DT Subject Progression Map

Subject Name**: Design Technology**

Vision

Within Design and Technology at West Blatchington Primary we endeavour to make the subject as inspiring, creative, rigorous and practical as possible.
Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, 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 and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable learners.
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 whole community.

Our learning aims:

In ***Key Stage 1*** children will learn:
Through a variety of creative and practical activities, pupils are taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. Children will be taught the four aspects of design technology which include:

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.

Our learning aims:

In ***Key Stage 2*** children will learn:
Through a variety of creative and practical activities, pupils should be taught the
knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].
Children will be taught the four aspects of design technology which include:

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, prototypes, pattern pieces and computer-aided design

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

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

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

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Year Group	Term	Unit	Overarching question/Key objective	Knowledge and Understanding/Skills	Outcome
1	Autumn				
1	Spring	Mechanisms- Leavers and Sliders	Can you make a moving picture that incorporates two different moving mechanisms?	**Design** Use pictures and words to convey what they want to design/make. Add notes to drawings to help explanations. Describe their models and drawings of ideas and intentions. **Make** Discuss their work as it progresses. Select materials from a limited range that will meet the design criteria. Explain what they are making. Explain which materials they are using and why. Name the tools they are using. **Evaluate** Explore existing products and investigate how they have been made. Say what they like and do not like about items they have made and attempt to say why. Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user. **Technical Knowledge** Join appropriately for different materials and situations e.g. glue, tape. Mark out materials to be cut using a template. Insert paper fasteners for card. Experiment with levers and sliders to find different ways of making things move.	To create their own moving picture for a child in Monkey class.
1	Summer	Structures- Free Standing Stable Structures	Can you create a structure for Arundel Wetlands Centre?	**Design** Use kits/reclaimed materials to develop more than one idea. Model ideas with kits, reclaimed materials. **Make** Explain what they are making. Explain which materials they are using and why. Name the tools they are using.	To create a freestanding structure that fits the design brief.

				Evaluate Say what they like and do not like about items they have made and attempt to say why. Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user. **Technical Knowledge** Explore how to make structures stronger. Investigate different techniques for stiffening a variety of materials. Test different methods of enabling structures to remain stable.	
2	Autumn	Food- Healthy Eating/ Food Origin	The school cook would like to add a healthy fruit salad to the menu. How can we help?	**Design** Propose more than one idea for their product. Use drawings to record ideas as they are developed. **Make** Select and name the tools needed to work the materials. Explain which fruits they are using and why. **Evaluate** Say what they like and do not like about the fruit salad they have made and attempt to say why. Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user. **Technical Knowledge** Develop a food vocabulary using taste, smell, texture and feel. Group familiar food products e.g. fruit and vegetables. Cut, peel, grate, chop a range of ingredients Work safely and hygienically. Understand the need for a variety of foods in a diet. Measure and weigh food items, non-statutory measures e.g. spoons, cups	A healthy fruit salad that children have designed and prepared themselves.
2	Spring	Textiles/ ICT- Create a 3D product from 2 identical patterns.	Is it possible to create a beanie animal using only two identical patterns?	**Design** Explore ideas by rearranging materials. Add notes to drawings to help explanations. **Make**	**Create a 3D bean bag animal product from 2 identical patterns.**

				Discuss their work as it progresses. Select materials from a limited range that will meet the design criteria. Select and name the tools needed to work the materials. **Evaluate** Talk about their design as they develop and identify good and bad points. Note changes made during the making process as annotation to plans/drawings. **Technical Knowledge** Cut out shapes which have been created by drawing round a template onto the fabric. Join fabrics by using e.g. running stitch, glue, staples, over sewing, tape. Decorate fabrics with attached items e.g. buttons, beads, sequins, braids, ribbons.	
2	Summer	Mechanisms- Axles/ Vehicles	**Can you make a vehicle that moves?**	**Design** Use kits/reclaimed materials to develop more than one idea. Model ideas with kits, reclaimed materials. Explore ideas by rearranging materials. **Make** Explain what they are making. Explain which materials they are using and why. Name the tools they are using. Describe what they need to do next. **Evaluate** Explore existing products and investigate how they have been made. Talk about their design as they develop and identify good and bad points. Note changes made during the making process as annotation to plans/drawings. Say what they like and do not like about items they have made and attempt to say why. Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user.	To have created their own moving vehicle that is able to stay freestanding.
3	Autumn	Food- Breadmaking	**Can we create Stone age bread?**	**Design** Develop more than one bread design.	Having tasted and tried a range of bread and researched various bread making techniques.

				Record the plan by drawing using annotated sketches. **Make** Use appropriate techniques for different parts of the bread making process **Evaluate** Investigate similar products as a starting point for their design. Consider and explain how the finished product could be improved. Discuss how well the finished product meets the design criteria of a Stone age person. **Technical Knowledge** Develop sensory vocabulary/knowledge using, smell, taste, texture and feel. Analyse the taste, texture, smell and appearance of a range of foods. Follow a recipe. Join and combine a range of ingredients.	Children will have made their own version of stone age bread.
3	Spring	Structures- Secure structures	**Is it possible to create a shell structure which is strong enough to be used as a Canopic jar?**	**Design** Propose realistic suggestions as to how they can achieve their design ideas. Consider aesthetic qualities of materials chosen. **Make** Cut slots. Cut internal shapes. Use tools with accuracy. **Evaluate** Investigate similar products to the one to be made to give starting points for a design. Draw/sketch products to help analyse and understand how products are made. **Technical Knowledge** Develop vocabulary related to the project. Create shell or frame structures. Strengthen frames with diagonal struts.	Create a shelled structure which forms a 3D product.
3	Summer				

4	Autumn	Mechanisms Levers and linkages	**Why are moving mechanisms used in children's books?**	**<u>Design</u>** Begin to use cross-sectional and exploded diagrams Consider aesthetic qualities of materials chosen. **<u>Make</u>** Prepare pattern pieces as templates for their design. Select from a range of tools for cutting shaping joining and finishing. Select from techniques for different parts of the process. **<u>Evaluate</u>** Talk about their design as they develop and identify good and bad points. Say what they like and do not like about items they have made and attempt to say why. **<u>Technical Knowledge</u>** Develop vocabulary related to the project Use mechanical systems such as gears, pulleys, levers and linkages. Use linkages to make movement larger or more varied. Use lolly sticks/ card to make levers and linkages	A moving animal that illustrates the rainforest unit and includes an animal that would be found in the Brazilian Rainforest and this animal needs to use levers and linkages to move.
4	Spring	Textiles- Use a single fabric shape to make a 3D textile product	**How would an Ancient Greek have carried their money around?**	**<u>Design</u>** Plan a sequence of actions to make a product. Record the plan by drawing using annotated sketches. Think ahead about the order of their work and decide upon tools and materials. **<u>Make</u>** Prepare pattern pieces as templates for their design. Cut slots. Select from a range of tools for cutting shaping joining and finishing. **<u>Evaluate</u>** Investigate similar products to the one to be made to give starting points for a design. Consider and explain how the finished product could be improved. Investigate key events and individuals in Design and Technology.	A Greek Bula, sewn and designed by the child.

				<u>Technical Knowledge</u> Develop vocabulary for tools materials and their properties. Understand seam allowance. Join fabrics using running stitch, over sewing, blanket stitch.	
4	Summer	Control - Electrical torches	**How do torches work? Who might need to use one?**	**<u>Design</u>** Use prototypes to develop and share ideas. Propose realistic suggestions as to how they can achieve their design ideas. <u>Make</u> Select from materials according to their functional properties. Plan the stages of the making process. Use appropriate finishing techniques. **<u>Evaluate</u>** Investigate similar products to the one to be made to give starting points for a design. Consider and explain how the finished product could be improved. Discuss how well the finished product meets the design criteria of the user. Investigate key events and individuals in Design and Technology. **<u>Technical Knowledge</u>** Develop vocabulary related to the project. Incorporate a circuit into a model. Use electrical systems such as switches bulbs and buzzers.	Make a basic torch in which the bulb lights up by means of a switch.
5	Autumn	Mechanisms- Cams/ Linear Movement	**Can you design a new moving toy?**	**<u>Design</u>** Decide which design idea to develop. **<u>Make</u>** Cut accurately and safely to a marked line. Select from and use a wide range of materials. Use appropriate finishing techniques for the project. Refine their product – review and rework/improve. **<u>Evaluate</u>** Research and evaluate existing products (including book and web based research). **<u>Technical Knowledge</u>** Develop a technical vocabulary appropriate to the	To have created a moving toy- aimed at someone younger (link to infants)

				project. Use mechanical systems such as cams	
5	Spring	Structures- Bridges	**Which material is best for creating a bridge to cross a river?**	**Design** Use exploded diagrams and cross-sectional diagrams to communicate ideas. Decide which design idea to develop. Sketch and model alternative ideas. **Make** Use researched information to inform decisions. Refine their product – review and rework/improve. **Evaluate** Consider user and purpose. Give a report using correct technical vocabulary. **Technical Knowledge** Use the correct terminology for tools materials and processes. Cut strip wood, dowel, square section wood accurately to 1mm. Join materials using appropriate methods.	Create a weight-bearing structure.
5	Summer	Food- Healthy Eating/ Healthy Schools	**What makes a healthy packed lunch?**	**Design** Devise step by step plans which can be read / followed by someone else. **Make** Use researched information to inform decisions. Produce detailed lists of ingredients **Evaluate** Discuss how well the finished product meets the design criteria of the user. Test on the user! **Technical Knowledge** Prepare food products taking into account the properties of ingredients and sensory characteristics. Weigh and measure using scales. Select and prepare foods for a particular purpose. Work safely and hygienically. Show awareness of a healthy diet	Design the perfect packed lunch.
6	Autumn				
6	Spring	Textiles	**How can slipper designs be appropriately**	**Design** Record ideas using annotated diagrams. Sketch and model alternative ideas.	Create own slipper design and product.

			adapted for the user?	Decide which design idea to develop. **Make** Develop one idea in depth. Use researched information to inform decisions. Select from and use a wide range of materials. Use appropriate finishing techniques for the project. **Evaluate** Consider user and purpose. Identify the strengths and weaknesses of their design ideas. **Technical Knowledge** Create 3D products using patterns pieces and seam allowance. Understand pattern layout. Pin and tack fabric pieces together. Join fabrics using over sewing.	
6	Summer	Control Electrical	**How do fairground rides operate?**	**Design** Record ideas using annotated diagrams. Use models, kits and drawings to help formulate design ideas. **Make** Use researched information to inform decisions. Produce detailed lists of ingredients / components / materials and tools. **Evaluate** Consider user and purpose. Identify the strengths and weaknesses of their design ideas. **Technical Knowledge** Develop a technical vocabulary appropriate to the project. Use electrical systems such as motors. Join materials using appropriate methods. Build frameworks to support mechanisms.	Create a fairground ride which incorporates rotational movement.