

# Automata Knowledge Organiser

## Types of Motion

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



## 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.

**Prototypes can be rough and look like models, and some function as intended and are well finished.**

**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.

**The Systems Approach** is a Design Strategy that works in a logical manner. It can be simplified into three phases, input, process and output.

## Mechanisms

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

Mechanisms rely on some kind of **force or input that starts a process that produces an output in the form of motion**.

mechanisms you have used are: levers, wheels, linkages, and cams

## The Brief

Devon Wildlife Trust want to encourage children to appreciate the importance of local wildlife in and around the Exe Estuary, The estuary is a [Special Protection Area](#) and a [Site of Special Scientific Interest](#). They want a moving toy animal that could be sold to raise funds for conservation. It must be made of sustainable materials.

**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** In order to reduce environmental impact, an analysis is carried out to review different stages of the material or product's life cycle. There are two different cycles:

- linear - ending with disposal, adding waste to landfill
- circular - continuous and incorporate recycling to ensure materials and products are used over and over again

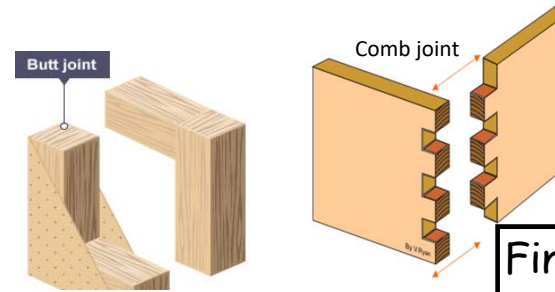
Life cycle analysis needs to be considered by the designer, the manufacturer and the consumer to reduce negative impact on the environment.

## Wood joints

Wood joints are a traditional method of joining timber. There are a range of different joints that can be used for different situations that provide a variety of levels of strength and structure. Joints are often glued to make them secure and permanent.

**butt** - a simple join where the edges of the timber are glued together, so it is easy to make but weak

**comb** - offers good contact for gluing and the pieces of the wood interlock providing strength, often used in wooden boxes



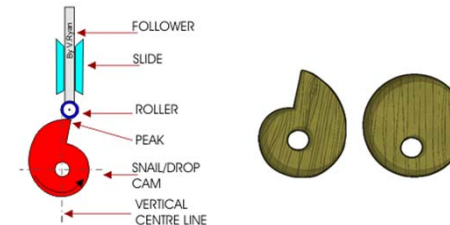
## Finishing

**Sanding** with different grades of sandpaper achieves a nice clean smooth finish, ready for a treatment to improve durability.

Sandpaper comes in different grades, the lower the number, the grittier, and the more wood it will remove. For eg 80 grit is rough and will remove wood, dirt and scratches. 120 is a fine grit and will give your wood a lovely warm smooth finish.

Once the wood is smooth as it can be, then you can paint, wax or varnish to keep the wood protected.

**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.

