

## ROUTES 1-3 – Design and Technology

### Year 7 and 8 Skills and Knowledge Progression

#### Design

D1.1. design purposeful, functional, appealing products for themselves and other users based on design criteria

D1.2. generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

D2.1. 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

D2.2. generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

#### Make

M1.1. select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]

M1.2. select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

M2.1. select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

M2.2. 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

E1.1. explore and evaluate a range of existing products

E1.2. evaluate their ideas and products against design criteria

E2.1. investigate and analyse a range of existing products

E2.2. evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

E2.3. understand how key events and individuals in design and technology have helped shape the world

#### Technical knowledge

T1.1. build structures, exploring how they can be made stronger, stiffer and more stable

T2.2. explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

T2.1. apply their understanding of how to strengthen, stiffen and reinforce more complex structures

T2.2. understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

T2.3. understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

T2.4. apply their understanding of computing to program, monitor and control their products

	AUTUMN HALF TERM 1	AUTUMN HALF TERM 2	SPRING HALF TERM 1	SPRING HALF TERM 2	SUMMER HALF TERM 1	SUMMER HALF TERM 2
<b>Year 7</b>	No DT in transition term.		Introduction to DT – Keyring Project		Mobile Phone Project	
			2 Classroom 2 Workshop D1.1., D1.2., M1.1., E1.2.		4 Classroom 1-2 Workshop D1.2., M1.1., E1.1., E1.2.	
<b>Year 8</b>	Structures – Bridge Project		Smart Materials – Battery Tester Project		Electronics – Steady hand Game Project	
	3 Classroom 2 Workshop D2.1., M1.2., E2.1., E2.2., T1.1., T2.1.,		2-3 Classroom 2-3 Workshop D2.1., M2.1., M2.2., E2.2., T2.3.,		3 Classroom 3 Workshop D2.2., M2.2., E2.2., T2.3.	

## Cross Curr.

**Computing:** D1.2., T2.4.  
**Art:** D1.2., M1.1., M1.2., E1.1.,  
**Science:** M2.2., T2.1., T2.2., T2.3.,

### Notes

- Route 1 Pupils undertake tasks to DISCOVER, EXPLORE and EXPERIENCE knowledge and understanding through themes and opportunities within the context of the topics.
- Route 2 Pupils undertake tasks to ENHANCE, DEVELOP and DEEPEN knowledge and understanding through themes and opportunities within the context of the topics.
- Route 3 Pupils undertake tasks to EMBED, DEMONSTRATE and APPLY knowledge and understanding through themes and opportunities within the context of the topics.
- Pupils do not have a stand alone DT lesson. DT is delivered as projects where time and resources are appropriate within the designated terms.

### Cross-Curricular Links

- Route 1 DT, English opportunities to address; Reading-Word Reading. Reading-Comprehension. Writing-Transcription.
- Route 1 DT, Maths opportunities to address; Number-Place Value.
- Route 1 DT, Science opportunities to address; Work Scientifically. Experimental Skills and Investigations.
- Route 1 H, E-safety opportunities to address; Privacy and Security. Managing Online Information.
- Route 2 DT, English opportunities to address; Reading-Word Reading. Reading-Comprehension. Writing-Transcription.
- Route 2 DT, Maths opportunities to address; Number-Place Value. Measurement.
- Route 2 DT, Science opportunities to address; Work Scientifically. Experimental Skills and Investigations. Analysis and Evaluation. Measurement.
- Route 2 DT, E-safety opportunities to address; Online Relationships. Online Reputation. Online Bullying. Health, Well-being and Lifestyle. Privacy and Security. Managing Online Information.
- Route 3 DT, English opportunities to address; Reading-Word Reading. Reading-Comprehension. Writing-Transcription.
- Route 3 DT, Maths opportunities to address; Number-Place Value. Number-Addition Subtraction. Number-Multiplication and Division. Number-Fractions. Measurement. Geometry-Shape.
- Route 3 DT, Science opportunities to address; Work Scientifically. Experimental Skills and Investigations. Analysis and Evaluation. Measurement. Vocabulary Units Symbols and Nomenclature.
- Route 3 DT, E-safety opportunities to address; Online Bullying. Health, Well-being and Lifestyle. Privacy and Security. Managing Online Information

### Destinations

- Pupils can choose pathways in Hills and Rivers relating to D&T, such as Art, Construction and performing Arts.