



Our aim is to provide our children with an engaging, exciting, and empowering curriculum that equips them for today and their future. At St Botolph's Church of England Primary School the curriculum is designed to: recognise children's prior learning, provide first hand learning experiences, allow the children to develop interpersonal skills, build resilience and become creative, critical thinkers.

Christian values - Perseverance, Thankfulness, Truthfulness, Compassion, Respect and Friendship.

British Values – Democracy, Rule of law, Respect and Tolerance, Individual Liberty

Curriculum aims:

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.

DT Intent:

At St Botolphs Primary, 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. Design and Technology is a practical subject and it encourages children to learn, to think creatively to solve problems both as individuals and as members of a team. The aim is for products to be researched and

explored beforehand and made with a purpose. Individuality should be encouraged. As a school, we aim to make Design and Technology a cross curricular subject, linking it to Maths, English, History, Science, Computing and Art.

Our Curriculum:

Our school has chosen to complete three units per year group and we have based these units on the National Curriculum and the Chris Quigley Milestones. This way, we feel that all of the skills are being covered and they show progression through the different year groups.

The units that we cover are food, textiles, mechanisms, materials, electronics and construction.

Each unit starts with a key question that the children will refer to throughout the unit and then use to evaluate their learning at the end.

Right from Year One, the children are encouraged to use the DT planning process and this is shown on posters in the classroom and on learning Smarts throughout each unit. The different areas that the children will look at are identifying a need, exploration, designing, planning, making and evaluating.

All through the process, the children are encouraged to question what they are doing to see if any changes and improvements need to be implemented, in order to ensure the best final product that they can create.

Research will also be carried out into a variety of innovators and designers, where links will be made. Vocabulary is outlined at the start of the unit and used in each lesson to promote the specific language relevant to each unit. The unit plans then include lesson guides which should be taught within each session. Links will be made to previous learning and discussion about how the learning will be extended.

We feel that our DT curriculum will benefit the children in our school as it will make them creative, imaginative and resilient learners.

In our school, we will alternate Art and DT lessons each week to cover the exploration, design, plan and evaluation phases. The we will block the making stage of each unit. This will ensure that we are revisiting Art and DT throughout the term.

Yearly Overview

	Autumn	Spring	Summer
Reception	Ongoing skills but one main project is Construction	Ongoing skills but one main project is Materials	Ongoing skills but one main project is Cookery.
Year 1	Mechanics How can I make a moving picture? Christian Value – Perseverance and Truthfulness British Value – Individual Liberty	Textiles Can I join templates together using stitch? Christian Value – Perseverance and Truthfulness British Value – Individual Liberty	Construction Can I make a sturdy structure? Christian Value - Perseverance and Truthfulness British Value – Individual Liberty
Year 2	Construction- wood Can I use wood skills to create a product? Christian Value – Perseverance and Truthfulness British Value – Individual Liberty	Mechanics How can I use wheels and axles to make a vehicle? Christian Value - Perseverance and Truthfulness For group work – Friendship and Respect British Value -Respect and Tolerance Democracy	Food Can I make a healthy drink? Christian Value – Thankfulness, Perseverance and Truthfulness For group work – Friendship and Respect British Value - Respect and Tolerance Democracy
Year 3	Construction How can I make a structure suitable to be a bridge? Christian Value – Perseverance and Truthfulness For group work – Friendship and Respect British Value – Individual Liberty	Food Can I make a healthy cereal bar? Christian Value - Perseverance and Truthfulness British Value – Individual Liberty	Mechanics Can I make a mechanism to lift a pot of water? Christian Value – Perseverance and Truthfulness For group work – Friendship and Respect British Value – Individual Liberty Tolerance and respect Democracy.
Year 4	Construction – wood How can I make a free -standing photo frame? Christian Value - Perseverance and Truthfulness	Food Can I design and make my own pizza? Christian Values - Thankfulness, Perseverance and Truthfulness	Electronics How can I create an instrument using a circuit?

	British Value – Individual Liberty	British Value – Individual Liberty	Christian Value – Perseverance and Truthfulness For group work – Friendship and Respect British Value – Individual Liberty Tolerance and respect Democracy
Year 5	Textiles Can I make a product that employs a seam allowance? Christian Value – Perseverance and Truthfulness British Value – Individual Liberty	Electronics Can I use Tinkercad to make a product? Christian Value – Perseverance and Truthfulness British Value – Individual Liberty	Mechanics Can I make a moving toy using a cam mechanism? Christian Value – Perseverance and Truthfulness For group work – Friendship and Respect British Value – Tolerance and respect Democracy
Year 6	Food Can I use different processes to make bread? Christian Value – Perseverance, Thankfulness and Truthfulness For group work – Friendship and Respect British Value – Individual Liberty Tolerance and respect Democracy	Electronics Can I make fit bit using a circuit? Christian Value - Perseverance and Truthfulness British Value – Individual Liberty	Construction Can I create a product that involves some of these skills - drilling, screwing and sawing wood? Christian Value – Perseverance and Truthfulness British Value – Individual Liberty

Progression of Knowledge

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn		To understand what a lever is. To know that levers can up and	To understand how to hammer a nail into wood	To understand the function of a bridge.	To make a free standing structure. To make a slot in the structure.	To know what a seam allowance is.	To know how to knead bread. To learn about micro- organisms

		down or side to side. To know that stronger materials would work best. To know that the design needs to be an appropriate size.	To understand how to screw into wood To recognise the effect of force on the objects To identify and observe safety issues with wood skills. To learn about famous architects	To be able to identify different ways to strengthen a structure. To learn about famous architects	To saw wood at an angle. To join pieces of wood.	To be able to join textiles with a combination of stitching techniques, such as back stitch for seams and running stitch to attach decorations. To use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles, such as a soft decoration for a cushion. To learn about a famous designer.	To learn about proving. To measure ingredients accurately. To calculate the ratio of ingredients for a recipe to scale up or down.
Spring		To be able to join two pieces of material together. To use a needle and thread. To carry out running stitching. To add decoration to a product.	To know what an axle is. To know the function of wheels and axles. To know how wheels and axles are used in vehicles To construct a suitable chassis To understand textures in food.	To understand what a cereal/granola bar is. To understand where ingredients are from. To recognise healthy foods. To start to measure ingredients in grams. To understand the effect of chilling on ingredients. To look at a recipe.	To understand where ingredients have originated from. To prepare ingredients using different skills. To understand the need for safety and hygiene when preparing food. To recognise the effect of heat on food. To control the heat of the oven. To measure food in grams. To follow a recipe.	To use an online planning tool To use a 3D printer To design using very specific dimensions. To learn about a famous innovator	To code an online programme. To debug a code. To create a pedometer. To make choices about how to create a pouch to hold the microbit. To learn about a famous innovator.

Summer		To be able to shape paper and card To be able to join materials To understand what a hinge is. To understand that a structure should be strong and sturdy. To learn about a famous inventor.	To understand the need for safety and hygiene when preparing food. To know how to chop ingredients. To select appropriate ingredients. To select appropriate amounts, using cups To understand textures in food.	To know what a pulley is. To know the history of pulleys. To understand how a pulley works. To understand the use of levers and how their work.	To be able to use an electronic kit. To understand which materials are conductive. To be able to make a circuit To understand the difference between series and parallel circuits To learn about famous innovators.	To know what a cam is. To know how a cam works. To identify cams in everyday life. To convert rotary motion to linear.	To be able to confidently use woodwork skills – hammering, sawing, screwing. To measure with increased accuracy. To be able to make a product aesthetically pleasing.
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Progression of Procedural Knowledge

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food	To learn about the origins of fruits To recognise basic food hygiene To peel and chop fruit, with support. To share likes and dislikes about the finished product.		Learn how to cut, peel or grate ingredients safely and hygienically. Measure using measuring cups or spoons. Assemble ingredients		To learn about a famous innovator Prepare ingredients independently and hygienically, using appropriate utensils. Measure ingredients to the nearest gram accurately. Follow a recipe. Assemble or cook ingredients. (Control the heat, if cooking on a hob/oven)		Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms) Measure accurately and calculate the ratios of ingredients to scale up or down from a recipe. Demonstrate a range of baking and cooking techniques. Create and refine recipes, including

							ingredients, methods, cooking times and temperatures.
Textiles		Shape textiles using templates. To learn how to join textiles using running stitch. Colour and decorate using a number of techniques (dyeing, adding sequins or printing.)		Join textiles with appropriate more advanced stitching. Select the most appropriate techniques to decorate textiles. Measure to the nearest cm.		Create objects, such as a cushion, that employs a seam allowance. Join textiles with a combination of stitching techniques, such as back stitch for seams and running stitch to attach decorations. Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles, such as a soft decoration for a cushion.	
Construction	To select materials, with support. To stick and join materials To begin to talk about what they are making and how.		Use materials to learn how to practise screwing and hammering.	Choose suitable techniques to construct products. Strengthen materials using suitable techniques.			Develop and demonstrate a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding.)
Materials	To explore and sort materials.	Cut materials safely			Cut materials accurately and		

	To begin to give reasons for choices. To cut around a template. To join materials To understand how a split pin can be used.	Demonstrate a range of cutting and shaping (tearing, cutting, folding and curling) Learn how to join, using a range of joining techniques (gluing, hinges or combining materials to strengthen.			safely by selecting appropriate tools. Measure and mark to the nearest millimetre. Apply appropriate cutting and shaping techniques, that include cuts within the perimeter of the material (such as slots or cut outs) Select appropriate joining techniques..		
Mechanisms		Create products using levers. Select appropriate sized lever.	Create products using wheels and winding mechanisms.	Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears.)		Convert rotary motion to linear, using cams. Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape. Show an understanding of the qualities of materials to choose appropriate tools to cut and shape, such as the nature of the fabric	

						may require sharper scissors than to cut paper.	
Electronics					Create series and parallel circuits	Use innovative combinations of electronics, or computing and mechanics in product designs.	Create circuits using electronics kits that employ a number of components, such as LEDs, resistors, transistors and chips. To create a fit bit using a microbit.

EYFS DT Skills & Knowledge				
<i>Cooking and Nutrition</i> Children understand why they need a healthy, balanced diet. Children can name different fruits and vegetables. Children can discuss taste and texture of fruits. Children can use utensils to chop fruit. Children know some techniques and steps in-	<i>Design: Developing, Planning and Communicating Ideas</i> Children experiment and build with a range of construction materials. Children are beginning to use pens, pencils and crayons using a tripod grip. Children can use a pincer grip when picking up smaller objects.	<i>Make</i> Children, with support, can use scissors, tape dispenser, stapler, glue stick, etc. Children enjoy playing with, and using, a variety of materials and fabric. Children can pick up and use a variety of pens, pencils, crayons and paint brushes.	<i>Evaluate</i> Talk about why you chose the materials you chose. Children talk about what they like about their models. Children say what they think about their constructions and why. They offer suggestions for how to improve them.	<i>Technical Knowledge</i> Children know how to join materials with glue and sticky tape. Children talk about how to change their models to make them stronger. They can describe how to make it sturdier. Children know the best ways to join paper together - glue, staples, tape...

involved in food preparation- peel with hands (bananas) Children can use tools and equipment linked to food preparation.	Children mostly show a hand preference. Children can use pencils to draw. Children talk about ideas. Children choose resources and tools with a purpose in mind. Children show and demonstrate individual preferences for their designs. Children can use templates (pictures of different buildings, vehicles etc) to help them with their designs. Children find out about the properties and functions of different materials. Children use techniques with a purpose in mind.	Children make models with different construction materials. Children can make structures from card, tape and glue. Children can follow instructions to cut out and assemble a structure. Children use a tripod grip when writing, drawing and painting. Children show accuracy and care when drawing and painting pictures. Children experiment with different ways to build, construct and join materials. Children can use tweezers to pick up small objects. Children can use scissors without the support of an adult.	Children talk about what they like and dislike about their models/constructions	
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	Children using pens, pencils and crayons using a tripod grip.	Children have a hand preference.		
Autumn Term		Spring Term		Summer Term
<u>Creating a new Sleigh for Santa</u> -Children to know what a sleigh is. -Children to know what a sleigh is used for and how it works. -Children to be able to identify and name the different parts of a sleigh. -Tell the children that they are going to make a new sleigh for Santa. Do the children understand what their task is? -Children to begin to think about what they will need to help them with this task. -Children to select different materials for their project, giving their reasons for which materials they are going to use. -Children to begin to think about how they are going to attach their		<u>Split Pin Easter Card</u> -Explore different materials, thinking about their properties. -Sort the different materials into groups (hard and soft) -Think about which group of materials we would use for the chick, giving reasons. -Think about which group of materials we would use for the egg, giving reasons. -Look at a template and talk about which materials have been used. -Understand how to carefully cut out the template we have been given. -Select materials that we would like to use to decorate our card. -Think carefully about how we are going to attach these materials.		<u>Creating a healthy fruit kebab for the lighthouse keeper</u> -Children to name the different fruit they have been provided with. -Children to begin to describe these fruits using their different senses. -Children to taste the different fruits, sharing their likes and dislikes. -Children to understand how the fruits are grown and begin to think about where these fruits come from. -Children to begin to think about how they would prepare the fruits so that they can eat them. -Children to understand how to prepare the fruits safely and think about what tools they will need. -Under careful supervision, children to learn how to chop and fruits that they are using.

materials together in order to complete their project. -Children to begin to show care and accuracy when cutting, sticking and joining their materials together. -Children to select their own resources to decorate their sleigh. -Children to begin to be able to talk about what they have made and how they have made it.	-Give reasons as to why they have chosen this method. -Think carefully about how we are going to assemble the template to make the product. -Under careful supervision, look at split pin and investigate what it does. -Show the children how a split pin works using two pieces of card. -Children to talk about what they notice and begin to think about why we might use a split pin in our design. -Children to think about where they might use a split pin in their design. -Assemble to pieces to create an Easter chick.	-Children to use their new skills of chopping and peeling to make a lunch for the Lighthouse keeper. -Children to talk about the processes that they used to make their lighthouse keepers lunch. -Children to share their likes and dislikes about what they have created and think about what they might do differently next time.
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Key Vocabulary

Recycled, paper, cardboard, plastic, foil, polystyrene, natural, man-made, waterproof, construct, build, assemble, join, plan, design, structure, thick, thin, hard, strong, twist, turn, through, on, in, underneath, next to, on top, model, screwing, building, balancing, threading, slotting, tall, taller, tallest, big, small,

smaller, smallest, cook, bake, weigh, mix, roll, cut, whisk, mash, sieve, peel, chop, spread, names of fruits and vegetables, nutrition, healthy, unhealthy

Key Texts

Classroom Provision, Enrichment opportunities & 'WOW moments'

Ongoing opportunities throughout the year
available throughout the day for both focussed and self-chosen learning

- Construction materials including resources that allow children to explore, pull apart, build connect, assemble and dis-assemble.
- Interesting objects that the children can observe and find out how they work
- Choose materials based on their properties
- Junk materials to build and construct models
- Ways of joining - tape, glue, hole punchers, string, split pins, clips, paperclips, pipe cleaners
- Range of tools - scissors, food preparation tools, peeler, grater, rolling pin, safety scissors, safety knives, clay tools, playdoh tools, hole punch
- Construct with purpose in mind - create something which links to the learning/topic/their interests
- Paper and pencils/pens/crayons for making designs before constructing
- Paper and pencils/pens/crayons for drawing a simple picture of their model. Sticky notes for labels
- Discussions with the children about how they made their model, what they used and how they would improve it next time
- Make a large-scale model collaboratively

Provision inside the classroom

Construction Area - different tools will be provided throughout the year to ensure coverage of the different skills

Creative - junk modelling, resources added throughout the year when children demonstrate they are ready to extend learning

Role Play - toy factory/workshop

Malleable/Playdoh - using tools and equipment linked to food preparation, explore different textures e.g. pasta, rice, Gelli Baff, slime, clay

Snack - rolling snack: children choose their own food, prepare it and then wash up at the end

Small World - constructing model houses/farms, shelters for animals

Mark Making/Writing - writing materials to plan construction including: clipboards, paper (different types and sizes), pencils, pens, crayons, squared paper, floor plans

Reading - non-fiction texts about construction, photograph books, unusual buildings (pictures and books)

Sand - wet sand as 'cement' for constructing different structures with blocks, set up challenges e.g. 'which sand makes the best sandcastle? Include different sizes of containers/scoops for filling and emptying.

Water/Mud Kitchen - role play using tools and equipment linked to food and drink preparation (e.g. whisks, sieves, jugs, pestle and mortar, grater, peeler, masher). Add other sensory resources (e.g. soap, cornflour). Provide pictures of different 'drinks' and 'food' children can make. Follow instructions for different recipes.

Provision outside the classroom

Large Construction - large boxes/trays, tarpaulin, clips, baskets, wooden planks, wooden poles, wooden blocks, plastic blocks, plastic sheeting and mesh. Link to current learning/topic.

Role Play - building/construction site, decorator workshop, garage, DIY centre.

Water - drainpipes, tubes, plastic bottles, pipettes, funnels

Outdoor - natural materials to be provided: leaves, sticks, logs, pebbles, stones

Unit Planning

Year 1 Autumn Term How can I make a moving picture?	
Knowledge to be taught: To explore how products have been created. To understand what a lever is. To know that levers can up and down or side to side. To know that stronger materials would work best. To know that the design needs to be an appropriate size.	<u>POP Tasks</u> Where do you see levers in real life? How can you join materials? Can you think of anything that has moving parts? Show the DT processes poster for the first time. Reminder of knowledge learnt so far. What are the properties of materials?
	<u>What do we already know.</u> Simple joining techniques from EYFS Moving parts - making moving chick in EYFS
	<u>Where will we go next?</u> Moving parts in Year 2 - wheels and axles
Lesson Guide	Key Vocabulary

To explore levers.

Explore

POP task – Can you think of anything that has moving parts? Think about vehicles, pictures, equipment, machinery.

Learn

Look at books that have moving parts. What is making them move? How does it work? Show a sample of books and move the pictures. Discuss the fact that the lever slides across. Introduce the idea of a lever – how does it work? Discuss the sizes of the levers. How does size make a difference?

Is the lever horizontal or vertical? – explain the terms.

Explore how products have been created.

Discuss. Are some pictures moving in different ways? Which way seems easier?

Respond

Provision – books with moving parts for the children to explore. Can the children tell you which way the pictures are moving, or what happens when they pull a lever?

Record ideas on Seesaw.

Reflect

Explore other levers and talk about how levers are used in everyday life – scissors, wheelbarrow, stapler

Lever
Strong
Material
Join
Attach
Horizontal
Vertical
Design
Explore
Product
Evaluate
Rear
Prototype

To explore designs.

Explore

POP task

Use this chance to introduce the DT poster. – discuss the different phases of the DT processes. We are at the exploring phase.

Learn

Explain to the children that we are going to make a moving Christmas card. This will explain the purpose. Show the class pictures of moving Christmas cards and one that you have already made. See photo at the side.

Respond

Discuss the “Explore” option. We have already looked at moving parts in books. Today, we will be looking at Christmas cards. What different designs can we see? Which designs do we like? Dislike? Can the children explain their reasons?

Record ideas on Seesaw.

Reflect

Which designs make the best Christmas cards? Why?



To create a design

POP Task

Explore

What materials could you use? Think about materials that would be well suited to the task. For example - card for the levers, so that it is sturdy.

Learn

Design products that have a clear purpose and intended user. They are going to make their own Christmas card for someone in their family. Show the DT poster. Show that we are onto the design process. Children are to use their thoughts from looking at the Christmas cards and choose two designs of their own. Model how the children can draw their designs.

Respond

They should think of two characters that could be attached to their lever and then two backgrounds. For example Santa coming out of the chimney, reindeer or an angel flying across the sky. Encourage the children to label their designs and think of possible materials and tools that they may use to make their designs.

Choose their favourite design.

Reflect

Discussions about choices. Why have those choices been made?

Possible Challenge – What if you didn't have card to use?

British Value – Individual Liberty

To make a prototype.

POP Task

Explore

What does the word “prototype” mean. Look up the word with the children and explain.

What do they think that they will be doing in this lesson?

Learn

In order to practise how their lever will work, the children should make a prototype to investigate what will work, before they make their actual design. Show the children how to make a prototype. Draw a character and add a lever. Cut a slit in a piece of paper. Discuss the size of the lever.

Respond

Ask the children to cut out a slit in the paper. Ensure that they don’t cut straight across.

See if the children can draw a picture and attach a suitable sized lever – does it fit through the slit?

Suggest improvements to their design.

Reflect

Does it work? Why not? What could you change? Be honest about any changes that would improve the product and keep trying if it doesn’t work the first time.

Christian Value - Perseverance and Truthfulness

To make a product.

POP Task

Explore

What can you remember about levers? Recap previous knowledge.

Learn

Show the prototype from last week. How did we make it? What changes or improvements do we need to make?

Discuss the method again for the children so that they feel confident in making.

Show the DT poster.

Respond

Use one of their designs. Draw a character for their Christmas card. Ask the children to think of how large their drawings should be and whether they should use card or paper.

Attach a lever to the rear of their character. How long and wide should the lever be? Model small and thin levers, made of paper – what could happen?

Sketch their chosen background into the front of their card. Cut a slit in the background – ensure that they don't cut right across the card.

[Refine design as work progresses.](#)

Reflect

Show a card / picture with a lever that is the wrong size. Can the children see the problem? How could it be fixed?

[Christian Value – Perseverance.](#)

[To evaluate a product](#)

POP Task

Explore

Reflect on learning from the unit. Discuss what they know about levers, materials for their cards.

Learn

Look at the DT poster – explain that we have completed all of the phases, apart from the evaluation.

Discuss the word “evaluation.”

Show how to evaluate their products. What did they do to make the product? What do they like? What could have gone better?

Respond

Children are to study their products. Discuss with their learning buddies – what do they like about their product?

What materials did they use? Were they the most suitable materials? Which tools did they use?

If they made the product again, what would they do differently?

Record evaluation comments on Seesaw.

Reflect

What else could you make that has moving parts?

[Christian Value - Truthfulness](#)

Feedback:

Year 1 Spring Term Can I join two templates together using running stitch?	
Knowledge to be taught: To be able to join two pieces of material together. To use a needle and thread. To carry out running stitching. To add decoration to a product.	Ideas for POP tasks What is sewing? Practical – how could we sew? Use threading cards to explore What do they know about butterflies? Describe the butterfly to your partner. What have we been learning about in this unit? What do we already know? Different materials in EYFS. Weaving skills. Where will we go next? Joint topic in Y3 with Art. Sewing using different stitches. Leaving a seam allowance in Y5 when making a cushion cover.
Lesson Guide	Key Vocabulary
1 To explore designs Explore What is sewing? Gather ideas/knowledge from the children. Learn Look at some stitched products What material is it made out of? What are the colours used? How has the product been decorated? How has the product been joined together? Explain that we are going to use templates to attach together. How can we do this? Show thread and needle. As it's the first time that they have used a needle and thread, they are all using the same felt templates to stitch together. The individuality will come from the decoration. Respond	Needle Running stitch Thread Join Stuffing/padding Decorate Textiles Attached Template Fasten

Look at butterflies - what patterns have they got on their wings? What do you notice? They are symmetrical. Which patterns do you prefer? Record ideas on Seesaw.

Reflect

Tell your partner about your favourite butterfly. Why do you like it?

2.

To learn how to do running stitch.

Explore

Practical session on Seesaw

How can we sew?

Can anyone think how we could use stitching to join templates together? Give the children threading cards to think how the thread would go through the material.

Learn

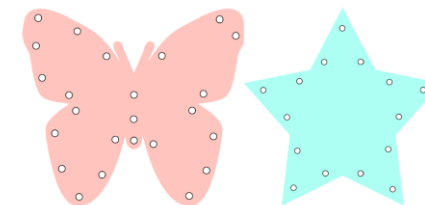
Model how to move the ribbon in and out of the threading cards to demonstrate stitching. Explain that this is called running stitch. Show a video of how to do running stitch.

Respond

All children to have a go at doing running stitch model through weaving. Use a variety of threading cards, as well as thickness of ribbon, string. Etc

Reflect

Explain running stitch to their friends.



3.

To generate ideas for a design.

Explore

What do they know about butterflies? Describe facts to their learning buddies. Look at key words such as symmetrical, wings, legs, antennae, patterns, colourful.

Learn

Talk about facts about butterflies. Focus more on their appearance. Highlight that butterfly wings are symmetrical.

Model drawing design for butterflies. Model drawing symmetrical patterns and use shapes to show designs.

Respond

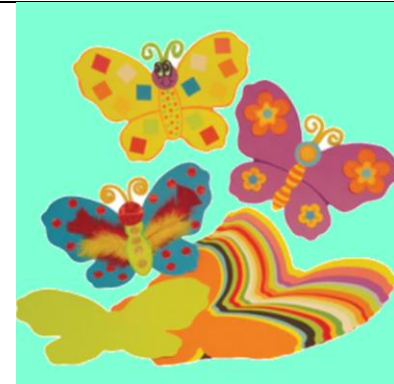
Children will draw two butterflies, with two different patterns on their wings. Ensure that they are symmetrical. What could they use to decorate their butterflies? How can they attach their decorations?

Reflect

To choose a final design.

From their two designs, the children will choose one to be their final design. Why have they chosen this?

British Value – Individual Liberty?



4. and 5

To make a product using textiles.. This will last more than one session, if lack of helpers.

Explore

Describe the butterfly to your partner.

Show the DT processes poster.

Learn

Children to look at their designs and think about how they learnt about running stitch in lesson 2.

How did you thread?

Remind the children about butterflies - what patterns have they got on their wings? What do you notice? They are symmetrical. What could they use to show their patterns? .

Stick/fasten the decorations onto their products.

What materials will you need to make your butterfly? Check their designs to ensure that they are choosing the correct materials.

Respond

Take small groups and use running stitch to join the two templates together. The other children can practise weaving and threading to see how thread moves in and then out for running stitch.

The children need to leave a space in order to add stuffing /padding to their product.

Reflect

Look at their design – will they change anything?

Christian Value – Perseverance.

6.

To evaluate a product.

Explore

Show the DT processes poster.

What have we been learning about in this unit? Use key words – sewing, running stitch, join

Learn

Study the processes -what have we covered so far? It is important to evaluate your product. What resources have you used? What techniques have you used? Write how the product was successful. What went well? What would they improve next time? Respond Can they answer questions with an adult, to complete their evaluation and record on Seesaw? Reflect How could they use these skills again? Christian Value - Truthfulness	
Feedback:	

Year 1 Summer Term Can I make a sturdy structure?		
Knowledge to be taught: To be able to shape paper and card To be able to join materials To understand that a structure should be strong and sturdy To learn about a famous inventor To understand what a hinge is.	POP Tasks What playground equipment can you think of? Match up the playground equipment to their names What if a real playground was made out of paper? What have they learnt in this DT unit? Knowledge learnt so far. Looking at joining materials in EYFS using glue and tape. Using different thicknesses of paper. Where do we go next? Making bridges in Y3. Looking at strengthening structures.	
Lesson Guide		Key Vocabulary
1. POP Task What different playground equipment can you think of? To explore different designs Show the DT processes poster. Focus on need and explore		Structure Sturdy Strengthen Rigid Smooth Slippery Handle

Learn

Explain that we are going to make a sturdy structure using the idea of playground equipment. What does sturdy mean? Explain

We are going to visit a local park - what playground equipment do you think that we will see there?

Introduce Charles Wicksteed – he invented the swing and the slide. He also created Wicksteed Park which is still in Lincolnshire today. Refer to his work through the unit.

Respond

Take the children to the park. At each structure, discuss the shape and materials that it is made from.

Ask the children what makes it a good slide/ swing etc. What are the features? Take photos of the equipment.

Reflect

What did you find out about the play equipment at the park? Feedback

2.

POP Task

What joining techniques do you know? Refer to previous learning.

Learn

Model different ways of shaping and joining materials. Model tearing, cutting, folding and curling paper

To practise different shaping and joining skills

Practical session – photos on Seesaw.

Respond

Use paper and card to cut, tear, fold and curl. Discuss which would be best for strength and making our structures sturdy.

Ask the children how we can join the materials together. Discuss glue and cellotape, Look at using a hinge.

Can the children suggest their own ideas?

Reflect

Which techniques will they use in their structures?

3. To think of ideas for a design.

POP Task

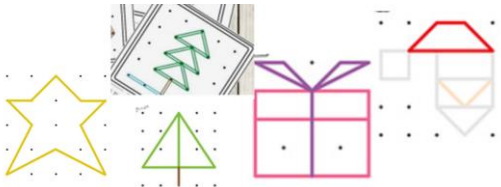
Seat
Frame
Hinge
Join
Attach
Tearing
Cutting
Folding
Curling
Prototype
Inventor



Match the playground equipment to their names. Show the DT processes poster. Learn Choose two pieces of playground equipment. Think about the features and label. What are the properties? When they have chosen the final design, explain how they will make it and what equipment they will need. What makes it a good slide/swing/seesaw? Respond Draw diagrams in books and annotate. Think about which one will be their final design – why have they chosen that design? Reflect Discuss their designs with a partner – why have they chosen their final design? British Value – Individual Liberty To make a prototype When they have completed their design, then move onto making a prototype. Will their design work? What do they need to change? Make any changes on their design. Take photos on Seesaw.	
4. POP Task What if a real playground was made out of paper? Learn To make their product. Show the DT processes poster. Children are to use their designs and think about the prototypes. Recap shaping and joining techniques – look back at their work. Model again where necessary. Show a piece of playground equipment already made - what are the shaping and joining techniques used? Respond Make the structures - ensure that they are sturdy. Can the structure be free standing? Use techniques to shape and join the materials. Add a hinge, if required to make the structure more sturdy. Make any modifications when required.	

Reflect and challenge What could you use to attach if there was no tape? Christian Value – Perseverance.	
5 POP Task What have you learnt in this DT unit? Explain learning to a partner. Learn To evaluate a product. Show the DT processes poster. Discuss with a friend what has gone well with their design. What could they improve on? What would they change about their design? Is the structure sturdy enough? How could they have strengthened it? Respond Written evaluation, with prompt questions. Reflect How could you use these skills again? Christian Value - Truthfulness	
Feedback:	

Year 2 Autumn Term Can I use wood skills to create a product?	
Knowledge to be taught: To understand how to hammer a nail into wood To understand how to screw into wood To recognise the effect of force on the objects To identify and observe safety issues with wood skills. To learn about famous architects.	POP Tasks Where do you see woodwork? Think about woodwork used in the past. Think about the Bible and the Egyptians. Which tools would we need to use for woodwork? Show a variety of tools and then choose the most suitable. What would be appropriate Christmas designs? Think simplicity for the product. Show two designs. Which would be the most effective and why? Odd one out. Different nail/screw pictures. Explain why. Look at a wooden product. What do they like? What could they change?

	Optional pop task – What is an architect? Achievements of architects/innovators What do we already know? Attaching materials together using glue and tape Where will we go next? Measuring and cutting dowel at the end of Y2, then cutting with more precision and thicker wood in Y4.
Lesson Guide	Key Vocabulary
1. Pop task Where do we see woodwork? Explore Explore woodwork in the past – look at how Egyptians and people in the Bible used wood to make products. Learn To explore different products. Show the DT processes poster – talk through. Look at different wooden products on the tables. Wooden games, coat hooks. If you can't get actual items, then use pictures. What are they made out of? Can they see any other parts? What are they made out of? What do the attachments do? Learn Create a mind map of the different products – answer the questions above and also state preferences and reasons. To learn about famous architects Discuss early use of wood and carpenters – ie Noah building an Ark. Links to DT and History (During History topic) Learn about Christopher Wren and Norman Foster. Read age appropriate text about their lives and work. Can they link their work in class? Discuss how buildings were made of wood in the time of the Great Fire. Discuss how constructing buildings have moved on. Reflect When is wood a good material to use for products and when is it not a good material?	Nail Hammer Force Attachment Screwdriver Strong Sturdy Architect Prototype centimetres 
2. POP Task Explore	

Which tools would we need to use for woodwork? Show a selection of tools – which would be suitable?

Learn

To practise wood skills.

Show the children what they will be making. Explain that it will be a Christmas decoration for someone at home.

Practical session – photos on Seesaw

Model the wood skills first - hammering.

How much force do they require? How can they ensure that they are hammering into the correct place?

Discuss Safety

Respond

Children will have different stations in the classroom where they will practise hammering nails into wood.

Other stations can focus on the key innovators/architects

Keep reminding children about the points raised in the **Learn** section.

Reflect

What made the skills easier? Did you make any changes on how you used the hammers?

3.

To generate ideas for a design

POP Task

What would be an appropriate Christmas designs? Think simplicity for the product.

Explore

Show photos from their woodwork lesson. What skills did they learn? How can they use them in the project?

Learn

Show DT processes poster.

Explain again that the children will use their wood skills to generate a Christmas decoration. The nails/screws will be hammered/screwed into the wood and elastic bands will create their chosen design.

What is the purpose of the product? Where will the nails be positioned? Can the children measure the distance between using cm?

Respond

Use Geoboards to aid the planning process.

Draw diagrams of the products and annotate.

Think carefully about where the tacks need to be and add measurements in cm.

Christian Values – Friendship and Respect – helping each other with the wood skills and positioning of the nails.
British Value – Individual Liberty

Reflect

Which designs look the most effective? Think of simplicity when creating the product.

4.

POP Task Explore

Show two designs. Which would be the most effective and why?

Learn

To choose a final design.

Looking at the designs from the previous session, select a final design. Why have they chosen that design? What equipment will they need? What techniques? How will it be used?

Encourage the children to think of the size of their product.

British Value – Individual Liberty

Respond

Children select a final design – give reasons why they have chosen that design.

Annotate discussing their equipment and techniques.

To make a prototype.

Children to make a prototype – will their design work? What changes do they need to make?

Edit their designs where necessary.

Give reasons why improvements need to be made.

Reflect and challenge

What could they use if they had no elastic bands?

5.

POP Task Explore

Odd one out. Different nail/screw pictures. Explain why.

Learn

To make a product.

Show the DT processes poster

Practical sessions – photos on Seesaw Explain how they are going to use their designs to move onto the making phase. Where should they start? What skills will they use? How will you make the product effective? How would they change things from their prototype? Respond Children to use their designs and the prototype to move onto making their product. Observe safety measures when hammering. Modify ideas and designs through the making processes. Can they add decoration to their product so that it looks more appealing? Reflect What has gone well with their product? Share their product with a friend. Christian Value – Perseverance.	
6 POP Task Explore Look at a wooden product. What do they like? What could they change? Learn To evaluate a product. Look at their products – discuss with a friend and explain how they created their decoration. Think about the evaluation questions and model possible answers. Does their product fit the purpose? What techniques did they use? What went well? What improvements would they make? Write evaluations in books, or record using Seesaw. Respond Children to answer these questions in relation to their own products. Reflect What have they learnt in this unit. How has this built on their learning from Y1 in DT and what will they use in future year groups? Christian Value - Truthfulness	
Feedback:	

Year 2 Spring Term How can I use wheels and axles to make a vehicle?		
Knowledge to be taught: To know what an axle is. To know the function of wheels and axles. To know how wheels and axles are used in vehicles To construct a suitable chassis	Ideas for pop tasks What vehicles/machines can you think of? What are the moving parts? Label the parts of the vehicle, using the language from the previous lesson. Explain how the mechanism works on the vehicle. Use the technical terms - chassis, wheels, rotate, force, axle. Show something that is wrong ie the axle isn't straight– can they explain? What would the effect be? Can they explain? Think about the sequence of making a toy car. Watch video https://www.youtube.com/watch?v=STI3JCwdOIY True and False statements. The part that rotates is called the base. The part that rotates the wheels is called the axle. Can they think of other products with wheel/cogs that are not vehicles?	
	What do we already know? Explore moving parts in EYFS and Year 1 using split pins Used levers in Year 1 to make a moving card.	
	Where are we going next? Mechanics in Year 3 – pulley system. Year 5 – Mechanics using cams	
Lesson Guide		Key Vocabulary
1. To explore different products. Explore What vehicles/machines can you think of? What are the moving parts? Learn Show DT processes poster Have a selection of vehicles on the tables. What are the features? What features are the same and what are different? What do you like about certain vehicles? What features are you not so keen on? Make the focus about the wheels and how they turn on the axles. Ensure that the children are using the correct vocabulary – wheels, axles, rotate Respond Record ideas in DT books using the questions to generate feedback. Design a mind map, selecting some of the vehicles and record.		Wheel Axle Rotate Force Mechanism Attach Chassis Prototype

Watch the video on how to make a toy car. Some parts may not be appropriate but it shows the key features and steps to follow.

<https://www.youtube.com/watch?v=STI3JCwdOIY>

Reflect

Write down 5 things that you know about the parts of the vehicles.

2.

Explore

Label the parts of the vehicle, using the language from the previous lesson.

Learn

To generate ideas for a design

Show the DT processes poster.

Remind the children of the design brief. Choose 2/3 designs that they would like to make.

Which vehicle would you like to make using wheels and axles?

What features will your car have? How can you make it original and innovative?

Look at the size of the wheels - think about the size of the chassis.

Respond

Children to draw 2/3 designs in their book. Annotate their designs to explain. Add as much detail as possible and use the appropriate language linked to vehicles.

Reflect

What would happen if the wheels were the wrong size for the chassis/vehicle?

3.

Explore

Explain how the mechanism works on the vehicle. Use the technical terms - chassis, wheels, rotate, force, axle

Show something that is wrong ie the axle isn't straight- can they explain? What would the effect be?

Learn

To choose a final design.

From the designs that they have created, choose which one they would like to make.

Label their final design with the different features and include information about what materials they would like to use. Can they think of any features to add that would make their design original?

Estimate measurements to the nearest cm.

Respond

Draw their final design in detail. Add the materials that they are going to choose and the measurements.

Explain why they chose that design – what makes it original?

Reflect

Explain their designs to a learning partner. Explain choices and how they are going to make their product.

If time, make a prototype.

To make a prototype.



Ask the children to have a practice try and make their vehicle. This way they can ensure that the chassis size is correct when matched with their choice of wheels and axles.
Adapt and change designs where necessary – give reasons for improvements.

4.

To look at the manufacturing process.

Explore

Watch the video again about making a toy car. (relevant parts)

<https://www.youtube.com/watch?v=STI3JCwdOIY>

Learn

Think about the order of the manufacturing process. What will they do first, next, after, finally?

Use pictures and out them in the correct order. Discuss the reasons for the order.

Respond

Children use a flow chart to draw the manufacture steps. Draw the pictures of each stage and write a simple sentence. First, we will Next, we will Then, after that and finally.

Reflect

Put some of the pictures in the wrong order. What would happen if we didn't complete the steps in the right sequence?

5. To make a product

Explore

True and False statements. The part that rotates is called the base. The part that rotates the wheels is called the axle.

Learn

Practical sessions – add photo onto Seesaw.

Show the DT design processes poster. Explain the processes covered so far.

Explain that they are going to use their designs to make a vehicle that uses axles and wheels.

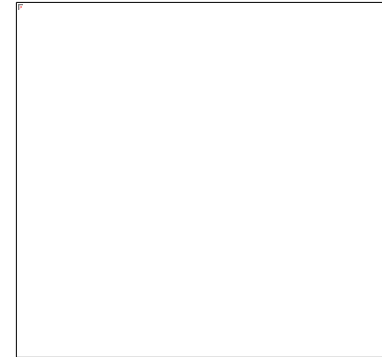
Use their prototype to ensure that they add any necessary changes to their final design.

Respond

Each child to make their own vehicle. Select the materials required and measure to the nearest cm. Cut and attach the materials, ensuring all of the features of the vehicle are shown.

Refine work and techniques as work progresses.

If time, add any decoration to the vehicle, is painting. Add materials for the lights.



Reflect Show your learning buddy. What do you like? What went well when you were making it? Is there anything that could be improved. This will be preparation for the evaluation. Christian Value – Perseverance.	
6. Explore Can they think of other products with wheel/cogs that are not vehicles? Learn To evaluate a product. Look at the products that they have made. Think about the appearance of their vehicle. How well does the car move? Are the sizes of the chassis, axles and wheels appropriate? What do they feel went well and what do they wish that they had done differently? Talk to a friend – what do they think about the vehicle. Respond Record evaluations in books, based on the above thoughts and conversations. Or record feedback on Seesaw. Add as much detail as possible. Reflect How could they use their learning in other projects? Christian Value - Truthfulness	
Feedback:	

Year 2 Summer Term Can I make a healthy drink?	
Knowledge to be taught: To understand the need for safety and hygiene when preparing food. To know how to chop ingredients. To select appropriate ingredients. To select appropriate amounts of ingredients- measure in cups or spoons To understand textures in food.	Possible POP Tasks What do we mean by healthy? What do you know about different food groups? How can you prepare fruit to go into a smoothie? What is food hygiene? How can we practise this in our DT lessons? What would make their smoothie look appealing? What would make someone choose it in a café?

	What are the different parts of the DT process? What do we already know? Simple food preparation skills in EYFS Where will we go next? Measure in grams in in Year 3, making healthy, granola bars. Also preparing ingredients and adding them in the correct sequence. Understanding the effect of cooling on ingredients.
Lesson Guide	Key Vocabulary
1 To explore products. Show the DT processes poster and explain. Explore What do we mean by healthy? Think about food groups – what do the children already know? Learn Use Handa’s Surprise as a starting point. Discuss different fruits - why are fruits healthy? Which fruits can we grow in this country? Why are many fruits grown in other countries? Explain that this unit, they will be making a healthy smoothie for their friends. Explain what a smoothie is. Respond. To look at a range of smoothies. What is the appearance like? What does it smell like? What does it taste like? Which ingredients do you think are in the smoothies? Fill out a questionnaire- ask friends about preferences Reflect What have you learnt about smoothies today? What would be the Success Criteria to a good smoothie?	Snack Healthy Chop Slice Peel Smoothie Blend / mix https://www.foodafactoflife.org.uk/5-7-years/healthy-eating-5-7-years/ 
2. To generate ideas for a design. Show the DT processes poster. Explore How can you prepare fruit to go into a smoothie? Discuss in TP and feedback. Learn	Safe technique for chopping

Explain the task of designing a product. Model how to draw their annotated designs – include ingredients, how they will prepare them, how many of each fruit? Which combinations of fruits do they think will work well together? Can they use cups or spoons to measure?

Respond

As a small group, choose a smoothie that they would like to make. Write a list of the ingredients that they will need. What techniques will they use to prepare the fruit? Add measurements in cups or spoons. Record ideas in their books.

Reflect

Each group to share their designs with other groups. Children to comment about what they like about the designs of other groups?

British Value – Democracy / Tolerance and Respect

3.

To choose a final design.

Explore

What is food hygiene? How can we practise this in our DT lessons?

Learn

From their designs, select the fruit and smoothie that they would like to make. Explain their choices. Is it healthy? Will it look appealing and taste good? Model how to prepare the ingredients.

Respond

To make a prototype.

Watch the clip to demonstrate chopping techniques.

<https://www.youtube.com/watch?v=mvJSPbAQNZ4>

Make a prototype smoothie– are they happy with the colour, smell and taste? Do they need to modify the ingredients/amount that they put in? Practise measuring using different sized spoons. Use peeling, chopping techniques

Change the design if required – give reasons for modifications.

Reflect

Explain why they are happy with their final designs. Did they make any changes?

Christian Value – Perseverance and Thankfulness

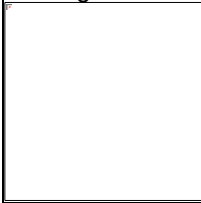
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To make a healthy snack.



Show the Design processes poster. Explore What would make their smoothie look appealing? What would make someone choose it in a café? Learn Discuss learning so far. Recap food hygiene. Describe how to make a smoothie – how should they prepare the ingredients? Model how to measure using cups or spoons. Talk through the children’s designs Respond Photos on Seesaw. Remind the children about hygiene and safety when preparing food. Children are to use their designs and make their smoothie. Think about any changes that they should make, after creating their prototype. Measure using cups or spoons. Carefully prepare the fruit using peeling, chopping and cutting. Reflect Why should we be thankful for our food? Christian Value – Perseverance and Thankfulness	
5 To evaluate a product Explore What are the different parts of the DT process? Learn Talk about the importance of an evaluation. Children are to think about their smoothies -What went well? - What could be improved? - Did the smoothie fit the purpose of the task? - Can they describe the techniques used? Record the evaluations straight in books. Respond Give the children some prompt questions so that they can answer evaluation questions in their books. Answer as fully as possible. Reflect	

How could you use the techniques that you have used in other food units? Christian Value - Truthfulness	
Feedback:	

Year 3 Autumn Term How can I make a structure suitable for a bridge?	
Knowledge to be taught: To understand the function of a bridge. To be able to identify different ways to strengthen a structure. To learn about a famous architect.	POP Tasks How did they make a structure in Year 1? What did they use? What is a bridge? Show pictures – bridge or not. Decide on a definition. Can they remember the different types of bridges? Match the names to the bridges. What is an architect? Can you name an architect? Why is a bridge important? What if a real bridge was made of straws and card? Odd one out - Use different pictures of bridges. Which one is the odd one out and why?
	What do we already know? Joining materials in Y1 Making a structure sturdy using tape and a flange 
	Where we will go next. Making structures that stand up on their own, using wood in Y4. Making a wooden structure in Y6
Lesson Guide	Key Vocabulary
1. POP Task Explore How did they make a structure in Year 1? What did they use?	Bridge Rigid Structure Properties

What is a bridge? Ask the children for their ideas. Show pictures – bridge or not
Think of a definition for the word “bridge.”

Respond - let the children explore and then learn afterwards

Practical session

Ask them to work in pairs/small groups and make a bridge out of lego. Share designs – what made them create those particular designs?

What do you think that an ideal bridge should be like? Use the ideas to generate a design criteria.

Why does a bridge need to be strong and rigid?

Watch video about what makes bridges strong: <https://www.youtube.com/watch?v=oVOnRPefcno>

Then discuss that variety and originality is always good in designs.

