

# Modelling methods

Models help designers to understand how their ideas will look and function. They also allow improvements to be made before the final product is manufactured.

## Block modelling

- Models are made from Styrofoam blocks, which is extremely lightweight material.
- It can be cut and shaped using basic workshop tools and painted to give a quality finish and realistic appearance.



## Virtual modelling

- Computer Aided Design (CAD) software is very accurate. It's used to view and simulate the product on a computer screen.
- No physical materials or tools are required, so changes can be made quickly and costs are reduced.



## Mathematical modelling

- Using mathematical formulae to describe the performance of a product or system, e.g. calculating whether the head of a vacuum cleaner would withstand the forces placed on it if bumped into a wall.

## Card modelling

- Models are created by cutting card sheets into shapes and joining them together.
- Card is often used for rough or early models as it's relatively cheap and easy to cut.
- Corrugated card can be used for extra strength.



## Rapid prototyping

- Allows complex models to be produced relatively quickly from CAD data.
- In 3D printing, layers of material are laid down to create the object.
- Other forms of rapid prototyping include fused deposition modelling and selective laser sintering.



## Circuit modelling

- Electronic circuits can be modelled using modular kits, breadboards or CAD software.
- This allows the designer to test how they would work, e.g. modelling the motor circuit in a vacuum cleaner.

