



## Design and Technology- Long-term Overview

	Term 1 Identify and Social Justice	Term 2 Power, Leadership and Invasion	Term 3 Sustainability and the Impact on our World
<b>Nursery</b>			
<b>Unit Title/Enquiry</b>	<b>Topic Title: I wonder... What makes me wonderful?</b>	<b>Topic Title: I wonder... What adventure awaits?</b>	<b>Topic Title: I wonder... What might I find down on the farm?</b>
<b>Unit Overview</b>	<p>Children within this term will be learning about themselves and the people close to them. Children will begin making and baking weekly.</p> <p>Food - Children will begin to explore different foods, where they come from and the different textures. Children will use their sense to explore fruits and vegetables and look at their own personal likes and dislikes. Children will taste food and show thumbs up and thumbs down to rate the foods.</p> <p>Textiles - Children will begin threading simple equipment onto long strings. Children will experiment with large and smaller holes and develop their fine motor skills.</p> <p>Mechanisms / Structures - Children will begin to use simple materials (in the creative area) to combine and connect – tape and glue. They will learn they can combine to make simple mechanisms and explore a range of textures.</p>	<p>Children will be looking at a range of traditional tales and learning about what is right and wrong. They will begin learning about the world beyond themselves.</p> <p>Textiles - Children will use threading materials to weave ‘Granny’s Basket’. Children will independently weave through; using up and down movement.</p> <p>Food - Children will look at how food can change state in various ways. They will learn how to melt and combine to achieve a desired effect.</p> <p>Structures - Children will have access to a range of junk modelling materials and will be challenged (at home) to make their own representation of a castle/structure related to traditional tales. Children will begin to look at other ways of combining/joining materials together. (link to artist of the term)</p>	<p>In this unit children will develop the understand of the world. They will be shown and explain the concepts of growth, change and decay with natural materials.</p> <p>Food - Children will learn how to make their own snack (toast). They will learn the skill of spreading. They will also learn about healthy/unhealthy foods and which animals milk and eggs come from.</p> <p>Structures - Children will be encouraged to begin to make plans before designing their own habitats for animals. Children will verbally share their plans and discuss materials they need.</p>
<b>Reception</b>			
<b>Unit Title/Enquiry</b>	<b>Topic Title: I wonder... All about the wider world</b>	<b>Topic Title: I wonder... Who helps us?</b>	<b>Topic Title: I Wonder... What might we find at the bottom of the garden?</b>
<b>Unit Overview</b>	<p>This unit builds upon early understanding of self, family and children’s own home from Nursery. Children will learn about the wider world and will begin making and baking each week.</p> <p>Food - As children are learning about their wider world (geography link) they will support in preparing foods from around the world. Pupils will taste a variety of foods from around the</p>	<p>In this unit, children will learn about the Golden Rules of Carr Lodge Academy and will delve deeper into different occupations. Pupils will look at the people within our community that keep us safe such as: police officers, doctors, fire fighters and teachers.</p> <p>Structures - Children will design and create their own structures and see if they sink / float. They will evaluate their structures and share with the class.</p>	<p>In this unit of learning, children will consider the environment in which they live, evolving into early conversations about sustainability from a composting to recycling perspective.</p> <p>Textiles - Using own hole punch and string to weave caterpillars onto a leaf. Children will use plastic needles and large binka material to practice the skill of sewing for the first time.</p> <p>Mechanisms -</p>

	<p>world and discuss own like and dislikes, evaluating each different food.</p> <p>Structures - Children to look at a various structures /buildings around the world (geography link) and look at how these structures can be replicated using block play. Pupils will discuss their structures and why they have used certain shapes/designs.</p>	<p>Mechanisms - Pupils to make moving part people using split pins. Pupils to create policemen, fire fighters etc and use the split pins to enable each body part to move.</p>	<p>Pupils to experiment making paper sliders linked to own interests - e.g. a character from a moving book</p> 
<b>Year 1</b>			
<b>D.T. Enquiry and Subject Links if appropriate</b>	<p><b>D.T.</b></p> <ul style="list-style-type: none"> <li>• <b>Food-favourite fruits and vegetables smoothie</b></li> <li>• <b>Mechanisms/Mechanical Systems- Moving Christmas Card</b></li> </ul> <p><b>Linked to:</b> <b>PSHCE-Being me in My World/Celebrating Differences</b></p>	<p><b>D.T.</b></p> <ul style="list-style-type: none"> <li>• <b>Textiles-Puppets- Monarchs</b></li> </ul> <p><b>Linked to:</b> <b>History/PSHCE- Who sets our rules? Why do we have a King or Queen?</b> <b>English- Story telling and Narrative</b></p>	<p><b>D.T.</b></p> <p><b>Structures- Re-purposing plastic products-Windmills</b> <b>Mechanical Systems-Wheels and Axles</b></p> <p><b>Linked to:</b> <b>Geography-What is the impact of pollution on our oceans and seas and how can we make a difference?</b></p>
<b>D.T. Unit Overview</b>	<p>Food-Children will taste and evaluate the fruit and vegetable they like and dislike to create their own recipe for a smoothie. They will describe the tastes and textures they like and consider the packaging design for their smoothie. Finally, they will make their smoothie and evaluate their product and that of their classmates in a taste test session.</p> <p>Mechanical Systems- Christmas Cards- children will design and make a Christmas Card with a moving part following a model that uses a slider or a lever. Children will evaluate their card and its success with its intended audience.</p>	<p>Children will use a template to design and make their own King or Queen. They will build their knowledge of cutting fabric neatly and using a joining method to decorate their puppet. They will reflect on their finished products what they like and dislike. The purpose of the puppet will be for children to use in their English lessons or history to re-enact key events with.</p>	<p>Children will look at the environmental issue of single-use plastics and consider, design and create a product which re-purposes the plastic bottles and packages in our homes into Wind Energy to create an aesthetically pleasing Windmill. Children will use <b>collaboration</b> to produce a group Windmill repurposing plastic considering how to make it appealing to an audience. They will also build on the Mechanical Systems by learning how to use Wheels and Axles to create a functioning turbine.</p>
<b>Year 2</b>			
<b>D.T. Enquiry and Subject Links if appropriate</b>	<p><b>D.T.</b></p> <p><b>Mechanical Systems- Design, Make and Evaluate a Carr Lodge School Bus!</b></p> <p><b>History-</b> <b>How has transport changed?</b></p>	<p><b>D.T. Structures- 3D Shapes to create a Castle</b></p> <p><b>History- Who were the Normans, why were they successful in invading Britain and how did they keep power? CASTLES</b></p>	<p><b>D.T.- Balanced Diet and Packaging- Design and Create a Healthy Wrap/Sandwich that represents a balanced diet. Create sustainable packaging for your product</b></p> <p><b>Geography- How far does my food travel? PALM OIL</b></p>
<b>Unit Overview</b>	<p>In this unit children will build on their knowledge of wheels and axles from Year 1 term 3. The children are given the</p>	<p>In this unit children will have already learn about different types of castles from their learning in History. This will support children's</p>	<p>In Geography children have learnt about the destruction farming palm oil has on the planet. Children will already know about the products</p>

	challenge of designing a school bus for Carr Lodge. They will make a working prototype with wheels, axles and axle holders that work. They will also consider a design that is appealing to the audience (the pupils) and represents Carr Lodge. Children will have to <b>problem-solve and reflect</b> when elements of their design to now work and make changes to ensure their finished product works to meet its purpose.	knowledge of specific design features and choices. Children will design their own castle consider which 2D Nets they will use to make 3D structures. They will carry out research and refine their designs based on which shapes are better for different purposes. They will test different materials to for their stiffness, stability and strength. They will make their castles and refine and adapt their designs as they build it. Children will evaluate their designs and explain the features they have included to further ensure it is a safe structure and will protect the king from invaders.	that contain palm oil. Children will have knowledge of cutting and slicing from EYFS and Year 1. Children will explore a balanced diet and the food groups needed in a balanced diet. They will use this information to design and make a sandwich that has a balanced diet- they may also want to consider product that do not use palm oil. The second element to this project is to build upon their knowledge of nets to create a sustainable and user-friendly packaging for their audience which advertises the health benefits and environmental benefits of their product.
<b>Year 3</b>			
<b>D.T. Enquiry and Subject Links if appropriate</b>	<b>D.T. Food- Eating Seasonally- Seasonal pie, tart or crumble</b>  <b>History- Who made the most significant changes in human pre-history and how do we know?</b>	<b>D.T. Textiles- Egyptian Collar</b>  <b>History- Who were the Ancient Egyptians and what marks did they leave behind?</b>	<b>D.T. Structures and Mechanical Systems (levers and pivots) Creating a Flood Safe Structure for the people of Bangladesh</b>  <b>Geography-Are Rivers a Friend or Foe?</b> <b>Citizenship- Flooding- Homes for Bangladesh</b>
<b>Unit Overview</b>	In History children will have learnt that in pre-history Nomads were people who moved to find food. Nomads often lacked fixed permanent dwellings and, instead, "followed the food." Hunter-gatherers, though, hunted wild animals and gathered food sources from the wild. During the Neolithic period of the Stone Age farming began and people began to settle in one place as they could grow their own crops and did not need to travel to find food.  In D.T children will explore the cost of having all foods all year round and the benefit on the planet of eating seasonally. They will learn which foods naturally grow in which season and use this information to create a seasonal pie or crumble. They will look at what fruit and vegetables are ripe in Autumn/Winter and work in groups to create a recipe and make a seasonal crumble, tart or pie using these ingredients. They will then be taste tested 'Bake Off' style by their classmates and a set of judges to evaluate the products for their balance of flavours and decide on an overall winning product.	In History children will have learnt the importance of dress as a symbol of status and wealth in Ancient Egypt.  In this D.T. project children will be challenged to design, make and evaluate their own Egyptian collar and look at the various designs and types of collar through this period of history.  Children will use a range of cutting techniques building on learning from Year 1 term 2. They will thread their own needles and tie knots. Children will use cross-stitch to join fabrics and attach applique details and embellishments to their designs. Children will evaluate their end products and display for an audience in the Carr Lodge Museum with detailed explanations of their design process.	In Geography pupils have learnt about the plight of those in Bangladesh within their Red Cross Rescue Mission for flood victims.  As children will have developed secure knowledge of flooding and the impact on buildings, we will then monopolise this knowledge to support in designing and making a 'flood-safe' structure for the people they have been previously working to rescue.  Children will need to consider frames and the shape of frames to create a stable structure. The materials the villagers would have available to them to make the structures with. Children will explore frame structures and which shapes will be best to support the houses.  Children will then develop their knowledge of mechanical systems building on learning of wheels and axles in Y2 to using levers and pivots to consider a safety aspect for their houses such as raising a flag when there is danger or a level to create a drop-down/lift-up ramp to get to the property.
<b>Year 4</b>			

<p>D.T. Enquiry and Subject Links if appropriate</p>	<p><b>D.T. Food- Mass Production Vs Fresh Home Grown products (Biscuits and Buns- product design and enterprise)</b></p> <p><b>Textiles- Pencil Case or Pouch with Fastening</b></p> <p><b>Geography- Why do we export from Doncaster?</b>  <b>History- Industrial Revolution</b>  <b>Art- Textiles- Paisley sewing patterns</b></p>	<p><b>D.T. Mechanical Systems- Pneumatic/Slingshot Cars</b></p> <p><b>History- What was the impact of the Roman invasion on Britain and what have they left behind?</b>  <b>Science- States of Matter</b>  <b>Y3 Forces</b></p>	<p><b>D.T. Electrical Systems-Lanterns and Torches</b></p> <p><b>Geography- What makes the Earth angry?</b>  <b>Natural disasters/Impact of global warming</b>  <b>Science- Electricity</b></p>
<p>Unit Overview</p>	<p>Textiles- Children will have already developed and practised aspects of Y4 textile knowledge within their Art lessons linked to creating their own paisley design using a variety of techniques e.g. printing, dyeing, weaving, stitching to create different textural effects, joining fabrics using more than one type of stitch (running and cross stitch). Experiment with adding detail to fabric by gluing or stitching.</p> <p>In DT they will then use their Paisley piece to embellish a book sleeve with a fastening such as: press stud, velcro, zip, toggle, button. Children will explore a range of book sleeve styles from envelope to jacket and make choices on colour, size, material, stitches and fastening. They will use prototypes with paper before preparing the resources and steps they will need to take to create their book sleeve. Children will then evaluate their design and suggest how they would modify or evolve it further.</p> <p>Food- In their History and Geography units children will have visited a factory to look at a product been mass produced and distributed. Pupils will then look at supporting small businesses and become mini small businesses where they will be tasked with designing and making a baked product (biscuit or bun). Children will make decisions as a team on flavours and advertising of their product and write the recipe for their product before making and selling them as part of their enterprise work. Children will then evaluate each other's products in a taste test.</p>	<p>In History children have learnt about the significance of the Roman era on Britain due to their many inventions and entrepreneurial minds.</p> <p>Children will be invited to become entrepreneurs to create their own Pneumatic or Slingshot Car- 'The Car of the Future'. During this challenge they will research both pneumatic and air resistance systems to decide which system they will power their vehicle with. Children will also need to research and road-test different shapes and structures for their vehicle choosing a shape that increases or decreases speed depending on the qualities they want for their vehicle. Whilst selecting materials for their functional and aesthetic characteristics.</p> <p>Children will also need to consider design features, colours, logos and unique features for their design. It will be important for children to collaborate and consider the views of others as they test out prototypes of their final design (market research). They will finally need to evaluate the speed of the final product and the effect their final design and workmanship had on its performance.</p>	<p>In Geography children have learnt about the impact of natural disasters on locations within the 'Ring of Fire'. They will understand the different types of Natural Disaster and the devastation they may cause.</p> <p>In D.T. children will be given the task to consider how they can use solar energy to support a back-up lighting system for people in disaster zones. Children will build on their learning on Science of circuits to design, make and evaluate a torch or lantern that can be charged using solar energy. Children will need to consider their target audience in their design and consider a key list of criteria.</p> <p>In groups, children will present their final designs to the class and an 'environmental panel' and evaluate each other's products against the design brief.</p>
<p>Year 5</p>			
<p>D.T. Enquiry and Subject Links if appropriate</p>	<p><b>D.T. Textiles- Anti-Racism Patchwork Wall Hanging</b></p> <p><b>Food- Food from different cultures and diet- Diwali Preparation</b></p>	<p><b>D.T.- Mechanical Systems/ Electrical Systems- Young Engineers- James Dyson Process Box</b></p>	<p><b>D.T. Structures- Truss Bridges Structures</b></p>

	<b>History-Should Britain be proud of the British Empire? R.E.- Hinduism-Diwali</b>	<b>Science- Earth/Space</b>	<b>Geography-What will happen when all the forests are gone? How can we stop deforestation? Science- Properties and Changes of materials</b>
<b>Unit Overview</b>	<p>In History, the children will look at the history of the slave trade and the link with the British Empire. In Geography children use maps to learn about the growth and demise of the British Empire and the journeys utilised as part of the slave trade. This promotes a strong development of SMSC and British Values linking to Tolerance and Respect.</p> <p>Textiles-With this in mind, in DT pupils will use their knowledge of Social Justice to create a wall hanging campaigning a Anti Racism/Inclusivity/Diversity message. Each child will have a patch to attach to a larger piece of collaborative work. They will design a logo and slogan phrase for their patch. Building on the previous stiches, applique and embellishments children have learnt in LKS2 children will use a variety of stitches and develop a blanket stitch within their designs and will be required to have a padded or ‘stuffed’ element to their design.</p> <p>Food- In R.E. children will learn about the Hindu festival, ‘Diwali’. As food is an important aspect of many cultures children will explore food and recipes that represent different cultures and celebrations. Children will then look at traditional dishes linked to Diwali and follow a step-by-step recipe to create these dishes using equipment such as knives, pans and hobs safely. Children will also develop their knowledge of nutrition and how changing ingredients can change the nutritional value.</p>	<p>Linked with our learning on Careers Y5 will engage with the James Dyson Process Box project to learn about being a Young Engineer. This will introduce children to the design process, developing their analytical skills and helping them to understand the thinking behind the products they use every day.</p> <p>The Design Process Box includes a Dyson Air Multiplier™ fan as an example of an invention that solves an everyday problem. Students will learn about the fan’s development and use their analytical skills to redesign something in their classroom.