

Weeks	Content	Completed?	
		Y or N	Effort
1	<ul style="list-style-type: none"> <li>What is inclusive design?</li> <li>What is Ergonomics?</li> <li>Inclusive Product analysis.</li> </ul> <p><u>Homework:</u> Create a user profile of your chosen client to focus your design on.</p> <p><u>Challenge:</u> Add product examples that are inclusive to your user.</p> <p><u>Further challenge:</u> Explain a solution to your difficulties.</p>		
2	<ul style="list-style-type: none"> <li>Anthropometric</li> <li>CAD tools—google sketch up &amp; 123DDesign</li> <li>CAD challenge &amp; peer assessment against success criteria</li> </ul>		
3	<ul style="list-style-type: none"> <li>CAD challenge and brief</li> <li>Present and feedback</li> </ul> <p><u>Homework:</u> Research and create a diagram explaining the FDM 3D printing process.</p> <p><u>Challenge:</u> Explain what materials can be used for 3D printing, their properties and what they have been used for.</p> <p><u>Further Challenge:</u> Create a mind map explaining as many different types of 3d printing and explain what materials they have used and products they have created.</p>		
3	<ul style="list-style-type: none"> <li>What is 3D printing? What are the different types of 3D printing ? What are the different career opportunities?</li> </ul>		
4	<ul style="list-style-type: none"> <li>Introduction to CAD (<i>Google Sketch Up, Fusion 360 or 123D Design</i>). Working in pairs to create a LEGO man on CAD.</li> <li>Identifying CAD tools and CAD to CAM process.</li> </ul> <p><u>Homework:</u> Research and create a diagram explaining how to die cut.</p> <p><u>Challenge:</u> List examples of products that have been die cut</p> <p><u>Further Challenge:</u> Explain disadvantages and advantages to the die cutting process.</p>		
5	<ul style="list-style-type: none"> <li>Working in pairs on CAD complete LEGO man 3D drawing.</li> <li>Check and modify CAD 3D drawing by calculating use, cost of material and time using <a href="http://3Dhubs.com">3Dhubs.com</a> to get a quote.</li> </ul>		
4	<ul style="list-style-type: none"> <li>What is die cutting and how does it work. Advantages and disadvantages of die cutting.</li> <li>Introduction to Photoshop and identifying tools.</li> <li>Designing LEGO Die cut packaging with Photoshop graphics.</li> </ul> <p><u>Homework:</u> Research and create a diagram to explain the vacuum forming process.</p> <p><u>Challenge:</u> Explain what materials can be used for vacuum forming, their properties and what they have been used for.</p> <p><u>Further Challenge:</u> Explain health and safety rules and their importance to follow when using the vacuum former.</p>		
5	<ul style="list-style-type: none"> <li>3D print final wrapped drawing following health and safety.</li> <li>Making die cut packaging for LEGO man.</li> <li>Evaluate final making using keywords and subject specific language.</li> </ul>		
8	<ul style="list-style-type: none"> <li>END OF CYCLE TEST</li> <li>Peer marking</li> </ul>		

# THE BIG PICTURE

Why are we learning about 3D printing?

You are learning how to 3D print so that you:

- ◆ Develop understanding of CAD to CAM process.
- ◆ Develop my understanding of how polymers and their properties. Explain where different polymers are used and why.
- ◆ Develop and enhance your workshop skills and learn to use the equipment independently.
- ◆ To understand different career opportunities and how they contribute to the developing industries.



Tick when you think you are able to define the meaning .

KEYWORDS	SLA		
Calliper	FDM	PPE	
Tolerances	Millimetres	Render	

## LEARNING TOOLS



**Challenge!**

Can you add more keywords you have covered?

Cycle ..... **LEGO MAN PROJECT**

**My Expected Grade**

**Teacher Assessed Grade (circle)**

SBE

BE

E

AE

SAE

**Comment:**

Grade		Prior Knowledge	New Knowledge
8 - 9	<p>I can...</p> <ul style="list-style-type: none"> <li>Produce Lego man CAD model <b><u>independently to a high level of finish with colour, lighting and shadows rendered.</u></b> Lego man is complete with <b><u>all body parts</u></b> such as arm, head, body and legs . All parts are <b><u>the corrects measurements and well proportionate</u></b> as demonstrated in step by step guide. Lego man also includes <b><u>extra accessories such as a hat, bag or jewellery.</u></b></li> <li>Reflect on client feedback, analyse the information and make judgements which will inform my design decisions.</li> <li><b>Produce a well assembled product with packaging that works with more than three manufacturing techniques such as vacuum forming, die cutting and 3d printing.</b></li> <li><b><u>Explain the FDM 3D printer, vacuum former and die cutter process in great detail</u></b> by explaining <b><u>different materials used in and their properties.</u></b> Pupil is able to and <b><u>list a 3 product examples, label 5 or more different parts</u></b> of the printer, cutter and former correctly and <b><u>explain their function</u></b> with <b><u>tips on how to follow health and safety</u></b> before and after using the printer.</li> </ul>		
6 –7	<p>I can...</p> <ul style="list-style-type: none"> <li>Lego man CAD model was <b><u>completed with some help from peers.</u></b> Lego man is complete with <b><u>most body parts</u></b> such as arm, head, body and legs . All parts <b><u>have some corrects measurements</u></b> as demonstrated in step by step guide</li> <li>Reflect on client feedback, analyse the information and make judgements which will inform my design decisions.</li> <li><b><u>Explain the FDM 3D printer, vacuum former and die cutter process to some detail</u></b> by explaining <b><u>different materials commonly used</u></b> in printer, former and cutter. Pupil is able to and <b><u>list 2 product examples, label 4 or more different parts</u></b> correctly <b><u>and explain their function.</u></b></li> </ul>		
4 –5	<p>I can...</p> <ul style="list-style-type: none"> <li>Lego man CAD model was <b><u>complete with little or some help by the teacher.</u></b> Lego man is complete with <b><u>some body parts</u></b> such as arm, head, body and legs . All parts have <b><u>close to the corrects measurements</u></b> as demonstrated in step by step guide.</li> <li>Plan and manufacture a good quality product.</li> <li>Work safely in the workshop using a range of tools &amp; equipment such as 3d printer, die cutter and vacuum former.</li> <li><b><u>Explain the FDM 3D printer, vacuum former and die cutter process</u></b> correctly. Pupil is able to <b><u>label 3 or more different parts</u></b> of the printer, cutter and former correctly and <b><u>list a product example for each.</u></b></li> </ul>		