Design Technology Subject Overview

Year 3	National Curriculum Objectives	Skills	Key Questions	Suggested Learning Experiences	Vocabulary (Tier 2/3)
Autumn **The Land Before Time** **Mechanisms - Pneumatics**	Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately Investigate and analyse a range of existing products understand how key events and individuals in design and technology have helped shape the world Understand and use mechanical systems in	How to use equipment safely and ensure the environment is safe for yourself and others to work in. How to plan, design and re-design their product through reviewing it against others and specific criteria. Learn how to select the appropriate tool for the skill they need to perform. To evaluate their product effectively. What have they done well and what they could improve on? To feedback on someone else's product effectively in order to be able to achieve the objective for peer evaluation in the spring and summer terms.	How can air be used as a force? How do we make a pneumatic system? How can We make a model of a toy using pneumatics? How can we work as a team to produce a quality design?	1). Remind children of previous learning. In Year 2, they made a model home through their construction topic. What skills were important when making those products? What did you have to do before you could begin making your product? TTYP how many objects they can think of which use air? Show pictures of different objects which use air (pumps, whistle, wind instruments etc). Show pictures of different objects one at a time (a sliding whistle, a bicycle pump, a beach ball, arm bands) – ask chn to describe what the air does and how it has been used in the design of the product – teacher to scribe ideas on flipchart paper. Make clear that the system of making things work using air is called pneumatics. Chn to match the description of air used to the correct object. Choose one object, draw and label how the air is used to make the object work. 2. Investigate simple pneumatic systems. Recap the meaning of pneumatic. Use balloons as object which needs to fill with air. How could you fill it with air if you didn't have a balloon pump? Investigate using different objects (paper straws, plastic straws, syringes, plastic bottles) which objects worked the best? Which object worked the worst. 3. The cavemen have sent a letter to the class to say they are bored, and they have heard you are learning about pneumatics. Can you design a toy for the cavemen to play with which move using air?	Tier 2 Develop Communicate Discuss Annotate Plan Evaluate assemble Disassemble Investigate diagram Tier 3 Tools Pneumatic system Technique Air pressure Product Design criteria Model Mechanism

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	their products [for example, gears, pulleys, cams, levers and linkages]			Show examples of pictures (some examples can be found on here: https://www.thegrangeacademy.co.uk/downloads/year_3_stone_age_shelter.pdf) Create a design criteria. What do all of the toys have in common? What should your toy have? (something opens or travels, need to be able to push air into something, colourful, fun etc). 4. Watch videos of different toys showing how to make them. https://www.youtube.com/watch?v=7ymzEIUENPY https://www.youtube.com/watch?v=HJJZoekmvCE https://www.youtube.com/watch?v=BD353qP2i78 What do you want your toy to do? What equipment will they used and why? Make a list of ideas. E.g Cardboard base and axels and wheels for it to roll; cardboard to create a monster's mouth to open and close; balloon for the air to go into, tube and syringe to push the air into or straws to blow air into or bottle to push the air through. In pairs/teams - draw a picture of your design front and back, and label it. Could they write which equipment serves which purpose? 5. In pairs/teams - create their design using the equipment they have chosen. Ensure their toy moves using air pressure. 6. Test their toy. Does it work. Evaluate their work. What do you like about it? What would you improve? Focus on whether they have been able to create a pneumatic system. Why? Why not?	
Spring **Rome and Romans** **Food**	Understand and apply the principles of a healthy and varied diet	Plan the order of their work so it flows logically	Why is eating a range of different food groups important?	1). Remind children of previous learning. In Year 2, they looked at healthy eating and made a pizza through their food topic. In Year 1n they made a soup through their food topic.	Tier 2 Prepare Storage Accurately Purpose Identify

