Whole School Chuckery DT Curriculum

Phase	Year group	Topic name	Product	NC focus	Disciplinary concepts	Substantive concepts	Key knowledge
KS1	Year 1	Healthy Eating	Making a fruit salad/ smoothie	**Design** - design purposeful, functional, appealing products for themselves and other users based on design criteria - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make** - select from and use a range of simple tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] -select from and use a wide range of materials and components,	• Research similar existing products and say what is and isn't good • Use pictures, words and templates to plan my own ideas • Design a product by following a design criteria • Select and use a range of tools safely • Try to make the product look appealing • Work in a safe and hygienic manner • Evaluate my work, linking it to what I was asked to do • Begin to talk about what could make my product better	Food Can a salad become a work of art?	• Be able to describe different textures in fruits and vegetables • Know that they must wash hands & clean surfaces before they start • Think of interesting ways to decorate food • Be able to say where some foods come from • Be able to describe simple differences between some food groups (i.e. sweet, vegetable etc. • Know that fruit and vegetables are healthy • Know what tools they might use to cut, peel and grate safely
		Vehicles	Build a moving car			Mechanical systems and mechanisms How do I make my car roll?	• Be able to point to an axle on their product and say what it does • Explain how they have used an axle to build a moving car • Talk about which material they chose to make their vehicle and why • Talk about how they joined their materials and how they made it strong • Talk about how they finished their vehicle and why
		Trees	Moving parts storybooks			Mechanical systems and mechanisms How can I make my picture move?	• Know that levers and sliders can be found in existing products such as pop up books. • Be able to talk about which part of their storybook moves and how they did it. • Start to use the words levers or sliders in their explanation. E.g. A slider allows for movements from side to side or up and down. You can use a slot in paper to do this. • Talk about which material they chose to make their book and why • Talk about how they joined their materials and how they made it stronger • Talk about how they finished their book and why
		London	Building a structure – houses of parliament etc			Structures How do I make my building strong?	• Describe ways that they could join materials to make a structure • Know that some materials are better than others when making a structure. • Suggest ways to make the structure stronger, stiffer and more stable • Talk about how they finished the structure to make it look appealing

		Toys through Time	Making a fabric puppet	including construction materials, textiles and ingredients, according to their characteristics **Evaluate** - explore and evaluate a range of existing products - evaluate their ideas and products against design criteria **Technical knowledge** - build structures, exploring how they can be made stronger, stiffer and more stable -explore and use mechanisms [for example, levers, sliders, wheels and axles], in their Products - use the basic principles of a healthy and varied diet to prepare dishes -understand where food comes from.		Textiles What's the best way to join fabrics?	• Describe ways that they could join fabrics e.g. stitching, staples, glue • Explain which materials they chose and how they joined them. • Name simple stiches e.g. running stich • Think of interesting ways to decorate their product. • Talk about how they worked safely e.g. Needles and scissors are sharp and must be used carefully.
		The Blue Umbrella	Making a waterproof umbrella			Textiles Which materials are best for an umbrella?	• Describe ways that they could join fabrics e.g. stitching, staples, glue • Describe differences in properties of materials • Explain which materials they chose and how they joined them.
	Year 2	Light and Dark	Make samosas or lassi		• Use knowledge of existing products to generate own ideas • Design products for myself and others following design criteria • Explain the purpose of the product, how it will work and how it will be suitable for the user • Design using pictures, words and templates • Choose tools and materials and explain choices • Use tools and be able to measure materials in a more confident way. • Use finishing techniques to make product look good • Work safely and hygienically. • Describe what went well, thinking back to the design criteria. • Talk about what I would do differently if I were to do it again	Food What's in a samosa and where does it come from?	• Be able to explain how they worked in a hygienic way • Describe properties of ingredients and the importance of a varied diet • Say where their food comes from (animal, underground etc.) • Describe how food is farmed, home-grown, caught • Describe what "five a day" means • Describe what they used to cut, peel and grate
		Meerkat Christmas	Moving Christmas card			Mechanical systems and mechanisms How can I make my card move?	• Know that levers and sliders can be found in existing products such as pop up books. • Be able to talk about which part of their card moves and how they did it. • Be able to use the terms levers or sliders in their explanation. E.g. A slider allows for movements from side to side or up and down. You can use a slot in paper to do this. • Talk about which material they chose to make their card and why • Talk about how they joined their materials and how they made it stronger • Talk about how they finished their book and why
		Bird Feeder	Make a bird feeder			Structures How do I make my feeder strong enough	• Be able to talk about how they measured and joined their materials • Describe some different characteristics of materials and explain their choices

