

Knowledge organiser: phone holder (Skills Focus)

Linear design

Linear design is a process which involves:

- Researching requirements for a design.
- Designing ideas and developing a final solution.
- Planning how the product will be made
- Making a product or prototype.
- Evaluating the success of the product or prototype.

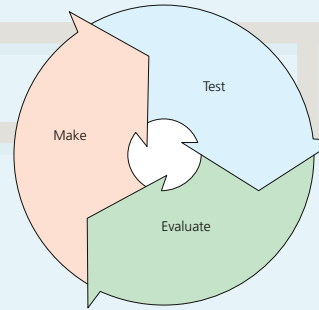


Iterative design

• Iterative design

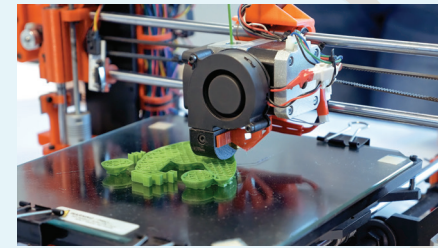
is a process which involves designing and making a prototype which is tested and evaluated. This is one iteration.

- Improvements are made based on the evaluation of the iteration.
- Each of the steps are then repeated a number of times.
- Each step is called an iteration.



CAD stands for computer-aided design

- It is any use of software that helps the design process, including drawing and modelling.
- Compared to drawing by hand, CAD drawings can be:
 - edited if changes are needed, rather than starting again
 - more accurate
 - saved and shared electronically
 - sent to computer-controlled machines to be made.



CAM stands for computer-aided manufacturing

- It means that a computer controls the tool or process – it is sometimes called **computer numerical control (CNC)**.
- The machine can often be controlled using a drawing sent from CAD software.
- CAM machines include:
 - laser cutters
 - 3D printers
 - CNC routers
 - robot arms
 - CNC lathes, milling machines, grinders.



CAM advantages and disadvantages

Advantages

CAM machines:

- can usually carry out tasks faster
- make complicated shapes more easily
- ensure every part made is the same
- more accurate
- can run 24 hours a day, seven days a week.

Disadvantages

- CAM machines can have a high initial set-up cost.
- For one-off products, CAM might take more time than making the product by hand due to the need to programme the machine.
- CAM machines can replace a person, causing people to lose their job.

Polymer manufacturing methods

- There are many methods for using polymers in industrial processes to make products.
- You will be using a strip heater.

Other industrial processes include:

- Vacuum forming
- Press forming
- Injection moulding
- Extrusion moulding
- Rotational moulding

