

Hazelwood Schools



Design and Technology Curriculum Overview

Design & Technology at Hazelwood

Intent

At Hazelwood Schools, we believe that Design & Technology (D&T) should give children the opportunity to develop technical skills, knowledge and understanding of designing and making functional products. We feel it is vital to nurture creativity and innovation through design. Through the D&T curriculum, children are inspired by engineers, designers, chefs and architects to enable them to create a range of structures, mechanisms, textiles, electrical systems and food products with a real-life purpose, reflecting the world in which we live and work.

The aims of the D&T Curriculum are:

- To provide children with opportunities to design and make functional products for a variety of purposes and users, that solve real life problems.
- To develop the skills of evaluating a product, which is an integral part of the design process, and allow children to adapt and improve their product.
- To encourage children to be creative and innovative, and to think about important issues such as sustainability and enterprise.
- To develop children's technical skills through collaborative working and problem-solving.
- To enable children to apply the knowledge and skills learned in other subjects, such as Maths, Science and Art.
- To understand why maintaining a healthy lifestyle is important and learn how to cook.



Our Vision and Values



At Hazelwood, we believe in nurturing responsible citizens to achieve educational excellence by inspiring awe and wonder through a real, relevant, immersive and purposeful curriculum.


Respect


Kindness


Resilience


Responsibility


Courage


Appreciation & Understanding


Ambition


Creativity


Teamwork


Trust


Honesty


Fairness

Our shared values are at the heart of all we do.

Believe and Achieve



Implementation

At Hazelwood our planning is guided by the 'Primary Design and Technology' scheme of work which supports the implementation of the National Curriculum for D&T in an imaginative way based on universal principles of effective teaching and learning in D&T.

Hazelwood's Approach to Teaching and Learning

At Hazelwood you will see a range of real, relevant, immersive and purposeful learning opportunities within a nurturing, enabling environment, including the following approaches to teaching and learning:

- Children **exploring and answering big questions** which allow them to think deeply about their learning
- Children **hearing and using key vocabulary** in a range of contexts
- Children **speaking in full sentences** using the key vocabulary taught
- **Cold calling** - supporting all children in engaging in their learning and believing they can achieve
- **Adaptive teaching** - responding to the needs of all children
- **Retrieval practice** – allowing children to know more, remember more and do more
- **Positive relationships and quality interactions** that nurture our responsible citizens
- **Spaced and sequential learning** over time to help children learn more quickly and remember learning better.

In a typical D&T project you will see...

- All D&T projects at Hazelwood should follow a 4-part design process: Investigate, Design, Make and Evaluate.
- Each of these 4 parts are documented through a variety of methods such as photographs, pupil voice, diagrams, annotations and drawings.
- Children will design, make and evaluate products that solve real and relevant problems. Every D&T project will include an element of real-life problem solving. The end product produced by the children should be functional, able to be tested and evaluated.
- At the investigation and exploration stage, children explore real life artefacts in order to ascertain what makes them work and what makes them good designs. Children should derive success criteria through this exploration stage.
- At the design stage children should be given a brief and a problem to solve so that they are clear on who the product is for and what the purpose of the product is. Each project will involve explicit skills building at the design stage.
- At the making stage children will select from and use a range of tools and equipment to perform their practical tasks. There may also be an opportunity for mini evaluations or written responses where possible.
- At the evaluation stage, children will evaluate their final product against their design criteria.

Real, Relevant Immersive learning opportunities in D&T are really important in ensuring our children are engaging with the world around them, explore real life and relevant problems and create products for real purposes. Our children also experience and develop a love of cooking that will enable them to creatively become independent, prepare them to look after themselves and lead a healthy lifestyle.

To further enhance our D&T curriculum, we provide all children with access to extracurricular activities and workshops i.e. the Robotics workshop at Legoland, where the children design, build and program their own robot, which they control via a computer program. There are also strong curriculum links with Computing, PSHE and Science.

Impact

How do we assess?

We assess our children using a range of methods:

- Routine, embedded, informal formative assessment is built into every lesson.
- Questioning is a large part of our assessment. We use a range of questions to constantly check children's knowledge is secure
- Low stakes quizzes and retrieval practice to support children in remembering more and ensure learning is retained. This ongoing information tells teachers how well children have remembered and understood. This enables them to adapt and/or re-teach immediately, ensuring no pupil ever gets left behind.
- Teacher Highlight the lesson question or objective to quickly show those who have remembered and understood.
- Summative assessment is recorded termly on Scholar Pack, identifying those working at ARE, as well as those below and above ARE.

How do we know that children are at age-related expectation?

- Children are using the taught key vocabulary and substantive knowledge to answer big questions at the end of the unit.
- Children can explain what they made, who it was made for and what its purpose is.
- Children are able to talk confidently about what they have learnt.
- Children achieve the Primary Design Technology end of unit outcomes.

How do our children feel about D&T?

- "I like D&T because it's fun!"
- "I really like D&T because it gives me a chance to experiment with new materials"
- "D&T is about exploring"
- "When we made [our product] it was challenging and we had to work together"

	Autumn	Spring	Summer
EYFS	EXPRESSIVE ARTS AND DESIGN EYFS Statutory Framework (2021): Educational Programme The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.		
Nursery	Children have the opportunity to play and explore a wide range of media, materials and construction kits through their enabling environments and child led learning.		
These are planned adult led learning opportunities	Technical skills: Structures Design Brief: To make a recognisable shape using construction material of their choice Design specification: Must be recognisable Focused Tasks: • Practise joining construction pieces • Explore different types of construction e.g. Mobilo, Duplo • Look at different photographs of tower, building, cars etc	Technical skills: Textiles Design Brief: To make a collage picture Design specification: Use different materials Focused Tasks: Practise arranging material to create and image • Explore different shapes and material • Learn how to use scissors to shape materials • Learn how to glue with more precision.	Summer linked with Growing and Changing Technical skills: Food and nutrition Design Brief: To make fruit kebabs Design specification: Use fruit to look like the hungry caterpillar Focused Tasks: • Experience of common fruit and vegetables, undertaking sensory activities (appearance, taste and smell.) • Experience of threading/ piercing soft fruit and vegetables using appropriate utensil
Cultural Capital	Photos of famous landmarks and building	Example of collage picture Arrangements to make shape picture	Book: The Very Hungry Caterpillar
Big questions	How can it be joined? What shapes do you need? What can you make?	How do we cut? How can we make it look like a... (house)??What is the best shape for the... (roof)?	What is this fruit called? Who has eaten this fruit before? What is its taste, smell and appearance? Which fruit do you like?
Vocabulary	Join, stack, tower, building, construct	Cut, snip, place, shape, soft, rough, bumpy ,smooth, glue, stick	Names of fruit, thread, kebab, skewer, pierce

	Autumn	Spring	Summer
Reception These are planned adult led learning opportunities	Technical skill: Textiles Product: To design and make a sock puppet User: Themselves and family Purpose: to play with at home Focused Tasks: - Explore a variety of winter-themed designs. - Use a variety of techniques, i.e. sticking, stapling etc, to decorate their sock puppet.	Technical skill: Structures Product: to design and make an emergency vehicle User: Themselves Purpose: Role-play activities Focused Tasks: - Experience of vehicle structure - Design their own vehicle and explain its features - Use design to build vehicle using junk modelling	Summer 2: Technical skill: Food & Nutrition Product: to follow recipe to make no-bake ladybird cookies User: Family Purpose: To be tasty, crunchy and ladybird like Focused Tasks: - Experience of simple recipes through play - Experience of mixing, stirring, pouring ingredients through play - Learn basic food hygiene practices when handling food including the importance of following instructions to control risk
Cultural Capital	Inspiration: Puppet stories	Book: Emergency!	Book inspiration: The Giant Jam Sandwich
Big questions	What materials are used to decorate? What is it joined with? Where have you seen a puppet before? Which is your favourite puppet and why? Who might use it and why?	What are the parts of the Vehicle? What is it going to be used for? What are your Vehicle's special features? Who might use it and why? How can you stop your Vehicle from falling over? What are you going to use? Do you need to make the vehicle longer or shorter?	What ingredients have been used? Are they healthy/unhealthy? How are they made to look like a spider?
Vocabulary	Names of materials and tools used, stick, staple, attach, pattern, finish, make	Vehicle structure, cut, fold, join, fix, weak, strong, base, top, underneath, side, edge, thinner, straight, curved metal, wood, plastic, circle, triangle, square, rectangle, cuboid, cube, cylinder, design, make	Names of ingredients, equipment, utensils, techniques, texture, taste, sweet, smell, preference, healthy/varied diet

Term	Autumn 1	Spring 1	Summer 1
Year 1	Technical skill: Mechanisms Design Brief: Design and make a Celebration Card Design Specification: 1. Use a simple mechanism 2. Bright colours 3. Pictures 4. Slogan 5. Decorations Investigative and Evaluative Activities: <i>Investigating Celebration Cards</i> • know that a card can help someone celebrate a special occasion. • know some of the features of a celebration card. • know that mechanisms produce movement • identify the mechanism in a celebration card that causes movement. <i>Movement Around the School</i> • identify mechanisms around the school that produce movement. • name linear and rotational movement that they observe around the school. Focused Practical Tasks: <i>Movement using a slider mechanism</i> • know how a slider mechanism is produces linear movement. • identify linear movement in pop up and mechanical cards <i>Pop Up Mechanism – The Parallel Fold</i> • learn about the parallel fold mechanism to produce movement in a pop-up card. <i>Rotational Movement</i>	Technical skill: Structures Design Brief: Design and make a model of a tree house for the Rec Design Specification: 1. The treehouse model should include a frame structure that acts as a climbing frame. 2. The treehouse model should include a swing attached to the treehouse structure. 3. The treehouse model should have platforms for children to sit, stand and play on. Investigative and Evaluative Activities: <i>Visiting the Local Playground</i> • know where the local playground is and the different types of play equipment that is found there. • know the names of the different types of equipment found in a playground and the materials that they are made from. • know that a structure is a three-dimensional shape created by combining materials and joining parts together. • draw a plan of their ideal playground containing all their favourite equipment. Focused Practical Tasks: <i>Making Straw Shapes</i> • know how to create simple two-dimensional shapes using • straws and pipe cleaners. • know different ways to make 2D shapes stronger, stiffer • and more stable and how this can be tested using the wobble test. • know how to make a 3D cube shape from straws and pipe • cleaners are link this learning to their understanding of what a structure is.	Technical skill: Cooking & Nutrition Product: design and make a fruit salad for parents to eat Design Specification: 1. Use at least 2 different techniques - Peeling, grating or slicing to add texture and interest to fruit salad. 2. Use different coloured fruits 3. Fruit salad should be based on parent survey and preference Investigative and Evaluative Activities: <i>All About Fruits</i> • names of and be able to identify a range of fruits that are available to buy locally. • develop a knowledge of where different fruits come from. • Conduct a survey of parents <i>Apple Taste Test</i> • know how to take part in a food taste test and will have tasted different apples, expressed a preference and be able to describe • taste and texture using an increasingly wider taste vocabulary. • Using their experience of the taste test activity, children will choose • their favourite apple and be able to explain why using their taste vocabulary. Focused Practical Tasks: <i>Preparing Fruit</i> • know how to cut, chop, peel and prepare fruit • using the correct techniques to keep themselves safe. • begin to develop an understanding of when to use the claw grip and when to use the bridge hold when cutting ad preparing food. • know and be able to follow hygiene rules when preparing food

	know that rotational movement is circular movement created by a rod or lever moving around a central	<i>All About Treehouses</i> - know that a treehouse is a large piece of play equipment - that is constructed in a tree for children to play in. - know that there are a range of activities that children do in a treehouse. - know that a treehouse is a structure that is normally made - up of parts that are joined together and that most of these parts are normally made of wood. - know that labels are used in drawings to provide information and help people to understand the drawing. - know how to draw and label a treehouse using their ideas and the ideas of their friends <i>Playground Models</i> - know that there are both frame structures and shell structures and will be able to identify frame structures. - know that having a heavy and wide base helps a structure - to stand upright and be stiff and stable. - know that strengthening the joints on a frame structure increases its strength, stiffness, and stability. - know that a model is small exact copy of a product, often used to help when making a product	
Cultural Capital	Cultures: different celebrations/ cultures that give cards	Visit: to local playground	
Big questions	At what times of the year might you receive celebration cards? Are there particular celebrations and festivals where cards are given and received? How does the mechanism work? Which mechanism produces linear/rotational movement? What part of the product will move? How will you make it move? What else could move in the product? How well does it work?	How can you use (material) to create a shape? How can you join the materials together? How strong, stable and stiff is your structure? How can you make your structure stronger, stiffer, more stable?	What is this fruit called? Who has eaten this fruit before? Where is it grown? When can it be harvested? What is its taste, smell, texture and appearance? Which fruit do you prefer and why? What might we want to include in our product to meet our user's preferences? Which fruit might be the best for our product to match the occasion/purpose?
Vocabulary	assemble, client, decorate, designer, idea, label, linear motion, make, mechanism, pivot, product, rotary, slider, sketch, slot, tools	assemble, construct, designer, design, design brief, evaluate, function, frame, idea, join, label, material, model, plan, product, stable, structure, tools	cutting, diet, edible, equipment, evaluate, flavour, fresh, fridge, fruit, healthy, healthy diet, ingredients, label, taste, taste test, texture

Term	Autumn 2	Spring 2	Summer 2
Year 2	Technical skill: Textiles Design Brief: To design and make a glove puppet Design Specifications - The child's hand must fit the puppet. - The puppet must look like the book character they have chosen. Investigative and Evaluative Activities: <i>Find Out About Puppets</i> - Know about different types of puppets and know that moving and controlling puppets is about making them appear 'alive'. - know how puppets based on story characters can be used to tell the story. - begin to understand that a puppet is a product that is made to do a job or fulfil a need. <i>What makes a Good Puppet?</i> - know what makes a good puppet and how puppets are made. - understand of how theming and decoration of puppets is used to make them look like a person or an animal. - expressed personal viewpoints about puppets and will develop an understanding that this is part of evaluation in design technology Focused Tasks: <i>The Simple Stitch Technique</i> - know some basic techniques of sewing using Binca: - learn to: - Thread a needle - Start a row of stitches using Binca cloth. - Create a row of stitches using a running stitch. - Finish a row of stitches using Binca cloth. <i>Using a Paper Pattern to Create a Puppet</i> - know that a template/pattern is used to create the fabric pieces that are sewn together to make a puppet.	Technical skill: Cooking & Nutrition Design Brief: Design and make a Dips and Dippers food product as a healthy snack between meals. Design Specifications: - The food product should reflect healthy eating messages. - The dip should be based on Indian raita yoghurt dip. - There should be two types of prepared fruit or vegetable dippers in the pack. - The food product should be contained in a packaged box Investigative and Evaluative Activities: <i>Supermarket Dips</i> - know what a food dip is and know the names of some dips and understand that other foods are dipped into the dipper as part of a meal. - increasing their knowledge of words to describe different tastes and textures (taste vocabulary) - know the different types of information that is provided on food labels of food from a supermarket. <i>What Makes a Good Dipper?</i> - further develop their food preparation skills through cutting vegetables using both the claw and grip methods. - further develop their knowledge and understanding of how to conduct a taste test survey and use their experience from a taste test to express a preference for food products giving reasons for their choices. - understand that evaluation is about understanding what products work well and are suited to the task Focused Tasks: <i>Making Tzatziki</i> - apply their knowledge of food hygiene and safety skills when cooking and preparing food.	Technical skill: Mechanisms (Wheels & Axles) & Structures Design Brief: To design and make a Toy Car to enter the Year 2 Grand Prix. Design Specifications: - The toy figure must be able to fit inside the toy car. - The toy car must have two wheel and axle mechanisms. - The toy car should be themed to the toy figure. - The chassis should be 20cm x 15cm Investigative and Evaluative Activities: <i>Investigating Toy Cars</i> - identify, name and label the different parts of a toy car, including the chassis, wheel, and axle. - know the different types of movement in a toy car – rotation of the wheels and the backward/forward movement of the vehicle. - understand how the vehicles in wacky races have been specifically designed / themed to the person driving the car. <i>Wheels all Around</i> - know that the wheel is one of the most important technologies to have been invented by humankind. - know that there are many types of vehicles that have different purposes and functions. - know a range of objects and items in the school that have wheels attached and will know how the wheels help them to function. - know how wheels and axles are assembled and how they work to produce linear movement Focused Tasks: <i>Making a Jinks frame</i>

	• apply their practical knowledge of sewing using a running stitch to permanently join the two pieces of fabric to create a basic hand puppet.	• follow a written recipe and understand that a recipe is a step-by-step process to create a food product. • learn and practise a range of food preparation techniques including: ○ Chopping and cutting (bridge hold) ○ Chopping and cutting (claw grip) ○ Grating ○ Crushing – using a garlic crusher ○ Juicing using a citrus juicer	• know how to cut strips of wood accurately using a junior hacksaw and a bench hook. • know how to create a wooden framed corner using the Jinks method. • Introduce Tinker CAD
Cultural Capital	History: Puppets over the years – Punch and Judy, The Muppet Show, Pinocchio	Culture: Food from around the world – Indian dips and dippers	History: History of the wheel Product/link: Wacky Races
Big questions	What makes a good puppet? What is the character of the puppet? How does the puppet feel? – texture. What type of materials have been used? How has any decoration been added? How many parts is it made from? What is it joined with? How is it finished? Why do you think these joining techniques have been chosen? How is it fastened?	What is the taste and texture like? What will you include in your product to meet the design specifications? Which fruit/vegetables might make the best dipper and why? How can you change this recipe? Why is it good to eat fruit and vegetables? How many pieces of fruit/vegetables do you eat per day? Why is it important to wash fruit/vegetables before we eat them?	How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round? How can you make the car roll faster? Are bigger wheels better? What would you do differently next time? Was your design fit for purpose? How do you decide the winner of a race? How could we race the cars?
Vocabulary	Template, knot, needle, pattern, stitch, textile, thimble, decorate, fabric, puppet, tools	Edible, flavour, healthy, healthy diet, ingredients, taste test, bridge hold, claw grip, chop, cut, grate, crush, juice	wheel, axle, axle holder, chassis, body, dowel, friction linear motion, rotation, functional

Term	Autumn 1	Spring 1	Summer 1
Year 3	Technical skill: Cooking and Nutrition – Sharing Bread Design Brief: Design and make a Unique Bread Product to share with Friends. Design Specifications: - The bread should have added ingredients that make it either sweet or savoury. - The bread should be shaped to make it easy for sharing between people. Investigative and Evaluative Activities: Breads from around the world - Know and identify different bread products from around the world. - Discuss the characteristics and qualities of a range of bread products and express a preference for which products they like. Investigating Breads - Know how to record the outcome of a taste test using a proforma. - Know that evaluating a product can be achieved through giving it a 'star rating'. Focused Tasks: Baking bread - Know how to mix, combine, knead bread dough. - Deepen my understanding of what a recipe is and how to follow instructions in a recipe to make a food product. - Know that many foods are processed from raw ingredients into food products.	Technical skill: Structures -Shell structures with computer aided design Design Brief: Design and make a Desk Tidy to store all those 'easy to lose' desk items. Design Specifications: - The desk tidy should have a base measuring 20cm x 12cm - The desk tidy should have a container made using papier mâché technique - The desk tidy should have a container recycled from food packaging - The desk tidy should have a prism container to hold pens and pencil Investigative and Evaluative Activities: What is a Desk Tidy? - Know that a desk tidy is a product that is used to store and arrange small stationery items. - Know that a product is something that is made to do a job or fulfil a need and this is known as its purpose. - Know that a user is someone who uses a product. What are Shell Structures? - Know that some structures are natural, and some are manmade by humans. - Know that structures are things that provide support, support weight or hold things together. - Know that there are two types of structures – frame structures and shell structures. Focused Tasks: Creating Shell Structures - Deepen understanding of structures and will know that a shell structure is hollow and is made from a thin outer layer.	Technical skill: Mechanical Systems – lever and linkages Design Brief: To design and make a page for a book for the class library with movable mechanisms to interest and engage the reader. Design Specifications: - The page must be A3 portrait in size and should be made of card. - The page must include one moving linkage feature. - The page must have a coloured background and writing about the topic of the page. Investigative and Evaluative Activities: Investigating Books with Movable Parts - Identify and describe the moving parts in a mechanical book. - Identify some of the different types of movement in a mechanical book. - Know that the materials used in mechanical books provide more strength, stability, and stiffness to allow the mechanical parts to work better. Investigating levers - Know that a lever is a simple machine which changes the direction and amount of movement in a mechanical system. - Know that levers produce a curved movement that results in either oscillating or rotary motion. Investigating linkages - Know that a linkage system is made up of levers that are connected by pivots. - Identify fixed and movable pivots in a linkage system. Focused Tasks: Making a Lever Monster - Know how two levers can be connected by a pivot to create a simple scissor mechanism.

