

# AQA A Level Product Design Y11 into Y12 Preparation Pack



Name

*“ When designing products, always remember that you are designing for people ”*

# Welcome to Product Design

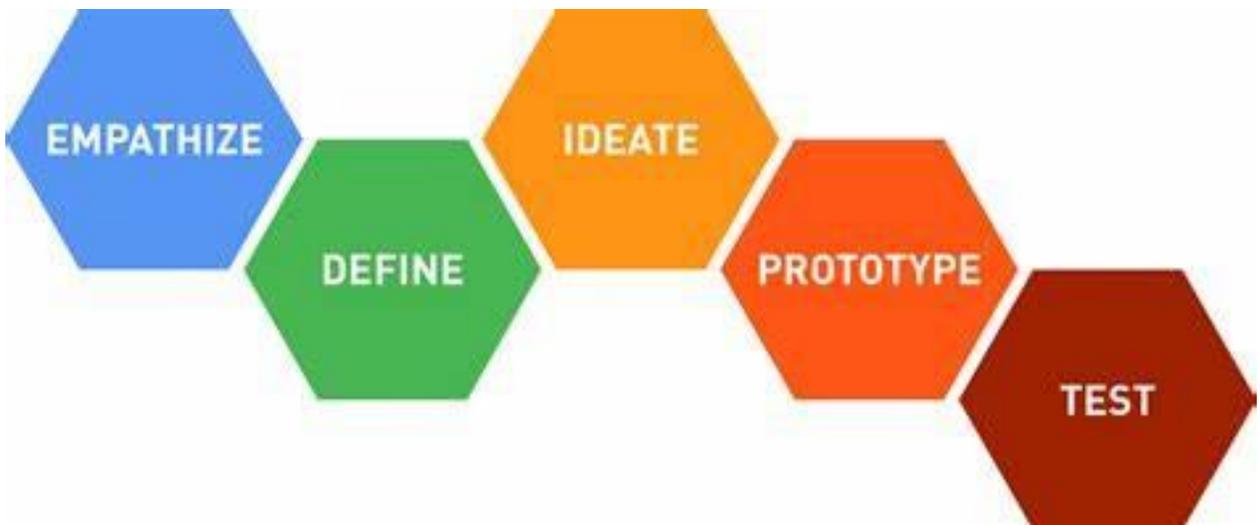
- I am very pleased that you have chosen to take Product Design at A Level in September. The pack is designed to give you an idea of what this qualification is all about. The pack will introduce you to some core course information and processes, it will give you some sample exam questions and the type of coursework brief you may be asked to complete.
- Any question that you have or if you are stuck please email me at [chloe.kennell@swindon-academy.org](mailto:chloe.kennell@swindon-academy.org)

Product Design is an excellent choice of subject, no matter what you go on to do next...

**Q: Why is Product Design a great subject to study?**

**A: Because it will give you the important skills of problem solving and working with your hands to create something needed, and give you the jumping off point to a whole variety of different careers.**

This pack has been designed to give you a taste of what Product Design is all about, and to inspire you to see what you are going to be working on next year.

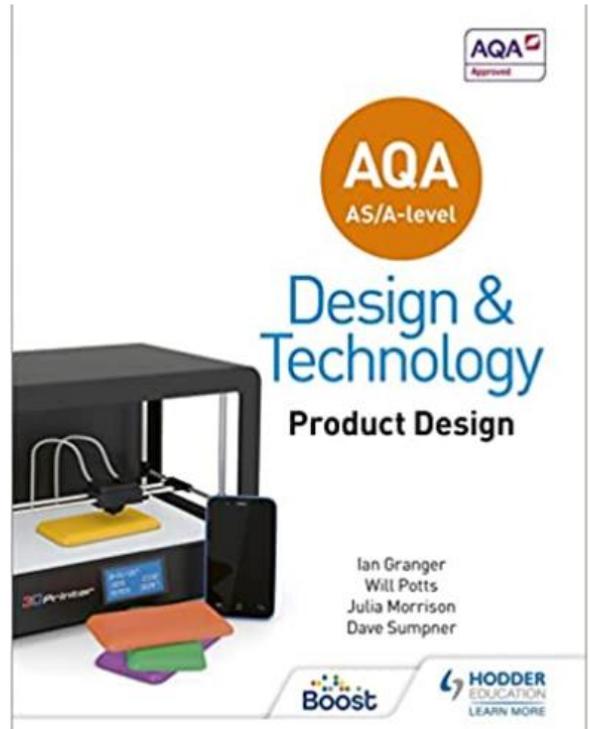


# Course Information

At Swindon Academy we follow the course AQA A Level Design and Technology: Product Design.

There is a brief overview of how you will be assessed in the table below.

On the following a page there is a brief list of the topics that you will learn, along with links to the website with more detail.



Paper 1	Paper 2	Non-Exam Assessment
<b>What's assessed?</b>	<b>What's assessed?</b>	<b>What's assessed?</b>
Technical Principles	Designing and Making Principles	Practical application of technical principles, designing and making principals.
<b>How it's assessed</b>	<b>How it's assessed</b>	<b>How it's assessed</b>
Written Exam: 2hrs 30mins 120 Marks 30% of A-Level	Written Exam: 1hr 30mins 80 Marks 20% of A-Level	Substantial design and make project 200 marks 50% of A-Level
<b>Question Types</b>	<b>Question Types</b>	<b>Evidence</b>
Mixture of short and extended response: <ul style="list-style-type: none"> <li>Analyse and Evaluate: design decisions and outcomes, wider issues in design and technology</li> <li>Demonstrate and apply knowledge of technical principles</li> <li>Mathematics questions</li> </ul>	Section A: Product Analysis <ul style="list-style-type: none"> <li>30 marks</li> <li>Up to six short answer questions based on the visual stimulus of products</li> </ul> Section B: Commercial Manufacture <ul style="list-style-type: none"> <li>50 marks</li> <li>Mixture of short and extended response</li> <li>Mathematics questions</li> </ul>	Written or digital design portfolio and photographic evidence of a final prototype.

# Course Information

Technical Principles	Designing & Making Principles
<ul style="list-style-type: none"><li>1.1 Materials and their applications</li><li>1.2 Performance characteristics of materials</li><li>1.3 Enhancement of materials</li><li>1.4 Forming, redistribution and addition processes</li><li>1.5 The use of finishes</li><li>1.6 Modern and industrial scales of practice</li><li>1.7 Digital design and manufacture</li><li>1.8 The requirements for product design and development</li><li>1.9 Health and Safety</li><li>1.10 Protecting designs and intellectual property</li><li>1.11 Design and manufacturing, maintenance, repair and disposal</li><li>1.12 Feasibility studies</li><li>1.13 Enterprise and marketing in the development of products</li><li>1.14 Design communication</li></ul>	<ul style="list-style-type: none"><li>2.1 Design methods and processes</li><li>2.2 Design theory</li><li>2.3 Technology and cultural changes</li><li>2.4 Design processes</li><li>2.5 Critical analysis and evaluation</li><li>2.6 Selecting appropriate tools, equipment and processes</li><li>2.7 Accuracy in design manufacture</li><li>2.8 Responsible design</li><li>2.9 Design for manufacture and project management</li><li>2.10 National and international standards in product design</li></ul>

Technical Principles in detail: [AQA | Design and Technology: Product Design | Subject content | Technical principles](#)

Designing and Making Principles in detail: [AQA | Design and Technology: Product Design | Subject content | Designing and making principles](#)

# Activity 1: Pre-Knowledge Task

Using the internet and books, complete the task below. Make sure to bring your notes with you for your first lesson in September.

## Choose a number of different items in your house (at least 3)

- Identify the materials they are made from
- Identify the manufacturing processes that have been used to produce the product.
- Using notes and sketches explain the manufacturing processes used.
- For each object explain how they work and the reasons for their function. What do they do and why?
- What's more important for each object? Function or form?
- What is meant by a product life cycle? Do your items support sustainability?

# Activity 2: Research Activity

Using the internet and books, produce notes on the following topics. Make sure to bring your notes with you for your first lesson in September.

## Research an iconic 20<sup>th</sup> Century Designer.

- Include political, social, economic and cultural influences on their style.
- What target market groups were/are their typical clients?
- Include a moodboard that represents the characteristics of their designs/work.
- Sketch a selection (at least 5 ideas) of your own designs inspired by your chosen designer.
- Include annotation, explanatory notes and potential materials and proposed manufacturing processes.

# Activity 3: Practice NEA Task

Design project to complete: This is a design brief that you will be setting yourself, this is similar to what you will be doing for your NEA. Ensure that you create a project that is a high standard of work. This work will look very good as part of a portfolio to take to university/career interviews.

Task: Design a useful household 'gadget' for the homewares market. (You are to identify a problem and design solution to solve that problem.)

Context: A homewares distribution company has set the brief to design a gadget for the homewares market.

Points to cover:

- Unique selling point
- End user
- Materials
- Methods of manufacture
- Form
- Function
- #AIMHIGHER: create a brand or design some packaging for your product.

How to present: Create a digital presentation to a board of the 'potential' distributor to explain/'sell' the product. This will be a PowerPoint presentation that will do all of the presenting without you being present. Present the 'story' of the process you have taken to find a solution (use photos). The story should follow; finding/realising a problem in the context/the task, researching, designing, developing (including paper or card modelling, CAD if possible – google sketch-up is free), reaching a final solution – presenting either CAD or freehand.

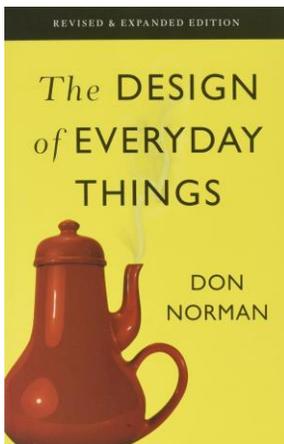
The final design solutions should include: multiple images to allow others to fully understand form and function, dimensions, materials with justification, expected manufacturing processes, safety features, sustainability or environmental factors.

Ensure you have read the instructions and requirements carefully to ensure that there are no elements left out. Any questions email Miss Kennell

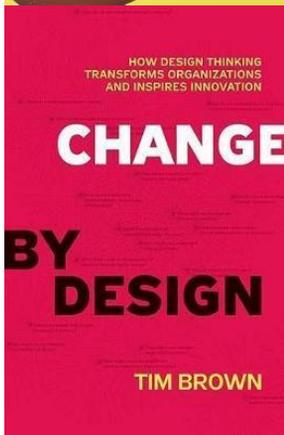
# Recommended books, websites, films and documentaries

It is vital that you are accustomed to completing wider reading around topics you will cover during your A-Level. As a starting point, we recommend the following titles (these are **not** a compulsory purchase, and will try to have the available from September)

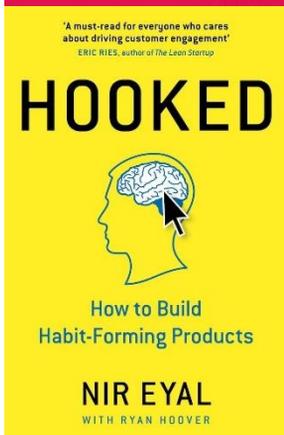
**Look out for used textbooks on Amazon and EBay as you can often grab a bargain!**



- **The Design of Everyday Things: by Don Norman** – Even the smartest among us can feel inept as we fail to figure out which light switch or oven burner to turn on, or whether to push, pull, or slide a door. The fault argues this ingenious book, lies not in ourselves, but in product design that ignores the needs of users and the principles of cognitive psychology. The problems range from ambiguous and hidden controls to arbitrary relationships between controls and functions, coupled with a lack of feedback or other assistance and unreasonable demands on memorization.



- **Change by Design: by Tim Brown** – Design thinking can be learned and developed intentionally. A potential design thinker needs to possess such characteristics as below; empathy, integrative thinking, optimism, experimentalism and collaboration.



- **Hooked how to build habit-forming products: by Nir Eyal** – A must read book for every product designer who is serious about his or her product. He boils down to four actionable steps – trigger, action, variable rewards and investment – forming a 'Hook Model'. If you ever want to know what keeps people coming back to Facebook, Twitter, Instagram, the answer is contained in this book. And if you're working on a consumer product, be sure to read it.

# Recommended books, websites, films and documentaries

- The New Science of Strong Materials (2018) – J E Gordon
- Why we don't fall through the floor (2018) - J E Gordon
- Stuff matters: Strange stories of the marvellous Materials that shape our man made world (2014) - Mark Miodownik
- Manufacturing processes for Design Professionals (2007) - Rob Thompson
- The Genius of Design – Penny Sparke
- Materials selection in Mechanical Design - Michael F Ashby
- The Machine that changed the world – James P Womack, Daniel T Jones, Daniel Roos
- Design for the real world: Human Ecology and Social change- Victor Papanek
- Against all odds- An autobiography- by James Dyson
- Legally branded: Logos, Trade marks, Designs, Copyright, Intellectual property, Internet Law, Social media, Marketing – Shireen Smith
- Cradle to Cradle-Williams McDonough
- Sustainable Materials Processes and production – Rob Thompson
- Packaging the brand- The relationship between packaging design and brand identity – Gavin Ambrose
- Presentation techniques A guide to drawing and presenting design ideas- Dick Powell
- How designers Think: The Design Process Demystified- Brian Lawson
- Less but better – Dieter Rams
- Design: The definitive Visual History – DK Books
- Great Designs – DK Books
- Process selection: From Design to Manufacture - K G Swift