<https://www.youtube.com/watch?v=5C3VG0RdNPo> This video discusses the different types of bridges that we are going to research : Beam Bridge, Arch Bridge, Suspension bridge, Cable stay bridge.

Learn

What do you think that an ideal bridge should be like? Use the ideas to generate a design criteria.

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Then discuss that variety and originality is always good in designs.

<https://www.youtube.com/watch?v=5C3VG0RdNPo> This video discusses the different types of bridges that we are going to research : Beam Bridge, Arch Bridge, Suspension bridge, Cable stay bridge.

Explain that they are going to making their own bridges. It will need to span 40cm and hold 100g.

Make out of various material such as card, art straws

Reflect

Think back to the learning that they did in Year One, when they made structures. How can their learning be extended? Thinking of a variety of ways to strengthen their models, rather than just adding more tape.

Christian Values – Friendship and Respect

British Value - Tolerance and Respect

2.

POP Task

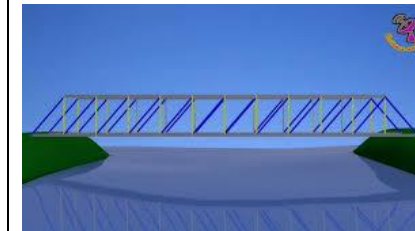
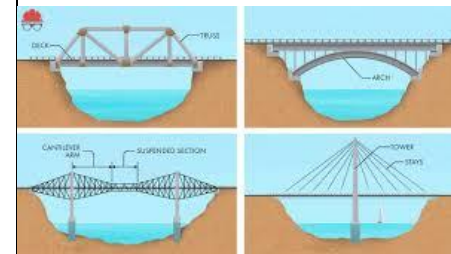
Explore

Can they remember the different types of bridges? Match the names to the bridges.

Learn

To explore different designs.

Architect
Beams
Columns
Balanced
Truss (triangular components)
Prototype



Show the DT processes poster Show the children some pictures of bridges. Can they remember the different names? How are the designs different? What features can they see on the bridges? Respond Use ipads to research different bridges. Make notes in DT books about 3 different bridges. <i>Give pictures if required.</i> What type of bridge is it? What is the location? How long is the bridge? What's the purpose of the bridge? Which materials have been used? What design features can you see? Reflect Tell their friend facts that they have learnt about bridges. Feedback as a class	
3. POP Task Explore What is an architect? Can they name an architect? Learn To learn about famous architects Show a picture of Sydney Harbour Bridge. Watch the video clip - https://www.youtube.com/watch?v=Jy5cZ-IO0Eg What do you notice about the style? What type of bridge is it? What do you like/dislike about the bridge? Show a picture of the architect – John Bradfield. Respond As a class, read a piece of text about John Bradfield and the bridge. Echo and Choral read. Make a comparison with Zaha Hadid, who is a female architect. She designed the Sheikh Zayed Bridge in Dubai. To generate ideas for a design. Show the DT processes poster Thinking about the design criteria – in pairs, think of 2/3 designs for making their own bridge. Draw their designs in their books and annotate. What type of bridge is it? Can they explain their choices? Which materials could they use? Why would they choose those materials? What part of the structure will strengthen it? Beams? Columns? Trusses? Is the structure balanced? Think about layering card to strengthen. Watch the clip about making structures sturdier.	

<https://www.youtube.com/watch?v=sPhuwXB1ZLM>

Reflect

Why are John Bradfield and Zaha Hadid great architects?

4. **This may all need to be covered over 2 sessions**

POP Task

Explore

Why are bridges important?

Learn

To choose a final design.

Show the DT processes poster

In pairs, the children should look through their designs. Which design would be the most suitable bridge and also follow the design criteria – 40cm span and hold 100g weight?

Why have they made this choice? Which design is the most innovative? Can they link the design to the architect covered?

Respond

Children to draw their final design. Add annotations describing the equipment required, measurements, ways to strengthen the bridge, how the designers have influenced their designs.

British Value – Individual Liberty

To make a prototype

Ask the children to make a prototype bridge. Whilst doing this, modify their designs where appropriate. Were the materials suitable? Will the bridge be strong enough? What do they need to change? Give reasons
Can they add layers of materials to strengthen?

To plan

Children to use diagrams and captions to plan out the process of making the bridge. What order will they use, what equipment and materials will they use? Include measurements.

Reflect

Reflect on their designs. What will they change when they make their actual bridge? Discuss with a partner.

Challenge – What if they had no tape to fasten the materials together?

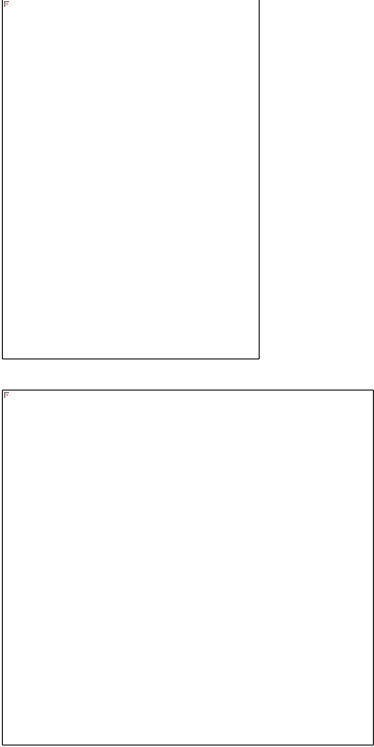
5.

POP Task

Explore Odd one out - Use different pictures of bridges. Which one is the odd one out and why? Learn To make a structure. Discuss designs made. Model techniques that the children will need to use. Discuss how to evaluate as their go along. Is this working? What could I do to improve this design? Respond Children are to use ideas from their designs and their prototype, in order to make their structure. Think about any modifications that were needed. What materials and tools do they need? Which techniques are required? Work with a pair to create their bridge. Have the design criteria on show. Refine techniques as work progresses. Reflect Test out their bridges with the weights. Are the bridges sturdy enough/strong enough? If not, what could they have changed? Christian Value – Perseverance, Friendship and Respect.	
6. POP Task Explore What if a real bridge was made of straws and card? Learn To evaluate a product against a design brief. Look at the DT poster. Which stages have they completed? Which stage should they move onto? Explain that they have been evaluating through the process as well. Pupils to be reminded of the initial design brief. Explain that part of any design project is the evaluation stage where the success is considered, and possible improvements identified. Show the questions / headings that will form their evaluation: Discuss the questions and possible answers. Description of the product I designed and made. 1. Who this product would be useful for.	

2. Why I chose these specific materials. 3. Ways in which my product is successful. 4. How the product could be developed or improved. 5. Problems or difficulties I had to solve. 6. What I have learnt from doing this activity. 7. Other places I could use these new skills. Respond Pupils to write their evaluations in their books, focusing on answering the questions. Think carefully about their bridge. Christian Value – Truthfulness Reflect How did your work link with the architect's designs?	
Feedback: .	
Year 3 Spring Term Can I make a healthy granola/cereal bar?	
Knowledge to be taught: To understand food groups. To recognise healthy food choices. To measure ingredients in grams. To combine ingredients in the correct sequence. To recognise the effect of cooling ingredients.	Ideas for POP tasks What are the different food groups? Highlight cereal/grains group What is granola? Based on oats, nuts and honey, variations include dried fruits, seeds and other whole grains, all gently baked together until crisp. Why do the granola bars have honey in them? What units can we use to measure ingredients? Model how much a small amount of something weighs in grams, so that they can confirm their choices in their final design. Where do we get grains from?

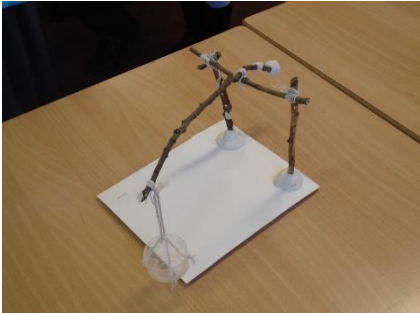
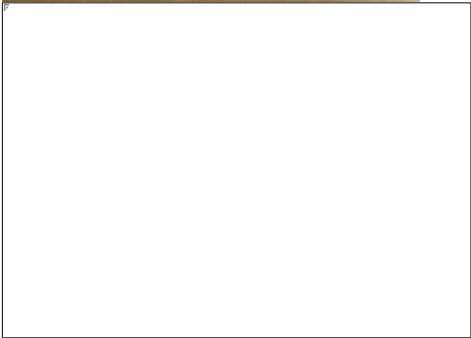
	What is the effect of cooking ingredients, as opposed to just chilling them? What do we already know? Looking at fruit as a healthy food choice. Selecting fruit to make a healthy smoothie in Y2. Where are we going next? Measuring ingredients more accurately in grams when making pizzas in Y4. Looking at the effect of heat on ingredients. Y6 – looking at the use of micro-organisms in food – yeast in bread. Kneading, proving and baking bread.
Lesson Guide	Key Vocabulary
1. To explore different products. Explore What are the different food groups? Highlight cereal/grains group. What is granola? Based on oats, nuts and honey, variations include dried fruits, seeds and other whole grains, all gently baked together until crisp. Learn Explain that they are going to make a healthy granola/cereal bar. Granola is rich in protein and fibre. What do we mean by a granola bar? Show examples of different bars. What are the main ingredients? How can you ensure that it is healthy? Share DT poster and discuss the different phases. Model the respond part of the lesson. Respond Mind map – choose a cereal bar and discuss appearance, smell, size. What ingredients can they see? Taste test – (check allergies) Describe the taste. Record ideas in books using diagrams and annotations. Reflect	Ingredients Granola, Oats Raisins Sultanas Cranberries Honey Healthy Prototype Chilled Grams Non cook granola bars https://thebakermama.com/recipes/5-ingredient-granola-bars/#tasty-recipes-14585-jump-target

What have you learnt about cereal bars/granola bars? <i>Learn about an innovative female chef – Andi Oliver. Look at her life and work.</i>	
2. To create designs Explore Why do the granola bars have honey in them? To bind the other ingredients together, as a natural sweetener. Learn Show the DT design processes poster. Share a simple recipe for granola bars. (see resource) These don't need baking, just chilling in the fridge to solidify. What granola bar would they like to design? They would need to have granola/oats as a base and an ingredient to bind the mixture together (honey) What other healthy ingredients can they think of that would make their granola bar healthy and tasty? Model drawing and annotating. Think about the size of the granola bars that they explored. Would they like theirs to be a similar size? Respond Children should think about 2/3 designs for their own granola bars. Draw and annotate their diagrams. Describe the ingredients that they would like to incorporate into their granola bar. How thick would the bars be and length in cm? Reflect Share their designs with a partner. Which design would their partner recommend? This will advise them on a final design.	
3 To choose a final design. Explore What units can we use to measure ingredients? Model how much a small amount of something weighs in grams, so that they can confirm their choices in their final design. Learn Look at a couple of designs and discuss which could be a final design. Model how to give reasons. Look at the simple recipe again On the board, draw their final design and annotate, then use a simple diagram to record the making process. First,Then Next. Adapt the recipe as required.	

Respond Look at their different designs – which design would be the best for their own granola bar? Explain choice Draw final design and use annotations describing the ingredients and measurements (length in cm and weight in g) Use a simple diagram to describe the sequence of how they will make their granola bar. Use terms from the recipe to help. Reflect Would it make a difference if they followed the steps in a different order? British Value – Individual Liberty	
4 To make a product. Show the DT poster Practical session – photos on Seesaw Explore Where do we get grains from? Grains are harvested from dead, or dry, grasses. Learn Look at a chosen final design of a granola bar. Discuss the steps on how to make that bar, thinking about the correct processes and the ingredients that need to be added. Model how to follow the recipe/process and make the bars. Discuss food safety and hygiene. Respond Children to read through their diagram that describes the making process. Follow the instructions to make their granola bars. Put in the fridge to chill for 30 minutes, or longer if necessary. Taste test their granola bars and take some home. Reflect What is the effect of chilling the granola bars. Discuss their end products with a partner. Christian Value – Perseverance.	
5 To evaluate a product. Explore What is the effect of cooking ingredients as opposed to chilling them? Learn	

Show the DT design processes poster. Which stages have they completed? Explain that they have evaluating through the process. Children to think about their final product. Refer back to the initial questions when they were planning their designs. Give an overview of their designs. What went well through the process? What would they do differently? Can they discuss a problem that they overcame? Model how to answer questions. Respond Write evaluations in books, using prompt questions. Answer as fully as possible. Reflect What would they like to make at home next time, maybe using some of the skills practised? Christian Value - Truthfulness	
Feedback:	

Year 3 Summer Term Can I make a mechanism to lift a pot of water?	
Knowledge to be taught: To understand what a mechanism is. To know what a pulley is. To know the history of pulleys. To understand how a pulley works,	POP Tasks What is a lever? When did they use levers? Show a real pulley. Talk to a partner. What is it? Does anyone know what this might do? Which lever / pulley system could be the odd one out? Explain your ideas. Where would you see lever /pulley systems in everyday life? Have a pulley design on the board, that has something wrong. Ask the children to spot the problem. How would this affect the pulley system? What are the different stages on the DT poster? What have they been learning about in this unit? Which skills have they covered? What do we already know? Mechanisms inY1 - using a simple lever in a moving picture. Wheels and axles in Y2, when making a car. Where are we going to next?

	Cam toys in Y5
Lesson Guide	Key Vocabulary
1. Explore What is a lever? When did they use levers? Show a real pulley. Talk to a partner. What is it? Does anyone know what this might do? Learn <i>To understand the history of pulleys and levers.</i> What is a mechanism? Look at the work of the Ancient Egyptians, who built the early pulley and lever systems. Talk about the word Shaduf, which describes the early lever mechanism. Share with the class a piece of age appropriate text about these mechanisms. Explain that the children are going to make their own mechanism, that will need to be able to lift a small pot of water. Look at pictures of different levers / pulleys or examples in school. Have a quick chat about how they make work before letting the children explore. Set some prompt questions. How do you think this would work? What would this part do? Respond <i>To explore products.</i> Have pictures of levers / pulleys on show. Use the simple pulleys in school. Wheels and string over hooks on a piece of wood. Look at examples of levers and how they lifted heavy loads. Complete mind maps for two of the designs and answer questions: What do they like about the designs? What would they like to know more about? Which features are they not so keen on? Reflect Feedback ideas about the different designs. Do your opinions match others, or are they different?	Pulley Grooved wheel Circumference Rope, belt or chain Change direction Force Load Lever Gear Pivot Prototype 
2. <i>To generate ideas to fit a brief.</i> Explore Odd one out. Which lever / pulley system could be the odd one out? Explain your ideas. Learn	

Show the DT design processes poster. Explain that the children need to try and design a mechanism using the equipment. How will it work? What tools/resources will you need? What would the pulley look like and how it works? Children should draw 2 diagrams in their DT books and annotate. Add labels and potential measurements, measuring to the nearest cm. Reflect Share their designs with a friend and explain them Christian Values – Friendship and Respect British Value- Democracy/ Tolerance and Respect	
3. To explore how to use the equipment and make a prototype. Explore Where would you see lever / pulley systems in everyday life? Learn Look at the DT poster Practical session on Seesaw. Explain that they are going to use equipment to make simple prototypes of their designs from the last session. Use art straws, string and other equipment, create structures that could lift a small pot. Use small pulleys and lift small objects in bags, as an example as well. Respond Children to work in pairs/small groups to make a simple prototype. During this process, the children can easily change materials/change parts of their ideas/design. Does their design work? Is it able to lift a small pot? Could they make any adaptations? Reflect Think about how they had to adapt their design, ready for a final design. Christian Value - Truthfulness	
4. To choose a final design Look at the DT poster and discuss the processes. Explore Have a lever / pulley design on the board, that has something wrong. Ask the children to spot the problem. How would this affect the system? Learn Looking at the previous designs and the prototypes from the previous session, the children should select a final design. Look at photos on Seesaw of their prototypes. Why have they chosen this design? How is it better than the other designs?	

Can they add measurements? For the pulley, how long would the rope need to be? Look at the difficulties of measuring rope/string.
Measure to the nearest cm, but with more accuracy.
How long will the straws/pieces of dowling need to be, if they are going to become a structure for the pulley/ lever?
Model ideas for drawing a final design

Respond

Children look at photos of their prototypes on Seesaw. Talk about what went well and how they had to make adaptations.

Make a decision on a final decision for a final design.

Draw their design, adding equipment and measurements.

Write out the ordered method of how they will make their lever structure / pulley.

Reflect

Look at a method. What happens if you do something in a different order?

5

To make a product.

Explore

What are the different stages on the DT poster?

Show the DT processes poster and discuss each stage. Why is each stage important?

Learn

Practical session - photos on Seesaw.

Using their final design and any amendments that have come up, through creating their prototype, the children will make their final product. Discuss the processes and model measuring accurately.

Highlight and address any issues or difficulties that the children have experienced.

Respond

Children are to make their own mechanism.

Look at their final design and their method.

Select the correct equipment and tools. Think carefully about the measurements that they have chosen.

Start measuring and attaching the materials.

Reflect

Test their pulleys. What has gone well and what could be improved?

Christian Value – Perseverance, Friendship and Respect

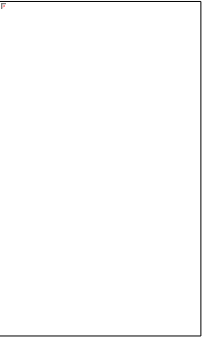
British Value – Respect/Tolerance

6 **To evaluate a product.**

Look at the DT poster. Which stages have they covered? Explain that they have been evaluating through the process.

Explore What have they been learning about in this unit? Which skills have they covered? Learn Look at the mechanisms made by the children. Model how to carry out an evaluation. Refer back to the design brief. Does the product fit the criteria? Look at prompt questions that would help the children with their evaluation. Model how to answer the questions fully. Respond Children to move onto their evaluations. This should be written in books. Alternatively, record feedback on Seesaw. What went well? How could the design have been improved? What made them choose that design and mechanism? What problems did they need to overcome? Reflect How would they use these skills in other projects? Christian Value - Truthfulness	
Feedback:	

Year 4 Autumn Term How can I make a free -standing photo frame?	
Knowledge to be taught: To make a free standing structure. To make a slot in the structure. To saw wood at an angle. To join pieces of wood.	POP Tasks How have they joined materials in other year groups? What does free standing mean? Odd one out - Look at different photo frames – which one is the odd one out and why? True or False, eg. you can stick the wood together with cellotape? The wood needs to be sawn at an angle. What are the different DT processes?
	What do we already know? Wood skills in Y2 - approximate measuring and hammering Joining materials - card and art straws, glue and tape.Y1 and Y3 Strengthening structures – Y1 using tape and flanges, Y3 layering card, using trusses.

		Where we will go next. Making a wooden structure in Y6, using wood skills – hammering, sawing and screwing.
Lesson Guide		Key Vocabulary
1. POP Task Explore How have they joined materials in other year groups? Learn To research free standing structures. Show the DT processes poster. Explain that they are going to make a free- standing photo frame for someone in their family. Explain the term – free standing. Explore other free- standing structures – mug tree, music stand, tripod. How are they standing up? Why is it important that they are strong and stable? What would happen if the music stand had two legs instead of three? Highlight the fact that some products are made stable by having a wide base. Respond Show the children a variety of photograph frames and ask them to identify how they are able to stand up. Ask the children to compare the frames in terms of different features eg. how it stands up, how it looks, how easy it is to put a photograph in, how well it displays the photograph. Who would use it? What kind of picture is it for? Where would it stand? Provide opportunities for children to discuss the component parts of the frames and what each is for. Ask the children to draw one or two of the frames from different views and to label the component parts and their purposes. Discuss the frames in terms of the children's favourites and who might like the style of different frames eg child, grandparent. Complete a mind map in their books to analyse their findings using the prompts above. Reflect Compare children's likes and dislikes. Are there any particular trends that are popular?		Free standing Slot Joining Base Balanced Components Joins Dimension Saw Angle Millimetre Perimeter Prototype Modification 
2. POP Task What does free standing mean?		

Explore Talk about the learning that the children did in Year 3, looking at strengthening structures. They will have looked at using different layers and adding new components. Learn To explore different techniques Practical lesson In Y4, they will extend the learning by using wood and having a stronger, wider base. Have different stations. Photos on Seesaw. Demonstrate to the children ways of stiffening paper and card eg by rolling, folding and layering and encourage children to explore these along with different methods of joining. Model the different techniques and activities to the children. Respond Ask the children to investigate ways of making free-standing structures from a limited number of pipe-cleaners. Provide the children with a small piece of board and ask them to investigate ways of making it stand up using paper. As the children will be using wood this time, have a station where they can practise sawing wood at an angle. Use the resources to cut wood at an angle. This is an extension from Y2 where the children just saw a piece of dowling. Reflect Which learning will they take from this session and use in the making of their product?	
3. POP Task Explore Odd one out - Look at different photo frames – which one is the odd one out and why? Learn To generate ideas for a design. Show the DT processes poster. Children to create designs for a free standing photo frame Think about who their frame is being designed for eg the style of frame /a gift for a relative or friend. With the children, list some shared criteria. What will your frame need to do in order to be successful?	

Encourage the children to consider how they are going to make their frame a stable structure and how the photograph will be fitted into the frame. How will you make it stable? How will it stand up? Where are the weak points? How could you reinforce them? Can they add suitable measurements?

Respond

Ask the children to draw and label how they would like their design to look considering the basic frame shape that they will be given and the user's preferences in colours and designs, as well as how it will stand up.

Annotate with equipment, skills, joining techniques, measurements.

Think about individual embellishments for their design.

[British Value – Individual Liberty](#)

Reflect

Share their designs with a friend and discuss how they think that it will be made.

4.

POP Task

True or False?

A smaller base is best to make structures more stable

To reinforce a join you must take materials away

Photoframes can have different stands

Explore

To choose a final design

Show the DT processes poster. Talk about the processes covered so far.

Learn

Choose a design that one of the children has thought of. Explain how to draw a front, side and back view of the photo frame. Model how to annotate the diagram, focusing on the choice of design, equipment, measurements – to the nearest mm, techniques used, embellishments

Model how to plan the process. Use diagrams and captions to show the sequence of making the photo frame

Respond

Choose a design that they would like to make. Draw a diagram in their books. Annotate and add detail to the diagram, including measurements to the nearest millimetre. Explain choice of design and how the frame will stand up. Add techniques on how it will be made. How will the slot be added to the frame?

To make a prototype.

To check that their design is covering the design brief, make a prototype out of card.

Do the measurements work? Will the structure be stable and strong? Does the slot for the photo work?

Make modifications to their design, where necessary. Stick their prototypes in books. Plan Draw diagrams and captions to plan out the process of making. Ensure the correct order of the process. Add measurements and detail to their diagrams. Label the equipment required. Reflect Challenge – what if the photo frame won't stand up on its own? Show a different order to the processes – What if we cut the wood, before measuring? What is wrong with the order?	
5. POP Task Explore True or False statements, eg. you can stick the wood together with cellotape? The wood needs to be sawn at an angle. Learn To make a product. Show the DT processes poster. Also use this session to plan the processes. The children can be planning, while small groups are sawing. What would the sequence of the processes be? Model the order using a flow chart. See the Respond criteria. Discuss processes already covered. Remind the children of the techniques investigated. Model again how to saw at an angle. Respond Children to plan their ideas in a flow chart. Think about how they are going to make their photo frame. What will they do first, next etc? Add measurements etc so that they can use for when they are making. Children should look at their designs and the prototype. What modifications were needed? How would these help the final product? Select the tools and materials. Think about the techniques that they will need to use. Measure to the nearest mm accurately. Use thin wood to cut at an angle and join using glue guns with an adult. Talk about the safety of using glue guns. Check Risk Assessment in the DT folder. Add a slot onto the back of the photo frame – use joining techniques to attach card to the wood. Make any modifications along the way. Add individual decoration. Refine techniques as work progresses.	

British Value – Individual Liberty

Finally, put a photo into the frame.

Christian Value – Perseverance.

Reflect

Discuss their photo frame with a friend. What has gone well, what would they do differently next time?

6.

POP Task

Explore

What are the different DT processes? Explain each stage.

Learn

To evaluate a product.

Study the DT processes poster. Explain that it is important to evaluate the product in order to think carefully about the skills used

Look at the designs in partners. Discuss

Model how to evaluate the designs. Look at the questions below and model possible answers to the questions.

Respond

Children to study their own products and evaluate using the following questions and prompts.

1. Who this product would be useful for.
2. Why I chose these specific materials.
3. Ways in which my product is successful.
4. How the product could be developed or improved.
5. Problems or difficulties I had to solve.
6. What I have learnt from doing this activity.
7. Other times I could use these new skills.

Write evaluations in books.

Christian Value – Truthfulness

Reflect

What skills have they learnt in this unit? Share with a friend.

Feedback:

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Year 4 Spring Term Can I design and make my own pizza?		
Knowledge to be taught: To learn about a famous innovator in food To understand where ingredients have originated from. To prepare ingredients using different skills. To understand the need for safety and hygiene when preparing food. To recognise the effect of heat on food. To measure food in grams. To control the heat of the oven		Possible POP Tasks What is a pizza? Where does it originate from? What do you know about a balanced diet? Look at healthy foods. Look at the origin of some foods. What techniques are used for preparing food? Use picture prompts – cutting, slicing, peeling, chopping? What are the safety measures when preparing food What was the design brief for this unit? Have you fulfilled the Success Criteria? What do we already know? Healthy food from Key stage 1. Chopping and mixing ingredients – Year 2 Where do we go next? Year 6 - Measuring and combining ingredients, controlling heat to bake bread. Looking at the effect of yeast as a micro organism.
Lesson Guide		Key Vocabulary
1 To explore current products. Explore What is a pizza? Where does it originate from? Learn Show DT processes poster. Explain that for this unit, the children are going to create their own pizza. Remind the children about their learning in Y2. They will be carrying out similar preparation of ingredients, but adding in measuring to the nearest gram. Also, follow a recipe. In this session, explore different pizzas. If possible, use actual pizzas, or pizza boxes. Could also use Domino menus, with pictures on.		Pizza Ingredients Cook Cut Chop Slice Grate Dough Seasonal Base Heat Gram

Respond Fill out a mind map in books – what is the appearance of the pizza? Which ingredients have been used? Which ingredients are on all pizzas? (Tomato sauce and cheese) Does it look appealing? Are all of the pizzas the same shape and depth? If possible, try smelling and tasting the pizzas. What effect does heat have on the ingredients? Look at the cooking instructions on the box – how long will it take to cook? To learn about a famous innovative chef. Introduce the children to Heston Blumenthal – an extremely innovative chef, who has led the way in original cooking. Look at an age appropriate piece of text about his life and work. Reflect Can the children see the benefits of originality in cooking?	
2 To generate ideas to fit a design brief. Explore What do you know about a balanced diet? Look at healthy foods. Look at the origin of some foods. Learn Show the DT processes poster. Children are moving onto the next stage of the process. Thinking about the pizzas that they have already explored, can they choose 3 pizzas that they would like to make? Think about the depth and shape of the dough, as well as the different toppings. How would they arrange the toppings to make it look appealing? What would the success criteria be to make a good pizza? Respond In books, show these three designs. Draw and annotate with labels and descriptions. Label the type of base, the ingredients and the sauce to be used. Make sure that their pizza fits the success criteria. Reflect Which pizza would be most appealing and why? British Value – Individual Liberty	
3. To choose a final design. To learn about the order of the process. Explore What techniques are used for preparing food? Use picture prompts – cutting, slicing, peeling, chopping	

Learn

Looking at the designs, select a final design. Add more detail to the diagram. Explain why they have chosen that design over the others. Discuss the ingredients that they will use and the techniques that they will need to use to prepare them.

Think about the sequence of making the pizza. Look at pictures of the different process and sequence them in the correct order.

Respond

Draw the final design in their books. Annotate the base, sauce, ingredients and how they've been prepared, ie chopped peppers. Add some measurements, ie ____grams of cheese.

Draw a chart to show the order of making the pizza. Could be like a flow chart.

Reflect

What would happen if you did something in the wrong order? Would it affect the overall end product?

British Value – Individual Liberty

4

Explore

What are the safety aspects when preparing food?

To use different techniques when preparing ingredients.

This session was added in this order to reduce the amount of ingredients purchased and used.

Practical sessions – photos on Seesaw

Learn

Look at the usual ingredients that are on pizza toppings. How can the ingredients be prepared? The cheese has been grated. Onions/ mushrooms have been sliced. Pineapple has been cut into chunks.

Model these skills. When chopping, use specific techniques.

Watch the video.

<https://www.youtube.com/watch?v=mvJSPbAQNZ4>

Respond

Children to have a go at their tables.

Ensure safety is observed.

Practise measuring quantities to the nearest gram. Can use any substance to practise.

Model to the children how to make the tomato sauce – explain the key ingredients and look at the instructions together.

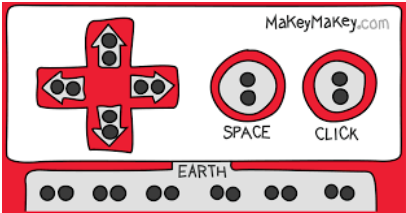
To make a product.

Show the DT processes

Photos on Seesaw

Explain that the children will need to measure out some of their ingredients. Measure to the nearest gram. (grated cheese for example) Show a certain amount eg, 100g of cheese, so that the children can see that amount. Children are to use their final designs and ideas from their prototypes. Create the shape and thickness of dough. Safely prepare the ingredients using skills from Session 2. Add the ingredients to the pizza, as the design shows. Discuss what the pizza will look like when it comes out of the oven. Adult supervision Control the heat of the oven. Check appropriate temperatures needed to cook a pizza. Check and alter temperature where required. Reflect Look at their products with a learning buddy. Does it fit the success criteria? Is it appealing? Did the process work? What could have gone better? Christian Value – Perseverance and Thankfulness	
5 To evaluate a product. Explore What was the design brief for this unit? Have you fulfilled the Success Criteria? Learn Show the DT processes poster. Children can ask each other, to help with their evaluations. Can they tell each other how the pizza looks, once it has been cooked? How does it smell? How does it taste? Respond Write evaluations in books. Use opinions of class to help. Also comment on what worked well with their designs and what do they wish that they had done differently. Different thickness of base as too doughy or crispy? Cut the ingredients more finely, as they didn't cook through enough? Reflect What other dishes could they make using these skills? Christian Value - Truthfulness	
Feedback:	

Year 4 Summer Term How can I create an instrument using a circuit?	
Knowledge to be taught:	POP Tasks

To be able to use an electronic kit. To understand which materials are conductive. To be able to make a circuit To understand the difference between series and parallel circuits To learn about famous innovators.	What do the children already know about circuits, from their Science Lessons? Discuss their ideas and knowledge. Show Makey Makey kit – what could this be? What could it do? What is a conductor? Gather ideas and discuss. Show prompts on the board. Sort objects into conductive and non conductive. True or False statements such as: Does the circuit need to be complete for it to work? A rubber is a conductor. What are their steps to use Makey Makey in their instrument? What skills have they learnt during this unit? What we already know Children have covered circuits in their Y4 Science lessons. Where will we go next? In Y5, the children will be using Tinkercad to design a 3D model of a key ring. In Y6, the children will be using microbits to create a pedometer.
Lesson Guide	Key Vocabulary
1. To explore the electronic kits Explore What do the children already know about circuits, from their Science Lessons? Discuss their ideas and knowledge. Show Makey Makey kit – what could this be? What could it do? Learn Practical session – photos on Seesaw https://makeymakey.com/blogs/how-to-instructions/lesson-one-simple-circuit Watch a video about how a circuit works. Children to have a go at using the circuit template to make the LED light up. Explain to children that we can use a makey makey to complete a circuit. Teach how the circuit is being used. Watch a couple of minutes to show how to plug into computer https://makeymakey.com/blogs/how-to-instructions/lesson-two-hands-on-a-makey-makey Go through instructions as children follow along. Demonstrate how the makey makey works with musical instruments (piano / bongos)	Makey Makey Electronic Circuit Series Parallel Programme Instrument Note Conductive Electricity Innovator Prototype 

Respond

Explore session

Put children into small groups and show them the makey makey kits.

Give children time to experiment with different scratch games and different ways to make a circuit.

Reflect

Feedback ideas to class. What did the children enjoy? What did they find out?

Can do in class or use for homework.

Learn

To learn about famous innovators

Linking to ICT and electronics, the children will find out about Charles Babbage, who invented the first computer and Adam Osborne, who created the first portable computer.

Respond

Use age appropriate text to read and find out about their lives and work. Refer back in the different electronic lessons.

2. To research different products.

Show the DT processes poster

Explore

What is a conductor? Gather ideas and discuss. Show prompts on the board.

Learn

Explain that they are going to make a musical instrument using an electronic kit.

Explore different musical instruments that can make notes. Try and have the actual instruments, if not use pictures.

What do the children like and prefer about the instruments? How are the notes made / changed?

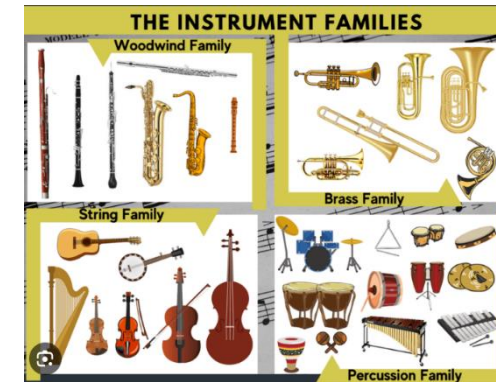
What are the instruments made out of/which family of instruments do they belong to?

Respond.

Allow the children to have time to explore the instruments and study how sounds can be made.

Use the above questions to aid exploration.

Children to record ideas in their books – mind map. Add labels and ideas around their sketches.



Reflect Children to share their experiences and ideas with others. Did they prefer the same instruments or different? Were they surprised at how notes could be changed? 3. To explore conductive materials. Explore How do they attach Makey Makey to the laptop? Recap time Learn Practical session – photos on Seesaw. Explain to children that in this lesson, we will experiment with all sorts of objects to find out what is conductive so they can start designing their own game controller. Explain what conductive means and link back to their prior learning on circuits. Watch video to explain the experiment. Respond Children to set up the scratch game https://scratch.mit.edu/projects/199905945/ and have a variety of items to test to see if they are conductive. Make predictions before they check. Were they right? Reflect After testing items, discuss why some items are conductive and why some aren't. Create a list as a class – how will this help them when they come to design their games controller? Explain that conductive items can be made into a key for their controller! Show banana clip Display on board items that would be good for their instrument and share ideas for how this could be used. Discuss that although some items may be conductive, does that mean they would make a good key for an instrument?	
4. To generate ideas for a design Show the DT processes poster. Explore Sort objects into conductive and non conductive. Learn Think about the design brief	

Choose 2 designs for a musical instrument. Think about which materials they would use to make the instrument. Which conductive materials will you choose? What tools will you need? How can you use Makey Makey to change the notes on the instrument? What measurements would you use? Respond Draw and annotate diagrams in their DT books. Children should add materials that they are going to use and measurements. Highlight the conductive materials. Reflect Share designs with a friend. Do they think that the designs will work? Have they included a conductive material? British Value – Individual Liberty	
5. To make a prototype and choose a final design. Explore True or False statements such as: Does the circuit need to be complete for it to work? A rubber is a conductor. Learn Explain what the word prototype is? Can they remember from previous years? The children are to look at their designs and make a prototype. Encourage the children to think critically and suggest any adaptations that they could make. Model how to make a prototype, discussing thinking as you go along. Respond In preparation for making their own musical instrument, the children can use materials to have a practise and decide what works well and if they need to make any modifications. Give reasons for any changes. Decide on their final designs and create clear designs on books. Explain how they will make their final product. Does it fit the Success Criteria. Look at how to make their product aesthetically pleasing. Explain what this means, if necessary. Reflect What adaptations did they decide to make, through making a prototype? Explain why they were required. Christian Value - Truthfulness	
6. To make a product, to fit a design brief. Explore What are their steps to use Makey Makey in their instrument? Discuss as a class. Learn	

Refer back to the design brief and also the learning over this unit. Does their final design adhere to the key elements? Use their prototype to decide upon any changes that need to be made. Model how to think through and record the steps required to make their product. Respond Create their steps in written form that will lead to the effective making of their product. Independently select appropriate equipment and tools required for their product. Make the final product – think about any changes that need to be made along the way. Refine techniques as work progresses. Reflect Test their product. Does it work? Is there anything that can be improved? Christian Value – Perseverance.	
7. To evaluate a product. Explore What skills have they learnt during this unit? Learn Study the DT poster – which stages have we completed? Where do we go next? Explain that they have been evaluating through the process. Model the following in full answers: Study the effectiveness of their product and discuss key prompts. Discuss why they chose that design – give an overview of their product. What was successful about their product and what could have been improved? Which features did they feel worked well? Did they select the most appropriate materials? How do they know? What problems did they have to overcome? Respond Children to think about their own designs. Can they answer the questions above, when evaluating? Put out prompt questions/cards to help the children. Ensure that they have answered fully and honestly. Reflect Could the children use these skills in another project? Christian Value - Truthfulness	
Feedback:	

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Year 5 Autumn Term Can I make a product that employs a seam allowance?		
Knowledge to be taught: To understand what a seam allowance is. To be able to join textiles with a combination of stitching techniques, such as back stitch for seams and running stitch to attach decorations. To use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles, such as a soft decoration for a cushion. To learn about a famous designer and innovator.	POP Tasks What do you use cushions for? Where might you find cushions? What makes a good cushion? How many ways can you think of to join materials? How many stitching styles can they think of? What is a seam allowance? Which processes are used to make a cushion? What have you learnt in this unit? Share facts with each other. What do we already know? Sewing templates together in Year 1, using running stitch Blanket stitch in Year 3 to join textiles, when making a pouch Where will we go next? Continue sewing skills at Secondary School	
Lesson Guide		Key Vocabulary
Pop Task Explore What do you use cushions for? Where might you find cushions? What makes a good cushion? Learn 1a.To evaluate a range of existing products. Show DT poster to initiate discussion about the DT processes.		Seam allowance Measurements Stitch- running, back Dimensions Tying off Textiles Embellishment Designer Prototype Padding

Talk about textiles skills covered in Year 1 and 3. Explain how this will be extended. Basic stitches covered – running and blanket. Move onto including back stitch and a seam allowance.

Introduce the design brief: To design and make a cushion for someone special.

Look at some examples of cushions and discuss similarities and differences-
shape/size/fabric/colour/embellishments

Discuss the idea of a seam – show the children. Why do you need a seam?

Respond

Children choose a cushion and answer the questions about it in DT books. Number the cushions, measure the size, describe the fabric-colour/texture/ positive and negative things. *Repeat with other cushions.*

Use a mind map / mood board to record ideas.

Note who the cushion is for – this could affect the design.

1b- To learn about a famous designer.

Introduce the children to Lucienne Day – a famous textile designer. Look at her style and discuss. Can they compare to styles that they have been looking at?

Look at a passage of appropriate level to read about Lucienne Day, to find out about her life and work.

Reflect

Discuss their findings with a partner, or in small groups.

Market research at home to find out what the person would like, who is going to have the cushion.

Ask questions such as what do you like in a cushion, what don't you like? Preferred size and embellishments.

Pop task

Explore

How many ways can you think of to join materials?

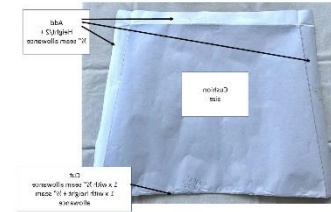
Learn

2. To generate design ideas to meet a brief.

Create design brief. What does your cushion need to be/have to meet its purpose? Who will it be for? What will you need to consider when making your cushion? Colour/texture/pattern of fabric.

Look at market research collected from home. Model how to create their ideas and what should go into books.

Respond



Back stitch video

https://www.youtube.com/watch?v=rZ_wVC84UmM

1. Pupils to decide on the material that they would like to use to back their cushion. They investigate lots of samples of material and choose a possible 3. Snip a little sample (swatch) and stick into DT books. Explain why they chose that sample. 2. Children measure their Batik, and decide on what the dimensions of their final cushion will be -remember seam allowance. Record in DT books Make a list of embellishments they would like to add onto their batik. Choose from-sequins, ribbon, beads. Reflect and challenge. What would happen if they didn't have a seam allowance? British Value – Individual Liberty	
Pop Task Explore What is a seam allowance? Learn Discuss which materials would be good for a cushion. Think about the purpose of a cushion. Discuss pros and cons of different materials. To choose a final design. Pupils to choose their final choice of fabric from those selected in the last session. Give reasons for choices. Respond They decide on the dimensions and shape of the final cushion, draw a template of the design on a piece of squared paper and cut it out (to include seam allowance). Children pin the template to the reverse of the backing material on the cushion and 'bubble cut' around it. Once rough cut, they cut a second time close to the template for accuracy. Talk about using sharp scissors for accurate cutting. Some thicker materials may require sharper scissors. Repeat with the Batik so that children have 2 identical pieces of fabric with a seam allowance. May need to chalk/pencil around the template (on back on fabric) to show line for stitching later on. Reflect Mini evaluation Are the children happy with their design so far? Do they need to make any alterations?	
POP Task Explore	

Which processes are used to make a cushion? Measuring, cutting, stitching, stuffing, decorating. Learn Share their design with a friend and discuss. This gives children a chance to check what they want to do – are they happy with their design? Do they want to make any modifications? Think about the sequence of the processes for making their cushion, so that they can create a plan. Model drawing a flow chart / pictures and captions to show the processes – add measurements and details that is making their cushion individual. Label the equipment required. Respond Children to draw their own flow chart/labelled pictures for making their own cushion. Add measurements and details so that it is clear when they make their product. Ensure that the pictures and captions are in the correct order. Label the equipment required. Reflect Show the process in the wrong order. What’s wrong with the order?	
Pop Task Explore How many stitching styles can they think of? Learn Discuss the processes covered so far. Model the processes required to make the cushion. Look at stitching, how to attach the fabric, seam allowance. To use appropriate skills and materials to create a product which meets a design brief. Pupils to gather the materials for their projects-2 pieces of fabric, thread, needle, embellishments Show children first how to turn fabric INSIDE OUT before stitching so seam allowance goes inside the cushion at the end. Respond Sew around the cushion in either running stitch or back stitch, leaving a 5cm gap for turning inside out. Turn inside out and stuff with padding. Sew up the 5cm gap	

Support as needed with skill development. Take a photo of the finished product and log on seesaw. To practice specific skills. Children can be practising different skills, while an adult has a focus table to make the cushions. Stations to practise practical skills. (to be modelled first): Threading a needle, measuring the thread at an arm's length and tying a knot in thread with one hand. Running stitch to attach embellishments on scrap fabric Back stitch on scrap fabric Tying off when finishing a stitch. Children rotate round the stations practising the skills. Reflect and challenge. Refine techniques as the work progresses. What could you use to pad out the cushion, if you had no stuffing? Christian Value – Perseverance.	
Pop Task Explore What have you learnt in this unit? Share facts with each other. Learn To evaluate a completed product against a design brief. Pupils to be reminded of the initial design brief. Explain that part of any design project is the evaluation stage where the success is considered, and possible improvements identified. Show the questions / headings that will form their evaluation: 1. Description of the product I designed and made. 2. Who this product was made for. 3. Why I chose the specific material. 4. Ways in which my product is successful. 5. How the product could be developed or improved. 6. Problems or difficulties I had to solve.	

Children to discuss their product with their learning buddy. Think about prompt questions below to encourage discussion. Model how to answer the questions to give a detailed evaluation. Respond Write the evaluation in DT books, answering as fully as possible. Recap all of the DT processes covered throughout the unit. Christian Value – Truthfulness Reflect What would they like to use their sewing skills to achieve next?	
Feedback:	

Year 5 Spring Term Can I use 3D printing when making a product?	
Knowledge to be taught: To use an online planning tool To design using very specific dimensions. To save a file to use on a laser printer	Ideas for POP tasks Show a key ring – what is it? What is it used for? What are the features of a good key ring? Reminder of 3D shapes. What are the names of the 3D shapes? How can you draw 3D shapes? Use 3D shape mat Show images of key rings. Which would be a good key ring, which would not be an ideal design? Maybe one with the hole in the wrong place? Too large, to fit in a pocket/bag. What was the original design brief? Discuss with learning buddy. What do we already know? Designing using specific dimensions – woodwork project from Y4 and measuring material from making a cushion cover in the previous unit.

Where will we go next? Programming and coding a Microbit in Y6, when making a pedometer.	
Lesson Guide	Key Vocabulary
1. To explore and research existing products to inform my design. Introduce the design brief: To design and make a keyring for someone at home. Show DT processes poster Explore Show a key ring? What is it? What is it used for? Learn Discussion: What is the purpose of a keyring? What do we use keyrings for? Not just keeping keys safe or all together-we can use them as decorations (handbag charms) put them on zips etc. Who has a keyring collection? Which is your favourite? Provide children with many keyrings/bag charms to look at and investigate. Can the children think of their own questions to use in the analysis? Pupils to complete an analysis of these keyrings: Who it might be aimed at (adult/child/male/female) Materials used Positive and negative points of the keyring How the design suits the purpose – useful design features Respond Provide children with many keyrings/bag charms to look at and investigate. Use the above statements/questions as prompts. Pupils to complete an analysis of these keyrings: Answer key questions using a mind map in books. Explain that the children will be using the computer and a 3D laser printer to make their keyring. Watch a 3D printer in action here: https://www.youtube.com/watch?v=HlvK6DLwCz4 <i>To learn about a famous innovator</i>	Laser printer Tinkercad Key ring Manufacturing Layers Specifications Innovator Dimensions 

Learn about Chuck Hull who invented the 3D printer. Look at an age appropriate piece of text. Read together and find out about his life and work. Children to consider who they would like to make the keyring for. Hand out questionnaires for research to be completed before next session. Reflect How is 3D printing used in today's manufacturing world?	
2. To generate design ideas to meet a brief using research. Show DT processes poster Explore Show key rings. What are the features of a good key ring? Learn Create design specifications for a good quality keyring. It must have/must be.....a hole for the chain, colourful to be seen, strong, aesthetic, personalised, anything from questionnaire results etc What would make their key ring original/personal to the person that they are making it for? Show children some WAGOLL examples from Tinkercad for ideas. Add desired measurements onto designs. Respond Pupils then create up to three designs for their product, based on these design specifications. Encourage children to use their 3D drawing skills from art and base on a cuboid shape. Explain the ideal measurements – no more than/less thanmm length and width. Measure to the nearest mm. Draw designs into books and annotate. Reflect Show their designs to a learning buddy. Talk through the designs together, to aid the decision of a final design. British Value – Individual Liberty	
3. To develop a final design.	

