

Home-School Learning Collaboration – D&T (Engineering)

Topics in this cycle: <ol style="list-style-type: none"> 1. Speaker history. 2. Secondary research – task/brief analysis 3. Designing using creative techniques & 3D CAD use to produce a speaker 4. Manufacture a passive speaker 5. Product evaluation 	Taught: Spring 1 2026	Year Group: 9
Key knowledge/concepts to be learnt ('Tell me about....')		Websites/blogs/YouTube links and further reading to deepen and consolidate learning
<ul style="list-style-type: none"> • The history of the speaker. • How to conduct secondary research i.e. task analysis • How to conduct a product analysis of existing products using ACCESS FMM • How to draw two (2) design ideas for a creative passive speaker in 2d and 3d. • How to use CAD (2d design V3) to develop and create presentational speaker drawings – orthographic/engineering drawings • How to create a 3D CAD model using SolidWorks software. • How to use woodworking tools safely and accurately to produce a passive speaker. • How to add a surface finish to a speaker/product • How to carry out an effective product evaluation 		<p> www.technologystudent.com www.bitesize.co.uk </p> <p> How to use a scroll saw? https://youtu.be/tUf6ZFBZuKU </p> <p> How to use a drill? https://youtu.be/Czmt3uCEg0g </p> <p> How to use a band facer sander? https://youtu.be/P0k8lIU04Mw </p> <p> How to use SolidWorks 3d (CAD) ? https://youtu.be/vg5jyXDZFQI </p> <p> How to make a paper speaker? https://youtu.be/liSEwqdq7aA </p>
Key vocabulary and definitions to be learnt		What will the assessment look like?
Investigate/research	Carry out research or study into, study of materials and sources in order to establish facts and reach new conclusions.	Project Booklet: Passive Speaker

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Design	A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.	<p>Assessed on investigation, design, make and evaluate.</p> <p>BASE test: 50 minutes</p> <ul style="list-style-type: none"> • Multiple choice • Short answer questions • Designing design task
Manufacture	To build or make.	
Evaluate	To evaluate is defined as to judge the value or worth of someone or something.	
Reuse	Is the action or practice of using an item, whether for its original purpose (conventional reuse) or to fulfil a different function (creative reuse or repurposing).	
Aesthetics	How well a product appeals to the sense as it relates to (colour, texture & form/geometry)	<p>Family Learning Opportunities</p> <p>Make a paper/ passive speaker from corrugated card or cereal box.</p> <p>Use play dough to create different shapes your passive speaker casing could be.</p> <p>Practice drawing/sketching in 2D & 3D (passive/ blue tooth speaker).</p> <p>Research Philippe Starck Visit these places Design Museum or galleries.</p>
Consumer	Who uses the product.	
Function	The use or purpose of a product.	
Environment	The impact will the product have on the natural environment.	
Design Specification	A list of criteria the product must meet to be successful	
Plywood	A type of strong thin wooden board consisting of two or more layers glued and pressed together with the direction of the grain alternating.	
3D Printing	3D printing, also known as additive manufacturing, is defined as a process in which a digital file is used to create a three-dimensional solid object. In the 3D printing process, sequential layers of material are laid down by the 'printer' until object creation is completed.	
Thermoplastic	Is a plastic that gets soft when heated and rehardening on cooling without appreciable change of properties.	
Acrylic	Acrylic plastic is a strong, clear polymer used in a host of industries including, but not limited to automobiles, lighting fixtures and optical applications.	
3D CAD	3D CAD (Computer-Aided Design) refers to the use of computer software to create, analyze, and modify three-dimensional models of objects. It's a technology that allows architects, engineers, and other professionals to visualize and manipulate designs in a digital environment.	
Wasting process	One that produces waste or unusable material either by cutting bits out or cutting bits off. Name the most common wasting processes. - Drilling. - Sawing. - Filing. - Sanding. - Planning. - Chiselling.	
Mould	A hollow container used to give shape to <u>molten</u> or hot liquid material when it <u>cools</u> and <u>hardens</u> "the smith would pour the molten metal into the shaped mould.	