						to withstand the weather?	• Explain how joining, rolling or folding can make a structure stronger • Talk about how they made the structure appealing.
		Singapore	Make a fabric passport holder			Textiles What's the best way to join and decorate fabrics?	• Describe ways that they could join fabrics e.g. stitching, staples, glue • Describe differences in properties of materials • Explain which materials they chose and how they joined them. • Talk about the best way to cut textiles to produce accurate pieces • Understand that a 3D textile structure can be made from two identical fabric shapes. • Talk about how they worked safely e.g. Needles are sharp and must be used carefully. Needles and pins should be put into a pin cushion or strip of felt when not being used. Carry scissors pointed down towards the floor and closed.
LKS2	Year 3	Edible Garden	Making flat breads and soup	**Design** - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups -generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes,	• With support evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose • Design a product and know its purpose • With support create a plan which shows order, equipment and tools • Describe designs using labelled sketches and words • Select suitable tools/equipment and use with increasing accuracy • Select appropriate materials that fit the purpose • Use tubing and a syringe to create a pneumatic system. • Start to alter product after checking.	Food What ingredients do I need to make soup and bread and where do they come from?	• Be able to name and describe the ingredients they have used • Talk about how to they could grow plants to use in their cooking • Begin to understand that food comes from the UK and the wider world • Describe how healthy diet= variety/balance of food/drinks • Explain how food and drink are needed for active/healthy bodies. • Describe ways in which they prepared and cooked their dish safely and hygienically e.g. Peelers and graters are sharp. Keep fingers away from the sharp edges. Ovens are hot and adult supervision is needed. • Know some of the following techniques: e.g. peeling, chopping, slicing, grating, mixing, spreading, kneading and baking
		Lets go to China	Pneumatics to make a dragon's mouth open and close			Mechanical systems and mechanisms How do I make the dragon breathe fire?	• Know that many products are use air to make them work for example a whistle, bike pump, balloon or swimming armbands • Investigate and explore different pneumatic systems using different objects. E.g. balloon, washing up liquid bottle, syringe, tubing etc. • Be able to talk about which part of their dragon moves and how they did it. E.g. The monsters mouth uses a pneumatic system to open and close. Two syringes are connected with tubing.

				pattern pieces and computer-aided design **Make** -select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **Evaluate** - investigate and analyse a range of existing products - evaluate their ideas and products against their own design criteria and consider the	• Begin to apply a range of finishing techniques • Use design criteria to evaluate finished product • Say what I would change to make the design better		When the outer syringe is pushed in, the pressure of the air travelling through the tubing will push the syringe in the monster's mouth out causing the mouth to open. When the syringe is pushed back in, the mouth of the monster will close. • Know that air travels in and out of objects such as balloons. Use the terms inflating and deflating. • Describe how they worked accurately to make cuts and holes e.g Use a pencil and blue-tack to safely make a hole to insert the tubing. • Talk about which material they chose to make their dragon and why • Talk about how they joined their materials and how they made it stronger • Talk about how they finished their dragon and why
		Magnets and Forces	Magnet game			Mechanical systems and mechanisms/Textiles How do I make a moving game stick?	• Describe the different properties of materials and justify their choices. • Be able to describe how they made the moving part of their game and why it is needed. • Talk about how they joined their materials • Use more accurate vocabulary e.g. Dowling • Describe how 'layering, braiding or twisting' can be used to strengthen the rod. • Describe ways in which they worked safely Make sure your fingers are clear of the blade. When you begin to cut. Always hold the saw by the handle and carry with the blade pointing downwards
	<u>Year 4</u>	Mount Etna Sicily	Making pizza dough, and pizzas		• Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose • use research for design ideas • With support show how their design meets a range of requirements and is fit for purpose	Food What are the best ingredients for a pizza?	• Explain how they have worked safely and hygienically to prepare a dish e.g. Knives must be carried pointing downwards with a firm grip on the handle. Peelers and graters are sharp. Keep fingers away from the sharp edges. Use oven gloves when removing items from the oven and always do this with an adult. • Talk about how they have presented their product in an interesting and attractive way. • Understand that ingredients can be fresh, pre-cooked or processed • Begin to understand about food being grown, reared or caught in the UK or wider worl

				views of others to improve their work - understand how key events and individuals in design and technology have helped shape the world **Technical knowledge** - apply their understanding of how to strengthen, stiffen and reinforce more complex structures - understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] - understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] - apply their understanding of computing to program, monitor and	• With support create own design criteria • Produce a plan and explain it to others, including an annotated sketch • Select suitable tools and materials and explain choices in relation to required techniques and use accurately • Make alterations to product after checking it • Grow in confidence about trying new / different ideas • Measure and mark accurately for cutting and begin to devise their own templates • Apply a range of finishing techniques with some accuracy • Use criteria to evaluate product • Explain how I could improve the original design		• Describe the eat well plate and how a healthy diet=variety / balance of food and drinks • Explain the importance of food and drink for active, healthy bodies • Be able to talk about the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking
		Electricity	Making a buzz game			Mechanical systems and mechanisms How do I make my game make a sound?	• Describe the different properties of materials and justify their choices. • Know that electrical components can be added into a structure to add light, sound or motion • Know that some materials conduct electricity. • Be able to describe how they made the electrical part of their game and why it is needed. • Explain how the circuit must be complete in order to connect the buzzer. • Talk about how they joined their materials to make their game strong • Describe ways in which they worked safely e.g. Make sure your fingers are clear of the blade. When you begin to cut. Always hold the saw by the handle and carry with the blade pointing downwards
		How did the Plague compare to Covid 19?	Design and sew a fabric facemask			Textiles How do I join fabric to make a face mask?	• Know how to do a running stitch, how to cut around a template and when it is appropriate to use glue or other techniques to attach things to fabric. • Use a back stitch: use to decorate fabric or join two pieces of material. • Use a blanket stitch: useful for sewing a fabric edge or attaching applique • Talk about the user and how they choose their textiles • Understand that a simple fabric shape can be used to make a 3D textiles project • Talk about how they worked safely e.g. Needles are sharp and must be used carefully. Needles and pins should be put into a pin cushion or strip of felt when not being used. Carry scissors pointed down towards the floor and closed.
<u>UKS2</u>	<u>Year 5</u>	Exploration	Design a rover to withstand exploration of the arctic		• Use the internet and questionnaires for research and design ideas and take a user's	Structures	• Know that a structure's strength comes from its shape and the materials it is constructed from.

