

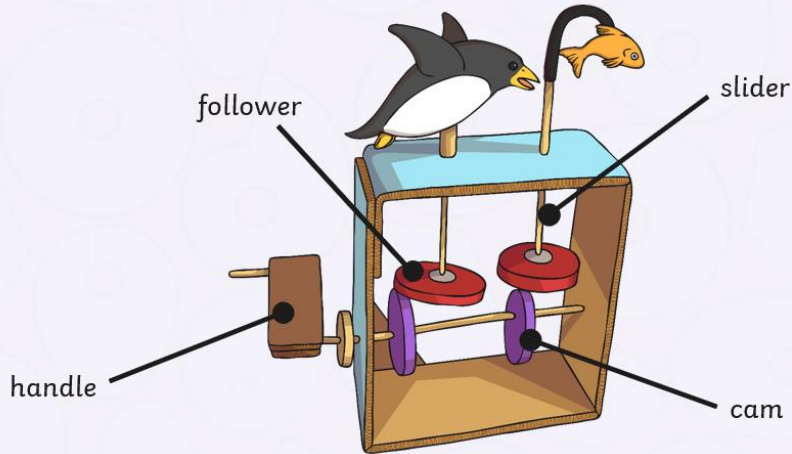


Knowledge Organiser

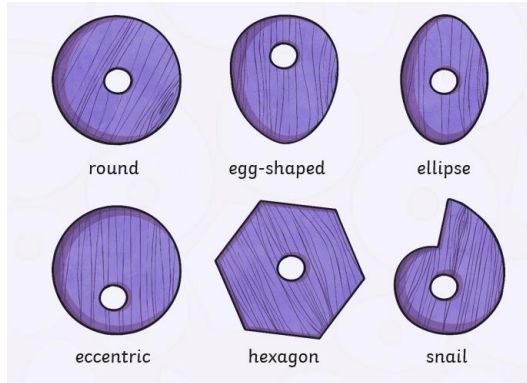


Y4 Winter Wonderland toys (with CAMS)

A cam mechanism is made up of three components: a cam, slider and follower. The mechanism causes components to move. Cams can be made out of metal, plastic or wood.



Cams come in various shapes, these are called cam profiles: Round, pear/egg, eccentric, hexagon, oval and snail.



The shape of the cam controls the movement of the follower.

If the pivot point is not central, the movement will be greater.

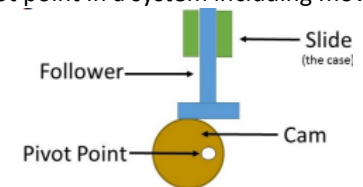
The peak is the part of the cam that is the furthest from the pivot point, creating a larger movement.

The snail causes a sudden drop as the follower falls from the peak to a part of the cam that is close to the pivot point.

Before	Now	Next
Y3 Earthquake pictures	Y4 Wonderland toys	Y5 Mars Rover

Vocabulary

Cam	A cam is a wheel (in various shapes) attached to a shaft
shaft	The rotating shaft that the cam and handle are joined to
follower	A bar that touches the cam and follows its shape, moving up and down (around its circumference)
slide	A secure compartment that guides the follower and keeps it in its place
mechanism component	Parts that work together in a machine A part of something
linear	Up and down movement
handle	The part of an object made to be held in order to lift, move (rotate) or hold the object
rotate	To turn on or around a fixed point
prototype	An original model on which latter forms can be made, based on improvements and developments
Pivot point	A point around which something can rotate or turn. The fulcrum, the hole in the cam where the shaft is attached
Peak	The highest point of the cam (furthest distance from the fulcrum)
drop	When the follower falls, this can be sudden or gradual, depending on which shape cam is used
dowel	A cylindrical rod – usually made from wood, plastic or metal
Fulcrum	The pivot point in a system including movements





Knowledge Organiser Y4 Wind turbine



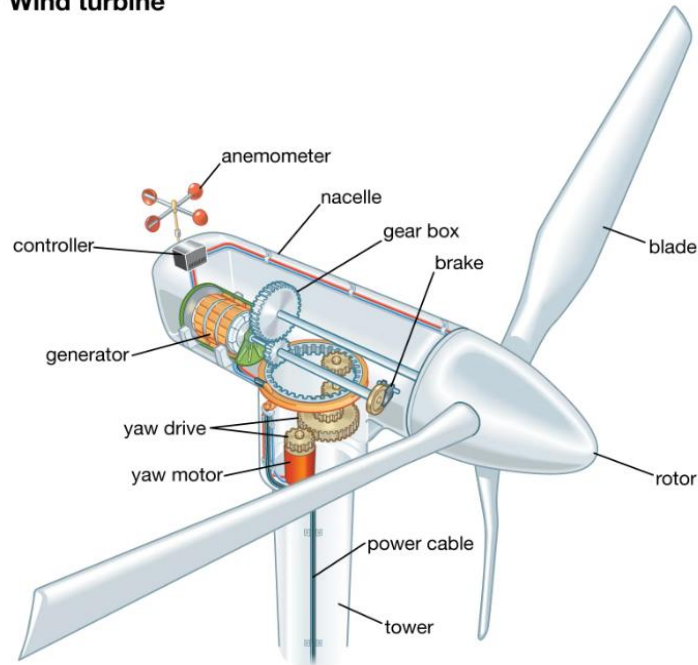
Before	Now	Next
Y4 Moving toy (with CAMS)	Y4 Wind turbine	Y6 Catapult

Useful link

<https://www.britannica.com/technology/wind-turbine>

Wind turbine, apparatus used to convert the **kinetic energy** of **wind** into **electricity**.

Wind turbine



Home-made - Wind Turbine



At the beginning of the 21st century, about 80 percent of the world's energy supply was derived from fossil fuels – these are finite resources. We need to develop -

renewable energy, also called **alternative energy**, usable energy derived from replenishable sources such as the Sun (solar energy), **wind (wind power)**, rivers (hydroelectric power), hot springs (geothermal energy), tides (tidal power), and biomass (biofuels)

Key Vocabulary

Wind turbine	A device that generates electricity through the conversion of the wind's kinetic energy
Motor	A machine that causes power or motion
Wind generator	an electric generator situated on a tower and driven by the force of wind on blades or a rotor
Blade	Curved blades/wings that harness wind energy and drive the rotor of a wind turbine (see picture)
Tower	The structure that supports a wind turbine generator
LED (Light emitting diode)	An electronic semiconductor device that emits light when an electric current passes through it
Prototype	An original model on which later stages or forms are based or developed
Design criteria	The explicit goals that a project must achieve in order to be successful