Year 11. Topic: Engineering, Problem Solving. Exam Revision 2 SUM 1		Duration: 4 lessons	Composite:
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
Ferrous, Non-ferrous, alloy, thermosetting, thermoplastic, smart material, composite material, tensile strength, compressive strength hardness, malleable, ductile, corrosion resistant, elasticity, conductivity. Gear train, driver, driven, idler, teeth, Idler, stock form, structurally sound, keystone, strut, stresses, Isometric, orthographic, tolerance, title block, scale, section view, dimensions, standard conventions, centre line, construction line, hidden detail, visible edge	• ELECTRONIC, MECHANICAL, STRUCTURAL -Be able to analyse an example of Electronic, structural, mechanical products – with reference to materials, classifications, specific properties and processes used. -Be able to identify the function of a product and its individual component parts. • DRAWING -Draw using standard conventions -Be able to interpret tolerances -Be able to draw to scale -Be able to draw in isometric -Be able to draw in 3rd angle orthographic. -Be able to produce a section view. -Be able to convert between isometric sketches and orthographic -Recognise and be able to draw the symbol for 1st and 3rd angle orthographic -Be able to add dimensions correctly to a drawing -Be able to correctly use construction lines, centre lines, hidden detail, visible edge, standard conventions.	• ELECTRONIC What developments in technology have resulted in changes to mobile phones, comms devices and alarms? What properties do the material used have? why? • MECHANICAL **Gear boxes**. What do gears do? What materials are used on a gear box? Why? What do the terms gear train, driver, driven, idler mean? What does an idler gear do? **Crane.** What materials are used on a crane? Why? What form is the material supplied in? **Bicycles.** What materials are used on the different component parts of a bicycle? Why? Why does it have gears? What forms are they supplied in? * STRUCTURAL **Buildings**. What materials are used for the parts of a building? Why? How can a building be built to be more environmentally friendly? **Bridges**. What materials are used for the parts in a bridge? Why? What shape makes a bridge structurally stronger? what stresses must a bridge be able to withstand? What is a key stone? What is a strut? • DRAWING What are the advantages of isometric drawing, where is it used? What are the advantages of orthographic drawing, where is it used? Name 5 things in a title block? What is scale? What is tolerance? What is the difference between 3rd and 1st angle orthographic? What is a section view? How are the following drawn, construction line, centre lines, hidden detail, visible edge?	Using core knowledge learnt throughout years 7,8,9 and 10.

Impressive reading	Impressive speaking	Impressive writing	Resilience	Employability via:
Reading and understanding of exam questions.	Taking part in class discussions.	Use of appropriate technical terms exam answers	Being able to make confident choices when answering practise exam questions. Find and correct own mistakes on practise questions.	Independent decision making and problem solving Using technical language that shows maturity, confidence and understanding. Applying skills to problem solving questions

SEND

- Linked to prior knowledge from year 7,8, 9 and 10 to aid independence. Repeating of key themes.
- Additional curriculum time allocated to those authorised by exam board, to support processing speed.
- Project chosen so that work produced can be used at apprenticeship or engineering interviews, work-related to support the pathway into adulthood
- Project chosen to support cross curricular links maths and science, supporting non-verbal reasoning
- Technology: software (word, powerpoint) used to support accessibility
- Skills ordered logically and as individual tasks to support accessibility
- Opportunities for low entry/high ceiling activities (grading from Level 1 to Level 2 Dist *), supporting learner aspirations