Curriculum Planning – Key skills, design areas and design brief covered in each Year group
Design and Technology

KS2

Teaching sequence

- Big picture: Placing the DT being studied in the context of similar past learning in the subject
- Daily review: Brief review of learning covered in previous lesson/s
- Teacher delivers a design brief, posing a problem to be solved in a context the children understand
- Children research existing products and possible construction materials/ingredients/tools.
- Children create their own design, in response to the brief and their research
- Children make their product.
- Children improve their product.
- Children critically evaluate their work.

Potential GD pupils should also be encouraged to record more independently and freely as well as be encouraged to experiment with and use materials of their own choice. Their increasingly critical thinking and in depth evaluation of their own and others' design and technology work should be reflected in their books and the products they create with increasing confidence and independence of thought.

Learning, working and talking like a designer

Being introduced to the key vocabulary that a designer would use; high expectations of pupils 'talking' like a designer.

design	1. plan to do something with a specific purpose in mind 2. do a drawing of something before making it
designer	1. a person who creates a plan for something they want to make 2. KS2 – also focus on 'designer' as a job title/career, e.g. 'fashion designer'
technology	using what we know about science/computing to help us make useful things
product	an outcome piece with a function/that does something - not necessarily a thing which can be sold
brief	the initial instructions that tell us what we need to do in our project
user	the person who we are designing our product for, whose needs/wants must be taken into account
nutrition	the principles of a varied and healthy diet

Key Content

Construction, textiles, structures, mechanical systems, electrical systems, cooking and nutrition, computer aided design

Key Skills used in every project

	Year 3	Year 4	Year 5	Year 6
Research	• Investigate a range of existing products, discussing their features, construction, purpose and intended users.	• Learn about how key events and individuals in design and technology have helped shape the world. • Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.	• Learn about how key events and individuals in design and technology have helped shape the world. • Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.	• Learn about how key events and individuals in design and technology have helped shape the world. • Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.
Design	• Use their research to develop some of their own design criteria. • Draw a fully labelled sketch/diagram of their product, including some measurements.	• Use their research to develop some of their own design criteria. • Draw a fully labelled sketch/diagram of their product, including some measurements.	• Use their research to develop their own design criteria.	• Use their research to develop their own design criteria.

		• Choose the materials/ingredients/tools they will use, based on their suitability for the task. • List the materials/ ingredients/tools they will need. • Indicate where mechanisms will go and explain how they will function • Order the main stages of making. Cookery & nutrition • Use the principles of a healthy and varied diet to help inform their design decisions. • Understand seasonality and locality of food and use this knowledge when designing their product. • Create/adapt a recipe, including some weight/volume measurements.	• Indicate where electrical components will go and briefly explain how they will function. • Choose the materials/ingredients/tools they will use, based on their suitability for the task. • Indicate where/how materials will be joined in order to create a stable structure. • List the materials/ ingredients/tools they will need. • Order the main stages of making. • Indicate where electrical components will go and explain how they will function.	• Draw a fully labelled/annotated sketch/diagram of their product including measurements and cross-sections. • Indicate where/how materials will be joined in order to create a stable structure. • Indicate where mechanisms will go and explain how they will function • Choose the materials/ingredients/tools they will use, based on their suitability for the task, including sourcing their own materials where appropriate. • List the materials/ ingredients/tools they will need. • Write (brief) instructions for how they intend to make their product. • Apply their knowledge of computing to program, monitor and control their product.	• Draw a fully labelled/annotated sketch/diagram of their product, including measurements and cross-sections. • Indicate where/how materials will be joined in order to create a stable structure • Use computer aided design • Choose the materials/ingredients/tools they will use, based on their suitability for the task, including sourcing their own materials where appropriate. • List the materials/ ingredients/tools they will need. • Write (brief) instructions for how they intend to make their product. Cookery & nutrition • Independently apply the principles of a healthy and varied diet to inform their design decisions. • Apply their knowledge of seasonality and locality of food to inform their design decisions. • Create/adapt a recipe, including weight/volume measurements
	Evaluate	• Identify and discuss the strengths of their product. Identify any areas for development/ improvements that could be made. • Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? • Take part in peer evaluation, giving and receiving feedback from fellow pupils.	• Identify and discuss the strengths of their product Identify any areas for development/ improvements that could be made. • Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? • Take part in peer evaluation, giving and receiving feedback from fellow pupils.	• Identify and discuss the strengths of their product Identify any areas for development/ improvements that could be made. • Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? • Suggest improvements that could be made. • Take part in peer evaluation, giving and receiving feedback from fellow pupils.	• Identify and discuss the strengths of their product. Identify any areas for development/ improvements that could be made. • Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? • Suggest improvements that could be made considering materials, methods, sustainability and cost. • Take part in peer evaluation, giving and receiving feedback from fellow pupils.