Show DT processes poster Explore Reminder of 3D shapes. What are the names of the 3D shapes? How can you draw 3D shapes? Use 3D shape mat Learn Children evaluate their 3 designs so far. Which matches the specifications and brief the best? Consider who it is for. Children pick which design they would like to go with and draw it from different angles to show dimensions. <i>Give reasons for choice.</i> Annotate diagrams in books. <i>Add measurements to the nearest mm</i> What skills are we going to need to produce this design using the computer and 3D printer? Re-watch https://www.youtube.com/watch?v=HlvK6DLwCz4 Children to look at final design. They then transfer this design to 1cm squared paper to determine size. Model how to draw in 3D using squared paper. Reflect Show designs on squared paper. Why is this useful for designs? Show a Wagoll again.	
4 and 5 To use the computing skills needed to make my keyring. Explore Show images of key rings. Which would be a good key ring, which would not be an ideal design? Maybe one with the hole in the wrong place? Too large, to fit in a pocket/bag. Learn Practical sessions – record on Seesaw Introduce Children to Tinkercad, show them how to do some basic skills. Model how to use 3D shapes and change the size. Respond	

Allow time for the children to have a 'play'. Children to transfer their design from squared paper to the screen using the skills shown. Save project ready for printing. This session could be extended if required. Children should have acquired skills from using Tinkercad in Computing.

Reflect

Address any errors/difficulties with creating designs on Tinkercad, to work on next session where required.

Christian Value – Perseverance.

The designs will be sent to Carres School and will be printed on a laser printer.
Attach metal chain.

Take a photo of the keyring for Seesaw.

6.
To evaluate the product from a design brief.

Explore

What was the original design brief? Discuss with learning buddy. Describe Success Criteria

Show the DT process poster.

Learn

Explain that part of any design project is the evaluation stage where the success is considered, and possible improvements identified.

Show the questions / headings that will form their evaluation:

1. Description of the product I designed and made.
2. Who this product was made for
3. Why I chose these specific features
4. Ways in which my product is successful.
5. How the product could be developed or improved.
6. Problems or difficulties I had to solve.
7. What I have learnt from doing this activity.
8. Other places I could use these new skills.

Respond

Use the questions /statements to write their own evaluation about their key rings.

Pupils to write their evaluations in books.

Reflect What else would they like to make in the future that they could design using shapes on Tinkercad? Christian Value - Truthfulness	
Feedback:	

Year 5 Summer Term Can I make a moving toy using a cam mechanism?	
Knowledge to be taught: To know what a cam is. To know how a cam works. To identify cams in everyday life. To convert rotary motion to linear.	POP Tasks What are the different stages of the DT process? What is a mechanism? Show Cams - what are they? What could they be used for? Can the children remember the names of the different cams? Have a short quiz where you can show pictures and ask the children to identify the cams. How do cam mechanisms make toys move? Odd one out. Show some cams and ask the children which one they think could be the odd one out. Explain why. Focus on shape/ movement Where are cams used in everyday life? Engines, sewing machines, What have they been learning about during this unit? What skills have they learnt? Go through unit specific vocabulary in a mini quiz. What do the children already know? Mechanisms in Key Stage 1 – simple levers in Y1, wheels and axles in Y2. Pulley systems in Y3 From this past experience, they should understand the term rotate. Where will their learning move onto? Mechanical systems at secondary school
Lesson Guide	Key Vocabulary
1 Explore Ask the children what the different stages of the DT process are, being looking at the poster. What is a mechanism?	Cam Linear Rotary motion Mechanism Handle Slider

“A system of parts working together in a machine.”

Show Cams - what are they? What could they be used for?

Learn

To investigate different types of cam and the movement that they create.

Use a knowledge organiser for this unit as very specific, new vocabulary. Go through the Knowledge Organiser.

Introduce the design brief: to make a moving toy using a cam mechanism.

This will be a toy for a Foundation child to use.

Discuss vocabulary - What is a cam? What is a mechanism?

cam = a rotating disc in a mechanism used to turn rotary motion into linear motion.

Show children the cam GIFS on smart and the cam display board/mini display boards. Introduce the words rotary and linear movement.

Show an example of a toy that uses cams.

Respond

Children to use examples of the wooden/cardboard cams and draw in their DT books. Alongside each cam, they write the name of the cam, and the type of movement that it creates. What features can they label?

Prompt questions on smart board.

Reflect

Match the cam to its movement.

2.

To explore and research existing products to inform my design.

Show the DT processes poster.

Explore

Can the children remember the names of the different cams? Have a short quiz where you can show pictures and ask the children to identify the cams.

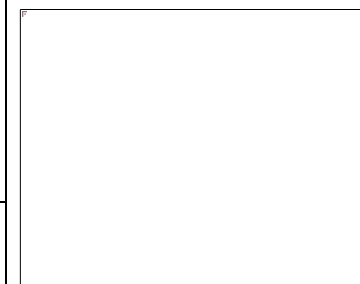
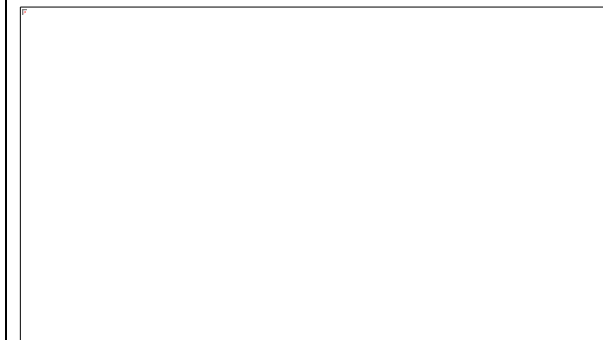
Learn

Recap design brief and different types of cams.

- Look at examples of cam toys.
- Can the children think of their own questions to discuss when looking at the products?

Wheel
Fixed
Vertical
Component
Follower
Ellipse
Eccentric

Egg shaped
Prototype



For example – what features can they see on each toy? How do the features aid the purpose? What do they like/dislike about the products? What are their preferences? • Bring together and go over the different parts of the cam mechanism and their functions. Model how to label a drawing with these parts. Respond Allow children to rotate around the classroom and explore the toys. Children pick 2 toys and draw them accurately. They label the 3 main parts plus any other parts. Add the names of the cams and explain the movement, using the key vocabulary. Discuss preferences and state why. Answer the key questions about the toys. Reflect Explain to a partner about how the mechanisms are used in these toys.	
3. To generate design ideas to meet a brief using research. Show the DT processes poster. Explore How do cam mechanisms make toys move? Recap learning as a class. Where are cams used in everyday life? Learn Model thinking of a design for a toy that uses cams to move. Agree on design specifications. Children think of 2 possible designs for their moving toy. They will need to think of the following: Which parts will move? The type of movement that is needed? Which cam will they use? Will the mechanism be hidden or on show? How will the mechanism fit within their design? How many cams will they need (Max 3?) What will the dimensions be? Respond Children will think of 2 different designs for a toy. They should sketch their design and label using the prompts from the lesson. Provide prompts on the table as well. Designs should be drawn straight into books – not on worksheets. Reflect Share their designs with their Learning Partner and explain how each design would work.	

4.

To develop a final design.

Show the DT processes poster.

Odd one out. Show some cams and ask the children which one they think could be the odd one out. Explain why.

Focus on shape/ movement.

Learn

Children evaluate their 2 designs so far. Which matches the specifications and brief the best? Give reasons for choice.

Children pick which design they would like to go with and draw it expanded from different angles to show dimensions. Add measurements (set maximum measurements) Work using mm again.

What skills are we going to need to produce this design using?

What materials do we need to gather?

Respond

Add details to diagram in DT books.

Use a flow chart, or similar sequencing diagram to write and draw how they will make their cams toy. This will help to order their method and help with the making stage.

Children should add what materials they will need, the processes they will follow and measurements.

Reflect

What would happen if they completed something out of sequence? Would it affect the overall design?

Show something that has gone wrong. Can they explain?

5.

To create a prototype and make their designs. This will take more than one session.

Explore

Where are cams used in everyday life?

Engines, sewing machines, toys.

Learn

Practical session – photos on Seesaw.

Before they move onto creating their final product, the children should have a go at creating a prototype.

Use the basic ideas of their cams to see how it will actually work.

Assess the measurements, design, movement. Analyse – what do they need to improve on, ready for their final design? Can they explain any modifications? Can they improve on existing designs? Explain that although evaluation is at the end of the DT processes poster, they should constantly be evaluating their design and seeing how they could improve it. Respond Children to use their final design to make a prototype. Follow their flow diagrams to select the materials and work through the method. Choose the cam that they wanted and think about the measurements for the dowel. Assemble the materials to create their chosen design. Draw the features that will be attached onto the dowel, at the top of the box. Refine techniques as work progresses. Take photos of completed products on Seesaw. Reflect Study their prototype and think about what went well. This reflect session could be at any part in the lesson, as they then move onto the making part and their completed product. How could they make it aesthetically pleasing?	
6 Explore What have they been learning about during this unit? What skills have they learnt? Go through unit specific vocabulary in a mini quiz. To evaluate a finished product against a design brief. Learn Pupils to be reminded of the initial design brief. Explain that part of any design project is the evaluation stage where the success is considered, and possible improvements identified. What did they change, in light of making a prototype? Model writing an evaluation. Show the questions / headings that will form their evaluation: Description of the product I designed and made. Who this product was made for. Why I chose these specific features. Ways in which my product is successful. How the product could be developed or improved.	

Problems or difficulties I had to solve. What I have learnt from doing this activity. Respond Children to write their own evaluations using the above prompts / questions. Be as honest as possible about their designs and their final products. Reflect What could they create in future, that would use the same skills? Christian Value - Truthfulness	
Feedback:	

Year 6 Autumn Term Can I use different processes to make bread?	
Knowledge to be taught: To know how to knead bread. To learn about micro organisms To learn about proving. To measure ingredients accurately. To use a range of processes. To calculate the ratio of ingredients, to scale up or down from a recipe.	Pop Tasks What do they know about bread? How is it made? What food group is it in? Read and discuss simple bread recipe What is yeast? What is its purpose? Guess where the bread originates from. Simple matching game What are the processes used for making bread? What skills have they learnt in this unit? What do we already know? Preparing ingredients hygienically in Year 2 – peeling, chopping and cutting. Preparation and grating in Year 4, plus measuring to the nearest gram Following a recipe Where will we go next? Continue to apply and further skills at Secondary School
Lesson Guide	Key Vocabulary

1

To research existing products.

POP Task

Explore

Show DT processes poster

What do they know about bread? How is it made? What food group is it in?

Look at the different food groups and talk about balanced diet. Focus on bread and other foods in the same group.

Explain they that are going to make bread for their family.

Learn

Watch clip on how to make bread.

<https://www.youtube.com/watch?v=VrUdtzXquWk>

Refer back to cooking in Year 4. Make links and explain how the learning will be extended.

In Y4, they measured to the nearest gram and used cutting and grating techniques.

Think about what other techniques and processes will be involved this time.

Add in calculating ratios of ingredients to scale up or down from a recipe. If a recipe makes 1 loaf, how much of each ingredient would you need to make 4?

Using more of a range of processes in preparation and baking.

Explain market research. Find out opinions on existing products.

Respond

Have a selection of breads on the table – plaited, ring, loaf, rolls. Different added ingredients. Dried fruit/olives, cheese/herbs. What is the origin of these ingredients? Try having breads from different countries – French baguette, Naan bread. Discuss using senses - explore appearance, texture, taste, smell, preferences.

Complete questionnaire on other's views, using the above guidance

Talk about the function of yeast in bread and how it is a microorganism. Link to Y6 Science.

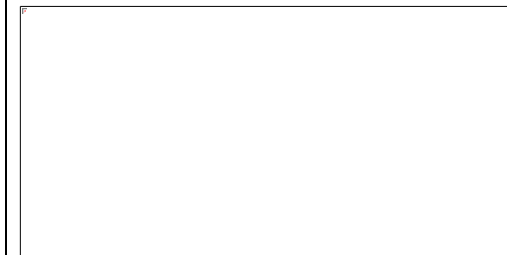
Reflect

Which bread seems the most popular? Why do you think this is?

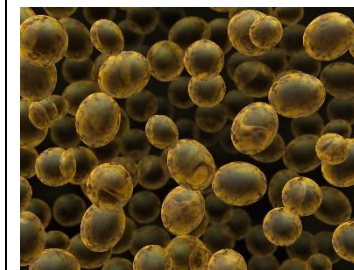
Carry out market research at home to decide on preferences for different types of bread.

Christian Values – Friendship and Respect

Knead
Consumer
Dough
Accurate
Carbohydrate
Yeast
Rise
Gluten strands
Prove
Gram
Ratio
Scale up/down



Yeast



2.

Pop Task

Explore

Read and discuss simple bread recipe. Talk about the ingredients, processes and measurements.

<https://www.jamieoliver.com/recipes/bread-recipes/basic-bread-recipe/>

Learn

Recap explore task from last week. Discuss any market research discovered from home.

To establish the design criteria.

Show DT processes poster

Discuss the breads that they explored last time. What do they feel needs to be included in their own designs?

What did children prefer when they studied and sampled the bread. It needs to be appealing. Draw up a list of design criteria as a class.

To create designs for that criteria

Display design criteria

Respond

Work in small groups - children to think of 3 or 4 designs that they would like to make. Think about the shape of the bread and the possible added ingredients. Annotate diagrams in their books. Think about possible measurements of ingredients, based on the video that they have watched. Discuss the differences between flat breads and high rising breads.



Reflect

Discuss the positives of their designs and any possible issues that could arise. This discussion will lead into thoughts on a final design.

3

Pop Task Explore

What is yeast? What is its purpose?

Use the term micro organism.

Learn

To choose a final design

Show DT processes poster

Discuss processes covered so far. Look at discussion points and designs from the previous lesson. What will help the children to decide on a final design? Model what the task is and what will need to be completed in books.

Respond

In their groups, children to look at their designs and decide which would be the most innovative and appealing to a consumer. Take each child's views into account and decide and edit designs, as required.

