



Scheme of Learning	Scheme of Learning: Cyber character and jewellery (KS3 Year 9)
Learning outcomes	The aim of our Year 9 Product Design theory curriculum is for students to develop their understanding of electronic components, soldering, problem solving circuit issues, metals, communicating designs, applying their knowledge of materials, tools and equipment when making products. <u>Subject Content:</u> Cybercharacter project: Knowledge and understanding of: • Soldering – component placement, problems and solutions of non-working circuit. • Wave soldering and reflow soldering. • Programming a circuit. <u>Skills Set:</u> • Ability to communicate their ideas, by drawing in isometric and annotate to explain design ideas • Ability to apply knowledge of electronic components when soldering and problem solving. • Ability to understand how to program a circuit. Jewellery project Knowledge and understanding of: • Conduct a client interview and use responses to design a range of jewellery to reflect the users wants and needs. • Cuttlefish casting – how to make a mould, cast and finish a piece of jewellery. • Metal classification. • Cold working metal techniques i.e. Cutting, filing, pin punching, beating, planishing. <u>Skills Set:</u> • Ability to communicate their ideas, by drawing, shading, and annotating to explain design ideas • Ability to apply knowledge of cuttlefish casting to create detail on their item of jewellery.
Key Questions	Cybercharacter Project • How will your cyber character stand up? • How will you attach the circuit and batteries to your cyber character?

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	• Which components must be soldered in a certain way? • How will you program your circuit? What will it do? • How will you make your product? • What problems may occur with your circuit and how do you solve this? Jewellery project • What are the wants and needs of your target consumer? • How will you add the detail to your cuttlefish mould to create your design? • How are metals classified?
Knowledge What key concepts are covered? What key skills are developed? What key terminology is learned (i.e. glossary)?	Cybercharacter Project Concepts: health and safety, electronic components name and function, problem solving circuit issues, wave and reflow soldering, structures within design of the stand, evaluation. Skills: designing and making skills, measuring, soldering, problem solving. Key terminology: Names of tools and machinery, names of electronic components, soldering, wave soldering, reflow soldering, programming. Jewellery Project Concepts: health and safety, cuttlefish casting, metal classification, evaluation. Skills: designing and making skills, measuring, cuttlefish casting. Key terminology: Names of tools and machinery, cuttlefish casting, mould, pewter.
Ongoing Assessment	Peer and self-marking using mark schemes: • Tools and equipment test (Metals and electronics) • Electronic component worksheet • Metal Classification worksheet • Final cyber character and jewellery marked – considers skills gained, health and safety and working independently
Key Assessment	Teacher marked assessments: • Cyber character designs • End of term test – in class assessment without using notes (30 minutes)

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Clear sequencing of content	In Year 9 we assume that students do not have any no prior knowledge of electronics and metals but are given the opportunity to stretch and challenge themselves where applicable. Students continue to learn how to work safely in the workshop. They learn how to use materials, tools, and equipment so that they can select the most appropriate and use safely when making products. They should also be able to carry out quality control checks on their soldered circuit and problem solve independently to ensure it is working and can then be programmed. Students will also be able to communicate their ideas applying the knowledge they have gained. This SOL builds on knowledge gained in Year 7 and 8 and can be built upon at GCSE and A-level.
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
Additional support	• PowerPoints available on subject SharePoint • Structured activities to cover theory • Revision list and tips provided for end of term test • AfL mark schemes in booklet • Examples of written work • Glossary in booklet
Challenge	Challenge arises when students apply the theory covered in lessons to their practical designs. It is a challenge for students to ensure that their design is ambitious BUT achievable so that it can be turned into a high-quality final piece. Resources to support students in meeting this challenge include: • Technology student https://www.technologystudent.com/