	Shaping bread Know and be able to apply different techniques for shaping bread.	• Make shell structures from flat pieces of card by disassembling and re-assembling food packaging practising and improving their cardboard engineering techniques. • Make shell structures from flat pieces of card using nets of shapes and improving their cardboard engineering techniques. • Know that a desk tidy is a combination of 3D shell structures that are assembled and joined together on a base. Creating Shell Structures using papier mâché technique • Know how to make a shell structure using papier mâché and a mould/former. • Understand that the materials used to create a sculpture will affect its strength and stiffness. • Understand that adding layers of a material can strengthen a structure. Introducing Computer-Aided Design • Know how computer-aided design software can help in the design process and to show what their final product will look like. • Know how the technique of 'crating' is used in computer aided design to communicate and draw out design ideas. • Have a developing knowledge of how to use the workspace and tools in using software such as TinkerCAD. • Know how to add objects, change their dimensions, move and rotate objects to create designs of products.	• Know how a simple mechanism such as a scissor mechanism can be used to create a moving monster. Making a Linkage Monster • Know how to create a complex mechanism by linking together levers using pivots • Know the importance of considering the properties of materials when choosing materials to make their product. • Know how a flow chart can be used to help guide the making process. Pull Down Mechanism • Know how to create a more complex mechanism by linking together levers using pivots to change the direction of movement. • Know how a mechanism can be incorporated into a book page involving a character with moving arms.
Cultural Capital	Experience: Following a simple bread recipe	Experience: Computer aided design	
Big questions	When do you eat bread? What types of bread do you eat? What is your favourite type of bread? What food do you eat bread with? Do you eat bread for a special occasion? Does bread have a special religious or cultural significance to you? How is bread packaged? Why is packaging important?	Why might need a desk tidy? What existing products are already available? What is the purpose of the shell structure – protecting, containing, presenting? What material is it made from? How has it been constructed? Are the materials recyclable or reusable? How can we use recycled materials when designing and making a desk tidy? How has it been	What is a pop-up book? How is a pop-up book different to other books? What parts of this book do you think will move? What materials have been used for this book? How does this book move? where the different moving mechanisms are? What different types of movement is each mechanism producing? How does the design of the book interest you?

		stiffened i.e. folded, corrugated, ribbed, laminated? How has it been strengthened?	How do the moving parts of the book engage you in the content of the book? What is the input? What is the output?
Vocabulary	Diet, dough, gluten, harvest, knead, processed, sieve, yeast, bread	Adhesive, assemble, CAD, flow chart, functional, marketing, material, recycle, reinforce, sheet material, shell structure, structure, sustainability, user	Annotate, decorate, disassemble, evaluate, flow chart, instructions, lever, linkage, material, mechanism, pivot, plan, product, purpose, rotary, sheet material, template, viewpoint

Term	Autumn 2	Spring 2	Summer 2
Year 4	Technical skill: Cooking & Nutrition Design Brief: Design and Make a Healthy Cereal Snack Bar Design Specifications: The ingredients for the cereal bar should include: - One type of breakfast cereal - Food from the different parts of the Eatwell Guide - A layer of topping Investigative and Evaluative Activities: What are Cereal Bars? - Know that a cereal bar is a snack that is made from a breakfast cereal with added ingredients. - Know how to conduct a survey to find out information about children's breakfast habits. - Know the different ways in which the results from surveys can be communicated. The Importance of Breakfast - Know why it is important to eat breakfast every day. - Know a range of breakfast cereals and will understand that they are grown by farmers. Taste Test Cereal Bars - Deepen understanding of taste tests and how to conduct them. - Taste a range of cereal snack bars. - Extend taste vocabulary and will use them when describing different foods. Investigating Cereal Bars - Know the main types of information that is found on packaging for a cereal bar product. - Know that eating too much sugar is not good for our bodies and can lead to problems with keeping healthy.	Technical skill: Materials, structures and electrical systems Design Brief: Design and make a night light for a child who is afraid of the dark. Design Specifications: - The night light can either be free-standing or attached to the wall. - The night light shade must be a shell structure made of paper mâché. - The night light should be powered by a battery. Investigative and Evaluative Activities: - Discuss, investigate and disassemble different examples of relevant battery-powered products. - Investigate how the designs and themes for nightlights are developed for their intended user. Focused Tasks: - Combine materials to make a paper mâché shell structure. - Know how to accurately measure wood and to cut wood using a bench hook, mitre block and junior hacksaw. Consolidate understanding of how to make a wooden frame structure using the Jinks method.	Technical skill: Textiles Design Brief: Design and make a stuffed animal toy for charity fundraising Design Specification - The soft toy is soft and cuddly - Attractive and appealing - Recognisable as an animal Investigative and Evaluative Activities: Investigating soft toys - Know that investigating and analysing existing products can help in understanding how they are made, their function and what makes them appealing to clients. - Create a list of criteria that makes a good soft toy - Create a diagram and explanation of the features that make a stuffed toy. Finding out about animal charities worldwide - Know that there are many charities worldwide - Know that these charities rely on people donating money to enable them to do their work. - Know that when donating to the charity, people might receive an item in exchange for their money. - Know that many charities sell soft toys. Focused Tasks: Decorative Stitching - Know how to thread a needle using a needle threader and how a thimble is used when stitching together textiles. - Use different embroidery stitches to create repeated patterns and decorations on a sheet of Binca enabling them to practise the technique of the running stitch. - Learn the sewing technique of over stitching by sewing the edges of their sheet of Binca using his technique. Designs and Patterns - Know the different stages of turning ideas into designs and how designers use mood boards as part of this process.

	- Consolidate understanding that food is either grown, caught or reared. Focused Tasks: Making a Cereal Bar - Follow a recipe to make a cereal bar and will know the procedures for getting ready to cook. - Practise and consolidate practical food preparation skills.		- Know that a pattern templates can be used many times to create the same textile product. - Know that a seam allowance is used to enable two pieces of fabric to be stitched together. - Know how a flow chart can be used to help to understand the sequence of actions needed to complete a task. Making a Soft Toy - Know that stitching is a technique to permanently join together pieces of fabric. - Know the techniques of the running stitch and over stitching and when and how to use them. - Know and understand how fabric pieces can be joined together to create a three-dimensional textile product. - Know that a seam allowance is used to enable two pieces of fabric to be stitched together.
Cultural Capital	History: The importance of breakfast	Culture: The work of different types of charities	Inventor: Abe Donsky – inventor of the nightlight
Big questions	What is breakfast? Who has breakfast regularly? What kinds of food do you have at breakfast time? Do you have different breakfasts at the weekend, during the holidays or for special events? Is breakfast the same all around the world? Where do we get our breakfast food? (plants grown, animals reared) What ingredients can we use to make a healthy snack bar? How will you bind the ingredients together?	What do stuffed toys look like? What are they made of? Why are they attractive? How do you think they are made? Who buys soft toys and why do they buy them? What materials have been used to create the stuffed toy? What properties/characteristics does the fabric have? Why has this fabric been chosen? How does the choice of the material affect the purpose of the stuffed toy? What makes a good stuffed toy? What would the 2-D pattern piece look like? What are its measurements?	How does the product work? What are its key features and components? What materials have been used and why? How is it suited to its intended user and purpose? What did you design your product to do? Is it doing it? How did you design your product to make it attractive to a child afraid of the dark? (Design Brief) How did you design your product to match the design specifications?
Vocabulary	Balanced diet, carbohydrate, cereals, flavour, grow, harvest, healthy diet, hygienic, ingredients, nutrients, processed food, protein, reared, recipe, seasonal, taste, taste test, texture	Cross-stitch, felt, flow chart, function, over stitch, pattern, seam, sketch, stuffing	Frame, shell structure, triangulation, function, invention, series circuit, bulb, battery, toggle switch

Term	Autumn 1	Spring 1	Summer 1
Year 5	Technical skill: Structures and Mechanical Systems Design Brief: Design and Make an Automaton Toy for the Local Toy Museum. Design Specifications: 1. The box to hold the cam mechanism should be a cube made of a wooden frame 13cm x 13cm x 13cm 2. The automaton toy should include at least one cam mechanism. 3. The theme for the automaton toy is...(TBC) Investigative and Evaluative Activities: Investigating Automata & Cam Mechanisms - Know that an automaton toy is a mechanical toy that uses hand power mechanisms to create movement in a scene of characters. - Know the different types of motion that are created in an automaton toy. Focused Tasks: Making Cam Mechanisms - Know that an automaton toy is a mechanical toy that uses hand power mechanisms to create movement in a scene of characters. - Know the different types of motion that are created in an automaton toy. Making the Cam Box - Know that step by step guidance helps when creating complex products that involve many stages of making. - Consolidate skills and techniques in creating a wooden framework, including measuring, cutting and joining together strips of wood accurately. - Know how to make a mitre join and apply this knowledge when creating wooden frame structures	Technical skill: Cooking and Nutrition Design Brief: Design and make a pizza to promote the healthy eating messages from the Eatwell Guide for Healthy Eating Design Specifications - The pizza should have at least one ingredient from each section of the Eatwell Guide. - The packaging should explain how the pizza reflects the healthy eating message of the Eatwell Guide. - The packaging should have a label containing nutritional information about the pizza. Investigative and Evaluative Activities: All about pizza - Develop an understanding of the different pizzas that are available from well-known pizza outlets. - Consolidate knowledge and understanding of the Eatwell Guide for healthy eating and food groups. - Understand how customer research enables producers to create a product that users will like and want. Investigating pizza - Know about and understand how to calculate the nutritional value of foods. Packaging pizza - Know how pizza packaging is constructed from a simple flat pack design and how colours, words and images are used to promote and identify different products. Focused Tasks: - Apply knowledge of food hygiene and safety skills when cooking and preparing food. - Know how to make a simple pizza dough recipe and the important role of yeast in the production of bread. - Know the simple steps to create a Margherita pizza following safety and hygiene rules and using the appropriate utensils correctly.	Technical skill: Structures, Mechanical systems and Electrical & Computer Program Systems. Design Specifications: - The base for the fairground model should be made of a wooden frame. Length: 20cm Width: 20cm Height: 8cm - The mechanism for the ride should be a pulley system powered by a controllable electric motor. - The ride model should have either vertical or horizontal rotational movement. - The ride model should be themed around...(TBC) Investigative and Evaluative Activities: - Investigate, analyse and evaluate existing everyday products and existing or pre-made toys that incorporate pulley systems. - Use videos and photographs of products that cannot be explored through first-hand experience. Focused Tasks: - Use a construction kit, to investigate combinations of two different sized pulleys - Build a working circuit that incorporates a battery, a motor and a handmade switch, such as a reversing switch. - Use tools accurately including cutting and stripping wire, and making secure electrical connections. Remind children about the dangers of mains electricity. - Draw a pictorial representation of the circuit or draw a circuit diagram using correct symbols. - Make a model of frame structure - Develop measuring, marking, cutting, shaping and joining skills using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate. - Use junior hacksaws, G-clamps, bench hooks, square section wood, card triangles to construct wooden frame

	Toy Designer • Know how to communicate their ideas using initial sketches and cutaway drawings. • Know how to apply their knowledge of how different cam shapes produce different reciprocating movement when designing their automaton toy.		
Cultural Capital	Designers: Stephen Sauvestre – a designer of the Eiffel Tower; Thomas Farnolls Pritchard – designer of the Iron Bridge. Inspiration: Puppet theatres over the years	Experience: Sharing own recipe with friends/family	History: History of fairground rides (hand-turned, steam powered etc)
Big questions	How well does the frame structure meet users' needs and purposes? Why were materials chosen? What methods of construction have been used? How has the framework been strengthened, reinforced and stiffened? How does the shape of the framework affect its strength? How innovative is the design? When was it made? Who made it? Where was it made? How could each of the frameworks be reinforced and strengthened?	What makes a good pizza? (Stuffed crust, crispy base, spicy sauce etc...) What are the key messages from the Eatwell Guide? How can our pizza promote the Eatwell Guide?	How innovative is the product? What design decisions have been made? What type of movement can be seen? What types of mechanical components are used and where are they positioned? What are the input, process and output of the system? How many times does the smaller pulley turn each time the larger pulley turns once? Do the pulleys move in the same direction? How can you reverse the direction of rotation? How will you make it stable? How will it stand up? How could you make it stronger? Where are the weak points? How could you reinforce them? What tools and materials will you need? How can you improve the design?
Vocabulary	Automaton, cutaway drawing, mechanical component, prototype, axle, cam, reciprocating, reinforce, rotary, triangulation	Balanced diet, hygienic, market research, nutrient, vitamins, yeast, bread, dough, ingredients, packaging	

