



Design &
Manufacture

Notes Booklet

The Design Process

Every product ever designed will have gone through a process from having an idea or finding a problem all the way to modelling and testing right up to the final product launch.

Stage 1: Identifying a problem

This might be done through a situation analysis, product evaluation or through market research.

Stage 2: Design Brief

This is used to outline the problem to the design team, set the requirements for the final product and identify the target market.

Stage 3: Research

This is where we find out the needs/wants of the target market and evaluate competitor products

Stage 4: Specification

This is a list of things a product must do if it is to be successful (based on research)

Stage 5: Idea generation

Using idea generation techniques to come up with ideas based on the specification

Stage 6: Idea development

Identifying the most promising idea(s) and tweaking them to improve function, aesthetic etc

Stage 7: Solution

Final idea is ready and presented to the client

Stage 8: Planning for manufacture

Working drawings and manufacturing plans show how the product will be made and what it will be made of.

Stage 9: Evaluation and testing

Prototypes will be made and tested by users and test rigs to identify faults and make the necessary changes before production

Stage 10: Manufacture and product launch

The development and design of a product involves a whole team who will each bring their own specialist skills and experiences.



Designer

- In charge of the creative elements and aesthetics of a products design.
- Will deal with the client, the design brief and specification
- Provides initial concept sketches and models

Market Researcher

- Looks at competitor products to identify key features, identifies trends in the market and gathers info on target market needs/wants.



Manufacturer

- Advises the designer on the processes and equipment needed to build the product. Judgements will be based on product cost, complexity of the design and number of the products to make.

Marketing Team

- Are responsible for promoting and advertising a product
- They will use techniques including adverts, celebrity endorsements and sponsorships



Accountant

- Manages the overall team and department budgets
- Works to make sure the product spending does not go so high that the company is unable to make a product profitable.

Consumer

- This is the person that buys and uses the product
- They might be involved in the research stages of a products design by telling the team issues with existing products, what they need/want from a product and what their budget might be.



Retailer

- These are the shops that sell/display the products
- They will provide the team with info on all buying trends, shoppers feedback and advice on promotional displays.

A design brief is generated at the start of the design process and tells you either the problem to be solved or the product to be designed.

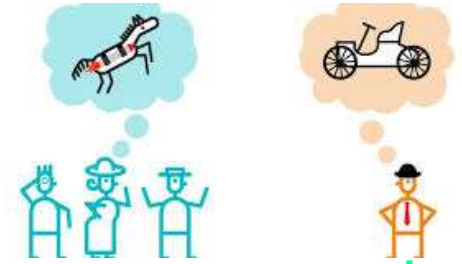
Types of Brief:

Open Brief

- Gives a rough outline of the problem to be solved
- Allows designers to be more creative in designing solutions
- Are more likely to lead to new materials or technology being developed
- Usually require more time and research which can be expensive
- Designers may find it harder to meet the clients expectations because they weren't given clear direction.

Closed Brief

- Gives a clear outline of what the product should do and might include guidance on price, function, aesthetics and target market.
- Usually preferred by clients because its quicker and final products are more likely to meet their expectations



Analysing a Brief

Once the team have received the design brief they will have a number of questions. These questions from the basis of their research in the next stage. It might be questions relation to the products function or performance, how it should look, what material would be best etc. All these questions will help you to plan and organise your research and identify the best methods to gather the answers.

A product design specification is generated after the team has received the design brief and carried out appropriate research.

A specification is a list of things a product must do to be successful. It is based around a variety of design factors

A design specification is used to:

- It is used to help kick start the idea generation process by giving designers direction
- It is also used as an evaluative tool to help identify strengths and weaknesses in ideas to allow designers to identify and improve on their most promising ideas

Example: Specification for a kettle

Function

- It must hold up to 1.5L of water
- It must boil within 2min
- It must filter out impurities

Aesthetics

- It must have a modern sleek look
- It must use neutral colours

Safety

- The handle must never become too warm to the touch
- The kettle must switch off when the water reaches boiling point
- The kettle must have a method of indicating when the kettle is hot/boiling

