**Unit / Project Overview**

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| **Curriculum Area / Skills**  English/Manufacturing/Design/Further Learning and Employment (Certa)  *Key academic focus*: Design/Manufacturing/Marketing  *Key scientific skills focus*: The engineering design process, testing and evaluation.  *Key literacy focus*: Writing to persuade/Marketing & Advertising. Selling a product.  **Learning Outcomes :**  Understand engineering practices used at Hydram  Identify what a mood board is and how it can be used to create initial individual and group ideas.  Create a prototype using a range of methods including 3D printing, welding, bending.  Research Hydram Engineering.  Improve practical techniques and skills in engineering.  Understand what marketing and advertising is.  Identify how to create a newsletter. | | **Subject / Course:**  KS4 English.  Engineering Manufacturing  Design  Further Learning and employment (L1)  **Teacher:** Gareth & Sarah  **Class/Year group**:  Mixed ability – Year 10  Students with higher ability will be given additional challenges, questions and differentiate tasks. Low ability students – Sentence starters/Use Passports. Visual aids/Peer Assessment.  **Number of Students**: 10  **Start date:** January 2020  **Length of project** :12 Weeks.  **Additional Info:** These resources are designed to work with students who have both ASD and SEMH needs. The students are taught in small class sizes of wide academic ability in a specialist setting with high levels of 1:1 support. |
| **Driving Question:**  Can you design, Manufacture and market a ‘freebie’ product to Hydram Customers. | | |
| **How can the learning from the employer visit be applied to the project idea?**  Hydram staff to launch project. Students will visit Hydram in order to understand what services, practices and techniques are used. Student will design and manufacture their product based on the services used by Hydram. Welding, Bending and Designing. | | |
| **Which Stakeholders could help deliver the project?**  Hydram engineers/staff to visit the school weekly and attend a fayre at the end of the project. The best design/prototype will then be manufactured at Hydram and used as a freebie. | **Foreseen Challenges / solutions?**  Pupil engagement in the comparatively complex topic. Understanding Hydram and finding an interest in the services they offer.  Solution: 3 discreet mini topics targeting three key skill areas- underpinning knowledge, practical engineering and extended writing.  Meet current apprentices, see how they progressed/how does what they do link to our project. | |
| **Draft activity timeline (specific delivery times / flexibility)**    Lessons 1&2: Launch project with Hydram. Research project for students. What is Hydram? What services do they provide? What products do they make? What freebies have they given out previously?    Lessons 3: Once in groups, students to create individual mood board. What is a mood board? *Mood board to include personal research about individual ideas, photos, sketches, materials etc.*  Lessons 4: Group work – Final design. *Begin to think about how you are going to produce your prototype. Identify what materials you will need, what tools you will need, where you will need to produce the prototype and the costs involved.*   Lessons 5&6: Mind map with all of the Health and Safety considerations you should think about when manufacturing your prototype. Think about where you would make it, what machines you might need, which materials you could use, Health and Safety features on your design and any general Health and Safety rules that apply in the UTC. Risk Assessment –Consider the risk assessment that will need to be put into place detailing all of the possible risks to manufacture your prototype.  Week 7/8/9 – Engineering manufacturing- Create prototype (2D design/Solidworks/3D printer) Welding, bending etc. Discuss techniques.  Week 10/11/12 – Marketing and Advertising. Mini Project – What is it? Create video advert/Newsletter for Hydram to use. | | |
| **Products / outputs?**  Students will design, manufacture and market a product for Hydram Engineering. Students will use 2D Design/Solidworks and have access to 3D Printer and Engineering practices.  Students will then identify and use marketing and advertising techniques for the product they have created. | | **How will you celebrate, showcase learning with wider stakeholders?**    Project Fayre. Presenting their product to staff, parents, peers and business partners. |
| **How will the work be assessed? How will you measure the impact, what are the success criteria?**   * The work will be assessed against differentiated learning objectives both through summative and formative assessment throughout by the teachers. * Weekly log of tasks/challenges. * Practical assessment (Engineering hall) * STEM Careers * Enhancing employability skills (CV) * Presentation | | **Differentiation**  A wide range of differentiated task throughout (see lessons to follow) including but not limited to:  Differentiated learning outcomes/ task that is ability appropriate within groups.  Prototype using different software that students are unfamiliar with (Challenge) Hydram software.  Writing frames. |
|  Is the idea clear to communicate with potential partners?   Has a timeline been drafted?   Have outcomes and evaluation process been agreed?   Have key contacts agreed a communication strategy? | | **Key Contact details:** |