Term	Autumn 2	Spring 2 – RoboWars	Summer 2
Year 6	Technical skill: Textiles Design Brief: Design and Make a Designer Waistcoat for the Class Fashion Show. Design Specification: The waistcoat should: 1. Reflect the theme of the fashion show (our culture and upcycling) 2. Have buttons to fasten the waistcoat. 3. Have two pockets that can be fastened. 4. Include a printed repeated design Investigative and Evaluative Activities: What is a waistcoat? • Know that a waistcoat is a sleeveless item of clothing worn on the upper body. • Know that the waistcoat was introduced into England by King Charles II Down the Catwalk • Know that designers create products for clients to buy. • Know that clothes made for a fashion show are ‘prototypes’ to showcase the designers work and are meant to appeal to prospective clients. • Make preferences about clothes are recognise that in doing so they are the client. • Know about the life and work of Vivienne Westwood and other iconic fashion designers and use this knowledge to help them in their own learning to become a fashion designer Focused Tasks: Fashion Designers and Mood Boards • Know that fashion designers design clothes and accessories for people to wear.	Technical skill: Computer Program Systems Design Brief: Design and Make a Controllable Robot Car to take part in the Class RoboWars! Design Specifications: 1. The chassis should be the following dimensions: Length: 160mm Width: 110mm 2. The chassis design should also include space for the Crumble microcontroller and the battery box. 3. The vehicle must have a flashing light that is capable of flashing red, amber and green. 4. The vehicle must have a push button that starts and stops the vehicle. 5. The vehicle must pass the Test Track tests before being allowed to enter Robo Wars. Investigative and Evaluative Activities: Robo Wars! • Know how an electric vehicle is powered and its main component parts. Focused Tasks: Focus Task 1: Creating the Chassis • Apply their making skills to create a wooden frame structure and use techniques to strengthen the frame. Focus Task 2: Vehicle Control • Children will create their electric vehicle chassis by adding components from crumble kits. • Children will know how the components of their vehicle work and will demonstrate this through a labelled and annotated diagram. Design and Make tasks Use the design brief and specifications to make a controllable robot car. • Buggy designing and making • Test track Evaluation • Robo Wars competition • Show and Tell session • Evaluate against Design Brief and Specification	Technical skill: Cooking and nutrition Design Brief: To design and make a healthy food product suitable for the Street Food Festival Design specifications: 1. The street food product must reflect the culture and cuisine of a particular country. 2. The product should be a tortilla wrapped around a healthy filling. 3. The product filling should contain the five different groups from the Eatwell Guide. Investigative and Evaluative Activities: What is Street Food? • Know the different places where food can be purchased to eat at home or places to eat out. • Know that street food is sold in public places for immediate consumption. • Know that different foods are eaten in different parts of the world, and this can be influenced by people’s culture and tradition. Taste Testing Street Food Wraps • Know how to conduct a taste test and apply their knowledge of different foods to identify the fillings in lunchtime wraps. • Investigating Food Wraps • Understand the importance of food packaging. • Know the range of information that is contained on food packaging. Healthy Diet • Deepen understanding of different food groups and the importance of a healthy and balanced diet. • Apply knowledge of food groups when investigating the different ingredients in a lunchtime wrap Focused tasks: Making Tortilla

	- Know that fashion designers will use mood boards to develop, share and present their ideas and use them to come up with a final design for a product. - Know how a mood board is created and use a mood board image to help them to design a fashion waistcoat. Making the Waistcoat - Know that step-by-step action plans should be created and followed when making complex products. - Know the importance of using a template (pattern) to accurately mark out a design on a fabric. - Join textiles using stitching techniques employing a seam allowance. Adding Pockets and Buttons - Consolidate knowledge of how to sew a button and create a buttonhole when working with fabrics and textiles. - Know how to create a simple pocket. - Use a range of techniques to add buttons and pockets to their waistcoat.		- Apply knowledge of food hygiene and safety skills when cooking and preparing food. - Consolidate knowledge of how to make bread dough and use this knowledge to make tortilla. - Know how to use a frying pan to cook their tortilla following safety procedures concerning cooking/frying using a hot plate. Making a Tuna Wrap - Apply knowledge of food hygiene and safety skills when cooking and preparing food. - Know how to follow a recipe to create a tuna and mayonnaise wrap. - Demonstrate food preparation skills including preparing food using the claw grip and bridge hold.
Cultural Capital	History: History of the waistcoat, from its origins in 17th century Persia to its widespread use. OR Designers: The life and work of Vivienne Westwood and other iconic fashion designers.	Inspiration: Elon Musk, electric vehicles	Experience: End of year lunch Culture: food from different countries
Big questions	How has the waistcoat changed over time? Who is a successful designer? What is a fashion show? Why do you choose clothes? What do you consider when choosing clothes? How is the cloth cut? How is the pattern marked? How are the fabrics joined together? What is the purpose of different fasteners? Where would you find x fastener being used? Can you identify the shapes and colours that are repeated to make a pattern? As well as using the design specifications, what else should the judges be looking for when evaluating your waistcoat?	How do you think the work of Elon Musk has affected your life? Who have the products been designed for and for what purpose? How do electric cars work? What is the purpose of different parts of a car? What are the different functions of the Crumble Kit? How was your product designed and made?	Where do we get our food to eat at home/eat out? Where is the food grown? What is street food? What are the different types of street food from around the world? What does the food feel, taste, smell and look like? Why package food products? What information is included on the packaging? What are the key messages from the Eatwell Guide? What makes a good wrap dish?

Vocabulary	Applique, authentic, client, cross stitch, decorate, designer, disassemble, embroidery, fabric, fastening, mood board, pattern, pocket, seam, stencil, stuffing	Axle, battery, chassis, computer coding, control, crocodile wiring, cutaway drawing, flow chart, function, mechanical component, motor, program, program loop, prototype, structure, system	Allergy, allergen, budget, carbohydrate, dough, fat, gluten, hygienic, ingredients, investigate, market research, marketing, nutrients, packaging, processed, savoury, vegan, vegetarian
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