

AQA Design and Technology

Year 11 into A Level - Bridging information and requirements over the summer.

Before you arrive to A level D&T in September, you need to complete the following tasks...

- 1) Print off the specification (7552) and familiarise yourself with the topics and content you will need to know by the end of this course. (Pages 9-46) You will find the spec on the link below.
- 2) Highlight the key points that you have already covered on your GCSE course.

<https://www.aqa.org.uk/subjects/design-and-technology/as-and-a-level/design-and-technology-product-design-7552>

- 3) Buy a folder and some dividers (pack of ten), put the specification as the first section in your folder.

Present the work below on paper with your name clearly on each page, ready to hand in the first lesson in year 12. The quality and depth of work you hand in on the first lesson will indicate if you will be staying on the course.

Below you will find tasks to work on each week, keep all this work and bring it to your first D&T A Level lesson.

Week 1

After reading the specification write on lined what your thoughts are about the course,

What are your expectations of the course?

How is it different to your GCSE course?

Are there any surprises?

What might be a challenge? How might you overcome these challenges?

How might your studying habits need to evolve to be successful in passing this course?

What are your thoughts on the Maths and Science content of this specification?

What skills will you build on?

What do you understand about the NEA? How is it different from your GCSE course?

Week 2

To build your knowledge of production processes you need to research the following and give advantages and disadvantages of each:

1. Injection moulding
2. Die casting aluminium
3. Just in time manufacturing
4. Lean manufacturing

You might want to present this work as a table, or as 4 separate sheets of research. Include example products and where each type of manufacturing might be used in industry.

Week 3

Research and produce a write up, with a step by step of processes for each of the following different forming methods, name specific products and scales of production (one off, batch, mass etc)

- vacuum forming
- thermoforming
- calendaring
- line bending
- laminating (layup)
- injection moulding
- blow moulding
- rotational moulding
- extrusion

Week 4

Develop your knowledge of designing and developing your designs you need to research what and 'iterative' approach to designing means.

Then you need to:

1. Design 2 solutions for a hand held product to pick up plastic bottles from the floor
2. Pick your best idea and provide 2 developed iterations of your product. (you could add photographs of models if you want to model at home, or use CAD to develop ideas)

For each of the above you need to annotate your designs for materials, components and ergonomics.

State how ergonomics and anthropometrics are considered in your design work.

Week 5

The image on the right shows sketches for a chair. You can see that there are nice sketchy lines and some 'crating' to achieve the form. Also shading to help make the product look realistic.

Sketch a piece of furniture form your home- it must be 3D and show some construction detail.

Your need to explain the main features of the product. You need to include notes about:

- Materials and why they have been selected.
- Ergonomics – (how the product is comfortable and easy to use.)
- Overall sizes using dimensioned to show the important information.



Week 6

Steel is a widely used metal for many things, ranging from tin cans to making huge cargo ships.

Research how we get it from a raw material to the product we see today and what is done with it once it has fulfilled its intended job. Present your research in a creative way including the key words - mining, ore, smelting, annealing, tempering.

Week 7

Design a unique drinks bottle that is used for exercise/healthy living. **It must be multifunctional.** Not just a bottle that holds liquid! Your design work must have moving parts and your drawing need to show how the bottle opens and closes.



1. Research:

Use the internet to see what is already out there. Look into materials and safety features. I have found some examples above. See what you can find!



2. Initial Designs:

Use the images and research completed to draw rough ideas down (at least 5!). Use pencil, colour, line thickness and annotation to help demonstrate your ideas.



3. Final Ideas:

When you have developed your ideas you need to choose **two** final designs. Think about **materials, features, safety and how it will work.** Draw them neatly and clearly using annotation and colour to help show the features of your bottles.

4. Evaluation:

Finally, choose your favourite design out of the two. Answer the following questions to conclude how your designs met the brief and what could have been done differently to improve your work.

1. How do your bottle features assist exercise and healthy living?
2. What material would be used and why?
3. Who is your bottle designed for and how does it benefit them?
4. With your chosen material, explain how it is extracted and how it is manufactured.
5. Looking back through your work would you do anything differently?
6. If you did this project again. How would you improve your work?

Week 8

Formula one cars have been at the cutting edge in technology for over 60 years – most things you see in today's road cars have come down from F1 – One material in particular is carbon fibre. What makes this material so special?

Explain how carbon fibre has changed the way cars are designed in formula 1:

Think about safety

- Strength
- Speed
- Weight

Aim to write four paragraphs after you have conducted detailed research.

Week 9 Onwards

Wider Reading (Books, articles, podcasts and videos)

Below is a list of links to relevant websites, articles, videos and shows.

These are here purely to extend your knowledge of current trends in design and how it is currently being used in the world today.

Evidence any wider reading you do by summarising what you have learned. (potentially through bullet points, a review, a small paragraph, a reflective piece of writing or any other media you find appropriate such as trying out some of the drawing techniques)

1. <https://99percentinvisible.org/?fbclid=IwAR3-foomjkomcOnvRDw79upF5BnrVkY9W5cuU2ix82ntkjuYOL6qEsJ4L84> – A long series of podcasts about products and other ways in which design has impacted the world
2. <https://www.bbc.co.uk/programmes/b08k9pv0?fbclid=IwAR1O-REp7H72oZnoEemZZ6Bby7mXouo019xlfZR1wuENSAoFKI--NPhqXo> – Podcast about ideas and inventions that created the modern world.
3. <https://www.dezeen.com/design/> - podcasts, articles, design newsletters and magazine.
4. <https://www.bbc.co.uk/programmes/m000gwzg> How to Make series starts beginning of April on BBC Four
5. <https://www.bbc.co.uk/iplayer/episode/m0007trf/bauhaus-100> Bauhaus 100
6. <https://www.bbc.co.uk/programmes/b05ttnd7> Handmade craft
7. <https://www.bbc.co.uk/programmes/b09rfb1v> Inside story of IKEA
8. <https://www.youtube.com/channel/UCeLt4nocnWDEnYJmov4zgyA> – How Its Made YouTube. Loads of content on production processes and materials uses.
9. <https://www.youtube.com/watch?v=9uOMectkCCs> – The Secret of Great Design – TED Talk
10. https://www.youtube.com/channel/UC62Ngsd_ZBWkX-6yFV-10UQ – Product designer maker youtube channel
11. <https://www.youtube.com/channel/UCxyQKi7ipjA3Cz-VQUYanNQ> – Producttank youtube channel
12. <https://www.youtube.com/watch?v=FwvLkmdV9QA> – Interview with Braun
13. <https://www.youtube.com/watch?v=wChkvofR7Q0> – Dieter Rams' 10 Principles of Good Design
14. <https://www.youtube.com/watch?v=iVy0qGqmKFU> – How to sketch like a product designer
15. <https://www.youtube.com/watch?v=O-SM3Fpcji0> – Industrial and product design sketching
16. <https://www.youtube.com/watch?v=DRq60nRWYDI> – Marker pen shading and rendering basics