**Look out for used textbooks on Amazon and EBay as you can often grab a bargain!**

# Recommended books, websites, films and documentaries

[www.bpf.co.uk](http://www.bpf.co.uk) - The British Plastics federation

[www.explainthatstuff.com/adhesives.html](http://www.explainthatstuff.com/adhesives.html) - How forces make stuff stick, how adhesive products work

[www.pneac.org](http://www.pneac.org) - Fact sheets about printing and the packaging industry

[www.materialstoday.com](http://www.materialstoday.com) - finishing methods

[www.ttf.co.uk](http://www.ttf.co.uk) - Timber trade federation

[www.iso.org/iso/home.html](http://www.iso.org/iso/home.html) - The international organisation for standardisation

[www.nextnature.net/2011/12/11-golden-rules-of-anthropomorphism-and-design-introduction/](http://www.nextnature.net/2011/12/11-golden-rules-of-anthropomorphism-and-design-introduction/)

[www.practicalaction.org](http://www.practicalaction.org) - Website that uses technology to challenges poverty in developing countries

[www.ipo.gov.uk](http://www.ipo.gov.uk) - Website for IPO

[www.recyclenow.co.uk](http://www.recyclenow.co.uk)

[www.recyclenow.com](http://www.recyclenow.com)

[www.seymourpowell.com](http://www.seymourpowell.com)

[www.eamesoffice.com](http://www.eamesoffice.com)

[www.vitra.com/en-gb/corporation/designer/details/charles-ray-eames](http://www.vitra.com/en-gb/corporation/designer/details/charles-ray-eames)

[www.designcouncil.org.uk](http://www.designcouncil.org.uk)

[www.yankodesign.com](http://www.yankodesign.com)

[www.fairtrade.org.uk](http://www.fairtrade.org.uk)

[www.discoverdesign.org/handbook](http://www.discoverdesign.org/handbook)

[www.tradingstandards.uk/consumers](http://www.tradingstandards.uk/consumers)

[www.bsigroup.com](http://www.bsigroup.com)

[www.jamesdysonfoundation.co.uk](http://www.jamesdysonfoundation.co.uk)

[www.apple.com/environment](http://www.apple.com/environment)

[www.philips.com/a-w/about/sustainability/sustainable-planet/circular-economy](http://www.philips.com/a-w/about/sustainability/sustainable-planet/circular-economy)

[www.wrap.org.uk](http://www.wrap.org.uk)

[www.isixsigma.com/new-to-six-sigma/getting-started/what-six-sigma/](http://www.isixsigma.com/new-to-six-sigma/getting-started/what-six-sigma/)

[www.scrumalliance.org/why-scrum](http://www.scrumalliance.org/why-scrum)

[www.iso.org/home/htm](http://www.iso.org/home/htm)

# Recommended books, websites, films and documentaries

There are a number of useful films and documentaries that will develop your wider understanding of the topics covered.

1. **Abstract: The Art of Design** –Netflix's documentary series. The series profiles eight of the most innovative thinkers working in design. Watch to learn about the creative processes of the leaders in architecture, interior design, fashion, photography, graphic design, illustration, and automobile design.
2. **Abstract: Season 2**- Netflix's documentary series
3. **Helvetica** - Directed by Gary Hustwit as part of the documentary design trilogy including 'Objectified' and 'Urbanized', Helvetica is a documentary about typography and graphic design. This film explores the history of the Helvetica typeface and the way it's shaped the world around us.
4. **Objectified**- another film by Gary Hustwit, explores the extent that the design of everyday objects affects us. The film showcases the process of designing these objects and it profiles the graphic designers that create them.
5. **Urbanized**- another film by Gary Hustwit explores urban design the language of the city.
6. **Design and Thinking** is a documentary that examines the relationship between design and business. It shows how creative minds and business professionals can work collaboratively and strategically to create social change.
7. **Lemonade**- What do you do when life hands you lemons? You make lemonade, of course! This film shares the story of 16 creative professionals who lost their jobs and were forced to get creative about their own lives. It's a documentary about following your dreams and making the most out of any situation.
8. **Eames: The Architect and the Painter**- Focus on the Eames office
9. **Hard Talk**- BBC i-Player Stephen Sackur interviews Ola Kallenius, CEO of Daimler, one of Europe's biggest vehicle manufacturers.
10. **How to Make series**- BBC 4 Designer, Maker and materials engineer Zoe Laughlin explores The Trainer, The Tooth brush, and Headphones.
11. **Producttank**- YouTube channel for prototype design
12. YouTube- **The three ways that good design makes you happy | Don Norman**- design critic Don Norman turns his incisive eye toward beauty, fun, pleasure and emotion, as he looks at design that makes people happy. He names the three emotional cues that a well designed product must hit to succeed. Show more
13. There are many Product Design YouTube clips and TedTalks on Product Design