



Design and Technology

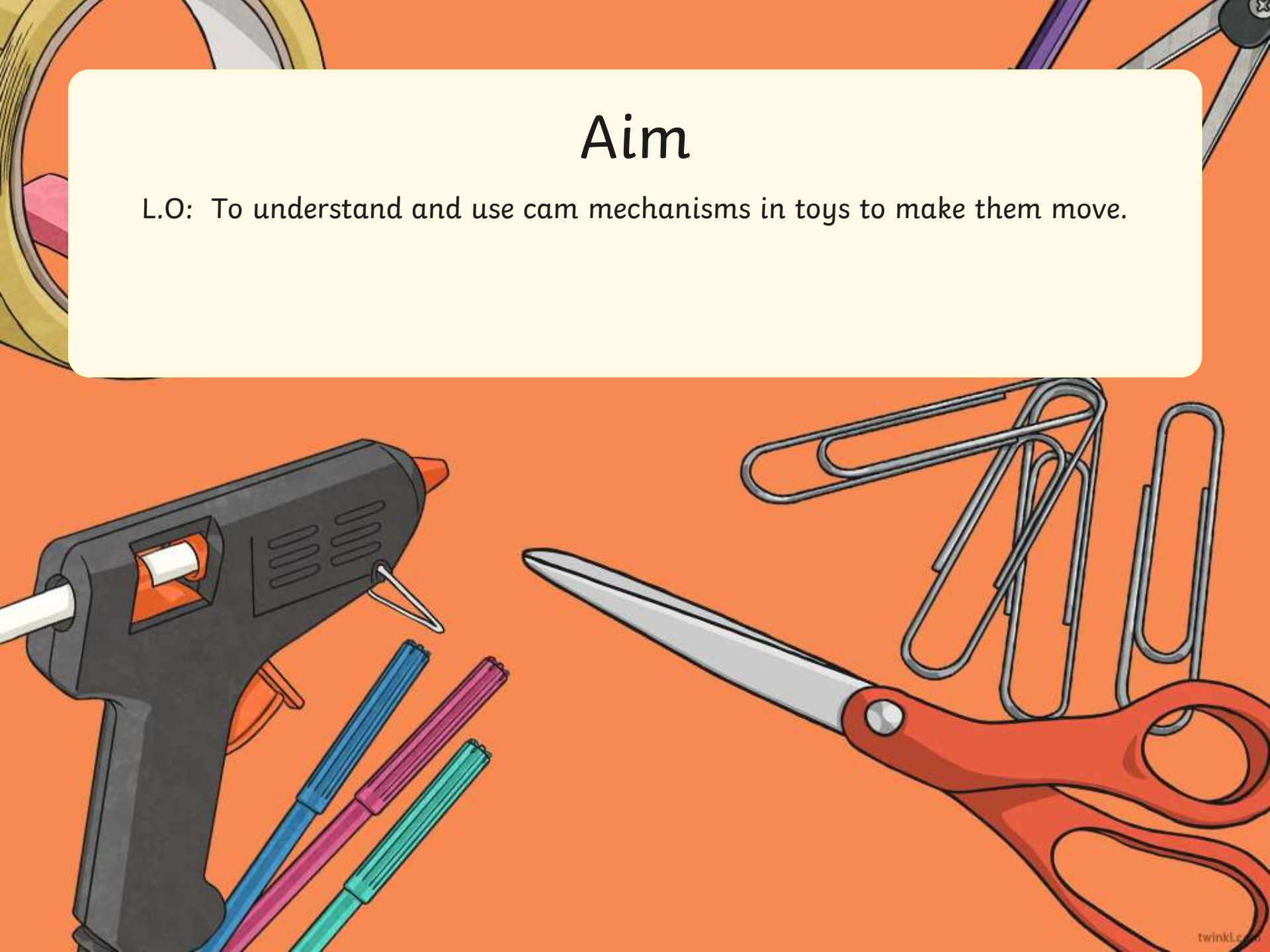
Technical Knowledge - cam mechanisms



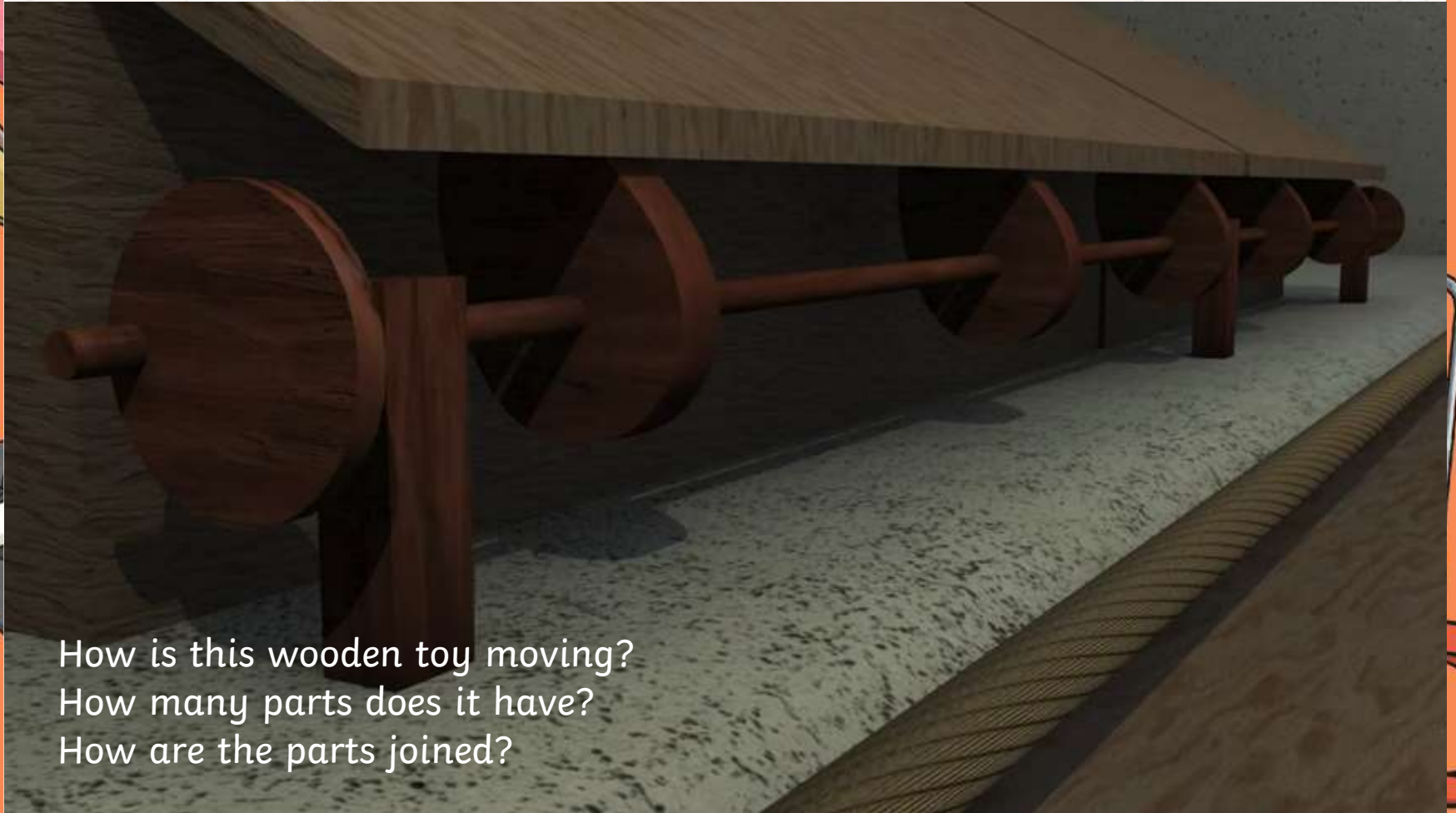
twinkl

Aim

L.O: To understand and use cam mechanisms in toys to make them move.



Starter Activity

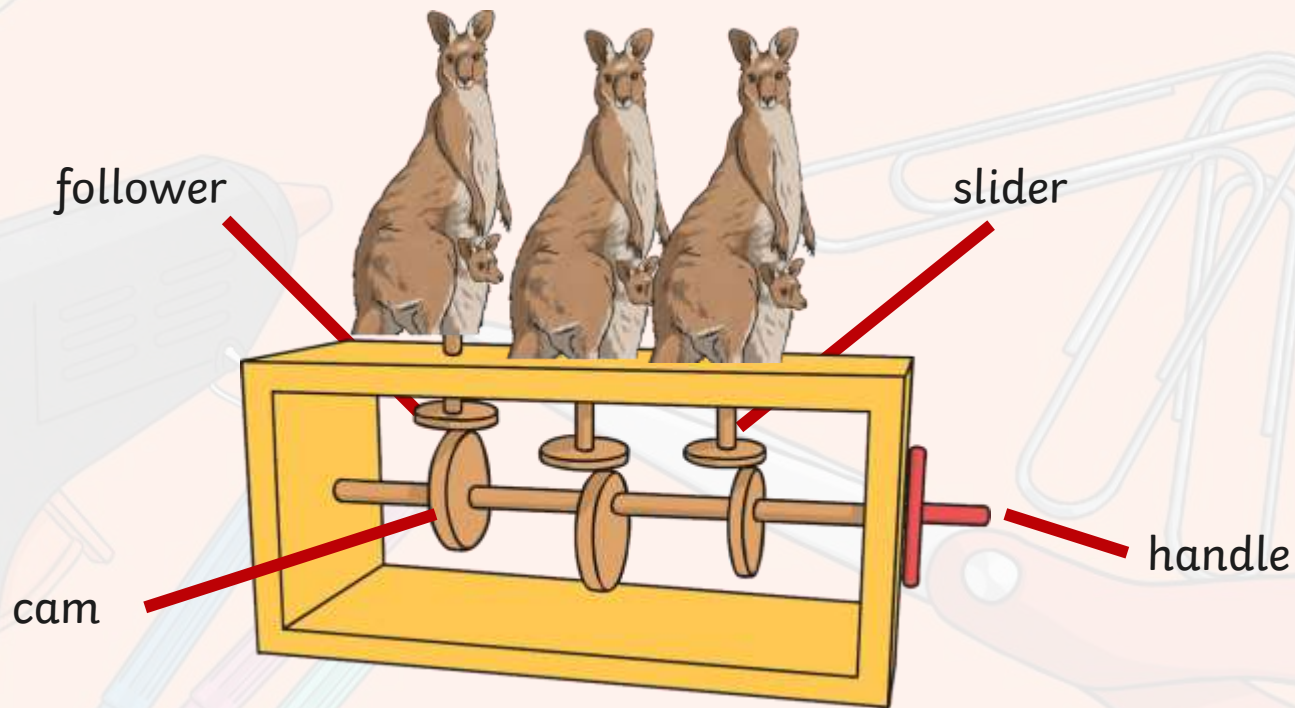


How is this wooden toy moving?
How many parts does it have?
How are the parts joined?

Video courtesy of Wanda Sowry (@flickr.com) - granted under creative commons licence - attribution

Making Toys Move

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.



Making Toys Move

There are different types of cams which create different movements.



round



Snail



eccentric



egg-shaped



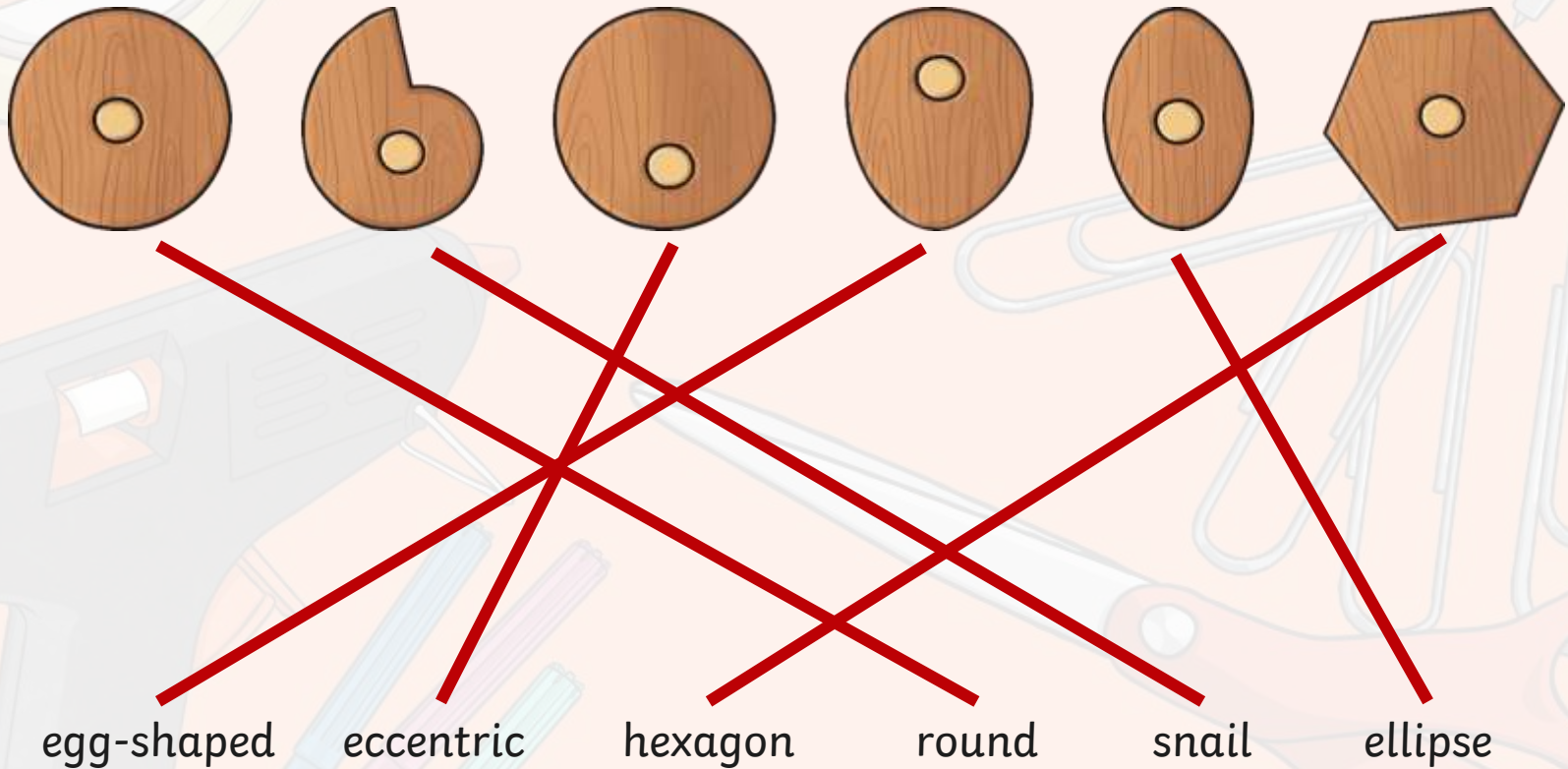
ellipse



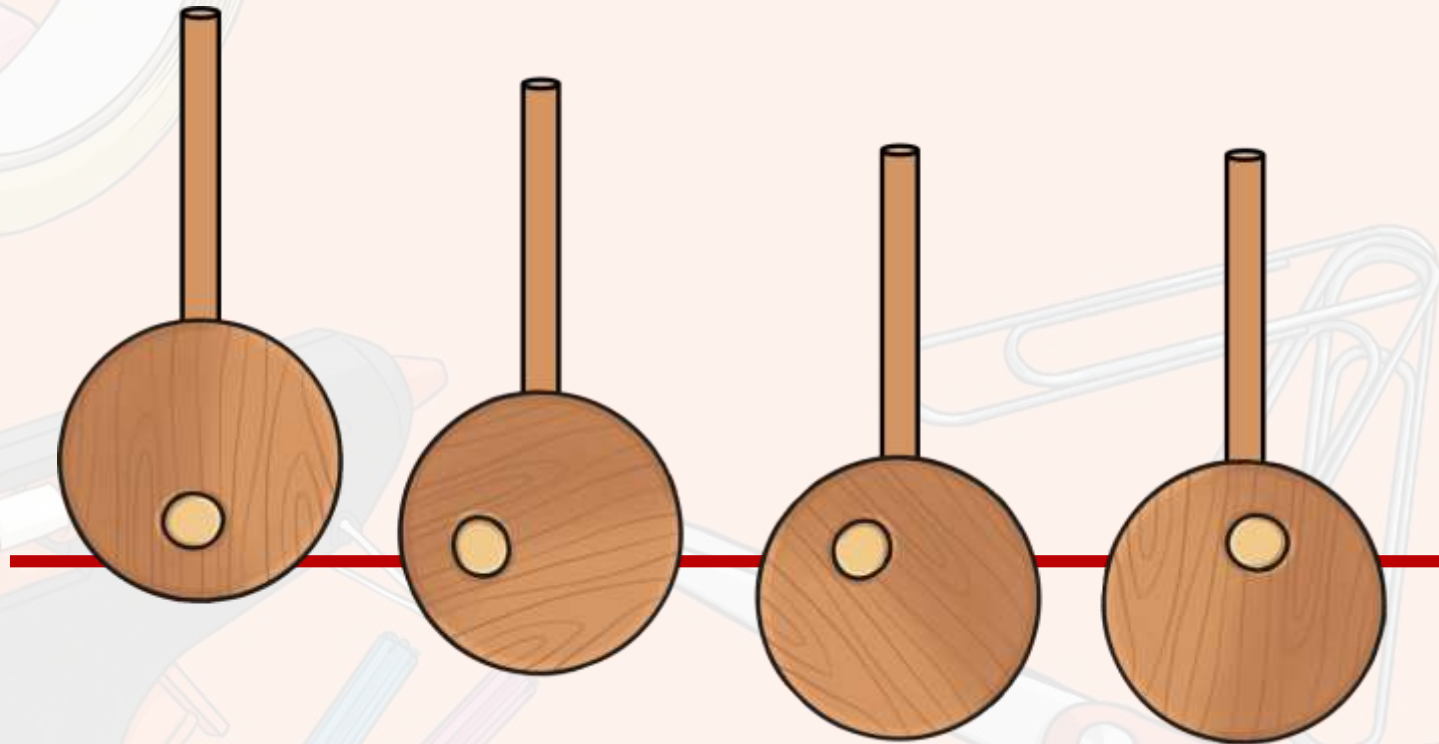
hexagon

Making Toys Move

There are different types of cams which create different movements.

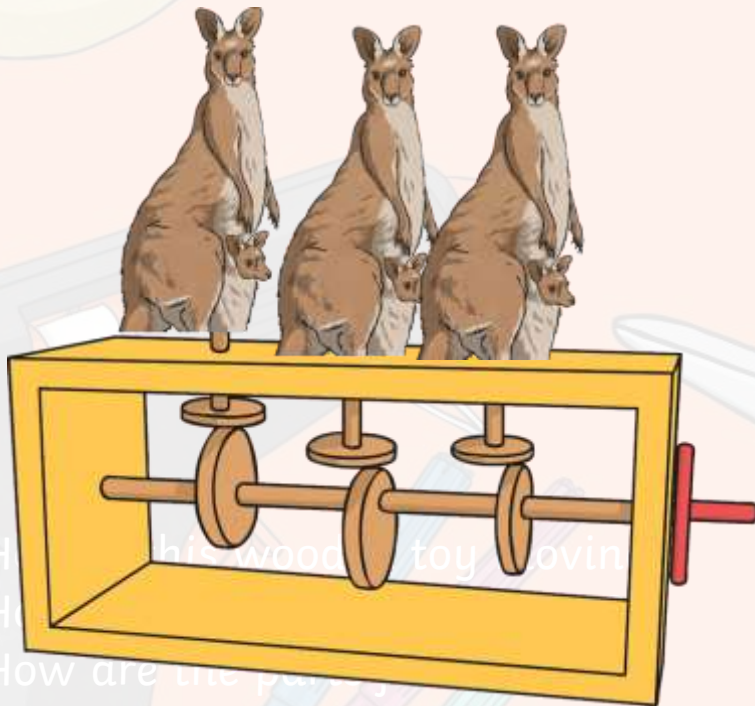


Eccentric Cam Movement



Activity

How might it move? How would the kangaroos move if we replaced the eccentric cams for another? Can you draw the movement?



round



egg-shaped



ellipse



eccentric



hexagon



snail

Different Types of Movements

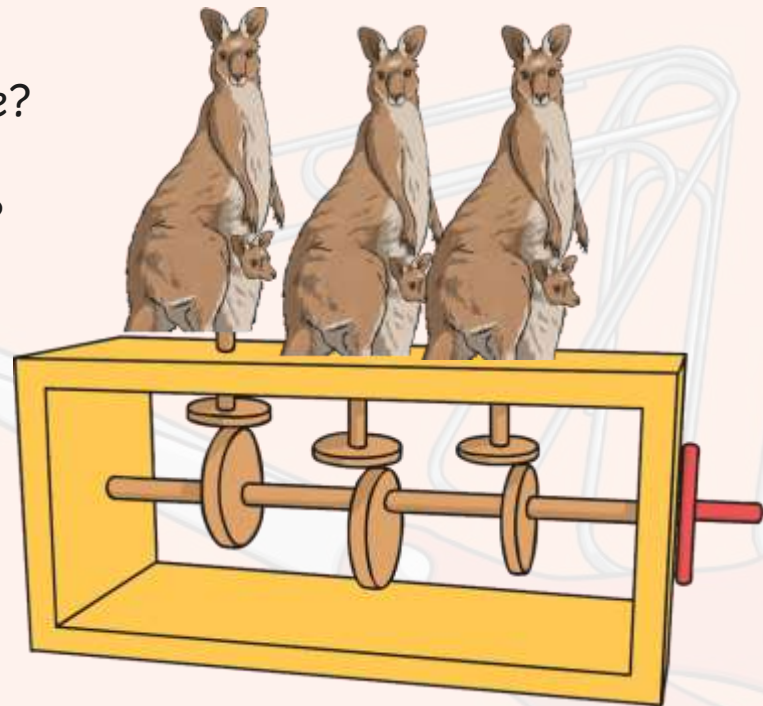
Linear movement – moving in a straight line, up or down

Rotary movement – turning around in a circle, like a wheel turning

How will the kangaroos move?

How will the cams move?

How will the followers move?

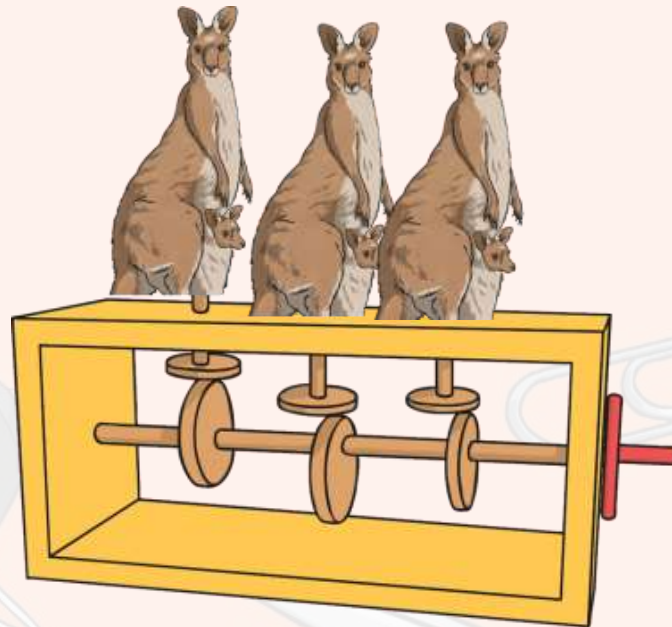


How is this wooden toy moving?

How many parts does it have?

How are the parts joined?

Linear or Rotary?



The eccentric cam – this rotates as it is fixed to the axle which is turned by the handle.

The follower cam – the eccentric cam causes the follower to move up and down (linear) and rotate.

The kangaroos – they have linear and rotary movement caused by the eccentric cams and followers.

Activity?

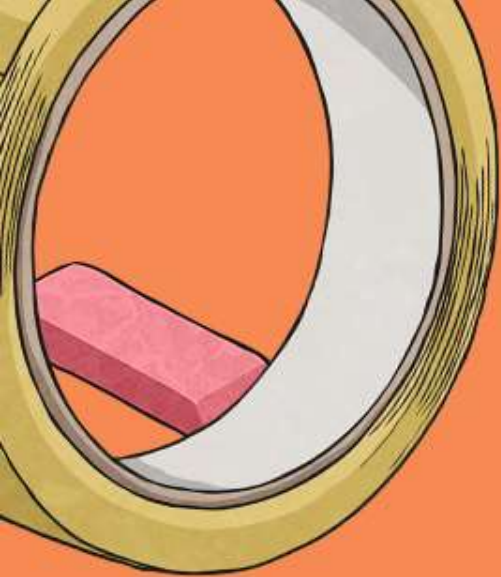
Use a box and at least 2 cams to create your toy.
You must decide if the toy is aimed at Junior Primary or Upper Primary children.

Your toy could be on a sea, sport or animal theme – the possibilities are endless!! You could create a foreground and background.

Make sure your work is high quality.

Health and Safety Notes

Never use the saw on your own, an adult must be there to supervise you. You must wear goggles when sawing and never touch the blade. Finally, always use a bench hook. To make a hole in stiff cardboard, you must use blue tack.



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