



Unit = Year 10 Lamp Shade	Road Map			
In this unit you will investigate water on the land. The aims are as follows: <b>LG1:</b> Knowledge <b>LG2:</b> Application <b>LG3:</b> Skills	Assessment Grades			
Themes	Learning Goals/Outcomes/Content			
What is the context, brief and specification for the project?	<b>L1 Brief &amp; Specification</b> <u>Knowledge (Component)</u> Understand what the project brief is. Be able to write a detailed specification using the design brief.			
What is 3 <sup>rd</sup> angle orthographic projection?	<b>L2 Orthographic 1</b> <u>Knowledge (Component)</u> Know the difference between 1 <sup>st</sup> angle and 3 <sup>rd</sup> angle orthographic projection. Know how to draw in 3 <sup>rd</sup> angle orthographic projection.			
What would an orthographic drawing for my light shade look like?	<b>L3 Orthographic 2</b> <u>Knowledge (Component)</u> Know how to draw in 3 <sup>rd</sup> angle orthographic projection. Know how to apply these skills to their own product.			
How do you use Google SketchUp?	<b>L4 Google Sketchup 1</b> <u>Knowledge (Component)</u> Understand the benefits of using 3D modelling. Understand how to use the basic functions of Google Sketchup.			
How do you use google SketchUp to draw a lamp?	<b>L5 Google SketchUp 2</b> <u>Knowledge (Component)</u> Understand how to apply Google SketchUp skills to produce a presentation drawing Be able to select appropriate views to communicate an idea			
How can the design of existing lamps influence my design work?	<b>L6 Product Analysis</b> <u>Knowledge (Component)</u> Know what the criteria are for analysing products. Understand how to use the criteria to analyse a product. Understand how these support designing.			
What are the common types of metals and alloys and what are their properties?	<b>L7 Types of metals &amp; alloys</b> <u>Knowledge (Component)</u> Understand the different categories of metals Understand the main types of metals and their properties Understand the application of metals			
What is the sequence for making and quality control?	<b>L8 Plan of make</b> <u>Knowledge (Component)</u> Understand the stages to making a product Be able to predict the sequence of making for a product			
How do you cut steel accurately to length?	<b>L9 Metal cutting skills</b> <u>Knowledge (Component)</u> Know how to measure and mark metals Know how to cut metals with hand tools. Know how to apply quality control checks.			

How do you manufacture the parts for a lampshade frame?	<p><b>L10 &amp; 11 Frame parts manufacture 1</b></p> <p><u>Knowledge (Component)</u></p> <p>Know how to measure and mark metals</p> <p>Know how to cut metals with hand tools.</p> <p>Know how to make a gauge to support quality control checks.</p>			
What is vacuum forming?	<p><b>L12 Vacuum forming 1</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand what vacuum forming is.</p> <p>Understand the constraints of vacuum forming.</p> <p>Able to design a vacuum forming mould.</p>			
How do you make a vacuum forming mould?	<p><b>L13 Vacuum forming 2</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand what vacuum forming is.</p> <p>Understand the constraints of vacuum forming.</p> <p>Able to make a vacuum forming mould.</p>			
How do you make a vacuum forming mould?	<p><b>L14 Vacuum forming 3</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand what vacuum forming is.</p> <p>Understand the constraints of vacuum forming.</p> <p>Able to make a vacuum forming mould.</p>			
How do you vacuum form?	<p><b>L15 Vacuum forming 4</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the constraints of vacuum forming.</p> <p>Able to make a vacuum forming mould.</p> <p>Understand how to operate the vacuum forming machine.</p>			
How do you cut, drill and form acrylic?	<p><b>L16 Acrylic forming &amp; finishing 1</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the properties of acrylic</p> <p>Know how to cut and drill acrylic accurately</p>			
How do you finish acrylic?	<p><b>L17 Acrylic forming &amp; finishing 2</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand how to finish acrylic</p> <p>Understand how to use the properties of acrylic to bend and form it</p>			
How do you create a support bracket from acrylic?	<p><b>L18 Acrylic forming &amp; finishing 3</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the properties of acrylic and how to work with them</p> <p>Be able to apply practical skills to make an acrylic bracket</p>			
How do you create a support bracket from acrylic?	<p><b>L19 Acrylic forming &amp; finishing 4</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the properties of acrylic and how to work with them</p> <p>Be able to apply practical skills to make an acrylic bracket</p>			
How do you finish metals?	<p><b>L20 Metal finishes</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the various ways to finish the surface of metals.</p> <p>Understand how to prepare surfaces ready for finishes.</p> <p>Understand how to apply surface finishes.</p>			
What permanent ways can you join metal using heat?	<p><b>L21 Welding &amp; brazing</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand what welding is and how it is undertaken.</p> <p>Understand the difference between welding and brazing.</p>			

How do you build an ultrabright LED circuit?	<p><b>L22 Soldering 1</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand how to accurately solder using a PCB.</p> <p>Understand how series and parallel circuits work.</p> <p>Understand about component polarity.</p>			
How do you build an ultrabright LED circuit?	<p><b>L23 Soldering 2</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand how to accurately solder using a PCB.</p> <p>Understand how series and parallel circuits work.</p> <p>Understand about component polarity.</p>			
How do you build an ultrabright LED circuit?	<p><b>L24 Soldering 3</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand how to accurately solder using a PCB.</p> <p>Understand how series and parallel circuits work.</p> <p>Understand about component polarity.</p>			
How do you quality control an ultrabright LED circuit?	<p><b>L25 Soldering 4</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand how to check that a PCB is soldered correctly.</p> <p>Understand how series and parallel circuits work.</p> <p>Understand about component polarity.</p>			
What are the most common metal manufacturing processes?	<p><b>L26 Metal forming processes</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the key methods of forming metals</p> <p>Understand what products can be manufactured using these processes</p>			
What are the most common plastic manufacturing processes?	<p><b>L27 Plastic forming processes</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the key methods of forming plastics</p> <p>Understand what products can be manufactured using these processes</p>			
What is annealing?	<p><b>L28 Workshop metal forming 1</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand what annealing is and what the benefits are.</p> <p>Know how to anneal sheet metal.</p>			
How do you correctly drill metals?	<p><b>L29 Workshop metal forming 2</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the process of safely drilling metal and the effects of this.</p> <p>Be able to drill metal and make it safe.</p>			
How do you form metal sheet?	<p><b>L30 Workshop metal forming 3</b></p> <p><u>Knowledge (Component)</u></p> <p>Be able to mark out onto sheet metal.</p> <p>Be able to cut and shape sheet metal safely and accurately.</p>			
What temporary metal joining processes are there?	<p><b>L31 Metal jointing techniques 1</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the benefits of using pop rivets to join metals.</p> <p>Be able to pop rivet sheet metal.</p>			
What temporary metal joining processes are there?	<p><b>L32 Metal jointing techniques 2</b></p> <p><u>Knowledge (Component)</u></p> <p>Understand the benefits of using nuts and bolts to join metals.</p> <p>Be able to nut and bolt sheet metal.</p>			

<p>What temporary metal joining processes are there?</p>	<p><b>L33 Metal jointing techniques 3</b>  <u>Knowledge (Component)</u>            Understand the benefits of using self-tapping screws to join metals.            Be able to screw sheet metal.</p>			
<p>15.            End of unit test            50 mins</p>	<p><b>L34 End of unit test</b></p>			

**Links:**  
 LG1:  
 LG2:.  
 LG3: