**Long Term Plan: Design & Technology KS3**

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| [https://westleighhigh.co.uk/images/logo/5.png](https://westleighhigh.co.uk/)**The Westleigh School** | **TERM 1**  **(Week1-15)** | **Term 2**  **(Week 16-27)** | **Term 3**  **(Week 28-39)** |
| **YEAR 7-**  **Product Design/Construction**  **(TMC)** | **Topic description-**  Workshop Health & Safety- Working in a practical environment  Tanagram /Puzzle project  **Subject Key piece-**  Tanagram /Puzzle production  **Literacy focus- Oracy**  Key Subject terminology  Product Analysis  Product Evaluation  **Assessment :DC1**  Baseline Assessemnt- Product evaluation/function  Health and Safety within a practical environment-Hand tools and machinery  **(Students to complete 2 Assessment per project)**  **SMSC:**  Team building skills, sharing equipment, peer mentoring, Responsibility for personal and group safety, understanding that resources are not infinite and need to be used appropriately.  **Knowledge Skill base:**  Use of a variety of equipment to develop knowledge and understanding of Health and safety in a practical environment.  Understand the differences in materials, properties and sustainability.  Develop set design proposals from design briefs utilising key information and details to design and manufacture a working functional product.  Develop practical knowledge and understanding machine processes and methods of manufacture. | **Topic description-**  Product solution- Eden Project  Students to design and make products that provide solutions for real life and relevant problems considering the needs of the consumer.  **Subject Key piece:**  Miniature Herb Garden planter-Indoor Hanging Planter  **Assessment- DC2**  Practical Assessment – Timed practical challenge  Students to manufacture a functional product utilising a range of hand tools and workshop machinery/equipment to develop a practical solution to set design problem ?  Tools equipment fabrication process- Design solution  **Literacy focus- Oracy:**  Key subject terminology-Keywords  Aesthetics  Construction  Manufacture  Product Analysis  Evaluate  Consumer  Functionality  Dimensions/scale  Production methods  Recycle  Sustainability  Final product evaluation  Prototype production  **Knowledge Skill base:**  Develop practical skills and processes using hand tools and machinery.  Understand how a practical environment works efficiently and safely.  Increase knowledge and understanding of materials, properties and their uses.  Students will also understand how to design effectively considering, Aesthetics, costing, functionality and the consumer.  Students will also develop a vocabulary regarding key terminology within the subject that will also improve literacy skills. | **Topic description-**  Computer Aided Design- Utilising modern fabrication methods- Laser cutter/vinyl production methods  **Subject Key piece:**  CAD/CAM signage design-Multiple material manufacture  Acrylic/Hardwood/Softwood/Man-made timbers  **Assessment- DC3**  CAD/CAM  Production methods  Design task problem solving- Consumer needs  **Literacy focus- Oracy**  Developing key subject knowledge and terminology associated with –Computer Aided Design/Manufacture  **Key Language:**  Production Methods  One off production  Batch Production  Mass Production  Continuous Production  Just in time Production  CAD Machinery and equipment  Laser Cutter  Vinyl Cutter  Accuracy  Quality control  **Knowledge Skill base:**  Students will develop a good knowledge of the workshop by completing set practical tasks under supervision to help guide, support and monitor their progress. Students will be involved in designing and manufacturing products using a variety of practical workshop hand tools and machinery.  Students will be able to understand design briefs and take the information to produce practical outcomes following a detailed specification.  Students will develop a clear understanding of industrial processes an understand mass, batch and prototype production methods |
| **Food/Craft/Engineering**  **(ACR)** | **HT1 & 2**  **(Week1-15)**  **(15 weeks)**  **Food Technology** | **HT3& 4**  **(Week16-27)**  **(11 weeks)**  **Craft, Design, Technology** | **HT5& 6**  **(Week28-39)**  **(11 weeks)**  **Engineering** |
|  | **Topic description:**  Cooking 101, An introduction to food.  **Subject Key piece:**  KP1 – Flapjacks. KP2 – Design your own dish.  **Assessment- DC1:**  Controlled practical task- Skill based  **Literacy focus:**  **Reading –**Research recipes, production techniques, online blogs | **Topic description:**  Introduction to woodcraft: Block Bot  Subject Key piece  KP1 – Final design. KP2 – Block bot production  **Assessment- DC2:**  Tools equipment and fabrication methods  **Literacy focus**  **Oracy.**  Reading – Research activity materials properties and health & safety**.** | **Topic description:**  Sublimation jigsaw puzzle  **Subject Key piece**  E-portfolio and final practical piece  **Assessment- DC3:**  CAD/CAM- Knowledge and understanding  Literacy focus  **Written** – Analysis of ideas  **Oracy**– Group discussion and verbal peer analysis |
| **Graphic-Design (SM)** | **Topic description-**  Introduction to Graphics / modelling and existing products.  **Subject Key piece-**  Chocolate bar wrapper  **Literacy focus- Oracy**  Key Subject terminology  Product analysis  Product Evaluation / Peer evaluation  Peer discussion  **Assessment :DC1**  Typography assessment  Final product assessment ( Chocolate bar )  **SMSC**  Team building skills, sharing equipment, peer mentoring, Responsibility for personal and group safety, understanding that resources are not infinite and need to be used appropriately.  **Knowledge Skill base:**  Pupils will develop skill and knowledge in the following areas. Pupils will further skills in creativity and understand its value in Design and Technology. Students will develop understanding of the value of focussed research and its impact on designing. They will gain skills in analysing existing products and reflect on how their analysis can be used to develop their own products. Student will develop their understanding of design techniques and industry standard symbols used by professional designers. They will develop an understanding of cultural and moral issues that a chocolate bar wrapper designed may face and apply their new understanding to their own work. Students will reflect on the success and appropriateness of their ideas for their target market and develop their designs to appeal to the audience of their choice. Pupils will develop simple skills with hand tools, using equipment safely and accurately. Students will develop understanding the vacuum forming machine and how this can be used safely and accurately to create desired outcomes. Finally pupils will develop evaluation skills as they reflect on the success of their final product from the view point of their target market and identify areas for improvement in the product and process. | **Topic description-**  Basic principles of colour theory and basic drawing systems.  **Subject Key piece-**  Drawing skills development  Colour wheel and introduction to a range of 2d and 3ddrawing systems.  **Literacy focus- Oracy**  Key Subject terminology  Peer discussion using professional language  **Assessment :DC2**  Using drawing system to produce a high level drawing using isometric.  Using drawing system to produce a high level drawing using Single point perspective.  **SMSC**  Continue to develop Team building skills, sharing equipment, peer mentoring, Responsibility for personal and group safety, understanding that resources are not infinite and need to be used appropriately.  **Knowledge Skill base:**  Pupils will now develop skill and knowledge in the following areas. Pupils will further skills in using colour theory to identify moods flavours etc. giving an understanding of colour association. They will understand how the colour wheel is created and used to identify complimentary colours. Pupils will also develop the skill and knowledge using isometric drawing systems along with supporting aids to help them draw 3dimensional drawings.  They will develop the use of single point perspective to understand the difference between the two drawing systems and again develop 3dimensional drawing skills along with reference to simple rendering techniques.  Rendering techniques that will be covered are simple rendering and enhancement techniques including thick and thin line techniques. | **Topic description-**  Introduction to computer aided design.  **Subject Key piece-**  Designing on computer aided design ‘  Introduction to techsoft 2D design.  Skill based various focussed activities.  **Literacy focus- Oracy**  Key Subject terminology  Peer discussion using professional language  **Assessment :DC3**  Drawing on 2D design using basic drawing tools ( Tractor)  Drawing on 2D design using basic path tools ( sponge bob  Drawing on 2D design using basic isometric grid ( shapes )  Drawing on 2D design using vector tools  **SMSC**  Continue to develop Team building skills, sharing equipment, peer mentoring, Responsibility for personal and group safety, understanding that resources are not infinite and need to be used appropriately and safely especially with the use of computers.  **Knowledge Skill base:**  Pupils will start to develop their skill and knowledge of using computer design (CAD) . Pupils will gain knowledge of setting up a page and layout of the software. They will gain an understanding of how to use the shapes to draw an outcome that could be created by computer aided manufacture (CAM). Pupils will then then gain an understanding of using path tools along with colour tools. They will also gain an understanding of how their isometric skills gained in term 2 can be developed in to CAD drawings giving more opportunities for creativity. Pupils will then gain an understanding of how vector drawings are produced and their differences to Rasterized drawings. |
| **YEAR 8**  **Product/Construction**  **(TMC)** | **Topic description-**  Multi-Media Storage device  Timber/Acrylics/CAD/CAM  Production Methods  **Subject Key piece-**  Hand-tools & Equipment/fabrication  Multi media storage product design & manufacture  Final Evaluation review product outcome-3RD Party feedback  **Literacy focus- Oracy**  Existing product research  Key subject terminology  Specification  **Assessment- DC1**  Product analysis-key terminology  Production methods  Hand- tools & Machinery methods of manufacture  Design task- following set proposal  **Knowledge Skill base:**  Use of a variety of equipment to develop knowledge and understanding of Health and safety in a practical environment.  Understand the differences in materials, properties and sustainability.  Develop set design proposals from design briefs utilising key information and details to design and manufacture a working functional product.  Develop practical knowledge and understanding machine processes and methods of manufacture.  Students will develop an understanding of CAD/CAM and develop practical outcomes using CAM processes.  Students will also learn and develop key skills and knowledge on how to use Photoshop effectively and accurately to improve the final outcome of their concept model  **SMSC:**  Team building skills, sharing equipment, peer mentoring, Responsibility for personal and group safety, understanding that resources are not infinite and need to be used appropriately. | **Topic description:**  Night Light Project- To develop a battery powered lighting device suitable for use as a Night Light following a set Design Brief.  **Subject Key piece-**  Night Light production- Electronic circuitry  **Literacy focus- Oracy:**  Key electronic component language  Electronics  Circuits  Solder  Printed Circuit Boards  Consumer Target Market  Resistors  Connector Blocks  LDR,s  Economic  Environmental  Aesthetics  Functionality  Computer Aided Design  Computer Aided Manufacture  **Assessment- DC2**  Electronics components/ Production methods and soldering techniques  **Knowledge Skill Base:**  Students to develop a clear knowledge and understanding electronic components, symbols and circuit diagrams. Students will learn soldering techniques, wood construction methods, marking cutting and assembling and finishing meeting the requirements of a set design brief producing an effective “Night Light” unit.  **SMSC:**  Students to understand the effect products can have on the environment and particular user groups in society. Students to consider the world around them and the impact products can have material sources-Global Environmental issues | **Topic description:**  Clock Project – Time Piece  **Subject Key piece-**  Manufacture Functional Time piece with incorporated CAD/CAM features- Laser Cutter Vinyl Cutter  **Literacy focus- Oracy:**  Key CAD/CAM Terminology  CAD/CAM  Vinyl Cutter  Laser Cutter  3D Printing  Scale/dimension plotter  Grid Lock  Step lock  Shape Tool  Dimension Lines  Layers  Line Colour setting-Fill  Clip  Text  3D Effects  Portrait-Landscape  **Assessment- DC3:**  2D –Design CAD/Assessment –Function  (screen shot)  Final Product Evaluation vs specification product outcome.  **Knowledge Skill Base:**  Students will develop knowledge and understanding of designer influences and design movement. Student will research a range of designers and influences from the last century. Understanding culture, fashion and influence. Students will select a genre and research the origin, how was this style formed? What era was the influence most popular? Who was the founder/artist?  Students are to use the influence to form a functional time piece utilising the chosen artist’s style and influence throughout their project.  **SMSC:**  Students are to develop an understanding of the impact products can have on specific target markets. Understand how style, fashion and individuality can have an impact on resources and the effects globally |
| **Food/Craft/Engineering CAD/CAM**  **(ACR)** | **HT1 & 2**  **(Week1-15)**  **(15 weeks)**  **Food Technology** | **HT3& 4**  **(Week16-27)**  **(11 weeks)**  **Craft, Design, Technology** | **HT5& 6**  **(Week28-39)**  **(11 weeks)**  **Engineering** |
|  | **Topic description:**  Developing practical Food skills and competence- Working safely and efficiently in a practical environment   * Weigh and measure ingredients accurately. * Prepare ingredients and equipment * Selecting& Adjusting cooking times * Testing dishes for readiness * Judge and modify sensory analysis * Use of key kitchen equipment. * Cooking methods and processes   **Subject Key piece:**  KP1 – Macaroni Cheese. KP2 – Design your own dish  **Assessment- DC1:**  Controlled practical assessment  **Literacy focus- Writing:**  Create a virtual blog about the dishes you have created over the term. | **Topic description:**  Designing for a client Children’s functional toy design- Designing for a specific target market.  **Subject Key piece:**  KP1 – Final design. KP2 – Train production  **Assessment- DC2**  Materials and properties/Production methods  **Literacy focus- Oracy**  Key subject specific language  Hardwoods  Softwoods  Man-made timbers  Tools & Equipment  Manufacturing methods  Consumer Target Market  Finishing Techniques | **Topic description:**  Post-it-note holder- Computer Aided Design/ Manufacture.  Students to develop a clear knowledge and understanding of CAD/CAM. Understand the process and apply their learning to designing and manufacturing a functional product using a range of CAM production methods.  **Subject Key piece:**  E-portfolio and final practical piece  **Literacy focus-**  **Written** – Analysis of ideas  **Oracy**– Group discussion and verbal peer analysis  Final product evaluation- 3RD Party feedback |
| **Graphic-Design**  **(SM)** | **Topic description-**  Computer aided design / graphics  **Subject Key piece-**  Introduction to Photoshop CS6 and Techsoft 2D design development from Y7.  Focussed mini tasks that include drawing camera and land rover discovery.  **Literacy focus- Oracy**  Subject terminology including key words. The use of professional language through discussion. Speaking and listening / communication skills.  Throughout the unit pupils will have the opportunity to discuss and report back any research findings they find along with any key decisions they make.  **Assessment- DC1**  Production of CD cover utilizing all Photoshop skills.  Production of house with colour in a specified time using Techsoft 2D design.  (Assessment will also take in to consideration the use of lesson based work to support assessment grade).  **SMSC:**  Continue to develop Team building skills, sharing equipment, peer mentoring, Responsibility for personal and group safety, understanding that resources are not infinite and need to be used appropriately and safely when using computers.  **Knowledge Skill base:**  Pupils will develop skill and knowledge in the following areas. The use of drawing tools to produce complex shapes and an understanding of working with closed boundaries to ensure accurate designs are produced. The implementation of colour including graduated and appropriate textures. Pupils will also gain knowledge of applying dimensions to drawings and how to create wireframe drawings both simple and complex.  Pupils will then go on to develop their skill and understanding of working with Photoshop CS6.  In this they will develop skill and knowledge of working with layers when producing design work. Pupils will also develop manipulation techniques with both typography and imagery. Finally pupils will understand how to work to a design brief and apply all their new knowledge of Photoshop in a focussed practical task. | **Topic description-**  3 Dimensional drawing and rendering skills  **Subject Key piece-**  Isometric drawing, Single point perspective (recap) two-point perspective. Rendering techniques using traditional drawing techniques.  **Literacy focus- Oracy**  Subject terminology including key words that relate to this section of the topic. The use of professional language through discussion. Speaking and listening / communication skills.  Throughout the unit pupils will have the opportunity to discuss and report back any research findings they find along with any key decisions they make.  **Assessment- DC2**  Drawing task using isometric showing use of colour shape and dimensions  Drawing using two-point perspective demonstrating skills in accuracy, detail and complicity.  (Assessment will also take in to consideration the use of lesson based work to support assessment grade).  **SMSC:**  Continue to develop Team building skills, sharing equipment, peer mentoring, Responsibility for personal and group safety, understanding that resources are not infinite and need to be used carefully along with the importance of recycling.  **Knowledge Skill base:**  Pupils will continue to develop their skill and knowledge by working on various paper grids ( Isometric and Perspective ).  They will understand how to draw at high level using isometric drawing techniques and the use of templates to aid further creativity. Pupils will also develop the skill in the use of both perspective areas, Single and Two point. They will have the knowledge to produce house shapes at a range of abilities. Finally pupils will gain skill and understand of a wide range of rendering techniques that can be added to designs to improve visual impact, these include Tone, cross hatch, and stippling. | **Topic description-**  Working to a client’s brief using traditional and computer aided design skills.  **Subject Key piece-**  **Literacy focus- Oracy**  Subject terminology including key words that relate to this section of the topic. The use of professional language through discussion. Speaking and listening / communication skills.  Throughout the unit pupils will have the opportunity to discuss and report back any research findings they find along with any key decisions they make.  **Assessment- DC3**  The assessment will follow the NCFE VCERT graphics criteria.  Responses to a client based brief.  Final outcome and how it reflects the brief and its values.  **Knowledge Skill base:**  Pupils will gain the skill and knowledge to interoperate a design brief and recognise key values and criteria required to achieve a quality outcome. They will develop the skill to research and select relevant information that can be used on the brief. Pupils will use their new skill and knowledge of computer aided design to create a final outcome which match the needs of the brief.  Pupils will develop skill and knowledge of using scanners and software to develop a more creative design. |