

Design and Technology

As a prospective student of Design and Technology you should already be taking a real and active interest in this subject. This progression document will help build your knowledge and skills in Design and Technology and get you off to the best possible start this September. The tasks set for you will give you a taste of what is involved and get you thinking like a designer.

Complete the following tasks:

Induction Week Task To design a rescue boat.

Include a minimum of:

- 3 initial ideas/ sketches
- A brief explanation of your final design •
- Maximum Design Parameters for a prototype:
 - Length = 20 cm
 - Width = 10 cm
 - Height = 20 cm

Technical principles

Materials

Understanding materials and their characteristics and working properties is crucial in design.

Task: In addition to the rescue boat sketches, research the following materials

and create a mind map based on your research and understanding of their characteristics and working properties:



- Woods
- Metals
- Polymers
- Textiles
- Composites
- Smart and modern materials

Production processes

Task: Research the following general manufacturing processes and create a PowerPoint presentation explaining the process. Include diagrams/sketches to aid your understanding of each and bring back ready for September.

- Injection Moulding
- Extrusion
- Laminating
- Milling
- Turning
- Casting
- Stamping

Over the summer holidays consider downloading a free CAD programme (see list below) and having a go at drawing/ designing up a prototype. Consider the CAD programmes below carefully.

SketchUp (mostly for architectural rendering): <https://www.sketchup.com/>

Fusion 360: (parts and components including electricals)

<https://www.autodesk.co.uk/products/fusion-360/personal-form>

AutoCAD: (general purpose) <https://www.autodesk.com/education/edu-software/overview?sorting=featured&page=1>

Onshape: <https://www.onshape.com/en/education/>

Design Theory

Research a design movement and redesign an everyday object using the influence of the movement. Evidence the sketches in your sketchbook. Include a photograph of the product and then begin rapid sketching your initial ideas. Evaluate and analyse your ideas and develop them further. Annotate your development, explaining your design ideas. Draw a final design and explain how the design has been influenced.

<http://www.vam.ac.uk/page/0-9/20th-century-design-styles/>

Further Research

This list gives suggestions for further research. Lots of Museums are doing free online tours of their museums this is a great opportunity for you to explore their collections and do some research!

Install the Google Arts & Culture app to explore virtual reality tours from British Museum and The Natural History Museum

www.designmuseum.org/design

www.vam.ac.uk

www.sciencemuseum.org.uk

<https://www.designcouncil.org.uk/>