Design and Technology MTP – Year 3-4 Spring

Design & create a healthy snack wrapper

National Curriculum	Wk.	NC coverage	Knowledge and Skills	Key Vocab	Activity Outline
To evidence D&T, a **project booklet** needs to be created.					
Purpose of study: Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation. **Aims** The national curriculum for design and technology aims to ensure that all pupils:	1	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	Think ahead about the order of their work and decide upon tools and materials/ingredients.	Packaging Sustainability Biodegradable	TBQ: What are snacks packaged in? Introduction to healthy snacks and the purpose of food packaging. Discuss the environmental impact of packaging. Examine existing snack wrappers and evaluate their materials and functionality.
	2	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	Propose realistic suggestions as to how they can achieve their design ideas.	Function Eco-friendly Protection	TBQ: What is the purpose of snack wrappers? Discuss how packaging protects food and ensures its safety. Examine different types of snack wrappers (plastic, paper, foil). Introduce examples of eco-friendly packaging.
	3	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	Propose realistic suggestions as to how they can achieve their design ideas.	Material Properties Recyclable	TBQ: What are packaging materials? Explore different types of packaging materials (paper, fabric, biodegradable plastics). Discuss the properties of each material. Consider how each material could be used for snack packaging.
	4	generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded	Record the plan by drawing using annotated sketches.	Design Sketch Functionality	TBQ: Can I design a wrapper? Introduce design sketching techniques. Students create initial sketches of snack wrapper designs.

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• develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world • build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users • critique, evaluate and test their ideas and products and the work of others • understand and apply the principles of nutrition and learn how to cook. **Key stage 2** Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to: **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		diagrams, prototypes, pattern pieces and computer-aided design			Discuss how to incorporate eco-friendly materials into their designs.
	5	generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	Develop more than one design or adaptation of an initial design.	Brief Specification Sustainability	TBQ: What is a design brief? Introduce the concept of a design brief and how it guides the project. Students write their own design briefs, detailing their materials, purpose, and sustainable choices.
	6	generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	Think ahead about the order of their work and decide upon tools and materials/ingredients.	Material Selection Durability Selection	TBQ: Which materials should I use? Discuss the strengths and weaknesses of different materials. Students choose the materials they will use for their snack wrapper. Introduce safety guidelines for using tools and materials.
	7	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	Use prototypes to develop and share ideas.	Prototype Testing Modification	TBQ: Can I create a prototype? Students create a first version of their snack wrapper using their chosen materials. Discuss the importance of prototyping to test designs before finalising.
	8	evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	Discuss how well the finished product meets the design criteria of the user.	Evaluate Freshness Secure	TBQ: Is my prototype functional? Students test their snack wrappers (e.g., fill them with snacks, check if they are secure, and if they keep the snacks fresh). Students make notes on any adjustments needed.

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groups • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, 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 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	9	apply their understanding of how to strengthen, stiffen and reinforce more complex structures	Identify the strengths and weaknesses of their design ideas in relation to purpose/user.	Refinement Functionality Feedback	TBQ: How do I improve my prototype? Students review feedback from their tests and make improvements to their designs. Re-test the modified versions.
	10	select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	Discuss how well the finished product meets the design criteria of the user.	Final design Instructions Evaluation criteria	TBQ: Can I finalise my snack wrapper? Students complete their final designs and check that all requirements are met. Create detailed instructions for making the snack wrapper.
	11	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	Select from a range of tools for cutting shaping joining and finishing.	Assembly Precision Craftsmanship	TBQ: Can I produce the 'perfect' snack wrapper? Students begin constructing their final snack wrappers using the materials they selected. Focus on precision and finishing touches. Finalise and decorate the snack wrappers. Students make sure their snack wrappers are functional and sustainable.
	12	evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	Discuss how well the finished product meets the design criteria of the user. Consider and explain how the finished product could be improved.	Presentation Self-evaluation Improvement	TBQ: How well does my snack wrapper perform? Students present their finished snack wrappers, explaining their design process and sustainability features. Class discussion on what worked well and what could be improved for future designs. Write a self-evaluation based on the project.

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 control their products.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to:
• 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.

13 – end

Assessment

Present your design process, explaining how you developed your snack wrapper from initial ideas to the final product.

Criteria:

Initial Research: Discuss the research you did into materials, functionality, and sustainability.

Design Brief: Explain the purpose of your snack wrapper and how you considered its functionality and sustainability in your design.

Sketches and Prototypes: Show the progression of your design from sketches to prototypes and explain the modifications made after testing.

Materials Selection: Describe why you chose the materials you used and how they contribute to the sustainability and functionality of the wrapper.

Write a reflection on your design and making process.

Criteria:

What Worked Well: Identify what aspects of your design and construction process were successful. Did your snack wrapper meet your design brief? Were there any challenges you overcame during the project?

Areas for Improvement: Reflect on what you could have improved in your design or construction process. Would you change the materials, design, or method if you were to do it again?

Learning Outcomes: Explain what you have learned about sustainable design, the properties of materials, and the importance of functional packaging.