Year 3				
	Theme 1	**Theme 2**	**Theme 3**	**Theme 4**
Area	Textiles	Mechanisms (wheels and axels)	Art & Design	Cookery & Nutrition
Brief	To design a Christmas decoration	To design and make a vehicle (link science)		Design and make a healthy savoury snack
Research	Research textile Christmas decorations.	Investigate a range of existing vehicles (bikes, cars, vans etc), discussing their features, construction, purpose and intended users.		Research a variety of snacks. Which are healthy? Which are savoury? Who would they appeal to? Look at the packaging, size, ingredients etc.

Design	Use their research to design their own decoration and draw a fully labelled sketch of their design. Choose the materials they will use and order the main stages of making it.	• Draw a fully labelled sketch/diagram of their product, including some measurements. • Choose the materials/tools they will use, based on their suitability for the task. • List the materials/ tools they will need. • Indicate where mechanisms will go and explain how they will function • Order the main stages of making.		• Use the principles of a healthy and varied diet to help inform their design decisions. • Create/adapt a recipe, including some weight/volume measurements and tools required. • Understand seasonality and locality of food and use this knowledge when designing their product.
Create	Create the decoration using stitching learnt. Checking that it meets the design specifications.	Construct their vehicle. Checking that it meets the design specifications.		Follow their design to create their product.
Evaluate	Discuss what you like/dislike about your item and what could improve it.	Identify and discuss the strengths of their product. Identify any areas for development/ improvements that could be made.		Taste test their product themselves and with a partner. Give and receive feedback. Identify any areas for improvement.
Vocabulary	See vocabulary list	See vocabulary list	See vocabulary list	See vocabulary list
Year 4				
	Theme 1	**Theme 2**	**Theme 3**	**Theme 4**
Area	Structures	Textiles	Mechanisms (electrical systems)	
Brief	Design and make a Roman aqueduct	To design a Christmas Decoration	Design and make a warning alarm	
Research	Research Roman aqueducts. What were they for? What were they made from?	Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.	How are people warned in the event of an emergency? Discuss various alarms, i.e. fire alarm, ambulance blue lights, warning sirens etc. Learn about key people who have designed these.	
Design	Design their own version of an aqueduct. • Choose the materials/tools they will use, based on their suitability for the task. • Draw a fully labelled diagram of their product, including some measurements. • Indicate where/how materials will be joined in order to create a stable structure. • Work with a partner to share and modify designs.	• Use their research to develop some of their own design criteria. • Draw a fully labelled sketch of their product, including some measurements. • Choose the materials/tools they will use, based on their suitability for the task. • Indicate where/how materials will be joined	Using their knowledge of basic electrical circuits design an alarm system to warn about an incident/event. • Draw a fully labelled sketch/diagram of their product, including some measurements. • Indicate where electrical components will go and briefly explain how they will function. • Choose the materials/tools they will use, based on their suitability for the task.	
Create	Make the aqueduct, testing and modifying it to ensure it is fit for purpose. Ensure their product meets design criteria.	Create the decoration using the stitching learnt.	Create their alarm, testing and modifying as they work.	
Evaluate	Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? Take part in peer evaluation, giving and receiving feedback from fellow pupils.	Identify and discuss the strengths of their product. Identify any areas for development/ improvements that could be made.	Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose?	
Vocabulary	See vocabulary list	See vocabulary list	See vocabulary list	