Draw final design, including key information and a detailed description of the appearance, texture, ingredients (measurements), accurate measurements needed, techniques to be used. In preparation for making their bread, children to practise kneading, using playdough, if malleable enough. If not, could use clay. Explain the importance of kneading. Kneading stretches and develops the gluten strands in the dough. Explain about the importance of proving the bread – to allow the dough to rise. British Value – Individual Liberty Democracy, Tolerance and Respect Reflect and challenge What can the children use if they had no yeast? Can they find out?	
4 POP Task Explore What are the processes used for making bread? What can they remember? Mixing, kneading, proofing, baking, cooling. Refer back to the kneading from the previous session. Learn Children to refer back to their final designs and talk them through with a partner. Always good to keep checking through ideas, in case any modifications need to be made. Now that they have settled on an individual design, they can plan how they are going to make it. Show the bread making video again, from previous sessions. How will they adapt the process to suit their own design? Model drawing a flow chart with pictures and captions on making their bread. Think carefully about the order. Label the equipment required. Respond Children to use their final design and draw a flow chart for the process of making their own bread. Think about the order of the processes and adding their own individual ingredients. Add measurements. Label the equipment required. Reflect and challenge Share a wrong sequence in the processes What if we did kneading after baking?– what is wrong with the order? How would this affect the bread? Share their plan with a partner so that they can check the details and add any other information. Can their partner think of any adaptations that need to be made?	
5. POP task Explore Guess where the bread originates from. Simple matching game	

French Baguette, Indian Naan bread, Italian Ciabatta, Middle Eastern Pita bread

Learn

To make a product.

Show DT processes poster

Read the bread recipe

Time and adult help permitting – make a prototype of a small loaf/roll of bread. Check that the bread rose and that the texture was right. If not, what needs to change in the actual product? Do you need to modify the recipe?

Practical lesson – photo on Seesaw.

Ensure modelling throughout the whole process.

Respond

In small groups, children need to adhere to their final design and think carefully about the ingredients and techniques that they will need to make their bread. Have the design criteria on show.

Make the main bread mix in groups, then split into parts for the individual designs and products. Think about ratio.

Watch a youtube clip on how to make bread again.

<https://www.youtube.com/watch?v=VrUdtzXquWk>.

Also website linked to food hygiene

<https://www.foodafactoflife.org.uk/7-11-years/cooking-7-11-years/hygiene-and-safety-7-11-years/>

Measure to the nearest gram and millilitre accurately. Make improvements to the recipe as they go along, as required.

Reminders about hygiene and safety when using an oven. Adult supervision

Reflect

What has gone well? What issues did they have? Discussion ready for the evaluation.

Christian Value – Perseverance, Friendship and Respect

6.

POP Task

Explore

What skills have they learnt in this unit? Discuss with a partner.

Learn

Discuss product. If taken home, what was the feedback?

Think about the questions below – children to think about how they would answer the questions.

Model how to answer the questions fully.

Respond

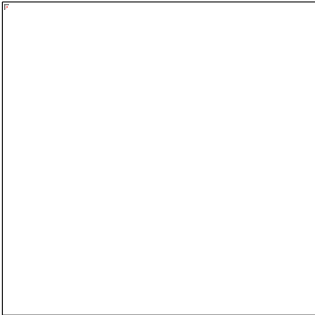
To evaluate a product.

Write an evaluation in books. How was the bread successful? What improvements could be made?

Were they pleased with the choices? How is the bread appealing/original? Would a consumer buy their bread? Feedback on appearance, smell, texture, taste. Who this product was made for. Why I chose these specific features. Ways in which my product is successful. How the product could be developed or improved. Problems or difficulties I had to solve. What I have learnt from doing this activity. Other places I could use these new skills. Reflect What other products could the children make, using some of these skills?	
Feedback:	

Year 6 Spring Term Can I make a pedometer?	
Knowledge to be taught: To use a circuit in different contexts. To use electronic kits with a number of components. To learn about a famous innovator To create their own pedometer.	Ideas for POP tasks What is an electronic device? What electronic systems do they use? PS4/ X box, phones How does technology help us? (not just for enjoyment) How does a pedometer work? True or false statements about circuits, eg. If there is a break in the circuit, the circuit will still work. How does their design show creativity? Can they make links to Steve Jobs? What skills have they learnt in this unit?

	What do we already know? Coding and creating a circuit in Y4 using Makey Makey Where are we going next? Continuing electronic skills at Secondary level
Lesson Guide	Key Vocabulary
1. To learn about a famous innovator. This could be taught as a stand alone lesson, or joined with lesson 2. Explore What is an electronic device? What electronic systems do they use? PS4/ X box, phones Learn Talk about amazing innovators that enable these products to be invented and manufactured. Look at the impact of these products on our world today. Compare how life was different in the past. Learn about Steve Jobs as a famous innovator and his crucial role within the Apple company. Look at an age appropriate piece of text about how he has developed technology. Read about his life and work- will they be able to make links with the electronics that they are covering? Respond. (optional) Children could answer questions about Steve Jobs and his impact as an innovator. Reflect How has technology changed our world?	/Electronics Variables Input Debug Code Program Market research Innovator Accelorameter Prototype Dimensions
2. To research current products on the market. Explore How does technology help us? (not just for enjoyment) Share ideas. Learn Show the DT processes poster Explain that they are going to think of a device that can help with healthy living and exercise. This will run alongside the Computing unit on Microbits. Discuss pedometers. Show examples on the board – how does the pedometer work? What do they notice about the designs?	

Explain the importance of market research. Have existing products on the table and ask children to explore - thinking of size, shape, comfort and suitability. How is the pedometer fastened to your wrist? Respond Children to then gain feedback on market research and find out favourite and least favourite products with reasons for why. They can do this by asking Year 5 students. Create a mood board/mindmap of the different products with prompt questions for them to answer. What are the features? What makes it a good pedometer? Would it be comfortable to wear? From the market research, create a design criteria as a class. Reflect Share the design criteria – what would make a good pedometer?	
3 To create a design to link to a brief. Explore How does a pedometer work? Explain to a partner. Learn Show DT processes poster. Re-cap the Design Criteria and ensure that this is clearly displayed throughout the next stage of the designing process. Reveal a selection of materials that the children could use: material, felt, foam sheets, Velcro, press studs, elastic strips, needle and thread. Discuss that they need to draw on the DT skills that they have learnt through school and choose techniques. (sewing, attaching materials together.) Model how to set out their designs using detailed images and descriptive annotations. Respond Children to think of 2/3 different designs for a pouch that could hold the microbit and the battery. Draw and annotate in their books. Explain reasons for choices, linking back to the prototype that they made. Encourage them to be original with their thinking whilst including features that will appeal to their intended audience. Include dimensions. Also, ask the children to query whether the pedometer could be worn on the ankle or the wrist. Reflect	https://microbit.org/projects/make-it-code-it/step-counter/ https://microbit.org/projects/make-it-code-it/step-counter/ 

Share and Evaluate: Pairs share their ideas and discuss. Which design do you think is most original? Why? Which design do you think meets the specification on the design criteria best? Why? Consider the views of other children and edit designs accordingly. British Value – Individual Liberty	
4 To create a final design. Explore True of false statements about circuits, eg. If there is a break in the circuit, the circuit will still work. Learn Choose a design and model how to plan the final design in their books. Model drawing design with increased accuracy in their books, as well as describing reasons for choice. Annotate with measurements, material and techniques. Show the children how to write the procedure for the manufacturing process. What will they do first? Why? Respond Children to look at their designs and decide which design would be the most appropriate design for a pedometer. Model drawing the final design, adding detailed annotations and measurements. Highlight the equipment that would be required and label on the design. Make a prototype and refine techniques as work progresses. The task below is linked to computing and can be fitted into the DT unit where suitable. <i>Link to computing unit:</i> <i>Microbits to be coded using the microbit programme and then the coding should be downloaded onto the microbit.</i> <i>Use the link to see a step by step guide on how to code the pedometer.</i> Reflect What adaptations need to be made to the final design, looking at the prototype? British Value – Individual Liberty	
5 To make a design. Explore How does their design show creativity? Can they make links to Steve Jobs? Learn This is linked to creating the final design as children may make their design and then make	

adaptations as they go through the process. Once they have made a design, children should test their product and then make adjustments, or change the materials as required.

Respond

Test the pedometer on ankles and wrists to decide which works best.

Ask the Y5 to help to test out the pedometers and advise on any adjustments that could be made.

Choose a range of gentle and more active exercises.

What do the Y5 like about the pedometers? What works well? Are they happy with the pouches – comfort, do they hold the microbit well when moving?

Link to computing unit:

Microbits to be coded using the microbit programme and then the coding should be downloaded onto the microbit.

Use the link to see a step by step guide on how to code the pedometer.

Reflect

Share their design with a learning partner. What has gone well? What issues have they had and therefore had to make adaptations? Ready for the evaluation.

Christian Value – Perseverance.

6

To evaluate a product.

Explore

What skills have they learnt in this unit? Share thoughts with a learning partner and discuss.

Learn

Show DT processes poster.

Recap the design brief and remind the children of the processes that they have covered.

They must ensure they are evaluating against their design criteria – they can discuss any improvements they had to make along the way and anything they would do in future to improve their controller.

Have a list of prompts for the children to discuss in their books.

1. Description of the product I designed and made.
2. Why was this product chosen?
3. Why I chose these specific features.
4. Ways in which my product is successful.
5. How the product could be developed or improved.
6. How the programme needed debugging, if required

Respond.

Discuss their product in teams at the table. Share feedback from the Y5 children when they tested the products. Write evaluations in books this time, using the given prompt questions above. Reflect What I have learnt from doing this activity? How could they use the skills in future tasks? Christian Value - Truthfulness	
Feedback:	

Year 6 SummerTerm Can I create a product that involves hammering, screwing and sawing wood?	
Knowledge to be taught: To learn how to use a drill. To saw wood using accurate measurements To screw into wood using accurate position To learn about a famous architect	Ideas for POP tasks What is a mascot? Have they heard of this word? Where have they heard the word? What techniques do you know about working with wood? To think about market research. Have a list of questions to explore with their table. What would make a good St Botolphs Mascot? What features could it have? How could it be appealing? What safety measures should you use when using woodwork skills? What have they learnt through this unit? Which skills? What do they already know? Y2 - Hammering tacks into wood to make a decoration. Y4 – Measure and sawing wood and attaching with glue guns to make a photo frame. Where will they move onto? DT projects at Secondary School, using woodwork skills.
Lesson Guide	Key Vocabulary
1. What can they remember about the DT process?	Drilling Sawing

Show the DT design processes poster - Discuss

To explore different products.

Explore

Show real mascots / pictures

What is a mascot? Have they heard of this word? Where have they heard the word?

Learn

Explain that they will be making a product out of wood and they will be using wood skills.

They will have explored wood skills in Year 2 - hammering and screwing, where they created a simple wooden product.

In Year 4, the children will have sawed wood to make a photo frame.

In Year 6, they will be using those skills but with more accuracy.

Have different wooden toys on show.

Can the children think of their own questions that they could ask about the products?

For example – How are the parts attached? Do the parts move? What are your preferences? What features do you like? How do the features improve the product?

Respond

Children to complete a mood board of the products with annotations using the question prompts that they have devised. Choose 2 or 3 products to analyse. Add detailed comments about the wooden products.

Reflect

What are common themes that they have noticed about the wooden toys?

Explain to the children that they will be making a mascot to represent St Botolphs School, out of wood.

2

Can work in class, in two parts.

Explore

What techniques do you know about working with wood? Discuss hammering, sawing, screwing, drilling

Learn

As the children will not have drilled wood before, use this time, to go through the safety features of drilling.

Explain the parts of the drill and how it should be used.

Watch the following video

<https://www.youtube.com/watch?v=9RgzIfEdpfY>

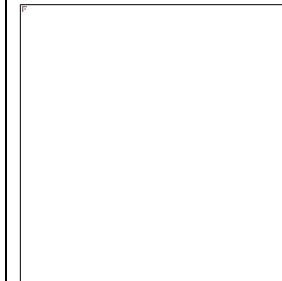
Respond

In small, supervised groups, the children can use off cuts of wood to practise drilling holes. Change the drill pieces to investigate how that changes the size of the holes.

Other half of the class:

To learn about a famous architect.

Screwing
Hammering
Measuring
Accuracy
Clamp
Fastening



mascot – Lincoln City colours, link to the imps on the Cathedral



M and M mascots – brightly coloured to show the variety of sweets. M to show the name.

Renzo Piano - Designed The Shard, The Pompidou Centre and The New York Times Building. Look at a piece of age appropriate text where the children can learn about his life and work. Discuss that his designs are environmentally responsible and sustainable. He often incorporates features such as material reuse, rainwater collection systems and natural ventilation into his designs to minimize the environmental impact of his buildings.

Reflect

Tell their partner what they have learnt about drilling and also Renzo Piano.

3. Show the DT design processes poster.

To plan ideas linked to a design brief.

Explore

To think about market research. Have a list of questions to explore with their table.

What would make a good St Botolph's Mascot? What features could it have? How could it be appealing?

Learn

Remind the children that they are going to make a wooden mascot. Show a picture of some block bots. What do they notice about them? How could they make them represent St Botolphs? What features could they add to make their products individual?

Model how to draw designs and add information about features. Add measurements in mm. Some may be able to draw their designs using 3D cubes/cuboids.

Respond

Children should sketch 2/3 designs of different block bots. Draw straight into books, not on worksheets.

Which wood work skills will they be using and how? Remember to include some of the following : hammering, screwing, drilling and sawing.

Add annotations to the diagrams and explain why they would be adding features. Add measurements.

How could they make their designs represent St Botolphs and also be unique?

Reflect

Share and explain their designs to a learning partner. Talk about their preferences in their designs.

What should the Success Criteria be for their product?

British Value – Respect for each other's designs.

Individual liberty

4.

To create a final design

Explore.

Refer to the Success Criteria for their product. What must they include? Which skills should be evident?

Learn

Children are to select their final preferences for their design. Give reasons for choices. Sketch their final choice, but this time, include accurate measurements and detailed annotations of how it fits the design brief and why they have chosen the particular features. Why have they chosen that design over the others? How will they add the features? At which point will they use the different wood work skills?
Model how to create their final designs, also how to create a flow chart or other sequencing diagram, to model how to make their mascot block bot.

Respond

Children to sketch their final design, with more detailed description. What features will they include? How can they make it individual and appealing? Which materials will they select and which processes will they use?
Write and draw the sequence for the method.

Children would normally make a prototype, but as we are going to Carres for the making process, this will probably not be possible.

Reflect

Did they think of any modifications that they would need, as they were in the final planning process?

5.

To make a product that fits a design brief – This session will be completed at Carres Grammar School.

Explore

What safety measures should you use when using woodwork skills? Run through ideas and then use opportunity to talk about safety

Learn

Look at the poster and remind the children of the design brief. What makes a good block bot?

Look at the final product design.

The children will listen to the DT teachers at Carres as they explain how to use the equipment and how to construct their Block Bot.

At Carres, the children will make the basic Block Bot and then add final touches back at St Botolphs.

Respond

Children will make their products and use wood work skills.

The children should keep analysing their product and making amendments, where necessary.

Back at St Botolphs, the children can add features to their designs, including colours/pictures, to match their final design.

Reflect

What has gone well with their designs? Did they have to make any modifications, or think of ways to improve their designs?

Take photos on Seesaw

Christian Value – Perseverance.

6.

Explore

What have they learnt through this unit? Describe the skills.

To evaluate a product.

Learn

Show the DT poster and emphasise the importance of evaluating a product, once it is finished, as well as their evaluating through the process.

Return to the design brief. Ask the children to discuss their products with a partner, to see if they meet the requirements.

Model writing an evaluation:

1. Description of the product I designed and made.
2. Why was this product chosen?
3. Why I chose these specific features.
4. Ways in which my product is successful.
5. How the product could be developed or improved.

Respond

In their DT books, children should write an evaluation and use key prompts.

The evaluations should be as detailed as possible, where the children answer the questions fully.

Christian Value – Truthfulness

Reflect

How could they use the skills in other projects?

Feedback: