



Scheme of Learning	Scheme of Learning Cyber character and jewellery (KS3 Year 9)
Learning outcomes	The aim of our Year 9 Product Design practical curriculum is for students to work safely and become more confident when using tools and equipment when making products. Subject Content: Cyber character with programmable circuit. • Select appropriate materials, tools and manufacturing techniques. • Solder a circuit. • Programme a circuit using PICAXE software. • Make a cyber character with a stand that can hold the circuit and batteries. • Using tools and machinery safely Skills Set: • Soldering, including quality control checks/problem solving to ensure circuit works. • Programme circuit using PICAXE software. • Making cyber character – marking out materials, cutting and filing, achieving a high-quality finish. • Application of theory knowledge. • Working independently. Jewellery Project Skill set: Ability to make a piece of jewellery for a chosen client. The jewellery should be made using cuttlefish casting technique. This requires development of the following skills: • Calculating the dimensions of jewellery, so it fits on the cuttlefish. • Marking out and drawing design. • Carving design out of the cuttlefish. • Achieving a high-quality finish through accurate carving and filing of final jewellery piece. • Application of theory knowledge when making • Working independently
Key Questions	Cyber character Project • How could you make the cyber character stand up? • How could your character hold the circuit and batteries whilst remaining stable.



	• How do you achieve a high-quality finish on your cyber character? • How could you improve if you were to make the cyber character again? • What problems could occur with your circuit and how could you overcome them? Jewellery project • What are your clients wants and needs in terms of the item of jewellery? • How could you add detail to your cuttlefish mould? • How do you achieve a high-quality finish on your jewellery? • How could you improve if you were to make the jewellery again?
Knowledge What key concepts are covered? What key skills are developed? What key terminology is learned (i.e. glossary)?	<u>Practical products</u> • Cyber character with circuit. • Jewellery item. <u>Key terminology:</u> Cyber character project: circuit, soldering, short circuit, wave soldering, reflow soldering, names of electronic components, high quality finish, annotation, evaluation. Jewellery project: Cuttlefish casting, pewter, cuttlefish, carving, high quality finish, annotation, evaluation.
Ongoing Assessment	<u>Self-marking using assessment criteria grid:</u> Students to consider how they worked in each of the following categories and then understand the skills or elements of practical work that should be a target for their next project. Cybercharacter project: Misconceptions- Component placement, positive and negative terminals of components, programming, mixing up correct names of equipment and electronic components. Jewellery project Misconceptions – Creative/imaginative design, how to add detail to their design, mixing up correct names of tools and equipment.
Key Assessment	Practical skills are self-assessed and suggest improvements to their practical work in Y9 and are expected to further refine and improve their skills ready for KS4. How will we know that pupils can answer the key question? Students will have made a working circuit which has been programmed and secured to the cyber character and their progress is dependent on their independence, the quality of outcomes, application of decoration and complexity of character stand and methods for securing the circuit and batteries.

NHSG Key Stage 3 Unit Overview for Year 8 Product Design Practical Lessons



	Knowledge, skills, understanding, application? Application of theory knowledge is assessed through the theory test at the end of term.
Clear sequencing of content	Theory activities lead into practical work e.g. learning about joining materials together Practical demonstrations in lessons prior to practical so correct use of tools and equipment can be selected, and students can see how to do each skill Practical lessons build on skills as the project progresses and student's confidence grows i.e. use of soldering, programming a circuit, cuttlefish casting.
Links to Careers	Civil Engineer, Mechanical Engineer, Aeronautical Engineer, Robotics Engineer, Systems Engineer, Architect, Landscape Architect, Industrial Designer, Interior Designer, Graphic Designer, Video Game Designer
Diversity and Inclusion	• Gender neutral themes given: Cyber character, choice of client. • Keywords given
Intervention support	• Examples of practical products • Demonstrations of manufacturing techniques: soldering, cuttlefish casting • Small group demonstrations for skills
Challenge	Practical challenge arises in the complexity of the students design and the skill required to deliver a high-quality product that matches their initial design ideas. For example, a more cyber character is likely to include more electronic components e.g LEDs, buzzers, LDRs. Students encouraged to develop designs and apply theory knowledge to their designs • Technology student https://www.technologystudent.com/