ABINGDON
HOUSE SCHOOL

D&T Curriculum Overview (Years 7–11)

Objective: Build creativity, technical confidence, and real-world problem-solving through iterative making, digital design, and electronics — progressing from Micro:bit to Arduino, and Tinkercad, 2D Design to SolidWorks.

Year	Autumn Term	Spring Term	Summer Term	Key Focus/Progression
7	Intro to Coding: Micro:bit Projects Graphic Design	Tinkercad and 2D Design: Design a Keyring/Badge	Scratch + CAM + Physical Product Prototyping	Basic programming, digital design, input/output awareness
8	Design Thinking: Tinkercad + Mechanisms & motion	Micro:bit Wearables + Sensors	Child's Educational Product Design Challenge: Modelling + 2D CAM	Combining physical making + digital control
9	Arduino Basics: Circuits + Feedback	SolidWorks Introduction + CAM	Lighting Product Challenge	Foundation in programming, CAD/CAM, and user-focused design
10	Intro to NCFE NCFE Unit: Develop Craft Ideas (H/2672)	NCFE Unit: Use Materials + Tools (M/2674)	NCFE Unit: Present and Evaluate (L/2682)	Linked NCFE project: Arduino-based device (e.g. Zones prototype)
11	NCFE Unit: Creative Enterprise (K/2673)	Refine + Submit Coursework Portfolio	Internal Moderation + Personal Portfolio Development	Completion of NCFE certificate

Pedagogical Notes:

- Each year includes opportunities for **iteration**, **reflection**, and **informal practical assessments**.
- Project themes are adapted to **SEN learners** through scaffolded worksheets, visual tools, peer feedback, safe use guides, and sensory-friendly digital platforms.
- Assessments in KS3 are formative, entirely practical, visual or oral in nature to reduce literacy barriers; in KS4 they are mapped to NCFE criteria.
- Curriculum links clearly to **NCFE Unit H/2672** and **M/2674** foundations: developing ideas, using tools, evaluating user needs.

Equipment & Software:

- **Software:** TinkerCad, Techsoft 2D Design, Solidworks, Arduino Cloud, Micro:bit, Scratch and Canva
- **Equipment:** 3D Printers, Laser Cutter, Vinyl Cutter, Milling Machine, Arduino Starter Kits, Micro:bit Kits

Year 7 D&T Curriculum Map

Creative Technology & Digital Design

Term	Weeks	Unit/Topic	Learning Objectives	Key Skills / Knowledge	Assessment (Informal)	Tools & Platforms
Autumn 1	(7)	**Intro to Digital Systems & Coding (Micro:bit Basics)**	Understand inputs, outputs, and simple logic. Use blocks to control LEDs and sound.	Programming basics, cause & effect, sequences, testing/debugging	Micro:bit challenge (e.g. LED face with button press)	BBC Micro:bit, MakeCode
Autumn 2	(6)	**Micro:bit Emotions Project – Zones of Regulation (IT/PSHE Link)**	Design a tool that shows emotions using colour. Understand accessibility.	Designing for purpose, symbolic communication, use of loops/events	Annotated flowchart + working prototype	BBC Micro:bit, MakeCode
Spring 1	(6)	**Tinkercad: 3D Keyring Design (CAD Basics)**	Introduction to 3D space, measurements, and extrusion. Personalised design	Digital sketching, measuring, alignment, exporting files	Screenshot submission + peer review	Tinkercad
Spring 2	(5)	**3D Print + Packaging Design**	Finalise keyring, design packaging using 2D software. Consider branding	CAM workflow, visual layout, product presentation	Printed 3D model + box net design	3D Printer, Canva and 2D Design
Summer 1	(6)	**Scratch Interactive Game – Emotions or Safety Theme**	Build a game with conditions, scoring, or message. Include sensory-friendly features	Sequence + loop, sprite control, creative storytelling	Peer testing checklist + recorded reflection	Scratch
Summer 2	(6)	**Prototype + Evaluation: Microbit or Game Extension**	Choose the best idea from the year and improve it. Reflect on user needs and solutions	Iteration, self-assessment, communication	Final presentation (spoken or digital)	Choice of platform

Year 8 D&T Curriculum Map

Problem Solving & Prototyping

Term	Weeks	Unit/Topic	Learning Objectives	Key Skills / Knowledge	Assessment (Informal)	Tools & Platforms
Autumn 1	(7)	**Engineering & Build Challenge**	Apply problem-solving to physical builds, introduce motion & mechanical systems	Team design, mechanical systems, basic inputs/outputs	Individual or group build review + sketch plan	CAD/CAM, coding, physical tools, and Simple Circuits
Autumn 2	(6)	**Micro:bit Wearables (Mood Badge/Bracelet)**	Create a wearable that responds to inputs (e.g. light/sound/temperature)	Design for purpose, loops, sensors, testing circuits	Prototype & label sketch + function demo	Micro:bit + sensors, MakeCode
Spring 1	(6)	**Product Design Challenge: Child's Educational Toy (2D to 3D)**	Explore user needs, create a design using Tinkercad and 2D Design	Measurement, nets, laser cutting basics	Final design files + reflection	Tinkercad, 2D Design Tools, Laser Cutter
Spring 2	(5)	**Assembly + Testing: Create and Finish Final Product**	Assemble product from 2D/3D files, test functionality	Assembly, hand tools, testing, improvement	Product testing + photo evidence	Craft materials, CAM
Summer 1	(6)	**Simple Game or Visual Tool in Scratch / Micro:bit**	Create interactive tool to support learning or regulation	Events, conditional logic, input/output pairing	Peer review and evaluation quiz	Scratch, Micro:bit
Summer 2	(6)	**Mini Project: "Solve a Problem" Challenge**	Identify school/community issue; create a solution using any platform	Innovation, teamwork, iteration, user feedback	Group pitch + 1-minute demo	Student choice (CAD, coding, physical tools)

Progression:

- Builds toward more **autonomous thinking and designing** for purpose
- Introduces basic **user research**, **feedback gathering**, and **CAM/CAD workflows**
- Informal assessments focus on **iteration**, **presentation**, and **making ideas work**

Year 9 D&T Curriculum Map

System Design & User-Centred Prototyping

Term	Weeks	Unit/Topic	Learning Objectives	Key Skills / Knowledge	Assessment (Informal)	Tools & Platforms
Autumn 1	(7)	**Intro to Arduino: Understanding Inputs, Outputs & Feedback**	Explore basic components and build circuits. Understand system feedback	Schematic drawing, pin connections, sensors and code	Breadboard build + component ID task	Arduino Uno, TinkerCad Circuits
Autumn 2	(6)	**Simple System: Temperature or Light Sensor Build**	Program a working closed-loop system	Coding in Arduino Cloud, use of variables, thresholds	Working demo + screenshot of code	Arduino Cloud, TinkerCad
Spring 1	(6)	**CAD 3D Modelling – SolidWorks Basics**	Develop 3D drawing skills from 2D sketches. Learn extrusion, fillets, dimensions	Transitioning from Tinkercad, 3D workflow, real-world tolerances	Model evaluation + peer review	SolidWorks, Technical Sketching
Spring 2	(5)	**CAD-CAM Project – Personalised Desk Accessory or Device Case**	Design a case for Arduino or similar tool. Apply laser-cutting principles	Material tolerances, 2D to 3D assembly, accurate measuring	Final model (CAM ready)	2D Design, Laser Cutter
Summer 1	(6)	**Design for a User: Lighting Product Challenge**	Solve a problem for a younger student	User profiles, feedback, iteration, visual design	Mood board, 3 sketches, pitch	Arduino, LEDs, Sketchbooks
Summer 2	(6)	**Prototyping + Presentation: Final Lighting Product**	Create one functioning idea + document its use	Problem-solving, evaluation, presentation, safe testing	Final product trial + student reflection	Arduino, 3D printer, Micro:bit, Canva

Progression & Key Focuses:

- Full transition to **real-world systems thinking and application**
- Strong foundation for NCFE units: H/506/2672 (Develop Craft Ideas) & M/506/2674 (Use Materials…)
- Pupils experience **design, prototyping, iteration, and self-evaluation**

