



## Highsted Knowledge Organiser

### Year 10 Design & Technology – Term 1 Flat Pack Polypropylene light

<p><b>What I need to know</b></p> <p>Assessment objectives:</p> <ul style="list-style-type: none"><li>○ Identifying and investigating design possibilities</li><li>○ Generating design ideas</li><li>○ Developing design ideas</li><li>○ Realising design ideas</li><li>○ Analysing &amp; evaluating throughout</li></ul>	<p><b>Key Vocabulary</b></p> <p>Polypropylene, flat pack, manufacture, linear, sketching, NESTing, adhesives, modelling, investigate, experiment, craft knife, rotary cutter, spilt pins, LED</p>
<p><b>Student reference point</b></p> <p><b>Design Criteria (restrictions)</b></p> <ol style="list-style-type: none"><li>1. The main material should be polypropylene (we have translucent coloured sheets)</li><li>2. It must be able to be flat packed.</li><li>3. In its packed state must fit through a standard letter box</li><li>4. Tool free assembly.</li><li>5. USB powered LED strip light</li></ol> <p><b>Techniques</b></p> <p>You will need to decide on a chosen target audience.</p> <p>Produce multiple iterations of ideas, each time identifying problems and redesigning each time to improve and refine. Explore the materials available and different ways of construction/ adhesives and packaging with reference to the environment</p> <p>You will present a power point showing your thinking from design criteria through to a final model/ idea. You need to show evidence of your thought process. This is a good practice for the NEA.</p> <p>Being critical and using the Highsted Design Technology framework.</p> <p>Working independently exploring scale, modelling/ sketching, recording evidence of thought process</p> <p>Self and Peer assessment through discussion. Present using PowerPoint/TEAMS</p>	
<p><b>Challenge question.</b></p> <ul style="list-style-type: none"><li>• How will this be commercially manufactured? How can I illustrate this? (flow diagrams)</li><li>• What impact on the environment does polypropylene have?</li><li>• Can I produce instructions without using words?</li></ul>	
<p><b>Suggested reading</b></p> <ul style="list-style-type: none"><li>• <a href="https://www.technologystudent.com/">https://www.technologystudent.com/</a></li><li>• <a href="https://www.bbc.co.uk/bitesize/guides/z6jkw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/z6jkw6f/revision/1</a></li><li>• <a href="https://filestore.aqa.org.uk/resources/design-and-technology/specifications/AQA-8552-SP-2017.PDF">https://filestore.aqa.org.uk/resources/design-and-technology/specifications/AQA-8552-SP-2017.PDF</a></li></ul>	



## Highsted Knowledge Organiser

### Year 10 Design & Technology – Terms 1 & 2 Robot Polypropylene

<p><b>What I need to know</b></p> <p>Assessment objectives:</p> <ul style="list-style-type: none"><li>○ Identifying and investigating design possibilities</li><li>○ Producing a design brief and specification</li><li>○ Generating design ideas</li><li>○ Developing design ideas</li><li>○ Realising design ideas</li><li>○ Analysing &amp; evaluating</li></ul>	<p><b>Key Vocabulary</b></p> <p>Drawing, robots, casting, badge, rip stop nylon, making, back pack, string, cord, sublimation printing, sewing machine, bobbin, thread, needle, pins, fabric scissors, tacking, measuring, cutting, man-made and natural fibres, polypropylene, cotton, process of sublimation printer, identifying and investigating, design brief, specification, generating design ideas, developing design ideas, realising design ideas, analysing, evaluating, reflecting, improving.</p>
<p><b>Student reference point</b></p> <p><b>Brief:</b> You will start off by exploring robots, then using your creative thinking skills you will create your own designs of linear robots. You will consider your layout of these before translating this onto 2D design. You will then transfer your designs onto fabric, using the sublimation printer. Once you have completed this you will complete a sewing machine driving speed test and learn how to thread up a sewing machine. You will then use these skills to create a draw string back out of rip stop nylon.</p> <p><b>Techniques:</b> You will use scale when translating your designs from paper onto the CAD programme 2D design and then onto fabric. You will learn how to use the sewing machine safely and with confidence in order to create a useable finished bag. You will need to measure and cut fabric out. You will reflect on your practice before evaluating your finish product.</p> <p>Being critical and using the Highsted Design Technology framework.</p> <p>Working independently exploring scale, 2D design, visual language.</p> <p>Realising a finished working product, developing a concept and working to a brief.</p> <p>Self and Peer assessment through discussion.</p>	
<p><b>Challenge question.</b></p> <ul style="list-style-type: none"><li>● How will you present a high-quality bag?</li><li>● What impact on the environment does polypropylene have?</li><li>● Is sublimation printing the most environmentally friendly printing method – what are the pros and cons of using this method?</li></ul>	
<p><b>Suggested reading</b></p> <ul style="list-style-type: none"><li>● <a href="#">Home - Design Museum</a></li><li>● <a href="#">Textile-based materials - Textile-based materials - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize</a></li></ul>	



## Highsted Knowledge Organiser

### Year 10 Design Technology – Term 2 Pewter cast keyring and drawstring pack

<p><b>What I need to know</b></p> <p>Assessment objectives:</p> <ul style="list-style-type: none"><li>○ Identifying and investigating design research</li><li>○ Generating design ideas</li><li>○ Developing design</li><li>○ Realising final design</li><li>○ Analysing &amp; evaluating throughout</li><li>○ CAD/CAM</li><li>○ Casting</li><li>○ finishing</li></ul>	<p><b>Key Vocabulary</b></p> <p>Sketching, casting, rip stop nylon, Manufacturing, back pack, webbing, sublimation printing, sewing machine, bobbin, thread, needle, pins, fabric scissors, ironing, measuring, cutting, process of sublimation printer, identifying and investigating, generating design ideas, developing the design, realising design ideas, analysing, testing and evaluating, manufacturing processes and flow diagrams. Casting, pewter, filing, marking drilling, 2D design CAD/CAM, mould making, grey card</p>
<p><b>Student reference point</b></p> <p><b>Brief:</b> You will start off by researching robots, then create your own designs of 2D linear robots using the thick and thin pen technique. You will consider your layout of these before translating this onto 2D design.</p> <p>The design will need to be converted into the appropriate file and uploaded to be NESTED and laser cut as a group, to produce the moulds for casting.</p> <p>Students will heat pewter to cast their design. Students will cut off waste and file the pewter to a smooth finish. Mark a hole for drilling to attach the keyring. Represent the process using flow diagrams to show H&amp;S and QC.</p> <p>Using the design page from Robots, you will then transfer your designs onto fabric, using the sublimation printer. Once you have completed this you will complete a sewing machine driving control test and learn how to thread up a sewing machine. You will then use these skills to create a draw string bag out of Ripstop nylon with webbing for cords.</p> <p><b>Techniques:</b> You will scan and transfer your design from paper onto the CAD programme 2D design and then onto fabric. You will learn how to cast pewter using a card mould you have generated to produce a product of resistant material -metal. You will learn to use the sewing machine safely and with confidence in order to create a useable finished bag. You will reflect on your practice before evaluating your finish product.</p> <p>Being critical and using the Highsted Design Technology framework.</p> <p>Working independently, following instruction, health and safety and practice techniques taught in both the studio and the workshop.</p> <p>Realising a finished working product, developing a concept and working to a brief.</p> <p>Peer and self assessment</p>	
<p><b>Challenge question.</b></p> <ul style="list-style-type: none"><li>• How would a bag be manufactured commercially?</li><li>• Is sublimation printing the most environmentally friendly printing method – what are the pros and cons of using this method?</li></ul>	
<p><b>Suggested reading</b></p> <ul style="list-style-type: none"><li>• <a href="https://www.technologystudent.com/">https://www.technologystudent.com/</a></li><li>• <a href="#">Textile-based materials - Textile-based materials - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize</a></li></ul>	