Year 5				
	Theme 1	**Theme 2**	**Theme 3**	**Theme 4**
Area	Textiles	Computer aided design & construction	Mechanisms (levers, gears and pulleys)	Art & Design
Brief	To design a Christmas Decoration	To design a Moon Rover	Design a fairground ride that incorporates levers, gears and pulleys	
Research	Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.	Research videos and photographs of rovers. Discussing their various parts and purpose. Discuss and explain the CAD programme.	Research fairground rides and using their understanding of component parts from science lessons discuss how they work.	
Design	• Use their research to develop some of their own design criteria. • Draw a fully labelled sketch of their product, including some measurements. • Choose the materials/tools they will use, based on their suitability for the task. • Indicate where/how materials will be joined	• Children work individually to design their vehicle • They should be encouraged to save and print some of their unfinished designs too, to show the progression of their design ideas. They can add text on screen to their design. •. • This design should include a list of tools, materials, joining methods required. • All diagrams should be labelled and sizes given.	• Draw a fully labelled/annotated sketch/diagram of their product • Choose the materials they will use, based on their suitability for the task, including sourcing their own materials where appropriate. • List the materials they will need. • Write (brief) instructions for how they intend to make their product.	
Create	Create the decoration using the stitching learnt.	Create the prototype model following their design ideas. Adapt as necessary during construction and annotate their designs to show and explain their adaptations The design for the working vehicle will refer to the computer models to explain the design decisions each child makes	Make their fairground ride, testing and adapting as they work so ensure it meets the criteria of the design brief	
Evaluate	Identify and discuss the strengths of their product. Identify any areas for development/ improvements that could be made.	The class will evaluate each working vehicle design against the design brief. The use of IT should be discussed also - did it make the designing and modelling an easier task?	Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? Suggest improvements that could be made. Take part in peer evaluation, giving and receiving feedback from fellow pupils.	
Vocabulary	See vocabulary list	See vocabulary list	See vocabulary list	
Year 6				
	Theme 1	**Theme 2**	**Theme 3**	**Theme 4**
Area	Mechanisms (Electrical Systems)	Textiles	Cooking & Nutrition	
Brief	To design a simple battery operated lamp/torch to be used during a black out.	To design a Christmas Decoration	To design a healthy menu that is locally sourced and balanced nutritionally.	
Research	(link science) Research simple circuits and battery operated torches/lamps. (Link history) What could/could not be used during a black out?	Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.	Research the differences between healthy and unhealthy diets (link PSHE). What does locally sourced mean? How can we ensure it is balanced nutritionally?	

Design	Draw a fully labelled/annotated sketch/diagram of their product, including measurements and cross-section and recognized symbols for the circuit. See below for example lesson plan.	● Use their research to develop some of their own design criteria. ● Draw a fully labelled sketch of their product, including some measurements. ● Choose the materials/tools they will use, based on their suitability for the task. ● Indicate where/how materials will be joined	● Share and discuss a variety of menus for restaurants ● Consider the design of their menu so it is appealing to others. ● Independently apply the principles of a healthy and varied diet to inform their design decisions. ● Apply their knowledge of seasonality and locality of food to inform their design decisions.	
Create	See: https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/2837-light_col-1848.pdf	Create the decoration using the stitching learnt.	Create their own menu for an imaginary restaurant using the principles of healthy cooking, seasonality and nutrition.	
Evaluate	Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? Suggest improvements that could be made considering materials, methods, sustainability and cost. Take part in peer evaluation, giving and receiving feedback from fellow pupils.	Identify and discuss the strengths of their product. Identify any areas for development/ improvements that could be made.	Share and discuss the menus. Which is the most popular and why?	
Vocabulary	See vocabulary list	See vocabulary list	See vocabulary list	