Year 10 D&T Curriculum Map

NCFE Creative Craft – Art & Design Pathway

Project Theme: "Assistive Tech – Zones of Regulation Device"

Term	Weeks	Unit/Topic	Learning Objectives	NCFE Unit Focus	Assessment / Evidence	Tools & Platforms
Autumn 1	(7)	**Research & Inspiration: Assistive Devices + Digital Communication**	Explore existing communication tools. Understand regulation needs in SEN.	K/506/2673 (Creative Enterprise – Sections 1.1–1.6)	Annotated research mood board, case studies	Internet research, Canva, Photography
Autumn 2	(6)	**Sketching + Initial Prototypes (4 Designs + Evaluation)**	Develop and evaluate 4 product ideas. Select and justify 2 best options	H/506/2672 (Develop Craft Ideas – 1.1–1.5)	Design sketches with labels, selection grid, feedback notes	Hand drawing, TinkerCad, Solidworks, 2D Design
Spring 1	(6)	**Planning + Component Selection for Final Idea**	Select tools, materials, techniques, develop safe plan	M/506/2674 (Use Materials – 1.1–1.3)	Production plan, component list, safety checklist	Arduino, Breadboard, LEDs, Buttons
Spring 2	(5)	**Making Final Product: Assembly + Troubleshooting**	Use tools correctly, make final product, solve problems during build	M/506/2674 (Use Materials – 1.4–1.5)	Photographic evidence of process + build journal	Arduino, Laser Cutter, 3D Printer
Summer 1	(6)	**Presenting Finished Product**	Present product to class and staff, explain how it works	L/506/2682 (Create & Present – 1.1–1.3)	Photos, demo video, short script	Canva, Google Slides
Summer 2	(6)	**Evaluation & Reflection**	Evaluate process, identify improvements, link to user needs	L/506/2682 (Evaluate – 2.1–2.2)	Final write-up using structured worksheet	Google Docs, Peer Review, Photos

Assessment Strategy:

- Coursework is assessed throughout each unit using NCFE's Pass/Merit/Distinction indicators
- Evidence includes annotated sketches, planning documents, photos, build journals, peer feedback and self-assessments

Year 11 D&T Curriculum Map

NCFE Creative Craft – Art & Design Pathway

NCFE Project Completion & Portfolio Development

Term	Weeks	Unit/Topic	Learning Objectives	NCFE Unit Focus	Assessment / Evidence	Tools & Platforms
Autumn 1	(7)	**Final Refinement of Product: Improvements + Customisation**	Refine design based on previous evaluation. Add final features.	M/506/2674 (Use Materials – revisited)	Final iteration, annotated photo log	Arduino, Soldering tools, 3D Printer, Laser Cutter
Autumn 2	(6)	**Portfolio Structuring + Final Presentation Work**	Organise evidence per unit, add clear titles, upload documents	L/506/2682 (Create + Present)	Digital portfolio (Canva/Slides) + project photos	Google Drive, Canva, Docs, Slides
Spring 1	(6)	**Written Evaluation: Final Review + Peer Feedback**	Evaluate project journey, include feedback and personal reflection	L/506/2682 (Evaluate – 2.1–2.2)	Structured evaluation document	Word/Docs, Peer Feedback Sheets
Spring 2	(5)	**Enterprise and Employment – Real-World Applications**	Link product to creative industries. Discuss enterprise, cost, and role	K/506/2673 (Enterprise – 2.1–2.4)	Mini business pitch: poster or video	Canva, Google Slides
Summer 1	(6)	**Portfolio Review & Teacher Feedback Loop**	Finalise evidence. Edit/refine documents with staff support	All Units – Final Submission	Complete folder, checklists, print and digital ready	NCFE Portfolio Template
Summer 2	(6)	**Celebration + Showcase + Optional Personal Project**	Share projects with others. Begin extension or passion project	Creative freedom, confidence building	Showcase event + optional submission	Any student selected tools

Assessment Strategy:

- Units are revisited where necessary for distinction-level refinement.
- Ongoing teacher feedback ensures alignment with **NCFE assessment criteria**.
- Final moderation preparation is built into the final term.