**CURRICULUM MAP (Long term plan)**

**SUBJECT : Design and Technology: Timbers** **YEAR GROUP: 10**

| | **Cycle 1**<br>**Autumn** | **Cycle 2**<br>**Spring** | **Cycle 3**<br>**Summer** |
|---|---|---|---|
| **Substantive knowledge** – Essential knowledge & conceptual understanding of the National Curriculum | **Theory : Core Content**<br>● The impact of new and emerging technologies.<br>● Evaluating new and emerging technologies.<br>● Energy: generation and storage.<br>● Smart and composite materials.<br>● Mechanical devices.<br>● Electronic systems.<br>● Ferrous/Non-ferrous metals.<br>● Papers and boards.<br>● Thermoforming and thermosetting polymers.<br>● Natural and manufactured boards.<br>● Design and technological practice.<br>● Challenges and influences of design and making.<br>● Investigating and analysing the work of professionals.<br>● Design strategies.<br>● Presenting design ideas.<br>● Drawing techniques. | **Theory: Timbers Content**<br>● Natural timbers - softwood and hardwoods.<br>● Manufactured timbers.<br>● Sources and origins of timber.<br>● Physical characteristics of timber.<br>● Social and ecological footprint.<br>● Environmental factors.<br>● Availability and cost factors of timber.<br>● Cultural and ethical factors of using timber.<br>● Forces and stress.<br>● Stock forms.<br>● Sizes.<br>● Processes of cutting timber.<br>● Scales of production.<br>● Tools and equipment.<br>● Shaping timber.<br>● Fabricating and constructing.<br>● Assembling wooden structures/joints.<br>● Surface finishes for timbers. | **Theory: NEA practice/NEA Release date 1st June 2024.**<br>● Investigation and research tasks based on the contextual challenge. Tasks including evaluating products, mood board, design museum and shop visits, questionnaire and client profiles.<br>● Design specification relating to the contextual challenge.<br>● Designing and annotating of different ideas, including final designs and measurements.<br><br>Practical: Limited due to NEA release. |

| | | | |
|---|---|---|---|
| | **Practical:** Wood based project - storage box using a selection of hand tools and machinery.<br><br>● Wood joining methods.<br>● Finishing wood joining methods.<br>● Use of 2D design (CAD).<br>● Making a storage box with felt liner. Use of a finger or lap joint to construct the box.<br>● Countersinking screws/hinges for opening/closing of storage box.<br>● Finishing techniques, including sanding and varnishing.<br>● Use of the laser cutter (CAM) to add design to top of the storage box. | **Practical:** Metal craft project using mild steel.<br><br>● Demonstration of metal craft equipment - shearing, cutting, riveting, scroll forming and twisting of mild steel.<br>● Researching ferrous and non-ferrous metals.<br>● Evaluating existing metal craft products.<br>● Design ideas and key annotations relating to a product specification.<br>● Metal craft practical to create an intricate metal bracket for a hanging basket.<br>● Finishing techniques using wire wool and hand files.<br>● Focus on riveting and use of hammer/anvil.<br>● Evaluating final product inline with NEA practice. | |
| **Disciplinary knowledge** - what skills are practiced? | **Theory**<br>Improve knowledge and understanding of the key core content. To be able to apply theory content to practical lessons.<br><br>**Practical**<br>Focus on learning and developing skills of using different hand tools to be able to | **Theory**<br>Improve knowledge and understanding of the subject specific content (timbers). To be able to apply theory content to practical lessons.<br><br>**Practical**<br>Introduction to a metal craft project to learn and develop skills in using new equipment (including hand tools). Students can use these skills | **Theory**<br>To understand the importance of the contextual challenge and using skills in research and design to complete the investigation process.<br><br>**Practical**<br>No practical content delivered due to NEA release.<br><br>Depending on student progress there is potential to begin the modelling process |

| | | | |
|---|---|---|---|
| | make a variety of wood joints and wooden storage boxes. | to create a decorative metal bracket from mild steel. | for the contextual challenge in relation to the design specification of the students chosen product. |
| **Key questions**<br>(What is the learning about?) | Lesson specific learning objects can be found in the GCSE Timbers SOL.<br><br>Can I…?<br>● Know when to apply theoretical knowledge/skills into a practical lesson?<br>● Understand how/when/what the importance is of applying these skills in practical lessons?<br>● Make decisions during the design and make process to create a product in relation to a set criteria (product specification)?<br>● Understand the importance of the theory content? | Lesson specific learning objects can be found in the GCSE Timbers SOL.<br><br>Can I…?<br>● Know when to apply theoretical knowledge/skills into a practical lesson?<br>● Understand how/when/what the importance is of applying these skills in practical lessons?<br>● Make decisions during the design and make process to create a product in relation to a set criteria (product specification)?<br>● Understand the importance of the theory content? | Lesson specific learning objects can be found in the GCSE Timbers SOL.<br><br>Can I…?<br>● Know the importance of the investigation process in the contextual challenge?<br>● Apply knowledge from term 1 and 2 to undertake the investigation process (research and design) successfully?<br>● Respond to feedback to improve areas of the contextual challenge?<br>● Prepare to begin to plan for the manufacturing stage of the contextual challenge? |
| **Assessment** | EOT assessment based on the core content.<br><br>GCSE practice questions set as home learning during each half-term that relates to the core content delivery in lesson.<br><br>Other forms of assessment:<br>● Targeted questioning<br>● Peer assessment<br>● Self assessment | EOT assessment based on the subject specific content (timbers) content.<br><br>GCSE practice questions set as home learning during each half-term that relates to the core content delivery in lesson.<br><br>Other forms of assessment:<br>● Targeted questioning<br>● Peer assessment<br>● Self assessment | EOT assessment based on the core and subject specific content content.<br><br>GCSE practice questions set as home learning during each half-term that relates to the core content delivery in lesson.<br><br>Other forms of assessment:<br>● Targeted questioning<br>● Peer assessment<br>● Self assessment<br>● Live mark- verbal/written feedback<br>● Formative |

| | | | |
|---|---|---|---|
| | • Live mark- verbal/written feedback<br>• Formative | • Live mark- verbal/written feedback<br>• Formative | Feedback on NEA and contextual challenge throughout the process. |
| **Literacy** (L),**Numeracy** (N), **Oracy** (O) **opportunities** | Literacy - knowledge organisers, keywords, definitions, exam practice questions, written theory content.<br>Numeracy - measuring and cutting materials to size.<br>Oracy - peer assessment, verbal feedback, presentations. | Literacy - knowledge organisers, keywords, definitions, exam practice questions, written theory content.<br>Numeracy - measuring and cutting materials to size.<br>Oracy - peer assessment, verbal feedback, presentations. | Literacy - knowledge organisers, keywords, definitions, exam practice questions, written theory content. Understanding the contextual challenge.<br>Numeracy - planning, design and modelling.<br>Oracy - peer assessment. |
| **Cross Curricular Opportunities** | Science - Energy: generation and storage, smart materials, thermosetting.<br>Maths - measuring and cutting for practical wood joints.<br>History - the change in energy and fuel. | Science - forces and stress to materials (timber).<br>Geography - sources and origins of timber. Environmental impacts in using timber.<br>Maths - Measuring and cutting for metal craft projects. Learning about stock sizes of paper and boards.<br>History - designers of past and present. The importance of past design movements throughout history. | Dependent on the contextual challenge release. |
| **Super curriculum** | GCSE DT Club<br>Designer of the month<br>DT Ambassadors | GCSE DT Club<br>Designer of the month<br>DT Ambassadors | NEA Contextual Challenge homework club<br>Designer of the month<br>DT Ambassadors<br>GCSE Trip to London Design Museum (June 2025). |
| **Careers** | HT 1: Carpenter<br>To be discussed in lessons during the practical work on different wood joints.<br>How to become a deputy master carpenter and first head of automation in a theatre: Paddy's story - BBC Bitesize<br>HT 2: Graphic Designer. | HT1: Engineer<br>To be discussed during delivery of metal craft practical projects.<br>How to become an engineering apprentice: Jade's story - BBC Bitesize<br><br>HT2: CAD/CAM Designer<br>Discussions filtered into lesson plans during the delivery of the subject | HT1: 2D/3D Designer<br>To be discussed in relation to the NEA delivery as projects will use 2D design.<br>How to become a wing designer: Zuzanna's story - BBC Bitesize<br><br>HT2: Researcher<br>The contextual challenge (NEA) will focus on investigation and research. Discussions filtered into lesson plans. |

| | | | |
|---|---|---|---|
| | Discussions filtered into lesson plans during the delivery of the core theory content - focus in lessons based in drawing and design.<br>How to become a graphic designer: Ste's story - BBC Bitesize | specific theory content (GCSE Timbers). Focus in lessons relating to tools and equipment.<br>Electrical design engineer: Why I love my green career - The Regenerators - BBC Bitesize | How to become a clinical research scientist: Zahra's story - BBC Bitesize |
| **Equality and Diversity**<br>Gender<br>Disability<br>Religion<br>Race<br>Sexuality | Learning about different designers influence and design movements from around the world.<br>E.g. Bauhaus, Arts and Craft, Art Deco, Memphis, De Stijl, Art Nouveau.<br><br>Including:<br>Kusheda Mensah (Ghanaian)<br>Morag Myerscough (Female Designer from London)<br>Sebastian Bergne (Male British designer with design links to other countries) | Learning about different designers influence and design movements from around the world.<br>E.g. Bauhaus, Arts and Craft, Art Deco, Memphis, De Stijl, Art Nouveau.<br><br>Including:<br>Karim Rashid (Egyptian born/Canada raised designer)<br>Nipa Doshi (Indian)<br>Samuel Chan (Hong-Kong born designer) | Learning about different designers influence and design movements from around the world.<br>E.g. Bauhaus, Arts and Craft, Art Deco, Memphis, De Stijl, Art Nouveau.<br><br>Including:<br>Gabriella Marcella (American/Italian born designer studied in Scotland).<br>Hans Schleger (German/Polish designer)<br>Frederick Henri Kay Henrion (German designer). |
| **Local Community Links** | | | |
| **British Values**<br>Democracy<br>The rule of Law<br>Individual Liberty<br>Mutual Respect and Tolerance of others<br>SMSC<br>Character Education | PBA core values .<br><br>Careers board in DT corridor and half-term links to careers after GCSE Design and Technology.<br><br>Extra-curricular clubs - to promote both individual and team work.<br><br>Potential for DT mentoring for KS2 students. | PBA core values .<br><br>Careers board in DT corridor and half-term links to careers after GCSE Design and Technology.<br><br>Extra-curricular clubs - to promote both individual and team work.<br><br>Potential for DT mentoring for KS2 students.<br><br>Students understand the school rules and guidelines and recognise | PBA core values .<br><br>Careers board in DT corridor and half-term links to careers after GCSE Design and Technology.<br><br>Extra-curricular clubs - to promote both individual and team work.<br><br>Workshop to inspire and promote teamwork during the visit to the London Design Museum. |

| | | | |
|---|---|---|---|
| | Students understand the school rules and guidelines and recognise their importance in keeping ourselves and our peers safe.<br><br>During projects and activities, we access our tools and materials making sure we are following class rules. We know and understand the consequences of not following these rules.<br><br>Students are taught to respect each other and the workspace they are in.<br><br>In the DT classroom, students behave in a way that positively impacts the work and productivity of others.<br><br>Students have opportunities to work collaboratively on projects, having respect for our peers' views and being receptive to the advice of others.<br><br>Design is an area in which the children are able to study the works and focus on the themes of other cultures around the world. This leads to a greater understanding of different ways of life and a respect for those cultures which may be very different from their own. | their importance in keeping ourselves and our peers safe.<br><br>During projects and activities, we access our tools and materials making sure we are following class rules. We know and understand the consequences of not following these rules.<br><br>Students are taught to respect each other and the workspace they are in.<br><br>In the DT classroom, students behave in a way that positively impacts the work and productivity of others.<br><br>Students have opportunities to work collaboratively on projects, having respect for our peers' views and being receptive to the advice of others.<br><br>Design is an area in which the children are able to study the works and focus on the themes of other cultures around the world. This leads to a greater understanding of different ways of life and a respect for those cultures which may be very different from their own.<br><br>In lessons, students behave in a respectful way towards each other, members of staff and show respect for the space, materials and resources that they require to work. DT teachers provide live | Potential for DT mentoring for KS2 students.<br><br>Students understand the school rules and guidelines and recognise their importance in keeping ourselves and our peers safe.<br><br>During projects and activities, we access our tools and materials making sure we are following class rules. We know and understand the consequences of not following these rules.<br><br>Students are taught to respect each other and the workspace they are in.<br><br>In the DT classroom, students behave in a way that positively impacts the work and productivity of others.<br><br>Students have opportunities to work collaboratively on projects, having respect for our peers' views and being receptive to the advice of others.<br><br>Design is an area in which the children are able to study the works and focus on the themes of other cultures around the world. This leads to a greater understanding of different ways of life and a respect for those cultures which may be very different from their own.<br><br>In lessons, students behave in a respectful way towards each other, members of staff and show respect for the space, materials and resources that they require to work. DT teachers provide live demonstrations of processes and techniques alongside other |

| | | | |
|---|---|---|---|
| | In lessons, students behave in a respectful way towards each other, members of staff and show respect for the space, materials and resources that they require to work. DT teachers provide live demonstrations of processes and techniques alongside other diverse and relevant guidance to support students to achieve their best outcomes. | demonstrations of processes and techniques alongside other diverse and relevant guidance to support students to achieve their best outcomes. | diverse and relevant guidance to support students to achieve their best outcomes. |