				control their products. understand and apply the principles of a healthy and varied diet - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques - understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	view into account when designing • Have a range of ideas and create own design criteria • Produce a detailed plan from different viewpoints and annotated sketches • Measure and mark accurately for cutting and begin to devise their own templates • Accurately apply a range of finishing techniques • Begin to be resourceful with practical problems and make adaptations along the way. • Evaluate ideas and finished product against specification, considering purpose and appearance. • Test and evaluate final product • Research how sustainable materials are	What structure would withstand an arctic exploration?	• Know that structures can be made stable in a variety of ways such as: Joining materials together with paper clips, strong glue, tape or staples • Rolling paper or card tubes Folding—concertinaing or adding layers to paper • Layering—corrugated card can be layered to create an extra strong base • Know that a triangle is considered the strongest structural shape and be able to talk about where they see examples of this in the real world. • Talk about how they strengthened the corners of their structure e.g using triangular support structures. • Justify the materials they have used, knowing that they have different properties
		Earth and Space	Orrery Model			Mechanical systems and mechanisms How can I make the moon travels around the earth on my model?	• Know that simple mechanical systems can be moved with levers, sliders, wheels and axles. • Materials can be joined in different ways for example using glue, tape or by glue gun. Different joins are used for different effects and reasons. • Describe how to make a moving pulley mechanism using a wheel and axle. The axle will turn to allow the planets to move. • Know that their structures must be strong • and stable so that the pulley mechanism can work and describe how they achieved this. • Know how to measure, mark out, cut and shape the components to make a pulley. • Explain how they made their product appealing to the person it is being made for. • Talk about how they refined their product after testing it • Recall ways in which they worked safely and with some accuracy e.g. Allow time for the glue to cool before holding the lighthouse. Always work with an adult when you are using the glue gun.
		The Meaning of Christmas	Electronic cards			Mechanical systems and mechanisms How do I make my card light up?	• Know that electrical components can be added into a structure to add light, sound or motion • Know that some materials conduct electricity and be able to name these. • Be able to describe how they made the electrical part of their card and why it is needed.

							• Explain how the circuit must be complete in order to connect the light. • Talk about how they joined their materials to make their card strong and how they hid the electrical part from the user. • Explain how they made their product appealing to the person it is being made for.
	<u>Year 6</u>	The Heart	Make a stir fry/healthy main meal		• Conduct thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose • Create own design criteria and specification and come up with innovative design ideas • Use annotated sketches from more than one viewpoint and/ or exploded diagrams when required. • Make design decisions, considering, resources and cost • Clearly explain how parts of their design will work, and how they are fit for purpose • Independently model and refine design ideas • Use computer-aided designs • Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics • Create, follow, and adapt detailed step-by-step plans • Use equipment accurately e.g. weighing scales, saws	Food What does a healthy meal consist of?	• Understand that a recipe can be adapted by adding / substituting ingredients • Explain seasonality of foods • Learn about food processing methods • Name some types of food that are grown, reared or caught in the UK or wider world • Adapt recipes to change appearance, taste, texture or aroma. • Describe some of the different substances in food and drink, and how they can affect health • Prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source. • Use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, • Be able to talk about how they worked safely and hygienically e.g Knives must be carried pointing downwards with a firm grip on the handle. Peelers and graters are sharp. Keep fingers away from the sharp edges. Use oven gloves when removing items from the oven and always do this with an adult. Always wash your hands with soap and warm water before touching food. Ensure all surfaces and equipment are clean before you start cooking
		Electrical Circuits	Making a quiz game			Structures/Mechanisms How are circuits used in games?	• Know that electrical components can be added into a structure to add light, sound or motion • Know that some materials conduct electricity and be able to name these. • Be able to describe what circuits are needed to complete their game. • Talk about which materials they chose to make their game durable and how they hid the electrical part from the user. • Explain how they made their product appealing to the person it is being made for. • Discuss how their product can be made using sustainable materials.

					• Evaluate ideas and finished product against specification, stating if it's fit for purpose • Test and evaluate final product; explain what would improve it and the effect different resources may have had		• Talk about how a product might be sold
		The Home Front	Making soft toys			Textiles How do I make a 3d toy out of fabric?	• Describe the user's wants/needs and aesthetics when choosing textiles • Talk about how they made their produce more durable. • Know what a prototype is and why they might make one • Understand that a single 3D textiles project can be made from a combination of fabric shapes • Know how to do a running stitch, how to cut around a template and when it is appropriate to use glue or other techniques to attach things to fabric. • Use a back stitch to decorate fabric or join two pieces of material. • Use a blanket stitch: useful for sewing a fabric edge or attaching applique • Talk about how they worked safely e.g. Needles are sharp and must be used carefully. Needles and pins should be put into a pin cushion or strip of felt when not being used. Carry scissors pointed down towards the floor and closed.