

Knowledge Navigator



- ⇒ A lever is a form of mechanism with a rigid rod which has a pivot point somewhere along its length. This point is known as the fulcrum.
- ⇒ A linked lever system is a number of levers that are joined together.
- ⇒ They are connected by either fixed or moving pivot points.
- ⇒ A linked lever system is designed to change the direction of force and movement.



Vocabulary

pivot—balances or turns around a point

fulcrum—the point where something pivots

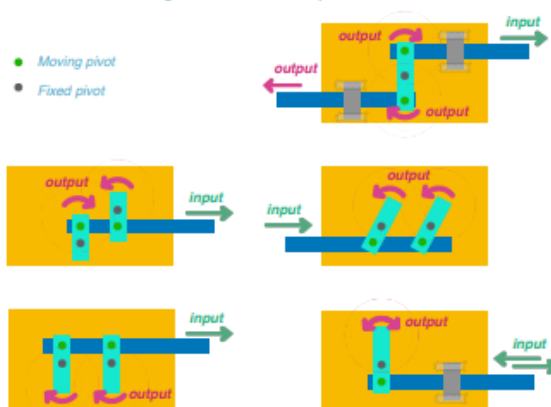
linear—a straight line

rotary—turning around a fixed point

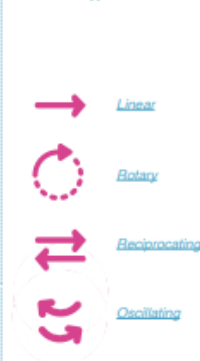
reciprocating—moving back and forth in a straight line

oscillating—moving back and forth in an arc

Arrangements of levers and pivots



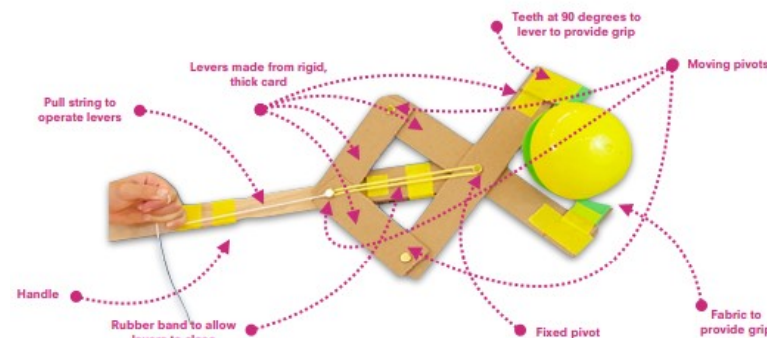
Types of movement



A fixed pivot turns around one point and cannot move away from this position.

A moving pivot still turns but can also move away from its original position.

Examples:



Thinking Point:

What movements do you think the yellow arrows will make when the lever is lifted up and down?



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- ⇒ A structure is strong if it is rigid. Some shapes are more rigid than others.
- ⇒ Triangles are the most rigid shapes for frames and are used in nearly all structures that need strength e.g. a truss bridge.



Vocabulary

rigid—an object that is stiff, doesn't bend or change shape.

truss—a structure made of triangles

strut—something that strengthens a structure

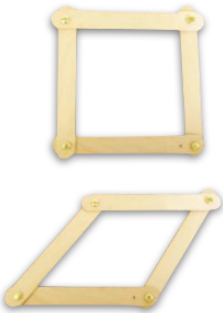
joining plate—attached to a joint to strengthen it

chord—the top or bottom of a truss structure

pier—a solid structure supporting a bridge

jinks corner—using triangular card corners to join two pieces together

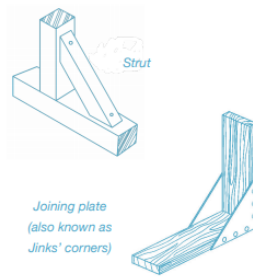
A square frame is not very rigid. It is easy to change its shape.



A triangle is rigid. It is very difficult to change its shape.



Frames can be made stronger by adding a **strut** or a **joining plate** to form a triangle shape.

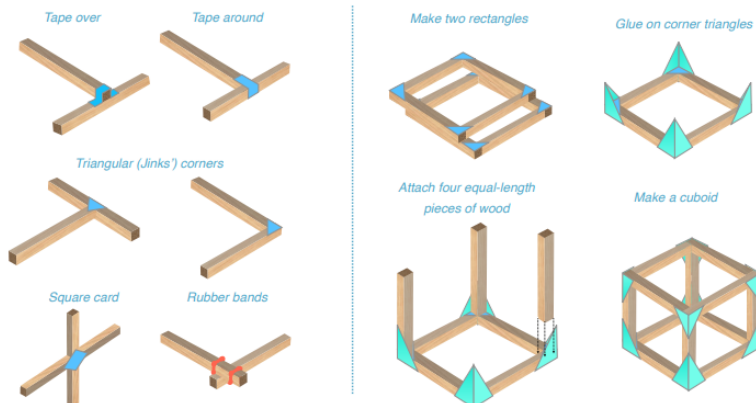


Thinking Point:

What famous buildings can you find that are built using triangles?



Assembling Frame Structures:



Design Inspiration:

