Design Technology

MECHANISMS

KS1

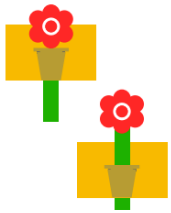
Knowledge Navigator

A mechanism is device that modifies input forces and movement into a set of output forces or movements that the user wants.

There are lots of different types of mechanism including:

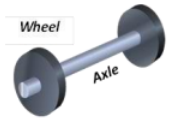
* levers * sliders * wheels and axles * cams * gears * pulleys

Mechanism Examples:



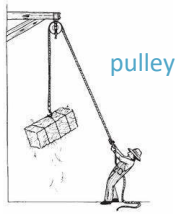
slider mechanism

lever mechanism



wheel and axle mechanism

gear mechanism



pulley mechanism

cam mechanism

Thinking Point:

What mechanisms can you find in the park?

Vocabulary

mechanism—device to modify inputs into different outputs

rotate—something that is turning

rigid—does not bend, twist or stretch easily

pivot—balances or turns around a point

fulcrum—the point where something pivots

input—something that goes in

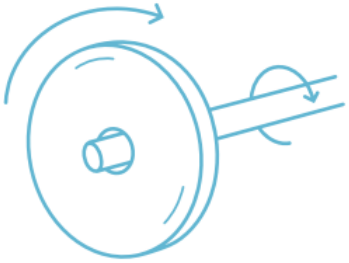
output—something that comes out

Wheels and Axles

Wheels are circular objects that roll around on the ground easily.

Axles are rods that help the wheels to rotate. The wheel can either be attached to the axle and rotate at the same time or rotate freely.

How a wheel and axle works



The wheel turns fast with little force.
The axle turns slowly with large force.

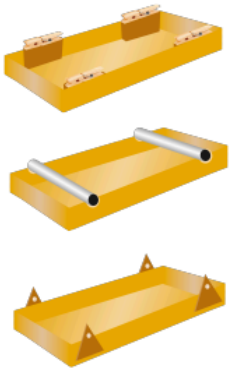
Examples of products that have wheels and axles

Car

Screwdriver

Tap

Attaching axles to a chassis



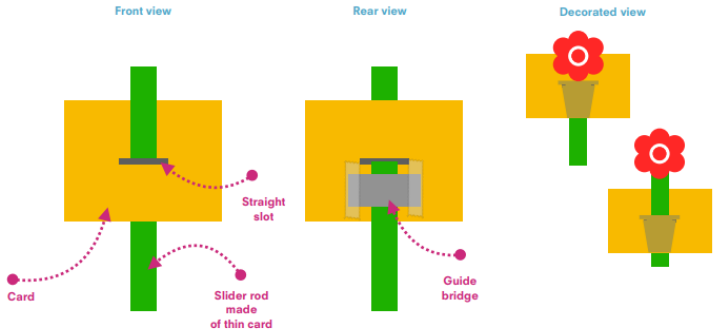
Knowledge Navigator

Slider Mechanisms

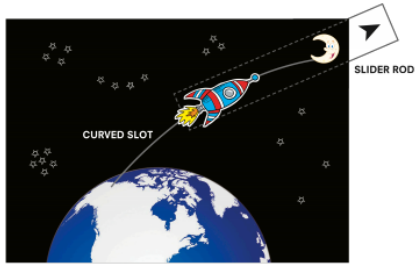
⇒ A slider is a rod that moves when it is pushed or pulled.

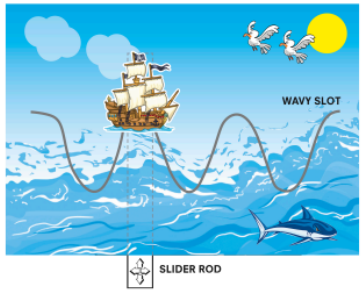
⇒ If an object is attached to one end of the rod, the push or pull will make it move.

The example below shows a flower that moves up and down.



The guide bridge stops the slider rod from rotating.





The slider slot can be either straight or curved. The shape of the slot will change the path of the slider.

Lever Mechanisms

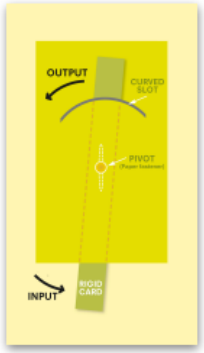
⇒ A lever is a mechanism that has a rigid rod which has a pivot point somewhere along its length.

⇒ This point is known as the fulcrum.

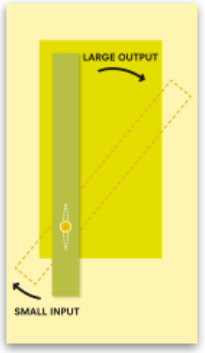
⇒ A force at one end of the lever results in a movement at the other. The movement will be in the opposite direction to the force.

⇒ The force is called the input. The movement is called the output.

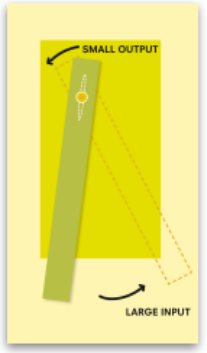
⇒ Changing the position of the fulcrum can change the output.



Equal input and output when the fulcrum is in the middle of the rod



Small input and large output when the fulcrum is at the effort end of the rod



Large input and small output when the fulcrum is at the opposite end of the rod to the effort

Examples of lever mechanisms: