Design Year 9 Curriculum Map

The aim of this unit is to allow the pupils the opportunity to design in a way that is new to them. The starting point is an investigation into the Memphis design group from the 1980s. Pupils research the products that they produced then find out how the group has influenced design since by finding products that use similar motifs, colours and forms even down to the design of local bus interiors. Pupils use geometric shapes to create their clocks by modelling with 3D shapes. These are then evaluated and the pupils choose their favourite. They produce a mock up then need to tessellate their work onto the material provided ensuring the most cost-effective use of materials.		
Unit 9	**I am learning**	**I will be able to**
Memphis inspired clock	• To understand the influence of design movements in society • How geometric shapes can be combined to make new forms • How quartz clock mechanisms work • Geometry • How clock faces are divided up by degrees	• To research and show my findings in a presentation • Analyse my research in order to help me come up with design ideas • Use geometric shapes to produce a clock model • Cut and connect a range of geometric shapes from plywood independently • Use the band facer safely and independently to refine the edges of my cut-out shapes • Program the laser cutter to cut out my clock face

Design Year 9 Curriculum Map

In this unit the pupils are introduced to measuring and marking out tools that they haven't used before. The main aim of this unit is to familiarise pupils with this equipment and get them to develop their skills using it.		
Unit 10	**I am learning**	**I will be able to**
Dog tag	• How to use a caliper • How to cut and file an arc • How to mark out and drill a through hole • How to file and polish aluminium • How to use letter stamps • How to use an engraver	• Measure, mark out and cut aluminium bar to length • File to a line • Describe a semicircle • Draw file • Use emery paper • Polish using the buffing machine

Design Year 9 Curriculum Map

In this unit the pupils are introduced to a range of engineering materials, tools and processes. They will measure accurately using millimetres. They will mark out using a scriber and centre punch. They will drill and countersink holes in flat metal bar. They will use a hacksaw to cut metal and select the correct file to finish the edges of the bar. This will then be bent around a former to create a series of hooks which will then be screwed to a wooden back board.		
Unit 11	I am learning	I will be able to
Bottle opener	• How to Health and safety with metal working tools • How to cut, form, drill and finish metal • To understand the properties of metals	• Accurately measure and mark out using a steel rule and a scriber • Use an engineers' square to ensure all ends are 90˚ • Use a centre punch to mark the centre of a hole • Describe a circle using a spring bow compass • Describe a centre line on a flat bar using odd leg callipers • Independently use the pillar drill to drill holes in aluminium bar • Cut metal using a hacksaw • Select the correct grade of file to file the edges of metal bar • Countersink holes in metal • Bend aluminium bar around a forming jig • Use emery paper to finish the surface of aluminium bar

Design Year 9 Curriculum Map

In this unit the pupils are introduced to a range of engineering materials, tools and processes. They will measure accurately using millimetres. They will mark out using a scriber and centre punch. They will drill and countersink holes in flat metal bar. They will use a hacksaw to cut metal and select the correct file to finish the edges of the bar. This will then be bent around a former to create a series of hooks which will then be screwed to a wooden back board.		
Unit 12	I am learning	I will be able to
Design and manufacture a pewter pendant	• How to read an orthographic projection drawing • How to cast pewter safely • How to make a mould How to file and finish / polish pewter	• Design and make a pewter pendant • Make a mould from MDF accurately using the fret saw • Cast a pendant safely • Polish my pendant so that it has a high-quality finish

Design Year 9 Curriculum Map

In this unit the pupils are introduced to engineering machines and processes that they have not used before. They will learn how to set up and use a lathe. The outcome of this unit is a small hammer which the pupils will make from stock materials and follow a work plan and a working drawing in orthographic projection. They will learn about the properties of steel and aluminium and how to connect three main component parts using threading.		
Unit 13	**I am learning**	**I will be able to**
Make a tack hammer	• How to interpret an orthographic projection • How to use a lathe • How to cut a screw thread • What the difference is between ferrous and non-ferrous metals • How to cut material from stock metal • What different forms materials are available in	• Make a tack hammer • Face off and reduce on an engineer's lathe • How to mark out and cut materials from a cutting list and working drawing • Drill, file and polish steel and aluminium