

Year 8 Cardboard Automata Knowledge Organiser

Types of Motion

There are four types of motion: LINEAR, ROTARY, OSCILLATING and RECIPROCATING



Mechanisms

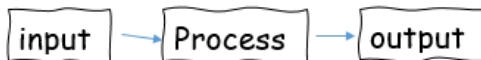
A mechanism (noun) is a **tool** to control movement to fulfil a **purpose**.

Mechanisms have certain things in common:

- They involve some kind of **motion**.
- They involve some kind of **force**.
- They must have some kind of **input** to make them work.
- They produce some kind of **output**.

First order (simple) mechanisms are: wedges, levers, wheels, screw threads and inclined planes.

Second order (more complex) mechanisms are: gears, pulleys, linkages, cams



Context, Brief and Specification

These are all vital to establish at the start of the designing process.

Design context: The context is the general situation where there is a problem such as 'encouraging people to engage with nature'.

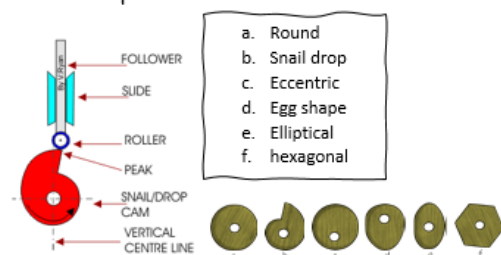
The brief is then written to identify the client, some of their needs and any possible constraints such as cost, materials, time, safety.

Product Analysis: To **inform** your design you need to **analyse products** that already exist. This helps you see how other designers have solved problems, and perhaps missed better solutions.

ACCESSFM is used for product analysis. Aesthetics, Cost, Client, Environment, Safety, Size, Function and Materials

Design specification: is a list of criteria/standards your product needs to address. It clearly identifies what the client needs and wants from the product and should be detailed enough that a designer could read it and design a suitable product.

CAMS and followers Cams can be made out of metal, plastic, cardboard, foam sheets or wood. There are different shaped cams. These create different movements.

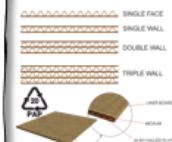


DWELL: When the **cam** rotates but the follower does not rise or fall.

Cardboard corrugated card is also called **corrugated fibreboard** or **combined board**. It is manufactured in a **range of thicknesses**. Corrugated board is **manufactured from** a type of heavy paper called **'containerboard'**.

The flat **outer surface** is called the **liner board** and the **triangulated structure** between the liner boards is called the **medium** (sometimes referred to as the **flutes**).

Corrugated cardboard can be **recycled**.



Sustainable Design Sustainable design refers to the design process that integrates an environmentally friendly approach and considers nature resources as part of the design. Central to the concept are the 6 R's:

Re-Cycle, Reduce, Rethink, Reuse, Repair, REFUSE



Other KEYWORDS

Iterative design involves making a model of the design, which is then tested and evaluated. A new improved model is then made, and the process is repeated until you have a suitable idea that meets all the client's needs.

Client: also known as the user, the person or persons who will buy/use the **product**.

Primary research: first hand, gathered direct from the client.

Secondary research: comes from second hand sources such as the internet.