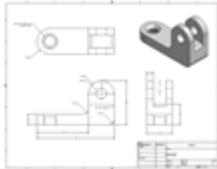


WEEK	TASK	TOP TIPS	TAKE IT FURTHER
1	A specification is something a designer will write. It is effectively a list of rules that the product they are designing must have, be or do. Write a 5-point specification about your speaker. E.G: My speaker must be able to be portable.	An engineer needs a specification because it helps to hold them to account. They know the whole way through their project what their final product must have, be or do!	Consider what you think your challenges might be in this project. What will you do to overcome them?
2	Find a definition for each of these types of drawing: -orthographic (including sectional views) -assembly -isometric -schematics	These are all types of drawings that help engineers to know their products really well. We explore orthographic drawing in Year 7 (Front, side and plan views).	Draw an example of each of these next to your definitions.
3	We are going to be using a laser cutter to create the front panel of our speaker project. A Laser cutter is an example of CAM (computer Aided Manufacture). Create a poster that explains the benefits of a laser cutter, and why using a laser cutter will improve the quality of our overall product.	We all know the laser cutter helps our work to be more accurate and look neater, but imagine using a laser cutter to create packaging. Does it help save time? Think about the use of the laser cutter on a larger scale?	What are the pros and cons of having machines do manufacturing work instead of humans?
4	Create a step by step about how to use the text tool in 2D design.	2d design is available on the computers in the computer room. If you're stuck, take yourself in there and use it to remind yourself of what you did.	What did you find easy and difficult using 2D design? explain why.
5	Research the different ways to join materials together. these are: rivets • threaded fastenings • soldering (soft and hard) • brazing • welding Draw a picture /print a picture to go alongside these words	Everything that has been made it likely joined in some way. The legs of the chairs you sit on at school are welded together. Your phones could be glued together or are secured with a clip.	Are these joining methods permanent or temporary/how do you know?
6	Draw the symbols for the following electronic components: Switch; Speaker; Variable Resistor; Fixed Resistor; LED (Light Emitting Diode); Capacitor	Think back to the project we did in Year 7 that was electronics. You could look in your 7cB knowledge organiser. You could also use the technologystudent.com website to help you.	Write a definition that explains what a resistor does. include the words: current, resist, slow down.
7	What is the difference between input, output and process?	Think about input, processes and outputs like making a cake: Input - putting I and mixing all the ingredients together Process - the part in the middle where the cake is baking in the oven Output - eating the finished cake!	Write down these components, and next to them, write whether they are an input, output or a process. Resistor, LED, Sensor, Alarm, Capacitor, Battery, Switch
8	Look, cover, write and check the keywords: Brief, research, system, system diagram, block diagram, input, output, process, capacitor, switch, resistor, LED, speaker, CAD, CAM, 2d Design, soldering, health and safety, electronics, copper, ductile	Why not create your own word wheel for the words you find more challenging? 	Write a description for each of these keywords so you know what they mean.
9	What information do you find on an engineering drawing? Working drawings and engineering drawings are the same, so don't be fooled by the difference in name.		Why do engineers need engineering drawings? What is their purpose?
10	Revisit a piece of work that you think you could improve. This could be in your knowledge organiser, or work that you have done in class. Think about how you can better your understanding of this topic	For example, if you want to improve your knowledge of electronic symbols - try doing the look, cover, write and check activity for each symbol.	What did you like about the project? What didn't you like? Explain what you are looking forward to in your next Engineering topic.



Can I explain what I am learning in this cycle of Engineering and why we are studying it?

Year 8, Cycle B - Electronic Engineering



Year 7, Cycle B: What, why and how?

What are we studying?

During Cycle B will be studying **Electronic Engineering**, and understanding how electronic products that we use everyday, are made. We will learn how to use **tools and equipment** safely, using new equipment and learning new skills to help us be successful engineers.

Why are we studying it?

It helps us build nicely on the electronics work we did last year, when we made our torch. We do this so that we can gain a better understanding of everyday products we use, like out phones, computer and game consoles. It will help us to gain more finite dexterity skills, like soldering small items without burning the components.

How will this cycle impact our understanding of Engineering?

Engineers need to understand every single part of the product their making. So the engineers at Apple will not only design the shape of the phone, but they will work out the exact components inside the phone to make it work smoothly.

How will we build on this over time?

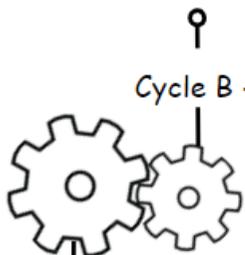
As your progress through the years, we will look back on and build on our learning of **electronic engineering**. In year 8 you will make a speaker, and in year 9 you will move on to programming and combining your skills with computer science.

Brief and Analysis. What are we doing and why are we doing it?



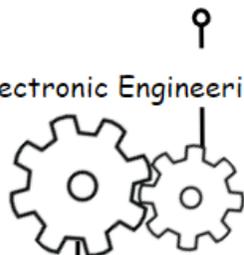
Research - what are electronics and the components we will use and what are they called?

Health and safety when soldering and using the laser cutter



Learning was CAD and CAM are and why they are useful to engineers when manufacturing products

Using the laser cutter to cut out my torch accuracy



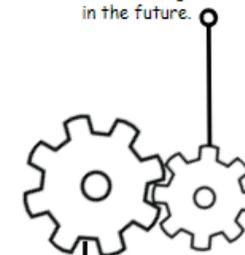
Health and Safety. Knowing the rules and regulations in Engineering that keep us and others safe.

Prototyping nets and using skills from the previous cycle to support in making the nets.



Assessment - Checking what we have learnt and applying this to our assessments.

Evaluation week - Summarising what I have learnt and how I might use it in the future.



Super Teach Week - Revisiting concepts I found tricky or difficult and taking the time to relearn them.

Cycle B - Electronic Engineering

Key Vocabulary - Cycle B Year 7 Engineering	
Light Emitting Diode	A small light, which is often shortened to LED
Printed Circuit Board	The green board that you solder your components to. Shorted to PCB
Soldering	Soldering is the process of using a hot iron to solder your components to the PCB
Resistor (Fixed and Variable)	A resistor slows down the current in a circuit. You can get a fixed or variable.
Laser Cutter	A machine used to cut material, using a laser.
Battery	A battery is a power supply. It supplies the current for your circuit.
Switch	The switch decides the current will move around the circuit or not.

Key Vocabulary - Cycle B Year 7 Engineering	
Copper	Copper is found in the PCB and the components. Copper is very conductive. This means current can flow through it easily.
Conductivity	If a material is conductive, then it means current can pass through it.
Ductile	If a material is ductile, it means it can be drawn into long, thin wires.
Capacitor	A device used to store electronic charge.
Computer Aided Design	This means designing with the help of a computer (like paint, or 2d design)
Computer Aided Manufacture	This means making something while using a machine. Like a laser cutter.
Current	Current is another name for power. It moves around a circuit so make the torch light up.