Subject Name
Curriculum core purpose. Intent
Our vision for Design Technology is of a creative, rigorous subject. and teaching and learning the technical knowledge and practical skills to make products in a range of materials. Design Technology students will learn a variety of design methods including CAD and be exposed to CAM methods of manufacture such as laser cutters and 3D printers. Students are taught to design using innovation and wherever possible address 'real life' design problems. This exciting and modern curriculum will help prepare students for the world they live in.
Community
Design and Technology helps to promote the concept of collaborative working, sharing ideas in order to develop and improve a products form and function. Our curriculum allows students to work together to solve problems, learn from one another's approaches and provide effective feedback in order for leaners to consider a different approach and apply what they have learnt to their own work to aid progression.
Ambition
Design and Technology is proud advocate for all students to access the curriculum and make progress. Design and Technology offers students the opportunity to learn new skills, centred around design, development and making, but it also centres heavily on cross curricular links with other subjects such as Science and Maths; allowing students to use transferable skills. Design Technology allows students have creative freedom and encourages innovation and challenge.
Respect
Respect is evident in Design and technology through clear classroom routines that value every student's contribution. We create a safe and supportive environment where mistakes are viewed as learning opportunities and effort is celebrated. Students are encouraged to listen to others and learn from others, challenge ideas constructively, and work together respectfully. Students are encouraged to view the classroom as a safe space where they can share ideas and as questions freely and without fear.

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Content-Knowledge and Skills.	Subject specific pedagogy
Throughout KS3 and KS4 students will: • Improved workshop knowledge and understanding of working practically. • Improved Knowledge, understanding and practice of Health and Safety. • Improved Independence. • Understanding the basics of programming and how some devices can work based on programs. • To have an understanding of core materials used in Design and Technology along with their working properties. • To gain sewing machine knowledge, embroidery practice and the use of different stitches. • To gain CAD knowledge – designing using computer methods • To have an understanding of mechanical systems including motion, levers, linkages. • To use cross curricular links with Science and Maths in order to gain a broader understanding of using Design and Technology in the wider world • To have an iterative approach to design and develop ideas based on collaborative work with others. • To be able to evaluate effectively in order to produce high quality designs and products based on suggested improvements.	**IMPLEMENTATION:** A well sequenced and logical curriculum that builds knowledge and skills over time. Assessment centred around the KS3 curriculum Principles of Knowledge, design, make and evaluate. Students will cover the different areas of design technology throughout the year, to ensure they are exposed to a broad technology experience. This builds the foundations for students to be able to succeed at KS4 where they will learn about working with a wide range of materials, alongside a focused study of working with timbers. Students will have broad overview of the design process including approaching design, designing products and new and emerging technologies. **KS2 FOUNDATIONS:** Students prior knowledge of the DT curriculum will be vast depending on the primary school attended. DT students will complete a short baseline test based on the principles of design, make and evaluate to gage prior learning, and will then be given the opportunity to build on any prior knowledge of materials and their properties. **ASSESSMENT KS3:** KS3 students complete termly assessments. At KS3 students are assessed in 4 key areas. Knowledge, design, make and evaluation. **ASSESSMENT KS4:** Students will complete several projects throughout year 10 assessment using GCSE grading termly. Students will follow the AQA Design and Technology with timbers specification. 50% assessment is exam based and 50% is NEA based. **LESSON STRUCTURE KS3:** Students will follow a structured DT program, having 1 lesson per fortnight. **LESSON STRUCTURE KS4:** Students will complete a structured DT program which helps develop the knowledge and skills needed to complete the GCSE. Students will have 3 lessons per fortnight at 100 minutes. **CLEAAPS RISK ASSESSMENTS:** 003, 004, 005, 011, 012, 025, 026, 032, 039, 043, 052, 053, 055, 061, 062, 065, 069, 070, 071, 072, 073, 075, 077, 078, 079, 080, 081, 083, 084, 088, 102, 168, 184, 202, 203, 204, 208

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<table>
<tr><th>D&T Curriculum Content</th><th>Autumn</th><th colspan="2">Spring</th><th>Summer</th></tr>
<tr><td>Year 7</td>
<td>Topic: <u>Crazy creature</u>
Key concepts:
<u>Knowledge:</u>
• Alessi
• Phillippe Starck
• Smart materials
• Papers and boards
• Blister packaging
• CAD
<u>Design:</u>
• Designing packaging nets with appropriate packaging symbols using 2D design.
<u>Make:</u>
• Polymorph creature with appropriate packaging. Vacuum formed blister packaging.
<u>Evaluate:</u>
• Evaluate outcome against the specification and suggest improvements
CHALLENGE TASK: Vacuum forming</td>
<td>Topic: <u>Microbits buggy</u>
Key concepts:
<u>Knowledge:</u>
• Robotics and automation
• Inputs, processes and outputs
• Algorithms and pseudocode
• Flowcharts
<u>Design:</u>
• A program using blocks in order to make a buggy move around a track.
<u>Evaluate:</u>
• Testing the program and adjusting to make better.
CHALLENGE TASK: Making a buggy move using the Microbit additional buggy</td>
<td>Topic: <u>Graffiti Pencil case</u>
Key concepts:
<u>Knowledge:</u>
• Natural and synthetic fibres
• Blended fabrics
• Applique
• Seams
• Typography
<u>Design:</u>
• To design lettering using graffiti as
<u>Make:</u>
• A cushion with a pattern and applique lettering.
• Sample patches of applique and seams.
<u>Evaluate:</u>
• Evaluation against the specification that students wrote
CHALLENGE TASK: To be able to add an additional function such as a pocket</td>
<td>Topic: <u>Key rack and key ring</u>
Key concepts:
<u>Knowledge:</u>
• Core materials – Natural timbers
• Core materials – Metals
• Wastage
• Surface preparation and finishes
<u>Design:</u>
• Communication of designs using isometric perspective
• Communication of designs using 2D software (CAD)
<u>Make:</u>
• Dowell joint
• Pewter mould from MDF
<u>Evaluate:</u>
• Peer feedback to aid development
• Evaluation of outcome
CHALLENGE TASK: Produce a Manufacturing specification.</td></tr>
<tr><td>Year 8</td>
<td>Topic: Money box
Key concepts:
<u>Knowledge:</u>
• Temporary joints
• Permanent joints
• Marking out on timber
• Sawing and shaping with timber
<u>Design:</u>
• Final design using CAD software
• Development of design through modelling
<u>Make:</u>
• Fully working prototype
<u>Evaluate:</u>
• Peer evaluation and feedback

CHALLENGE TASK: Producing a camera using Solidworks</td>
<td colspan="2">Topic: Eco house
Key concepts:
<u>Knowledge:</u>
• Research methods
• Renewable energy
<u>Design:</u>
• 3D drawing styles
• Development of a design
• Modelling
• CAD – 2D Design
• CAD – Sketch-Up
<u>Make:</u>
• Modelling skills
• Hot glue gun
• Soldering
<u>Evaluate:</u>
• Annotation evaluations and analysis

CHALLENGE TASK: Produce a record of manufacture</td>
<td>Topic: Waving character
Key concepts:
<u>Knowledge:</u>
• Motion
• Levers
• Linkages
• Cams and pulleys

<u>Design:</u>
• Design doodles
<u>Make:</u>
• MDF/ Mountboard working prototype
<u>Evaluate:</u>
• Testing and user evaluation

CHALLENGE TASK: To identify and explain how leverage has been used to make the product function.</td></tr>
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<tr><td></td><td colspan="2"></td><td colspan="2"></td><td></td></tr>
<tr><td>Year 9</td><td colspan="2">Topic: Accessories box
Key concepts:
<u>Knowledge:</u>
• Biomimicry
• Inspiration
• Ergonomics
• Anthropometrics
• Health and safety

<u>Design:</u>
• Designing using inspiration
• Development using ergonomics and anthropometrics
<u>Make:</u>
• Finger joint box with a pewter handle

<u>Evaluate:</u>
• Peer feedback to inform suggested improvements
CHALLENGE TASK: Jewellery research</td><td colspan="2">Topic: Light
Key concepts:
<u>Knowledge:</u>
• Inputs
• Processes
• Outputs
<u>Make:</u>
• Coping / scroll saws
• Disc sander
• Plastic oven
• Drilling holes
• Soldering
• Hole saw

CHALLENGE TASK: To draw an exploded view of the product in sections.</td><td>Topic: Batik phone pouch
Key concepts:
<u>Knowledge:</u>
• Batik
• Batik and culture
<u>Design:</u>
• Design ideas

<u>Make</u>
• Sewing machines
• Hand sewing
<u>Evaluate:</u>
• Evaluation of ideas
• Peer evaluation

CHALLENGE TASK: To draw an exploded view of the product in sections.</td></tr>
<tr><td>Year 10</td><td colspan="2">Topic: <u>Child’s chair</u>
Key concepts:
Design and manufacture a child’s chair
Research: Client research, materials research
Design: Create 3 isometric designs and annotate, develop through modelling and evaluate. Use of 2D Design for engraving back pattern.
Planning: Create a manufacturing plan of how they made their design.

SPECIFICATION KNOWLEDGE:
• Core materials: timbers, metals, polymers, textiles, papers and boards and electronics</td><td colspan="2">Topic: <u>Bendy wood clocks</u>
Key concepts:
CLOCK PROJECT
To use laminated plywood as inspiration for a clock design
Ideas: Design 2 clocks based on the designer/ company researched.
Iterative design: mix of sketching, modelling, AutoCAD stemming from create 3 ideas.
Practical: Use appropriate tools and equipment to manufacture.

SPECIFICATION KNOWLEDGE:
• Core: New and emerging Technologies, mechanisms and technical textiles</td><td>Topic: <u>Bluetooth speakers</u>
Key concepts:
Research: Look for inspiration based on designers/ design eras
Specification: Write a detailed and justified product specification.
Developing a design: Using a variety of techniques including CAD
NEA: Briefs released on June 1st. Exploration of the given design contexts. Students to be completing research for the first section of the NEA.

SPECIFICATION KNOWLEDGE:
• Working with timbers – specialist knowledge</td></tr>
<tr><td>Year 11</td><td>Topic: <u>NEA</u>
Key concepts:
Students finalise design briefs and design specifications.
Students complete initial design ideas and begin to develop solutions to their defined problem. This is through design, modelling and CAD.

SPECIFICATION KNOWLEDGE:</td><td>Topic: <u>NEA</u>
Key concepts:
Students develop design idea into a final developed concept. They include detailed annotation, explanation and working drawings for their intended design.
Manufacture of final design

SPECIFICATION KNOWLEDGE:

Designing Principles</td><td>Topic: <u>NEA and exam preparation</u>
Key concepts:
Manufacture of final product
Production diary and costs
Exam technique and practice

SPECIFICATION KNOWLEDGE:

Designing Principles
• Prototype development</td><td>Topic: <u>NEA and exam preparation</u>
Key concepts:
Manufacture of final product
Production diary and costs
Evaluation of finished product.
All portfolio work complete and submitted.
Exam technique and practice

SPECIFICATION KNOWLEDGE:

• Exam revision</td><td>Topic: <u>Exam preparation</u>
Key concepts:
Revision of knowledge concepts in reparation for the GCSE examination.
All core units revisited.
All specialised knowledge revisited
Exam technique and practice papers.</td></tr>
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	Designing principles • Research and investigations • Brief and specifications • Exploring and developing ideas • The work of others • Ecological, environmental and social issues	• Communicating ideas • Computer based design • Development of designs • Working drawings			