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	Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Investigate and analyse a range of existing products Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	Demonstrate hygienic food preparation and storage Work safely and accurately with a range of simple tools. How to make the environment safe for themselves and others. Learn how to use the cooker safely with adult support.	How would a Roman soldier's diet be different to a soldier's today? How can I make something to add to a Roman banquet as part of a balanced diet? How can you weigh your ingredients accurately?	What skills were important when making those products? What did you have to do before you could begin making your product? Can you remember the different food groups? Show the food groups, TTYP what foods are in each group? Why are these foods important? Watch https://www.youtube.com/watch?v=eSEYPO30AN0 Design a healthy lunch box. What would you put inside it and why? (Ham sandwich for protein and starch, a chocolate bar for sugar which is used for energy). 2. Last week we looked at what food we could eat which was part of a balanced diet, this time we're going to look at what the Romans should eat. Look at examples of meals – show healthy meals and not healthy meals, listing the basic ingredients – what makes them healthy/not healthy. The Romans enjoyed banquets. They ate three main meals a day, ientaculum (breakfast), prandium (lunch) and cena (dinner). Make a list of food they could have at their banquet. Draw a picture of what their banquet will look like. Food should be cut into bitesize pieces so you can pick it up using your fingers because they had no cutlery. Remember to include food from a range of different food groups, examples of food could be • cheese • bread • olives • chicken • lamb • fish • peas • salad • apples • pears • grapes • honey…… Some Roman food you might have difficulty getting hold of include dormice, flamingos, garum (a sauce made out of fish guts and blood), giraffe and jellyfish! 3. We are going to make bread as part of a healthy banquet. Show pictures/bring in different types of bread (white, brown, seeded, best of both, baguette). Taste test or discuss which bread they prefer and why? Create a design criteria about what their bread will include: taste, colour, shape.	Successful Explore Develop Communicate Evaluate plan Tier 3 Hygienic Food groups Balanced diet Cut Chop Grate Slice Boil Design criteria Recipe ingredients

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				Design a picture of what they want their bread to look like. 4. What ingredients do you need to make bread? How do you make bread? https://www.youtube.com/watch?v=NqkREe0wvkM Order pictures of how to make bread. Chn to create a recipe for their bread. 5.. Children to follow their recipe to make the bread, weighing and measuring amounts accurately. With an adult, bake the bread in the oven. Taste test along with a range of other healthy food items (grapes, olives, cheese, and spread for the bread – honey, butter, jam). 6. Evaluate their bread. What did you like about it? What would you improve? Focus on taste, colour, shape.	
Summer **Inventions** **Construction**	Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	Think about their ideas as they make progress and be willing change things if this helps them improve their work. Make drawings with labels when designing to clearly identify materials and how they will be stuck/held together. Understand the dangers of electricity and working with electrics. How to work in a safe environment, make the	What do all sensor lights have in common? What shapes will you use to make your sensor light? What angles do your shapes have? What 2d shapes do you have? Have you included any 3d shapes in your construction?	Remind children of previous learning. In Year 2, they made a model home through their construction topic and in Year 1 they made a model fire engine. What skills were important when making those products? What did you have to do before you could begin making your product? Invent a sensor light. Examine a variety of different sensor lights and name different parts/components. Identify the purpose of each component. Produce a design specification for what they need to make a good sensor light. Disassemble a real weather sensor light and examine how the parts fit together. Write an explanation of what a sensor light is and how it works. Watch video of how you make a sensor light. What tools might they need to use and what joining methods would they need to use to make it.	Tier 2 Purpose Evaluate product process evaluate design Tier 3 Components Design specification Joining techniques Tools Model Recyclable materials

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	Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities Investigate and analyse a range of existing products Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Understand how key events and individuals in design and technology have helped shape the world Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] Understand and use electrical systems in their products [for	environment safe for yourself and others and spot potential dangers. How to use equipment safely and ensure the environment is safe for yourself and others to work in.		Chn to use a range of 2d/3d shapes to make their model. Measure length of sides before cutting. Make model. Demonstrate how they may need to rethink and adapt ideas through making process when things do not work. Test and evaluate own product against design specification. How could they improve the strength, appearance and quality of the design?	assemble Disassemble strength appearance

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	example, series circuits incorporating switches, bulbs, buzzers and motors]				