Curriculum Progression Pathway for DT

Subject Intent:

To develop design and technology capability by:-

- developing the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- building and applying 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 ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook

Why is the study of DT important?

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, students design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Students acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Students 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.

What skills will the study of DT teach you?
Developing the skills the students have learned at KS1 and KS2 in order that students are able to:
Designing

- uses research and exploration, such as the study of different cultures, to identify and understand user needs
- identify and solve their own design problems and understand how to reformulate problems given to them
- develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations

- use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas
- develop and communicate design ideas using annotated sketches, detailed plans, 3-D and modelling, oral and digital presentations and computer-based tools

Making
- select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- select from and use a wide range of materials, components and ingredients, taking into account their properties

Evaluating
- analyse the work of past and present professionals and others to develop and broaden their understanding
- investigate new and emerging technologies test, evaluate and refine ideas and products against a specification, taking into account the views of intended users and other interested groups
- understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists

Cooking and Nutrition
- cook and apply the principles of nutrition and healthy eating.
- cook a repertoire of predominantly savoury dishes so that students are able to feed themselves and others a healthy and varied diet
- become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways;
- using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes

What will you know and understand from your study of DT?

- understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists
- understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- understand how mechanical systems can be used to enable changes in movement and force
- understand how electrical and electronic systems can be powered and used
- understand and apply the principles of nutrition and health
- understand the source, seasonality and characteristics of a broad range of ingredients

All to allow students to be able to access the range of technological apprenticeships and post 16 educational opportunities in the area.

How does your study of DT support your learning in other subjects?

"Design and technology is a phenomenally important subject. Logical, creative and practical, it's the only opportunity students have to apply what they learn in maths and science - directly preparing them for a career in engineering." *DATA patron James Dyson,*

Design and Technology draws on additional disciplines such as mathematics, science, engineering, computing and art, complementing and enhancing student knowledge in these areas.

How can you deepen your understanding of DT?

Use Focus on DT software
Try to make things at home
Think carefully about products before buying them
Keep an ideas book
Use Food a Fact of Life website
Cook at home
Watch TV chefs
Visit the supermarket and look carefully at ingredients
Question what you eat and where the ingredients used to make it come from

How can DT support your future?

Everything that we own or consume is designed and made by someone or something out of a material. We can become discerning consumers and creators.

"Design and technology gives young people the skills and abilities to engage positively with the designed and made world and to harness the benefits of technology. They learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them" *Design and Technology Association 2022*

“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” *Mary Myatt 2022*

“Knowing how to prepare and cook your own food is a skill that everyone should possess. It's also a fun skill to learn!
Teaching children how to prepare fresh, healthy food in schools is a skill that can be used both inside and outside the classroom, and is something that will last a lifetime.” *Foodforlife.org.uk 2022*

Possible career pathways include:
Engineer; Developer; Product Designer; Architect; Advertising & Marketing; Graphic designer; Materials engineer; Product manager; Production designer; Purchasing manager; Stylist/Interior designer; Prototyping/concept work; Chef; Caterer; Food scientist; Nutritionist; Food health and safety inspector.

CURRICULUM PROGRESSION PATHWAY

	Year 7	**Year 8**	**Year 9**
Autumn 1 DESIGN TECHNOLOGY	Pop Art Inspired Coaster Develop basic manufacturing skills. Be able to demonstrate good workshop health and safety, using a range of basic tools, machines, equipment and materials to manufacture a simple plywood coaster inspired by Pop Art.	Aluminium Tealight Holder Build on the knowledge and skills from Y7, to follow the full design process to design and make a tealight holder. Select and use appropriate tools and machinery. Develop understanding of the properties of metals. Scarborough Science & Engineering Week 7 - 9 October	Aluminium Coat Hook Be able to translate working drawings to accurately produce a practical piece within a set tolerance. Select and use woodworking and metalworking tools and machinery safely and effectively. Test and evaluate the outcome against a specification and the intended user.
Autumn 2	Acrylic Phone Stand	LED light	USB Rechargeable Torch

DESIGN TECHNOLOGY	Develop basic manufacturing skills. Be able to demonstrate good workshop health and safety, using a range of basic tools, machines, equipment and materials to manufacture a simple acrylic phone stand.	Through the use of the design process, produce a range of innovative ideas that can be developed and communicated using a range of techniques including CAD. Show understanding of how different materials and components can be combined to produce an appealing and functional product. Select and use the correct tools, equipment and machinery for specific materials. Understand how to use CAD / CAM to produce a professional outcome. Test and evaluate the outcome against a specification and the intended user.	Design and make a USB rechargeable torch, with acrylic casing and working electronic circuit for a suitable user. Develop electronics, soldering, CAD and CAM knowledge and skills. Select and use the correct tools, equipment and machinery for specific materials. Test and evaluate the outcome against a specification and the intended user.
Spring 1 DESIGN TECHNOLOGY	Junk Robot Use research to identify and understand user needs. Develop a specification to inform designing. Use a range of techniques to communicate ideas and develop a	LED light Through the use of the design process, produce a range of innovative ideas that can be developed and communicated using a range of techniques including CAD.	USB Rechargeable Torch Design and make a USB rechargeable torch, with acrylic casing and working electronic circuit for a suitable user. Develop electronics, soldering, CAD and CAM knowledge and skills.

	product. Understand the use of wood, its properties and suitability for the project. Know how to use a range of woodworking tools and machinery correctly, safely and effectively to produce an outcome. Understand what can be learnt from evaluating and testing a prototype.	Show understanding of how different materials and components can be combined to produce an appealing and functional product. Select and use the correct tools, equipment and machinery for specific materials. Understand how to use CAD / CAM to produce a professional outcome. Test and evaluate the outcome against a specification and the intended user.	Select and use the correct tools, equipment and machinery for specific materials. Test and evaluate the outcome against a specification and the intended user.
Spring 2 **DESIGN TECHNOLOGY**	Junk Robot Use research to identify and understand user needs. Develop a specification to inform designing. Use a range of techniques to communicate ideas and develop a product. Understand the use of wood, its properties and suitability for the project. Know how to use a range of woodworking tools and machinery correctly, safely and	Textile Pencil Case Develop an understanding of textiles to design a fabric tie dye pencil case with a zip. Understand the needs of a user through research, the design brief and a detailed specification. Design using a range of different types of drawing and modelling techniques. Know how to use a range of textile equipment and materials safely and	Pizza Cutter and Packaging Design a range of innovative ideas that can be developed and communicated using different design and modelling techniques, for a specific user. Show an understanding of how different materials and components can be combined, along with the principles of ergonomics and anthropometrics to produce an appealing and functional product. Select and use a wide range of tools and

	effectively to produce an outcome. Understand what can be learnt from evaluating and testing a prototype.	effectively to produce an outcome. Understand what can be learnt from evaluating and testing a prototype. Test and evaluate the outcome against a specification and the intended user.	equipment safely and effectively, including CAD and CAM. Test and evaluate the outcome against a specification and the intended user.
Summer 1 **DESIGN TECHNOLOGY**	Junk Robot Use research to identify and understand user needs. Develop a specification to inform designing. Use a range of techniques to communicate ideas and develop a product. Understand the use of wood, its properties and suitability for the project. Know how to use a range of woodworking tools and machinery correctly, safely and effectively to produce an outcome. Understand what can be learnt from evaluating and testing a prototype.	Textile Pencil Case Develop an understanding of textiles to design a fabric tie dye pencil case with a zip. Understand the needs of a user through research, the design brief and a detailed specification. Design using a range of different types of drawing and modelling techniques. Know how to use a range of textile equipment and materials safely and effectively to produce an outcome. Test and evaluate the outcome against a specification and the intended user.	Pizza Cutter and Packaging Design a range of innovative ideas that can be developed and communicated using different design and modelling techniques, for a specific user. Show an understanding of how different materials and components can be combined, along with the principles of ergonomics and anthropometrics to produce an appealing and functional product. Select and use a wide range of tools and equipment safely and effectively, including CAD and CAM. Test and evaluate the outcome against a specification and the intended user.
Summer 2	Junk Robot	Textile Pencil Case	Pizza Cutter and Packaging

DESIGN TECHNOLOGY	Use research to identify and understand user needs. Develop a specification to inform designing. Use a range of techniques to communicate ideas and develop a product. Understand the use of wood, its properties and suitability for the project. Know how to use a range of woodworking tools and machinery correctly, safely and effectively to produce an outcome. Understand what can be learnt from evaluating and testing a prototype.	Develop an understanding of textiles to design a fabric tie dye pencil case with a zip. Understand the needs of a user through research, the design brief and a detailed specification. Design using a range of different types of drawing and modelling techniques. Know how to use a range of textile equipment and materials safely and effectively to produce an outcome. Test and evaluate the outcome against a specification and the intended user.	Design a range of innovative ideas that can be developed and communicated using different design and modelling techniques, for a specific user. Show an understanding of how different materials and components can be combined, along with the principles of ergonomics and anthropometrics to produce an appealing and functional product. Select and use a wide range of tools and equipment safely and effectively, including CAD and CAM. Test and evaluate the outcome against a specification and the intended user.

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	Year 7	**Year 8**	**Year 9**

Autumn 1 **FOOD TECHNOLOGY**	Develop cutting skills and understanding of kitchen hygiene, the 4C's, how to avoid food poisoning, weighing and measuring. Practical element - safe use of knife, cutting skills using a potato, carrot and orange. Skills - bridge and claw technique, grating, slicing, dicing, cutting and segmenting.	Food Commodities - Sugar - growing, processing and functionality. Rice - production around the world. Potatoes - farming and varieties. Practical element - Pizza wheels Skills - using yeast, slicing, dicing and kneading, shaping and forming, safe use of the oven, baking in the oven.	The digestive process - system, stages and functions. Allergens and nutritional values. Practical element - Pizza. Skills - making a dough base, kneading, cutting, slicing, shaping, forming, safe use of the oven and baking in the oven.
Autumn 2 **FOOD TECHNOLOGY**	Develop understanding of different cooking methods and techniques. Knowledge of the cooker and how to use the cooker safely. Practical element - layered pasta salad. Skills - safe use of the hob, boiling and cutting.	Food commodities - Meat - types and cuts of meat, storage and preparation and meat and the consumer. Practical Element - Chow mein. Skills - cutting, slicing, safe use of the hob, stir frying.	Food labelling and legal requirements. Practical Element - Fajitas (chicken or Quorn) Skills - cutting, slicing, combining ingredients and flavours, working with spices, stir frying, safe use of the hob.
Spring 1 **FOOD TECHNOLOGY**	Develop understanding of different cooking methods and techniques. Practical element - Pizza toast. Skills - safe use of the grill, toasting, melting, cutting.	Food Commodities - cereals and bread. Practical Element - Bread rolls. Skills - Using yeast, making a dough, kneading, shaping and forming, safe use of the oven, baking in the oven.	Healthy eating and dietary choices. Practical Element - Dutch apple cake. Skills - Combining ingredients, creaming method, making a batter, slicing, safe use of the oven and baking in the oven.

Spring 2 **FOOD TECHNOLOGY**	Develop understanding of different cooking methods and techniques. Understanding fridge and freezer safety. Practical Element - Flapjack Skills - safe use of the hob and oven, melting on the hob and baking in the oven.	Food Commodities - Milk production, farming and processing. Practical Element - Macaroni cheese. Skills - Safe use of the hob, boiling on the hob, combining, mixing, making a roux sauce, grating and slicing.	Dietary requirements - medical, religious, ethical, moral, lifestyle and health reasons. Practical Elements - Spaghetti bolognese Skills - Slicing, dicing, boiling, frying, making a sauce and safe use of the hob.
Summer 1 **FOOD TECHNOLOGY**	Develop understanding of different cooking methods and techniques. Understanding The Eatwell Guide, healthy eating and using your senses. Practical Element - Cheese and Onion Triangles. Skills - the rubbing in method, grating and slicing, making a shortcrust pastry, safe using the oven and baking in the oven.	Food commodities - Poultry and eggs, poultry farming and egg labelling. Using your senses.	Fish and Seafood - sustainability, preparation and cooking.
Summer 2 **FOOD TECHNOLOGY**	Develop understanding of different cooking methods and techniques. Practical Element - Cheese scones Skills - grating, the rubbing in method,	Practical element - Beef burgers Skills - Using raw meat, avoiding cross contamination, cutting, safe use of the hob, shallow frying, forming and shaping.	Practical Element - Chicken nuggets using chicken on the bone. Skills - Deboning a piece of chicken, using raw poultry, avoiding cross contamination, slicing, using a food processor to make

	making a dough, safe use of the oven, baking in the oven.		bread crumbs, safe use of the oven and baking in the oven.