</p> <p>Pupils will also learn what a design engineer is – spotting stereotypes and challenging preconceptions. Children will watch interviews with Dyson design engineers to give an insight into the world of design engineering.</p>	<p>In Geography the children will learn about forests around the world and the impact caused by deforestation (human geography).</p> <p>Children will know about significant landmarks around the world.</p> <p>Children will be given the task of researching famous bridges around the world to look at the key design features of a frame structure. Building on their learning of frame structures in Y3 Term 3 when they designed houses in flood risk areas.</p> <p>Children will know the difference between arch, beam and truss bridges and the purposes for the different bridge types.</p> <p>The children will then work <b>collaboratively</b> to make a prototype bridge using triangles to create a truss bridge in order to test them on how well they can hold weight at different sizes and spacing of the triangle. Through this children will understand how triangles can be used to reinforce bridges. They will then adapt and modify their design before building their final design and evaluate its effectiveness.</p>
<b>Year 6</b>			
<b>D.T. Enquiry and Subject Links if appropriate</b>	<p><b>D.T.</b> <b>Street Food- What does Street Food show us about cultural influences in Modern Britain?</b></p> <p><b>History-Which people have fought for my rights? Civil Rights- cultural, political, religious and social history International</b></p>	<p><b>D.T.</b> <b>Electrical Systems- Creating a Steady Hand Game</b></p> <p><b>History-What are we fighting for? World War II- Enigma-Coding</b></p>	<p><b>D.T.</b> <b>Mechanical Systems- James Dyson Air Pollution Project</b></p> <p><b>Geography- Why are we fighting for our future?</b></p>



<p><b>Unit Overview</b></p>	<p>In History, the children will understand the achievements and influence of the Ancient Greeks before moving onto looking a civil rights (Women’s rights, workers’ rights, Children’s rights, Early children’s acts and education acts) building on their learning from Year 5 about the slave trade. The children will use maps to see the growth and demise of the Greek Empire.</p> <p>In D.T. children will learn the cultural influences, that we see in our cuisine, through immigration to Britian over the years and how this has changed the flavours, spices and influences many of our favourite dishes include. By exploring street food from across the world children can learn how to make a variety of nutritious, fresh and appetising dishes and their origins such as Mexican, Indian and Middle Eastern. Children will then continue to develop their cooking skills using knives, pans, hobs and oven to create a dish from scratch to serve to others. Pupils will then evaluate the dishes they have made and the flavours their palates can identify.</p>	<p>In History, children will learn about the cause and effect of events in 1939 that resulted in the outbreak of WWII. The children will learn about the leaders involved, the turning points in the war and post war events.</p> <p>In D.T. the children will learn the significance of the German Engima and how Alan Turing worked to create the Bombe to break the Engima Code. Turing also invented the ACE (Automatic Computing Engine), which was arguably the forerunner to the modern computer.</p> <p>Children will know how inventors are people who work to create a solution to a problem- building on their knowledge of James Dyson in Year 5.</p> <p>Children will work as inventors to create their own electrical system to make a game of their design and choice that uses a buzzer or bulb. Children will research what games may be interesting to children/adults of different ages and work through a design process based on their research. They will then work on prototypes prior to making their completed design. Children will then test out their products and gain feedback making it a successful product.</p>	<p>In this final unit of Geography, the children will learn about climate change and being involved in actively raising awareness and having a positive impact on the world.</p> <p>In D.T. children will carry out the James Dyson- Young Engineers Project. They will learn who James Dyson was and the significant number of attempts he had before he successfully created the first Dyson Vacuum Cleaner. Pupils will be exposed to engineering and explore how engineers can solve global challenges, focusing on the problem of air pollution. The children will learn what air pollution is and how the Dyson Pure Cool™purifying fan works as a solution to indoor air pollution. Pupils will consider their own exposure to air pollution and design and build a solution to the problem, by following the design process.</p>
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**Design and Technology- Progression through Themes**

	Food	Structures	Mechanical	Textiles	Electrical
Nursery	x				
Reception					
Year 1	X	X			
Year 2	X	X	X	X	
Year 3	X	X		X	
Year 4	X		X	X	X
Year 5	X	X	X	X	X
Year 6	X		X	X	X