

Year 8 Organiser

Tools and Equipment – can you name them?

Hand drill



Hand file



Coping saw



Bradawl



Line bender

Countersink



Scroll saw



Screwdriver



Tenon saw

Pillar drill



A Design Specification is a List of Product Features

- Once you've got your design brief and done your research, you need to use them to draw up a list of features (design criteria) the product you're designing should have. This list is called a design specification.
- When you're writing up the design specification think about how the finished product will affect the target consumers.

Questions to ask when writing a design specification

- How can you ensure it matches the design brief?
- Can you make the product safe, so it won't harm the consumers?
- Can you make the product cheap enough for the consumers to afford?
- What shapes, textures, colours and flavours will the consumers prefer?



FEATURES
cute, hairy,
difficult to peel

- Here's an example of a design specification for balaclavas:

Function — The product should be a warm balaclava, suitable for cold weather.

Cost — Each balaclava should cost no more than £4 to make.

Aesthetics — The product should have a soft texture, so it's comfortable to wear. It should look stylish.

Manufacture — The product should be fairly easy to manufacture, and take no more than 2 hours to make.

The Environment — Care must be taken that the materials and packaging are environmentally friendly.

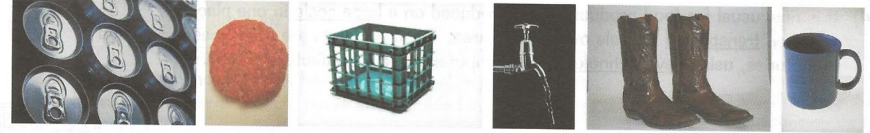
Health and Safety — The product shouldn't restrict the wearer's ability to see.

Computer-Aided Manufacture

Computers are brilliant at lots of stuff, they don't take sick days and don't sneak an extra couple of minutes on a tea break. Nowadays, most products have been made with the help of a computer...

CAM — Computer-Aided Manufacture

- Computer-Aided Manufacture (CAM) means the process of manufacturing products with the help of computers.
- CAM is linked to CAD (page 14). Products are designed with CAD software. Then data from the CAD software is downloaded into the control unit of a manufacturing machine which makes each component or product.
- The machines used in CAM are Computer Numerically Controlled (CNC) — see page 26.



Products manufactured using CAD/CAM

CAM is Great for Mass Production

CAM is really useful in mass production (see page 18). Computer-controlled machines are used as part of the production line — to do repetitive tasks to a reliable standard of accuracy.

Advantages of CAM

- CAM makes production quicker and more efficient. Machines do not need to rest, so productivity is increased. This means manufacturers can respond quickly to demand for a product and can make more profit.
- CAM is very accurate — there's less chance of human error.
- It can be used to process materials and chemicals which are hazardous to humans.
- It can be used for repetitive tasks that workers would find boring.
- CAM is good for batch production (page 19). New instructions can be downloaded and programmed into a machine quickly and easily. So batches of slightly different products can be produced using the same machinery.



Dylan was glad that the computers were taking over the snail soup production process.

But there are Disadvantages

The disadvantages of CAM are similar to those of CAD:

- The initial cost of the computer hardware and software and CNC machines is high.
- Training programmers and operators is expensive.
- The use of computers and automated machines means fewer workers (and fewer skilled workers) are needed. Some people have been made unemployed because of this.

I thought I used CAM — but I just had my mac on inside out...

As technology develops, industries will always find ways to take advantage and improve the way they do things. Next up, a bit more on how different industries have changed over the years...