Topic: KS3 Year 9 Making To A Drawing (Metal)		**Duration: 6 lessons.** **AUT1 - AUT 2**	**Composite: Unit Test**
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, hard, malleable, ductile, corrosion resistant, strong. Radius Gauge, Digital Caliper, Steel Rule, Engineering Square, Engineering Blue, Metal Working Vice, Machine Vice, Scribe, Divider, Centre punch, Odd Leg Caliper. File, needle file, through filing, draw filing. Tolerance, scale, constraint. Pillar drill, drill bit. Hammer, Hacksaw, junior hacksaw. Wire wool, wet and dry.	▪ **What are the 3 groups in metal?** ▪ **What are the key physical properties of steel, aluminium and stainless steel?** ▪ **What are the key safety rules when handling metal in the workshop?** ▪ **What do these marking out tools look like and do** (scribe, divider, centre punch, odd leg caliper, hammer)? ▪ **What do these making tools look like and do** (engineering square, file, needle file, pillar drill, drill bit, hacksaw, junior hacksaw)**?** ▪ **What do these measuring tools look like and do** (radius gauge, digital caliper, steel rule, engineering square)**?** ▪ **What do these holding devices look like and do** (metal working vice, machine vice)**?** ▪ **What do these consumable product look like and do** (wire wool, wet and dry, engineering blue)**?** ▪ **What is the difference between draw and through filing?** ▪ **What is a constraint?** ▪ **What are the safety rules when drilling metal?** ▪ **Why does steel need an additional external finish?** ▪ **Why does aluminium not need an additional external finish?** ▪ **What techniques can be used to add a finish to metal?**	▪ **Be able to identify steel, aluminium and stainless steel by their physical properties.** ▪ **Be able to successfully shape a piece of metal to match dimension on a drawing.** ▪ **To understand and be able to use the acceptable tolerances on a drawing.** ▪ **Be able to successfully and safely mark and drill metal.** ▪ **Be able to use information from a drawing to mark up complex shapes.** ▪ **Be able to cut and check complex shapes from a drawing.** ▪ **To have independently made a design decision within a constraint and implemented the decision.** ▪ **Be able to apply an appropriate finish to metal.** **Extension:** **To investigate how to set the speed on a pillar drill**	Pupils will have a knowledge of Ferrous and Non-Ferrous metal groups from Year 7. Pupils briefly recap keywords describing strength, covered in year 8 structures module. Pupils will have knowledge drawings, and scale from Drawing module year 8. Pupils will have a knowledge of cm, mm, parallel lines, radius, diameter from mathematics.

Topic: Year 9 Design and Technology Project		**Duration: 9 lessons** **Aut 2 – Spr 1**	**Composite and test:**
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
Drawing Board, Technical, Isometric Oblique, Orthographic Plans, Blueprint, Tools, Equipment, Steel rule, Marking knife, Tenon saw, Coping saw, Wood working vice, Woodworking files, Bench hook, Marking gauge, Chisel, Glass paper, Classification, Cramps, Masking tape, PVA glue, Mitre, Finger, Butt, Lap, Dovetail, Cross housing, Mortice and tenon, Dowel, Automata.	1. What is the difference between an Orthographic drawing and an Exploded drawing? 2. How do you follow / read a technical drawing and follow it to make a product / practical outcome? 3. At what angles are Isometric and Oblique drawings done at? 4. How do you set up a drawing board correctly? 5. What woodworking tools, equipment and machines will we need to manufacture our product? 6. What is the purpose and the strengths and weaknesses of the following joints: Mitre, Finger, Butt, Lap, Dovetail, Cross housing, Mortice and Tenon, Dowel. 7. How have wooden toys changed over the years? Can you name some toys and their designer/makers? 8. How do you design and make your own yoyo / Cork horse automata?	• Be able to identify an Orthographic drawing, Exploded drawing. • Be able to differentiate between Isometric and Oblique drawing. • Be able to identify the following tools and equipment: Steel rule, Marking knife, Tenon saw, Coping saw, Wood working vice, Woodworking files, Bench hook, Marking gauge, Chisel, Glass paper - 3 different grades and the classification, Cramps, Masking tape, PVA glue. • Be able to successfully make several wood joints • Be able to identify several wood joints and know their strengths and purpose. • From completing an analysis of past and present Toy designers and makers, students will appreciate how trends and styles have changed, complimented with new and emerging technology.	Links to year 7 'Natural woods and manufactured boards' topic. Recap- H&S and conduct in the workshop. Links to year 8 'Drawing module' and 'New and emerging technologies'. Developed skills allow us to draw blueprints and plans for builders to build houses and extensions. Test – Types of drawing & Wood joints.