

Curriculum Vision – *Design and Technology*

What is the purpose of the curriculum?

- 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.
- They 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.

Why is *subject* an important subject?

- It develops the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- It builds and applies a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- It allows students to critique, evaluate and test their ideas and products and the work of others.
- It helps students understand and apply the principles of nutrition and learn how to cook.



Types of Knowledge – *Design and Technology*

1. Substantive knowledge — “*What we know*”

This is the **factual and conceptual knowledge** of the subject. It includes:

- Materials and their properties (woods, polymers, metals, textiles)
- Mechanical, electrical and electronic systems
- Nutrition and food science
- Manufacturing processes and tools
- Historical and contemporary designers and products

This aligns with the National Curriculum requirement for pupils to **acquire a broad range of subject knowledge** and understand D&T’s impact on the world.

2. Disciplinary knowledge — “*How we know*”

This is the **thinking and doing of designers and engineers**. It includes:

- Iterative design processes
- Modelling and prototyping
- Evaluating and testing
- Understanding user needs
- Making design decisions based on evidence

The D&T Association describes this as the **principles of genuine D&T experience**, including creativity, problem-solving, and critical evaluation.

3. Technical knowledge — “*How things work*”

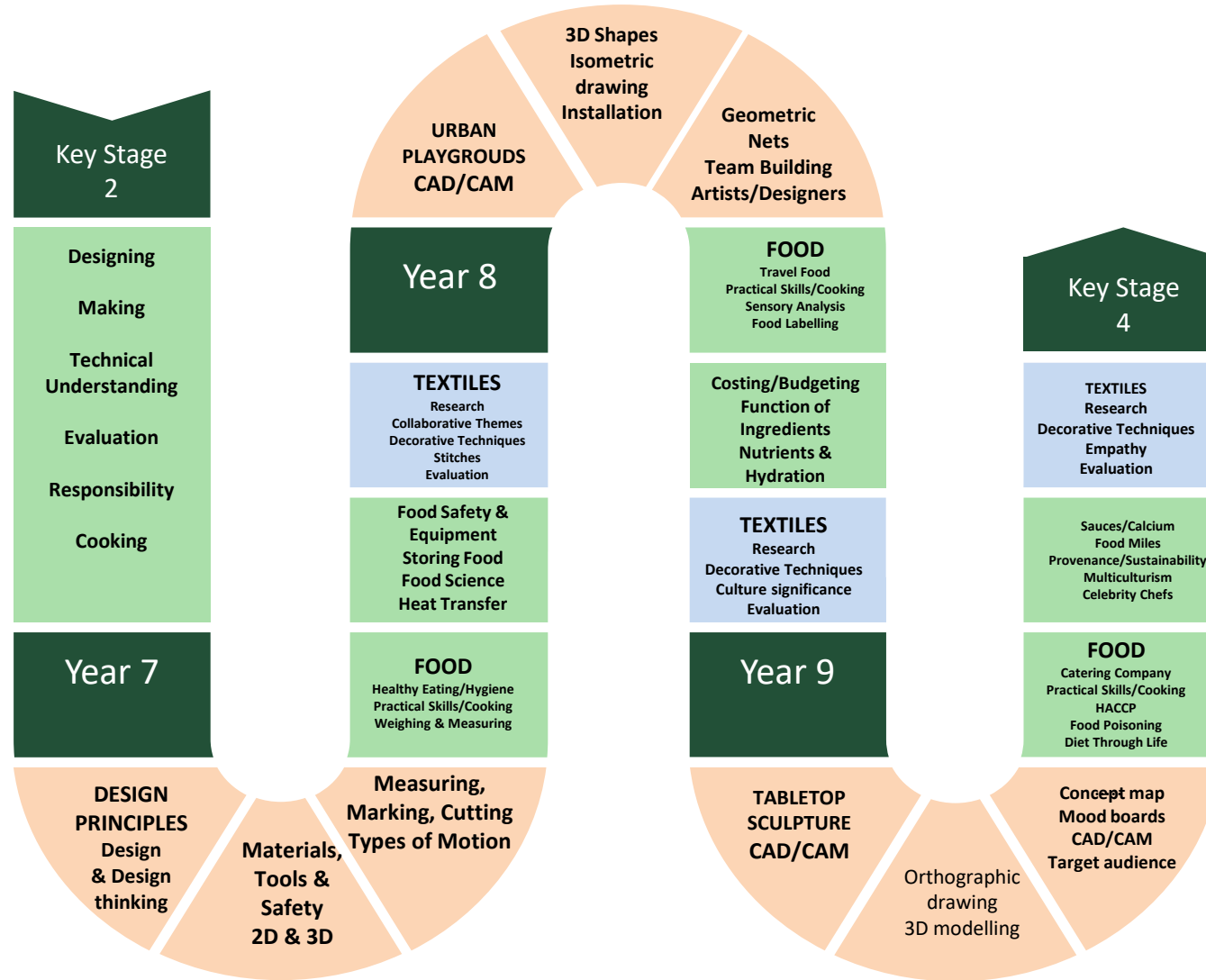
This is the **practical and procedural knowledge** needed to make functioning products:

- Using tools, machinery, CAD/CAM
- Understanding structures, mechanisms, electronics
- Safe working practices
- Making high-quality prototypes

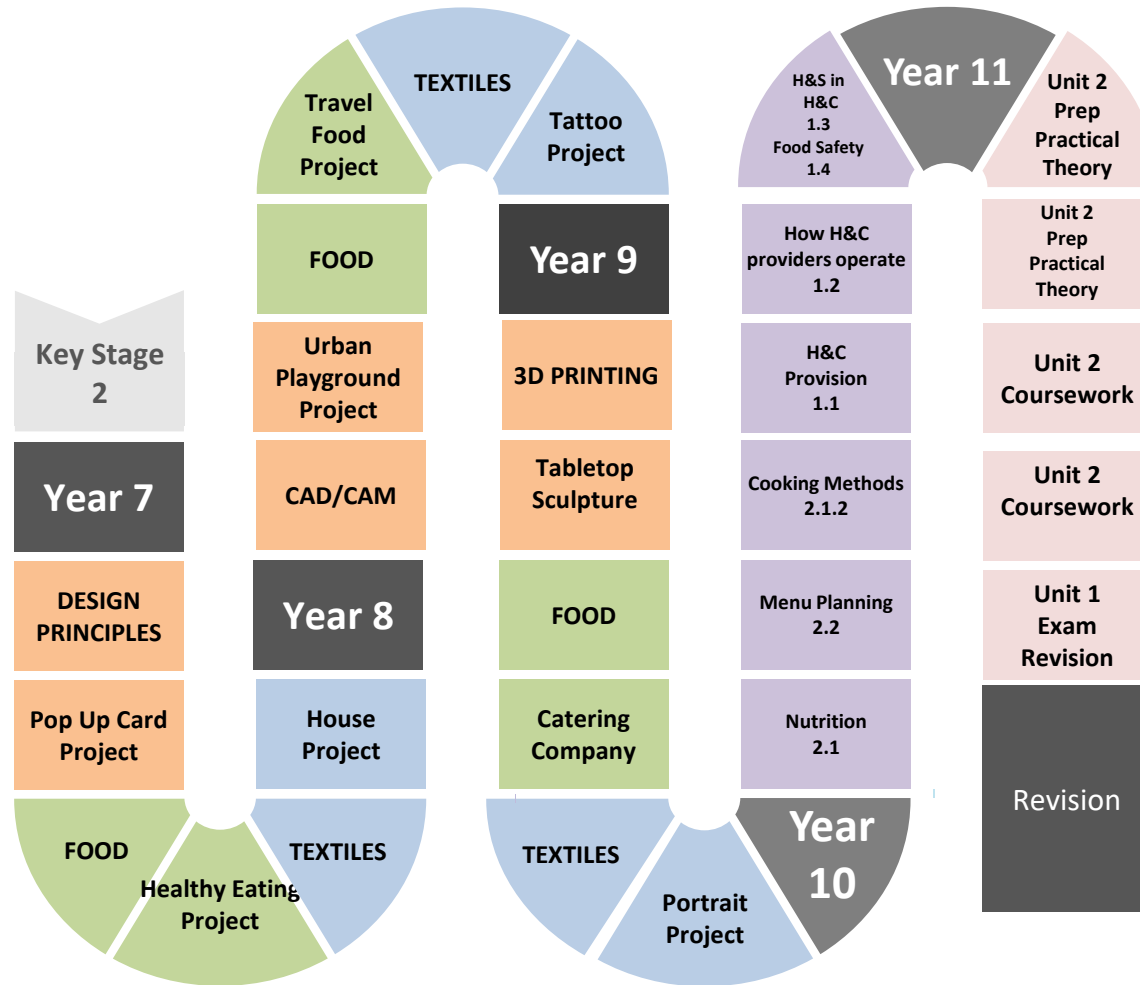
The National Curriculum emphasises developing **technical and practical expertise** and the ability to make high-quality products.



KS3 Design & Technology



Design & Technology Curriculum Five Year Journey



Curriculum Themes Overview – *Design and Technology*



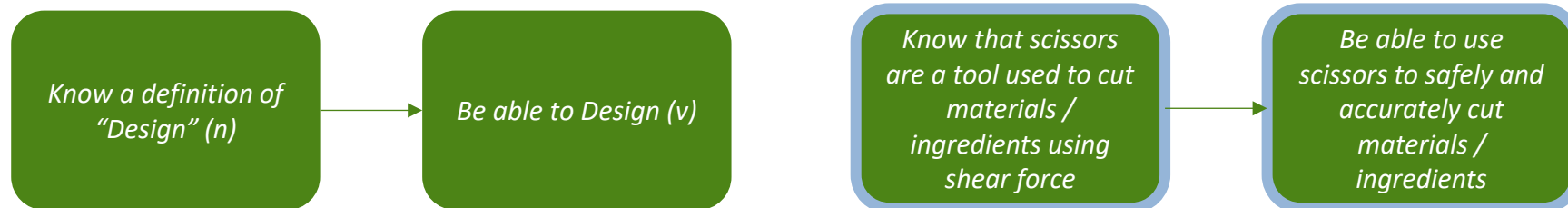
In the United Curriculum, the **substantive themes** are both conceptual (know that...) and procedural (be able to...) and we recognise that in D&T these are not mutually exclusive, and there is an ongoing interplay between the two. The **substantive themes** in the United Learning D&T curriculum are:

- **Design knowledge:** the knowledge students learn about the act of designing and the work of designers, cooks & chefs, engineers, and technologists, including computer-based tools
- **Making knowledge:** Students learn about, select and use advanced tools, equipment, utensils and technologies with precision while working with materials, ingredients and components based on their properties.
- **Technical understanding:** how and why products, recipes, services, and systems work, plus the processes and routines used to create them.
- **Evaluation & critique:** the knowledge encompassing professional design precedents, technological innovation patterns, systematic evaluation approaches, and critical understanding of **Design & Technology's** (including **Cooking & Nutrition**) role in society, including environmental stewardship and ethical practice.
- **Responsibility:** the knowledge of environmental, economic, social, ethical, and personal responsibilities within Design and Technology practice, understanding how designers and technologists must balance competing priorities while ensuring safety, sustainability, cost-effectiveness, social equity, and environmental stewardship throughout the design process.

As students develop these forms of knowledge over the course of the curriculum, their Design & Technology capability develops.

The **substantive themes** are deliberately revisited across Key Stage 3. Within each theme, **threads** are revisited to support a rich and complex understanding of key **substantive concepts**.

The **themes** and **threads** provide the basis for conceptual frameworks (or schemas) that students can develop over time. They can integrate new knowledge into the frameworks and make increasingly sophisticated connections between them, empowering them to make design decisions, and value-based judgements.



Curriculum Themes Map – *Design and Technology*

Theme	Description	Year 7	Year 8	Year 9	Year 10	Year 11
Design Knowledge	The knowledge students learn about the act of designing and the work of designers, cooks & chefs, engineers, and technologists, including computer-based tools	Design and Design Thinking Research Careers Use of equipment	Design and Design Thinking Research Careers Use of equipment	Design and Design Thinking Research Careers Use of equipment	1.1 Hospitality & Catering provision 1.2 How hospitality and catering providers operate	2.2 Menu planning
Making Knowledge	Students learn about, select and use advanced tools, equipment, utensils and technologies with precision while working with materials, ingredients and components based on their properties	Measuring, marking, cutting Weighing/measuring Cooking skills	3d shapes Isometric drawing Cooking skills Function of Ingredients Decorative techniques	Sculpture Orthographic drawing 3D modelling Cooking skills Stitches	2.3 The skills and techniques of preparation, cooking and presentation of dishes	2.3 The skills and techniques of preparation, cooking and presentation of dishes
Technical Understanding	How and why products, recipes, services, and systems work, plus the processes and routines used to create them	Types of Motion Food Science Heat Transfer	Nets CAD/CAM Sensory analysis	Concept map Mood boards CAD/CAM HACCP	2.3.2 Presentation techniques	2.2 Factors affecting menu planning
Evaluation & Critique	the knowledge encompassing professional design precedents, technological innovation patterns, systematic evaluation approaches, and critical understanding of Design & Technology's (including Cooking & Nutrition) role in society, including environmental stewardship and ethical practice.	Key terms Evaluation	Key terms Evaluation Public Installation	Key terms Evaluation Purpose Target audience	2.4 Evaluating cooking skills	2.4 Evaluating cooking skills
Responsibility	the knowledge of environmental, economic, social, ethical, and personal responsibilities within Design and Technology practice, understanding how designers and technologists must balance competing priorities while ensuring safety, sustainability, cost-effectiveness, social equity, and environmental stewardship throughout the design process.	Materials, tools and safety Role of designers Healthy eating Collaboration	Materials, tools and safety Role of artists/designers Community involvement (playground) Team Building Food labelling Culture significance	Materials, tools and safety Role of artists/designers Designing for a target audience Multiculturalism Food miles Sustainability Food Provenance Food Poisoning Empathy	2.1 The importance of nutrition 1.3 Health and safety in hospitality and catering 1.4 Food safety in hospitality and catering	1.3 Health and safety in hospitality and catering 1.4 Food safety in hospitality and catering



Careers opportunities – *Design and Technology*

Year	Specific opportunities for teaching about carers linked to Science
7	- DT - Units link to famous designers and roles linked to practical skills e.g. embroidery machinists, carpenters etc. - Food - Work booklet links to - chef, nutritionist, butcher, environmental health officer, baker, teacher. - Food Roles discussed and linked to tasks e.g. environmental health officer, linked to pest control and food hygiene, nutritionist, linked to healthy eating theme.
8	- DT - Units link to famous designers and roles linked to practical skills e.g. tattooist, architects etc. - Food - Work booklet links to – food photographer, flight attendant, restaurateur, food development chef, food stylist, food scientist. - Food Roles discussed and linked to tasks e.g. flight attendant, linked to travel food theme.
9	- DT - Units link to famous designers and roles linked to practical skills e.g. sculptors, engineers etc. - Food -Work booklet links to – dietician, sous chef, commis chef, plongeur, hotel manager, event planner. - Food Roles discussed and linked to tasks e.g. most of these e.g. sous chef, commis chef, plongeur, event planner, link directly to catering company theme
10	- Unit 1.1.2 – specific to job roles in the Hospitality & Catering industry - Unit 1.2.1 – specific to how Hospitality & Catering providers operate
11	- Unit 1.1.3 – specific to working conditions in the Hospitality & Catering industry - Unit 1.4.4 – specific to the role of the Environmental Health Officer (EHO) - Exam scenario – specific to ‘commis chef’ role