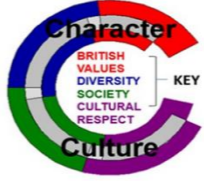


DESIGN AND TECHNOLOGY

[LINK:](#)

| YEAR 8 – Electronics Unit – Steady Hand Game (KS3) – 8 weeks – 1 lesson per week | | | | | | | | | | |
|---|---|---|---|--|---|---|--|---|--|---|
| INTENT: To play a part in developing knowledge and understanding of the Design and Technology National Curriculum. Students are to... develop an understanding of how to work safely with tools, equipment, and materials within the electronics workshop. | | | The bigger picture: This scheme plays an important role within the technology curriculum as it is essentially teaching skills from the National Curriculum and preparing students for the challenges of key stage 4. | | | | | |  <p>* Link to C&C</p> | Character & Culture Character and Culture is embedded within the curriculum map and coded as shown. |
| The Next Step: This unit is preparation for the Engineering Design Course at Key stage 4. It focusses predominantly on Unit R108 / R040 which is based upon the manufacture of an engineered product. | | | Society | | | | | | | Society Design and Technology can lead to many careers in society. An example of this is within the STEM routes. |
| Lesson | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | CROSS CURRICULAR LINKS: <ul style="list-style-type: none"> ART - Designing of the product links to art. SCIENCE - Learning about the electronic component's links to science LESSON STRUCTURE: <ul style="list-style-type: none"> ALL lessons will use the whole school strategy I DO, WE DO, YOU DO ALL lessons will have a retrieval task that engages learners immediately after arrival. In practical settings this may not use a PowerPoint. All lessons will have a period of SILENT STUDY. All lessons will have Learning objectives visible. (TOPIC SHEET INFORMATION) WHAT SKILLS WILL BE DEVELOPED: <ul style="list-style-type: none"> Students are to... develop an understanding of how to work safely with tools, equipment and materials within the electronics workshop. WHY WE ARE LEARNING THIS: <ul style="list-style-type: none"> To further develop an understanding of health and safety within a workshop. To develop a range of practical skills which help us create an electronic product. To learn about a range of electronic components and tools. HOW TO BECOME AN EXPERT IN THIS TOPIC: <ul style="list-style-type: none"> Constructing an electronics kit at home. | |
| Retrieval Task: | Access FM | Isometric principles | Key terminology from annotation | Circuits | Key definitions | Communication design | Link to environment | Design specification | | |
| Objective: I do, we do & you do... | To understand how to write a design specification using access FM and a brief. To understand workshop health and safety. N.C. links 1. DESIGN - develop specifications to inform the design of innovative, functional, appealing products. 2. User centred design | To understand how to communicate 3D ideas through Isometric drawing and rendering. To understand how annotation can be used to communicate ideas. N.C. link DESIGN - Develop and communicate design ideas using annotated sketches, detailed plans, 3D and mathematical modelling. | To understand how to solder basic components such as an L.E.D and switch To understand how electrical circuits influenced designers such as Harry Beck N.C link EVALUATE 1 . analyse the work of past and present professionals and others to develop and broaden their understanding. N.C link MAKE - select from and use a range of tools and equipment to perform practical tasks | To understand the purpose of a resistor and how they function. To understand the function of the battery within the circuit. N.C link TECHNICAL KNOWLEDGE - understand how more advanced electrical and electronic systems can be powered and used in their products. N.C link MAKE - select from and use a range of tools and equipment to perform practical tasks | To understand how all the electrical components function in a thyristor circuit. (Finish soldering) N.C link TECHNICAL KNOWLEDGE – 1. understand how more advanced electrical and electronic systems can be powered and used in their products N.C link MAKE - select from and use a range of tools and equipment to perform practical tasks | To understand how to assemble and realise design ideas. (Assembly of PCB to MDF frame) (Designs drawn onto MDF and neatly presented using previous rendering techniques). N.C link MAKE - select from and use a range of tools and equipment to perform practical tasks | To understand sustainability within electrical products To understand the role that designers can play in improving sustainability. (6 Rs, Life cycle) (Single lesson) EVALUATE 2. understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists | To understand how to test the product and evaluate against the specification. N.C link - EVALUATE test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups | | |
| | Silent Study: | B M E | B M E | B M E | B M E | B M E | B M E | B M E | | B M E |
| Assessment | | | | | | FAR | INPUT GRADES | End of year assessment - quizziz | | |
| Homework | | Spelling Test | | | | Spelling Test | | | | |
| Literacy: 2 for 2/3 for 3 | 2 for 2 and 3 for 3 – Within the unit of work teachers use educational and subject specific key literacy. Key Vocab words and key pictures – Each unit of work has a handout including all key terms, words, tools and materials. – (See whole year group mapping) | | | | | | | | | |
| Connected Knowledge | This is a unit designed to... prepare students for the future of design and technology at Bilton School as having electronics skills is a priority and can play a part of the future curriculum. Following this it supports the journey into KS4 and 6th form Art and Design. Across the school this supports the Science and Maths departments as these skills are transferable and are beneficial in their curriculum plans also. Beyond school, the world of work is becoming more increasingly automated, and we are in an area of the country with a huge amount of engineering companies and potential future jobs. CAD/CAM is a perfect steppingstone to further education, apprenticeships, and university. | | | | | | | | | |
| Cultural Capital | Electronics in Local Industries: Electronics projects fit within year 7,8 and 9, creating a lamp, a steady hand game and an amplifier. Understanding the application of electronics in local industries, such as motorsports, electrical engineering and automotive engineering, provides students with essential practical knowledge, enhancing their ability to connect classroom learning to real-world applications. | | | | | | | | | |
| IMPACT | Students measure progress using the department F.A.R tracking sheets which are in the Assessment Booklets, Teachers track the marks given using the department shared mark book and SIMS. This will show progress over time and prepare students for future learning at Bilton School. | | | | | | | | | |