



AOLE	Subject	Year	Assessment
Science and Technology	Product Design	8	Design and manufacture an LED light

Progression Table		
Progression Indicator	Knowledge	Skills
Excelling	<p>The pupil has designed and manufactured a fully functional LED light. The pupil has been creative in sketching by developing initial ideas using detailed annotation to give reasoning and rationale about their drawings. The pupil has accurately and safely operated the tools and equipment in the workshop in the manufacture of their product. The pupil has crafted a finger joint using a variety of different saws to create a housing for the light that has little error (corners are 90°). The pupil can construct and solder an electrical circuit (stating the functions of the components) independently that have a slight concave contour. The pupil can independently use CAD to create a design using the vectorise and draw shapes to specific dimensions. The pupil can explain how a CAM machine operates.</p>	<ul style="list-style-type: none"> • I can sketch to a high standard and be creative in my drawings. • I can draw products in a 3D form using two point perspectives. • I can describe my initial ideas in detail through annotation to explain the idea to the end user. • I can accurately use the majority of tools and equipment in the workshop safely. • I can manufacture a mitre joint using a variety of different saws. • I can finish a product to a high standard using paint. • I can use CAD independently by stating the different functions on the program and explain in detail how to vectorise an image.
Advancing	<p>The pupil has designed and manufactured a fully functional LED light. The pupil has been creative in sketching by developing initial ideas using some annotation to give reasoning about their drawings. The pupil has accurately and safely operated the tools and equipment in the workshop in the manufacture of their product. The pupil has crafted a finger joint using a variety of different saws to create a housing for the light that resembles a square. The pupil can construct and solder an electrical circuit stating some of the functions of components independently. The pupil can finish a product (paint) to a high standard ensuring the outcome has a smooth surface. The pupil can independently use CAD to create a design. They must be able to convert an image using the vectorising tool. The pupil can explain the basic operation of a CAM machine.</p>	<ul style="list-style-type: none"> • I can be creative in my sketching. • I can draw products in a 3D form using two point perspectives. • I can describe my initial ideas through annotation to explain the idea to the end user. • I can use the majority of tools and equipment in the workshop safely. • I can manufacture a mitre joint using a variety of different saws. • I can finish a product to a good standard using paint. • I can use the basic functions of CAD independently and explain how to vectorise an image.
Securing	<p>The pupil has designed and manufactured a functional LED light. The pupil has been creative in sketching by developing one initial idea using basic annotation. The pupil has safely operated the tools and equipment in the workshop in the manufacture of their product. The pupil has crafted a finger joint using a tenon or coping saw to create a square housing unit for their light. The pupil can operate a soldering iron safely and solder some of the components independently. The pupil can use paint to finish a product ensuring layers are sanded in between coats. The pupil can use the basic functions of CAD to create a design with support.</p>	<ul style="list-style-type: none"> • I can sketch different ideas. • I can draw products in a 3D form using a template. • I can describe my initial ideas through basic annotation to explain the idea to the end user. • I can safely use some of the tools and equipment in the workshop. • I can manufacture a mitre joint using a tenon or coping saw. • I can finish a product using paint. • I can use the basic functions of CAD with support.
Beginning	<p>The pupil has begun to design and manufacture a LED light. The pupil has sketched 4 basic designs with limited labelling. The pupil has safely operated the tools and equipment in the workshop in the manufacture of their product with support. The pupil has used a coping saw to create a finger joint with a low level of accuracy. The pupil can operate a soldering iron safely and solder their circuit with support. The pupil can use paint to finish a product ensuring layers are sanded in between coats. The pupil can use CAD to copy and paste images and can begin to explain how to vectorise an image.</p>	<ul style="list-style-type: none"> • I can sketch different ideas. • I can draw products in a 3D form using a lightbox. • I can describe my initial ideas through labelling. • I can safely use some of the tools and equipment in the workshop with support. • I can cut in straight lines using a tenon saw. • I can finish a product using paint. • I can copy and paste images.

