were to do it again. Describing their favourite and least favourite part of their model. Making simple suggestions to improve or fix their junk model **Knowledge:** • To know there are a range to different materials that can be used to make a model and that they are all slightly different. Making simple suggestions to fix their junk model	**Skills:** **Design:** Designing a junk model boat. Using knowledge from exploration to inform design. Investigating how the shapes and structure of a boat affect the way it moves **Make:** · Making a boat that floats and is waterproof, considering material choices **Evaluate:** · Making predictions about, and evaluating different materials to see if they are waterproof. · Making predictions about, and evaluating existing boats to see which floats best. · Testing their design and reflecting on what could have been done differently **Knowledge:** - To know that 'waterproof' materials are those which do not absorb water. To know that some objects float and others sink. To know the different parts of a boat
Vocabulary • healthy • balanced diet • healthy eating • healthy lifestyle • mind • body • brain • fruit and vegetable names	**Vocabulary** Design Plan Choose Build Model Making Cut Join Attach Stick Fold Shape Construct	Vocabulary · Boat - a vehicle that travels on water. · Float - to stay on the surface of the water. · Sink - to go below the surface of the water. · Waterproof - not allowing water to pass through. · Hull - the main body of a boat

Year 1 – Autumn	Year 1 - *Spring*	Year 1 - *Summer*
Mechanisms – Moving Storybook	***Structure – Stable structures***	***Food and Nutrition-Fruit Kebabs***
Skills: Exploring slider mechanisms and the movement they output to design, make and evaluate a moving storybook. Exploring slider mechanisms and the movement they output to design, make and evaluate a moving storybook **Design:** Explaining how to adapt mechanisms, using bridges or guides to control the movement. Designing a moving storybook for a given audience. **Make:** Following a design to create moving models that use levers and sliders **Evaluate:** · Testing a finished product, seeing whether it moves as planned and, if not, explaining why and how it can be fixed. · Reviewing the success of a product by testing it with its intended audience **Knowledge:** A mechanism is the parts of an object that move together. A slider mechanism moves an object from side to side or up and down. A slider mechanism has a slider, slots, guides and an object. Bridges and guides are bits of card that purposefully restrict the movement of the slide	**Skills:** **Design:** Identify the user and purpose of a design. Generate and share simple ideas, thinking about what others might want or need. Discuss existing products to help develop ideas. Use basic drawings to communicate design ideas **Make:** Choose appropriate materials, ingredients or components and explain choices. Select and use suitable tools and equipment safely for a purpose. Measure and mark out using simple guides to create even spacing. Cut accurately with increasing control, including straight lines and simple shapes in card. **Evaluate:** • Describe what they like about existing products and their own work. • Compare products and explain which is better for a given purpose. • Give positive feedback on others' designs and products. • Accept and use feedback to improve their work **Knowledge:** Recognise that structures are designed for different purposes. Identify and describe features of buildings and freestanding structures. Make simple stable structures using card and other materials. Explore and create supports and bases to improve stability	**Skills:** **Design:** To design a fruit kebab their knowledge of fruits and explore what it means to have a healthy balanced diet. **Make:** • How to select from and use a range of tools and equipment to perform practical tasks: for example, cutting. • How to select from and use a wide range of materials and cooking ingredients **Evaluate:** · Describing the taste, texture and smell of fruit and vegetables. · Taste testing food combinations and final products. · Evaluating food by giving a score **Knowledge:** · To understand what makes a balanced diet. · To understand that I should eat a range of different foods · To know that 'ingredients' means the items in a mixture or recipe.:
Vocabulary **Mechanism** - parts that work together to create movement. **Slider** - a strip that moves backwards and forwards. **Guide** - a piece that controls the direction of a slider. **Bridge** - a card support that holds a slider in place. **Slot** - the opening through which a slider moves	**Vocabulary** · **Structure** – something that is built or made. · **Stable** – strong and unlikely to fall over. · **Support** – something that helps hold a structure up. · **Freestanding** – able to stand on its own without being attached to anything. · **Cylinder** – a 3D shape with two circular ends and straight sides	**Vocabulary** · healthy · balanced diet · healthy eating · healthy lifestyle · mind · body · brain · fruit names

Year 2 – Autumn	Year 2 - Spring	Year 2 - Summer
Mechanisms – Moving Monster	**Textiles - Bookmarks**	***Food/ Cooking and Nutrition***
Skills: Exploring pivot, lever and linkage mechanisms through designing a moving monster with mechanical parts **Design:** Create a design criteria for a moving monster. Design a moving monster for a specific audience. Use drawings to communicate ideas and show moving parts. Explain how the design meets the intended purpose **Make:** • Create simple linkages using levers, pivots and split pins. • Explore and adapt linkage mechanisms to improve movement. • Select and assemble materials accurately and neatly. • Cut and join components safely and effectively **Evaluate:** • Evaluate designs against a given design criteria. • Identify strengths and areas for improvement in a finished product. • Use peer feedback to refine and improve designs. • Explain how well the final product meets the needs of the user **Knowledge:** □ Understand that levers and linkages create movement. □ Know that a pivot is a fixed point that allows movement. □ Recognise how changing the length, width or thickness of card affects movement. □ Understand how different linkage mechanisms produce different motions	**Skills:** Developing fine motor skills through a range of threading activities before moving on to use a binka and a needle **Design:** Discuss what makes an effective design. Design a simple pattern and bookmark for a specific purpose. Choose suitable materials for a design. Use drawings to communicate ideas **Make:** • Select and use materials appropriately. • Develop cutting skills using scissors with increasing accuracy. • Explore threading and weaving using an over-under technique. • Use a prepared needle and wool to create a finished product. **Evaluate:** • Reflect on a finished product and identify what worked well. • Explain what could be improved in future designs. • Discuss whether the product meets its intended purpose. • Share opinions about their own and others' work respectfully **Knowledge:** □ Understand that textiles can be joined, woven and decorated. □ Recognise and use simple weaving techniques. □ Know that different materials have different properties and uses. □ Identify how patterns and decorations can enhance a product	**Skills:** **Design:** Identify the user and purpose of a product. Generate and discuss ideas, taking inspiration from existing products. Use simple drawings to communicate design ideas. Talk about what others might want from a design **Make:** • Plan and follow simple steps to make a product. • Choose suitable materials, components and tools, explaining choices. • Use tools safely and follow basic safety instructions. • Shape and assemble materials using simple cutting and forming techniques. **Evaluate:** • Discuss and compare existing products for different purposes. • Compare finished products with original designs. • Suggest improvements to their own work. • Give and receive feedback to help improve designs and products **Knowledge:** □ Understand where fruits and vegetables come from. □ Select ingredients to create a balanced smoothie recipe. □ Use chopping and juicing techniques safely when preparing food. □ Describe food using appearance, smell and taste
Vocabulary Linkage Lever Pivot Mechanism Movement	**Vocabulary** Textile Weave Pattern Thread Needle	**Vocabulary** Ingredient Recipe Balanced Chop Juice