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**Knowledge Rich Curriculum Plan**

Year 9 – Design

Unit: Speaker project



| **Year 9**  **Design** | **The purpose of our curriculum is to inspire our students to think creatively about solving problems, rather than dwelling on solutions. They will experience a wide range of technologies that will give them the knowledge and skills, to make better decisions to design and make products that will improve people’s lives. Regardless of ability or endpoint, our aim is to equip our students with the knowledge of ever developing technologies that can be applied to their chosen pathways both in and outside of the Academy.** |  |  |  |
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| **Lesson/Learning Sequence** | **Intended Knowledge:**  *Students will know that…* | **Tiered Vocabulary** | **Prior Knowledge:**  *In order to know this students, need to already know that…* | **Assessment** |
| **Lesson:**  **Soldering the components** | * Students will understand the different components needed to create a working speaker * Students will understand the use and purpose of a resistor and Thermistor * Students will understand the use of soldering irons and the equipment needed | Soldering – process of joining two metal surfaces together using a filler metal called solder.  Component – basic discrete device or physical entity in an electronic system used to affect electrons or their associated fields. | * ***Students need to already know what soldering is*** * ***Students need to already know what a circuit is and how electronic products work*** * ***Students need to already know how to safely solder*** | What is the purpose of soldering components together?  How secure could this particular joining method be?  What are the benefits or advantages to this type of soldering together ours circuits? |
| **Lesson:**  **Soldering the components part 2** | * Students will know how positive and negative aspects of electronics play a role in circuitry * Students will know how capacitors are used as part of electronic circuits. * Students will know how inputs, processes and outputs are used in circuitry. | Capacitor – a passive electronic component that consists of two conductive plates separated by an insulating dielectric.  Circuit – An electronic circuit is composed of individual electronic components, such as resistors, transistors, capacitors, inductors and diodes, connected by conductive wires or traces through which electric current can flow. | * ***Students need to already know the term soldering*** * ***Students need to already know how components are used in circuit boards*** | What is the purpose of soldering components together?  How secure could this particular joining method be?  What are the benefits or advantages to this type of soldering together ours circuits? |
| **Lesson:**  **Marking out the casing** | * Students will know how to construct a wooden casing for their speaker * Students will know how chisels can be used as a specialist tool * Students will know how angles are produced using coping saws | Coping saw – A coping saw is a type of bow saw used to cut intricate external shapes and interior cut-outs in woodworking or carpentry.  Chisel - a long-bladed hand tool with a bevelled cutting edge and a handle which is struck with a hammer or mallet, used to cut or shape wood, stone, or metal. | * ***Students need to already know the tools used for cutting timber*** * ***Students need to already know how to mark out materials*** | How can the use of this stage help with quality control?  What are the risks of using tools such as tenon saws?  How can this tool be used safely? |
| **Lesson:**  **Cutting and wasting techniques** | * Students will know the term wasting refers to removing parts of a material * Students will know how the term quality control is used in the manufacture of a product * Students will know how different tools and equipment create different types of wasting methods | Wasting – The process of taking something away from a material | * ***Students will need to know the term quality and what it refers too*** * ***Students will need to know the use of basic workshop tools*** | How can the use of these particular tools help with cutting?  How can wastage be used to help create a smooth product?  Why is QA used during the manufacture of the product? |
| **Lesson:**  **Assembly** | * Students will know how to assemble their product * Students will know how built in components are used as part of the manufacturing process * Students will know how to use the disc sander to create a higher quality finish | Components – pre-manufactured parts which are. bought in to aid the production of the product.  Disc Sander – a power tool used to smooth surfaces by abrasion with sandpaper. | * ***Students will need to know how sandpaper can be used to help ensure quality*** * ***Students will need to know how accuracy can be applied*** | How does the assembly of the product link to quality control? |
| **Lesson:**  **Finishing techniques** | * Students will know how finishing techniques are used in products * Students will know how to apply different finishing techniques | Accuracy – Quality of state of being correct or precise  Finishing Techniques: altering the surface of a manufactured part to achieve the desired appearance or make it easier to bond with or provide durability. | * ***Students will know how to apply quality control to their wooden joints*** * ***Students will know the basics of finishing*** |  |