Design and Technology Curriculum Statement

Our Pupil Pledge

At Pool Hayes Academy, our Design and Technology (D&T) curriculum is designed to provide all pupils with the knowledge, skills, and cultural capital they need to become innovative and independent designers, engineers, and problem-solvers.

Our curriculum is ambitious and inclusive, ensuring that all pupils – regardless of background or prior attainment – are equipped to engage confidently with real-world design challenges. It builds a secure understanding of core principles such as functionality, user needs, sustainability, and the impact of technology on society.

We aim to:

- Foster curiosity, creativity, and resilience
- Develop practical and technical competence
- Promote critical thinking and evaluative skills
- Embed knowledge of materials, mechanisms, structures, and electronics
- Prepare pupils for the future world of work and life-long learning in a rapidly evolving technological landscape

Implementation

The D&T curriculum is coherently planned and sequenced to ensure that knowledge and skills are built over time, from Key Stage 3 through to Key Stage 4. It is structured around iterative design principles, enabling pupils to explore, research, design, prototype, and evaluate in a wide range of contexts.

Key features include:

- **Specialist teaching** in well-equipped workshops
- **Progressive technical skill development** in areas such as resistant materials, computer-aided design (CAD), electronics, systems and control, graphic design and manufacturing processes
- A **knowledge-rich approach** that integrates theoretical understanding with hands-on learning
- **Opportunities for extended project-based learning** to embed deep understanding
- Strong emphasis on **health and safety**, sustainability, and ethical design
- **Cross-curricular links**, especially with mathematics, science, and computing

Pupils are assessed regularly through both formative and summative methods, including practical project work, design portfolios, and technical knowledge tests. Feedback is used effectively to support progression and deepen understanding.

Impact

Pupils leave Key Stage 4 with:

- A deep understanding of the design process and the ability to apply it to real-world scenarios
- Secure knowledge of materials, tools, and processes, including digital technologies
- The ability to think critically and work independently to solve complex problems
- High-quality outcomes that demonstrate both creativity and technical precision

The impact of the D&T curriculum is evident in the increasing number of pupils pursuing further study in engineering, product design, architecture, and related STEM fields, as well as in the development of transferable skills such as collaboration, project management, and effective communication.

We monitor impact through:

- Pupil progress and attainment data
- Quality of project work and portfolios
- Student voice and engagement
- Destinations data and uptake at KS4

Through Design and Technology, our pupils are empowered to shape the future with confidence, creativity, and responsibility

Pool Hayes Academy Design and Technology Department.

Pool Hayes Academy Design and Technology (D&T) department is a dynamic, inclusive, and forward-thinking learning environment where pupils are consistently engaged, challenged, and supported to achieve their full potential. The department plays a key role in developing practical capability, problem-solving skills, and technological understanding that prepares students for the modern world.

Key Characteristics D&T Department

1. Clear Curriculum Intent and Vision

- The department has a clearly defined curriculum intent that is ambitious, inclusive, and aligned with whole-school priorities.
- Curriculum planning ensures that pupils develop deep knowledge and understanding across core D&T areas such as product design, engineering, CAD/CAM, systems and control, and sustainability.
- The curriculum reflects current industry practice and technological advancements, while also supporting personal development and career readiness.

2. High-Quality Teaching and Learning

- Lessons are purposeful, well-sequenced, and grounded in high expectations for all learners.
- Teachers model expert subject knowledge and demonstrate practical skills confidently and accurately.
- A strong focus is placed on developing both theoretical understanding and practical application through iterative design processes.
- Pupils are encouraged to think creatively, take risks, learn from mistakes, and reflect critically on their work.

3. Inclusive, Supportive, and Safe Learning Environment

- All pupils, regardless of background or need, are actively included and supported to access the full curriculum.
- The department ensures all health and safety protocols are rigorously followed and understood by staff and pupils.
- Pupils feel safe to experiment and take intellectual and creative risks.

4. Excellent Use of Resources and Facilities

- Workshops and classrooms are well-organised, safe, and equipped with appropriate tools, materials, and technology.
- Digital tools, including CAD software and CAM equipment such as 3D printers and laser cutters, are embedded into teaching and accessible to pupils.
- Displays showcase high-quality pupil work and celebrate innovation, diversity, and the iterative design process.

5. Strong Assessment and Feedback

- Assessment is used effectively to inform planning, track progress, and support personalised learning.
- Feedback—both verbal and written—is timely, specific, and helps pupils improve their work and deepen understanding.
- Opportunities for peer and self-assessment are built into the curriculum, promoting independent learning and reflection.

6. Impact-Driven and Future-Focused

- The department uses data, pupil voice, and outcomes to evaluate the impact of teaching and adapt practice accordingly.

- High-quality outcomes at both KS3 and KS4 demonstrate secure knowledge, skilled craftsmanship, and creative thinking.
- There is strong uptake of D&T qualifications at KS4 and beyond, with clear progression routes into STEM, design, and engineering fields.
- Links with industry, post-16 providers, and enrichment opportunities broaden pupils' horizons and aspirations.

7. Collaborative and Reflective Culture

- Staff work collaboratively, sharing best practice, resources, and CPD opportunities.
- There is a culture of continuous improvement, with regular subject reviews, curriculum development, and engagement with national developments in D&T education.
- The department contributes positively to the wider school community, offering extracurricular clubs, competitions, and cross-curricular links.

8. SEND Support and structure

1. Vision and Principles

Principle	Description
Inclusion	All students can access D&T through differentiated, scaffolded activities.
Engagement through Practicality	Prioritize hands-on learning to support sensory and experiential learning.
Personalized Learning	Lessons adapted to EHCP targets and individual learning styles.
Progression	Allow all learners to show progress, even if small-step.
Collaboration	Promote teamwork, peer support, and communication.

2. Curriculum Structure

✅ *Core Areas (Adapted for SEND)*

Strand	Focus	Example Adaptation
Designing	Communicate ideas using sketching, photos, symbols, or verbal description	Use visual aids, sentence starters, tactile resources
Making	Use tools and equipment safely, with support where needed	Use jigs, templates, simplified tools, and adult help
Technical Knowledge	Understand materials, structures, mechanisms, electronics	Interactive displays, real-life models, cause/effect tasks
Evaluation	Reflect on work, say what went well, what could be better	Use smiley faces, structured reflection sheets, peer talk

3. Planning and Differentiation Strategies

Strategy	Implementation
Multi-sensory Approaches	Use tactile, auditory, and visual resources (e.g., textured materials, videos)
Chunking Tasks	Break tasks into small, manageable steps with checklists
Visual Timetables	Sequence tasks using pictures or symbols
Pre-teaching Vocabulary	Teach key terms using visual flashcards or objects
Alternative Communication	Use PECS, symbols, or speech-to-text for non-verbal learners
Adaptive Equipment	Use one-handed tools, enlarged handles, velcro mats for stability
Clear Modelling	Use step-by-step demonstrations and repeat as needed
Sensory Breaks	Include calm zones or breaks for sensory regulation

4. Environment and Classroom Setup

Aspect	Adjustments
Safety and Mobility	Wider aisles, visual markers, tool modifications
Noise Levels	Minimize background noise, use soft tools, provide ear defenders
Lighting	Even, glare-free lighting; avoid flickering lights
Workstations	Clearly defined spaces with minimal distractions
Resource Access	Store tools/materials at accessible heights; label with images

5. Assessment for SEND in D&T

Types of Assessment

- Formative: Observations, photo evidence, annotated work, peer feedback
- Summative: Final product, discussion of process, multimedia presentation
- EHCP-linked Targets: Progress against communication, independence, and physical goals

Assessment Tools

Tool Type	Example
P Scales / Pre-Key Stage Standards	Track early development (for non-GCSE students)
SCERTS or MAPP	Track personal learning outcomes
Workbooks / Portfolios	Annotated with symbols, photos, staff comments
Skills Passport	Checklist of D&T skills achieved over time

6. Example Adapted Project: *"Design a Desk Tidy"*

Area	Standard Objective	SEND Adaptation
Design	Sketch or model ideas	Choose from pre-made templates or match images to shapes
Make	Use saws and glue to cut and assemble	Use pre-cut parts, jigs, hand-over-hand support
Evaluate	Describe improvements	Choose from smiley face symbols, or dictate feedback to scribe

7. Collaboration and Support

Stakeholder	Role
Teaching Assistant	Provide tailored support, scaffold tasks, ensure safety
SENCO	Coordinate EHCP needs with D&T curriculum
Therapists	Advise on physical or sensory adaptations
Parents/Carers	Share learner insights and support with home-learning connections

8. Resources and Tools

Resource Type	Examples
Visual Aids	Symbol-supported instruction sheets, storyboards, design idea banks
Tools	Safety scissors, glue guns with guards, adapted knives
Digital Tech	PC drawing pads, speech-to-text, design apps like OnShape
SEN-Friendly Kits	Pre-cut wood kits, tactile materials, sensory-friendly cooking sets

Secondary Careers Paths in Design & Technology

Design and Technology prepares students for a **wide range of creative, technical, and engineering careers**. Below is a categorized framework with job examples, pathways, and typical progression routes.

1. Product Design & Engineering

Career	Description	Possible Qualifications
Product Designer	Designs everyday items like furniture, appliances, or tools	GCSE/A Level D&T → BA/BSc Product Design
Industrial Designer	Works on mass-produced items with user experience and manufacturing focus	BTEC → BA/BSc → Industry
Mechanical Engineer	Develops machines, tools, and mechanical systems	A Level Physics/Maths → BEng
Design Engineer	Combines design with technical engineering, often using CAD	Apprenticeship or Degree
CAD Technician	Specializes in 2D/3D computer-aided design software	College Diploma → Apprenticeship

2. Construction & Built Environment

Career	Description	Pathway
Architect	Designs buildings, considering function, safety, and aesthetics	A Level Maths/Art → Architecture Degree

Civil Engineer	Plans and oversees large infrastructure projects (bridges, roads)	BTEC/A Levels → BEng Civil Engineering
Carpenter / Joiner	Builds structures, furniture, and fittings in wood	Level 2/3 Apprenticeship
Surveyor	Measures and evaluates land and buildings for planning or renovation	T Levels → Degree or Apprenticeship

3. Creative Design & Media

Career	Description	Pathway
Graphic Designer	Designs logos, posters, branding, digital visuals	GCSE Art/D&T → BTEC/BA Graphic Design
Set/Exhibition Designer	Designs physical spaces for events, shows, or exhibitions	Art Foundation → Design Degree
Interior Designer	Plans internal spaces for homes, businesses, and public areas	College Course → BA Interior Design
Animator / Game Designer	Creates visuals for games, films, or advertisements	Creative Media Diploma → University

4. Food, Nutrition & Hospitality

Career	Description	Pathway
Chef / Catering Manager	Prepares meals or manages food service operations	NVQs or Culinary School
Food Technologist	Works in food manufacturing and safety	BSc Food Science
Nutritionist / Dietitian	Advises on healthy eating and dietary needs	Science A Levels → Nutrition Degree
Hospitality Manager	Runs hotels, restaurants, and event venues	BTEC → Degree or Training

5. Digital & Systems Design

Career	Description	Pathway
Electronics Engineer	Develops systems for electronics, robotics, and devices	A Level Physics → Engineering Degree
Robotics Technician	Builds and maintains robotic systems	STEM Apprenticeship

Software or Systems Designer	Designs interfaces and embedded systems in products	Computing GCSE/A Level
UX/UI Designer	Focuses on how users interact with products and digital interfaces	D&T/ICT + Design Degree

6. Manufacturing & Industrial

Career	Description	Pathway
Fabricator / Welder	Assembles metal structures, often by hand	Level 2/3 Apprenticeship
CNC Machinist	Uses computer-controlled tools to manufacture parts	T Level or BTEC Engineering
Production Planner	Organizes materials, scheduling, and quality in manufacturing	College Course + Work Exp

7. General Pathways from School

Post-16 Option	Leads to...
A Levels (D&T, Maths, Physics, Art)	University degrees, engineering, architecture, or design routes
BTECs / T Levels	More practical/technical focus; apprenticeships or direct to employment
Apprenticeships	Industry-based training in engineering, construction, or design
Vocational College	Courses in carpentry, electrical work, hospitality, catering, etc.

8. Related Teaching and Research Careers

Career	Description
D&T Teacher	Teaches KS3–5 in schools, colleges
STEM Outreach Officer	Promotes careers in design, tech, and engineering
Technical Demonstrator	Supports workshops in colleges or universities