

## Manufacturing Processes and Techniques : Prototyping

Calendar	Big Question/Theme	Small Questions	Assessment Opportunities & Criteria. Teacher Feedback point (TFP)	Homework
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">September to October Half Term</p>	<ol style="list-style-type: none"> <li>1. How can materials and processes be used to make iterative models?</li> <li>2. How can materials be manipulated and joined in different ways in a workshop environment when making final prototypes</li> <li>3. How do designers and manufacturers ensure accuracy when making prototypes and products?</li> </ol>	<ol style="list-style-type: none"> <li>1. What materials are commonly used by professionals when making models?</li> <li>2. How can modelling materials be cut to size?</li> <li>3. How can modelling materials be manipulated?</li> <li>4. What adhesives can be used to join similar and dissimilar modelling materials?</li> <li>5. What is the difference between a model and a prototype?</li> <li>6. What is meant by rapid prototyping?</li> <li>7. How do you use image creation and manipulation software to communicate your ideas?</li> <li>8. What methods of digital manufacturing do professionals use when making modelling and prototyping?</li> <li>9. What is CAD, CAM and CAE?</li> <li>10. Why is the study of anthropometrics and ergonomics important when modelling and prototyping?</li> </ol>		

## Manufacturing Processes and Techniques : Memphis Clock

Calendar	Big Question/Theme	Small Questions	Assessment Opportunities & Criteria. Teacher Feedback point (TFP)	Homework
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">October Half Term to Christmas</p>	<ol style="list-style-type: none"> <li>1. How can plastics be shaped and formed?</li> <li>2. How can similar and dis-similar materials be joined permanently and semi-permanently?</li> <li>3. How can CAD CAM be used to achieve high quality outcomes?</li> </ol>	<ol style="list-style-type: none"> <li>1. What adhesives are used to permanently join acrylic to acrylic?</li> <li>2. How do you mark out for drilling on acrylic?</li> <li>3. How do you set up and use a pillar drill to correctly drill through holes in acrylic?</li> <li>4. How do you cut a thread into a hole using a tap?</li> <li>5. How do you mark out, shape and polish acrylic?</li> <li>6. How do you line bend plastic using a strip heater?</li> <li>7. How do you free form acrylic whilst trying to retain previously formed angles?</li> <li>8. What tools are used to cut through aluminium and other metals?</li> <li>9. How do you cross file, draw file and chamfer?</li> <li>10. How do you cut a thread using a dye?</li> <li>11. How do you polish metal using the polishing mop?</li> <li>12. What is Memphis design?</li> <li>13. How can 2d design be used to design and then manufacture a clock face?</li> <li>14. How is a pre manufactured component (clock mechanism) attached to a clock face of your design?</li> </ol>		

# Manufacturing Processes and Techniques : Design Communication

Calendar	Big Question/Theme	Small Questions	Assessment Opportunities & Criteria. Teacher Feedback point (TFP)	Homework
<p><b>Christmas to February Half Term</b></p>	<ul style="list-style-type: none"> <li>• How are design solutions communicated to demonstrate their suitability?</li> <li>• How is CAD used to communicate design intentions?</li> <li>• What forms of graphical communication diagrams can be used to communicate manufacturing processes</li> </ul>	<ul style="list-style-type: none"> <li>• What is the difference between 2d and 3d sketching?</li> <li>• What is meant by the word perspective?</li> <li>• What is a vanishing point?</li> <li>• What is oblique?</li> <li>• What is isometric?</li> <li>• What is thick and thin line technique and how can it enhance a drawing?</li> <li>• What is single and two point perspective?</li> <li>• How are technical drawing board used correctly?</li> <li>• What geometry equipment is used when developing technical styled drawings?</li> <li>• What are circles and ellipses?</li> <li>• What is an orthographic drawing?</li> <li>• What is an exploded drawing?</li> <li>• What is a flowchart and how can they be designed to achieve quality control?</li> <li>• What is an open loop and closed loop system?</li> <li>• What 2d and 3d CAD software is available and how can it be used to communicate ideas?</li> </ul>		