Thursday 5th November
Morning Challenge

Section 5

Calculate:

0.3 × 10 = ☐

0.1 × 10 = ☐

0.9 × 10 = ☐

Section 6

Convert the following:

1L = ☐ ml

☐ L = 4000 ml

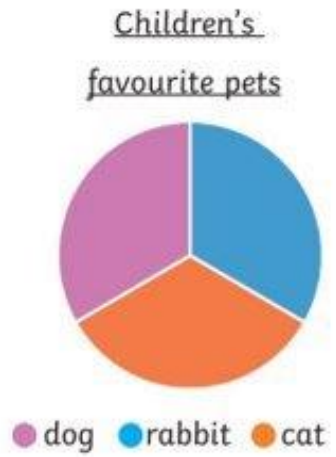
Section 7

I have 6 faces, all rectangles. I also have 12 edges and 8 vertices. What am I?

☐

Section 8

A class researched children's favourite pets. They showed the results in a pie chart.



12 children chose dogs. How many children were included in the research?

☐

Thursday 5th November

TBAT: explain the meaning of words in context.

Myra's father got down on his hands and knees and closely **examined** each pig, tail to snout.

"Those are two of the nest pigs I have ever seen," he said at last. "How am I to decide? I have only one daughter."

"Why not let Myra decide?" suggested Elya.

"That's **preposterous**!" **exclaimed** Igor, **expelling saliva** as he spoke.

"Myra is just an empty-headed girl," said her father. "How can she possibly decide, when I, her father, can't?"

"She knows how she feels in her heart," said Elya.

Myra's father rubbed his chin. Then he laughed and said, "Why not?" He slapped Elya on the back. "It doesn't matter to me. A pig is a pig."

He **summoned** his daughter.

Thursday 5th November

TBAT: explain the meaning of words in context.

"That's preposterous!" exclaimed Igor, expelling saliva as he spoke.

- Igor is upset.
- There is an exclamation mark.
- He spits as he speaks.
- He disagrees with Elya's suggestion.

I think *preposterous* means....

Thursday 5th November
TBAT: explain the meaning of words in context.

1. **Write the definition of each word.**
   - Examined
   - Preposterous
   - Exclaimed
   - Expelling saliva
   - Summoned

2. Which word best describes Igor's attitude towards Elya's suggestion?

A. Delighted

B. Unsure

C. Disapproving

D. Excited

Challenge: Find two pieces of evidence from the extract that support your answer.

Myra's father got down on his hands and knees and closely **examined** each pig, tail to snout.

"Those are two of the nest pigs I have ever seen," he said at last.

"How am I to decide? I have only one daughter."

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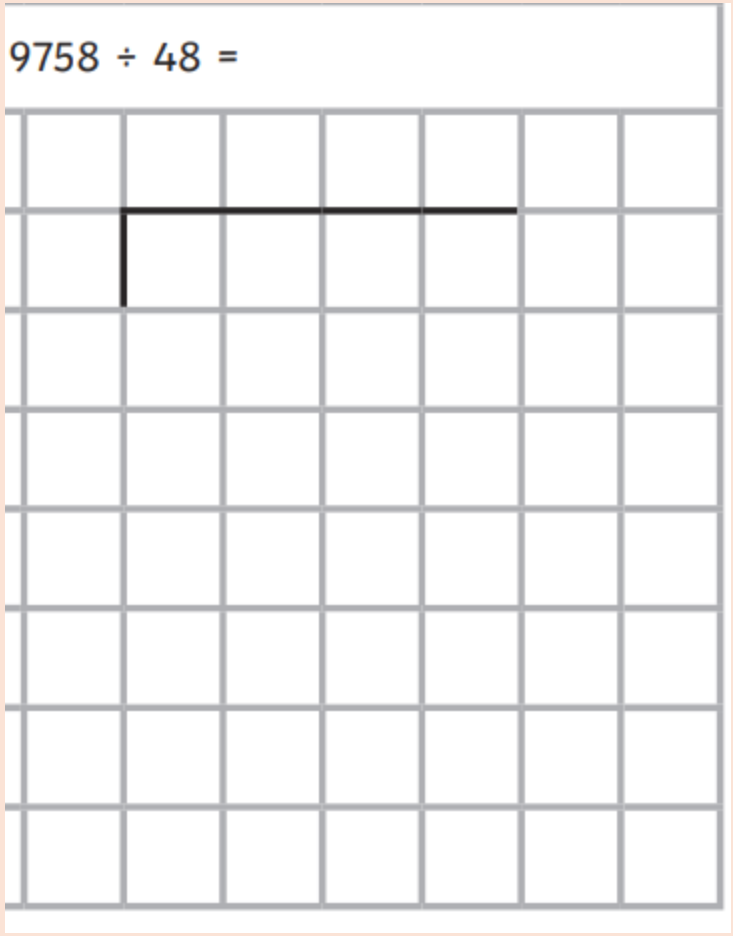
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05.11.26
Times tables



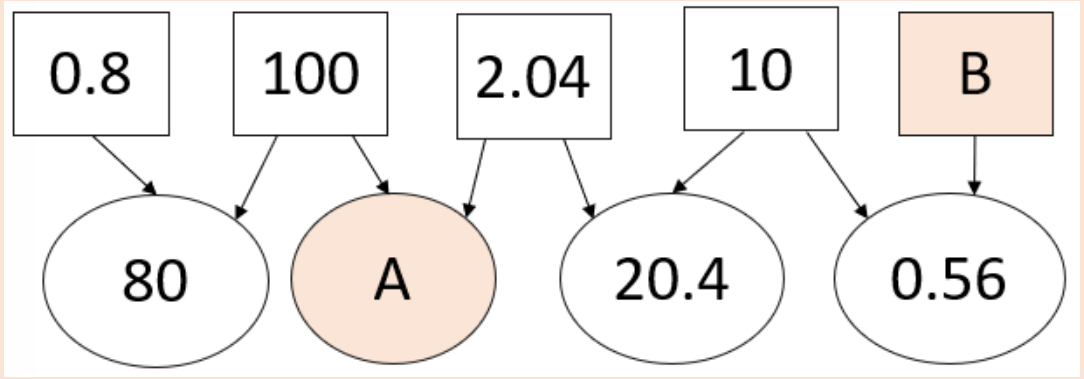
Vanilla cupcakes are packed into boxes of 64. Chocolate cupcakes are packed into boxes of 50. There are 6432 vanilla cupcakes and 6731 chocolate cupcakes. How many boxes are needed altogether? How many of each cupcake are left over?

05.11.26

TBAT: add and subtract negative numbers.

3 in 3

1. 3/18 + 4/6 =
2. 5 x 40 =
3. Can you work out the **missing numbers?**



Ken is playing a game. He has 4,289 points.

Then he scores another 355 points.

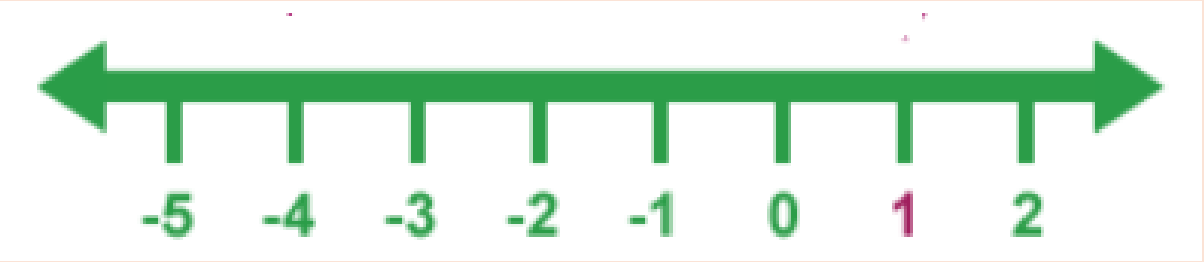
Ken's target is 6,000 points.

How many **more** points does Ken need to reach his target?

Daily 10 - Mental Maths Challenge - Topmarks

05.11.26

TBAT: add and subtract negative numbers.



- 4 + 5 =

- 3 – 2 =

- 5 + 5 =

- 1 – 3 =

05.11.26

TBAT: add and subtract negative numbers.



Find the difference between each pair of temperatures.

-3 and 4

-15 and –9

-11 and –7

-4 and 9

The temperature in Moscow was 4°C. The temperature dropped by 9°C overnight. What was the lowest temperature overnight?

05.11.26

TBAT: add and subtract negative numbers.

6 + - 4 =

5 - - 7 =

-3 – 8 =



Beccie is watching the weather forecast. In Antarctica, it is -12°C and in Sweden, it is -3°C. Beccie says it is warmer in Antarctica because 12 is greater than 3. Why is she incorrect?

05.11.26

TBAT: add and subtract negative numbers.

Sian is learning about negative numbers.

She says,

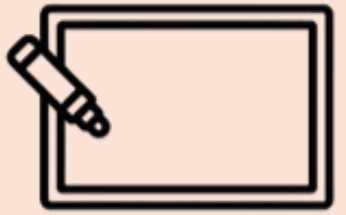


Is Sian correct? Explain why.

What is the difference in temperature between a desert at 40 °C and a mountain top at -2 °C?

05.11.26

TBAT: add and subtract negative numbers.



Knowledge Check

What is:

-5 + 6

5 - - 4

What is –4 add 7, subtract 13 and then add 4?

05.11.26

TBAT: add and subtract negative numbers.

1. 2 + - 9 =
2. 3 + - 4 =
3. 10 + - 16 =
4. -4 + - 7 =
5. -1 - - 6 =



RP

I have a -£17 balance in my bank account. I put £15 into my account. What is my new balance?

Challenge -

The difference between a positive and a negative number is 5. What pairs of numbers could they be?

Mastery Challenge

Oliver has found the minimum and maximum average temperatures for four countries around the world. He has calculated the temperature range for each country.
Can you identify his mistakes and correct them?

Country	Average Minimum Temperature	Average Maximum Temperature	Average Temperature range
Finland	-20°C	19°C	29°C
Japan	-2°C	26°C	28°C
Russia	-30.6°C	16.9°C	46.5°C
UK	-1.5°C	17.3°C	18.2°C

Mastery with Greater Depth

Jai measured the morning temperature of the school playground for one week. On day one, the temperature was -6.5°C. On day two, the temperature increased by 5.7°C. On day three, it dropped by 5.3°C. On day four, it increased by 6.9°C and on day five, it dropped by 1.8°C. What was the temperature by the end of day 5?

Thursday 5th November

TBAT: use persuasive language to convince others that Camp Green Lake is the perfect place for children.

3 in 3

1. What does the prefix –re mean in rewrite?

2. Which word in the sentence below is an adjective?

The exhausted explorer struggled through the dense jungle.

3. Tick the sentence that contains a relative clause.
   - ○ The children played happily in the park.
   - ○ The dog, which had muddy paws, ran into the house.
   - ○ She carefully opened the present.
   - ○ We walked home after school.

Challenge - Rewrite the sentence below using a fronted adverbial and a subordinate clause:

The boy entered the cave. He was nervous.

Thursday 5th November

TBAT: use persuasive language to convince others that Camp Green Lake is the perfect place for children.

There is a lake.

Camp Green Lake offers exciting outdoor adventures.

The boys dig holes every day.

You'll build resilience and make friends for life.

Which statements are factual and which are persuasive?

Challenge: **What words make a statement sound more persuasive?**

Thursday 5th November

TBAT: use persuasive language to convince others that Camp Green Lake is the perfect place for children.

Convince Me!

Place children in groups of 3.

Give each group a feature of Camp Green Lake:

- Digging holes
- Sleeping in tents
- Working in the hot sun
- Eating camp food
- Being away from home

Sentence stems:

- One fantastic feature of Camp Green Lake is...
- Visitors will enjoy...
- This exciting opportunity allows children to...

Turn a negative feature into something positive.

Reality	Persuasive Spin
Digging holes	Build strength and fitness through daily outdoor exercise
Hot weather	Enjoy beautiful sunshine every day
Tents	Experience authentic outdoor adventures
Hard work	Develop resilience and determination

Thursday 5th November

TBAT: use persuasive language to convince others that Camp Green Lake is the perfect place for children.

Groups of 7/8 in a traverse.

Why is Camp Green Lake the perfect place for children to spend their summer?

Children must justify their position using persuasive language.

Use:

- rhetorical questions
- emotive language
- rule of three

Examples:

Why spend the summer indoors when you could enjoy adventure, friendship and fresh air?

Camp Green Lake offers excitement, challenge and unforgettable memories.

Thursday 5th November

TBAT: use persuasive language to convince others that Camp Green Lake is the perfect place for children.

You have 2 minutes to prepare a speech convincing the class to visit Camp Green Lake.

Success Criteria:

- Speak clearly
- Give reasons
- Use persuasive vocabulary
- Use rhetorical questions
- Use the rule of three
- Address the audience directly

Sentence stems:

- "Imagine spending your summer..."
- "Wouldn't you love the chance to..."
- "Not only will you..., but you will also..."
- "Camp Green Lake is the ideal place because..."

Thursday 5th November

KQ – Can I explain how Sikhs have contributed to British history?

Quick Quiz

1 What do many Hindus believe Brahman is? (Tick **1** correct answer)

- ☐ a festival
- ☐ the one supreme spirit
- ☐ a famous temple

2 What symbol represents Brahman in Hindu Dharma? (Tick **1** correct answer)

- ☐ a bell
- ☐ a flower
- ☐ aum

3 What is Hindu worship called? (Tick **1** correct answer)

- ☐ puja
- ☐ yoga
- ☐ karma

Challenge

What do Hindus believe happens after this life? (Tick **1** correct answer)

- ☐ you go to sleep forever
- ☐ you become a star
- ☐ you are reborn

Wednesday 4th November

KQ – Can I explain how Sikhs have contributed to British history?

What religion do Sikhs belong to?

What religion do Hindus belong to?

If you could write one rule for all religions to follow, what would it be and why?

Keywords

community	a group of people who share common interests and values
service	the act of helping or doing work for others, often to support a community or cause
British Empire	a group of countries that were controlled or ruled by Britain
gurdwara	a Sikh place of worship, where people gather to pray, learn, and share meals together



Izzy



Alex

Have Sikh people always been in the UK, Mandeep?

The Sikh religion started in India. Guru Nanak lived there and became a teacher that many Hindu and Muslim people followed.

So originally, Sikhs lived in India, which was part of the **British Empire** until 1947.



Mandeep

How have Sikhs contributed to British history?

Explanation



When Britain needed help, many Sikh soldiers joined the British Indian Army to **serve** and protect others — just like my grandad.



Mandeep

Abu Castor / Alamy Stock Photo

My grandad fought in World War I with the British Indian Army. He travelled from Punjab to France. Many Sikh soldiers fought bravely, and over 80,000 died in the two World Wars.

The Sikh **community** believes in **serving** others, and my grandad always said that by helping in the army, he was doing his duty to protect people and live by our faith.



Mandeep

Izzy and Alex continue to talk to one another.



Izzy

I didn't realise that Sikhs came and helped us fight in the world wars for the UK.

Me neither! They travelled a really long way to help our country. I wonder if there are other ways Sikh people have helped us?



Alex

Ria explains how many Sikh men and women have made a big impact in healthcare.

While Sikh soldiers were fighting on the front lines, others helped in hospitals as nurses. Their bravery and **service** contributed hugely to British history.

My grandparents told me stories about how Sikhs' **service** was a big part of the British war effort. After the wars, many Sikhs continued to **serve** by working in hospitals, schools, and supporting local **communities** across Britain.



Ria

My family helped to rebuild Britain by working in factories, transport, and hospitals. These jobs were very important for keeping the country running while the country was still recovering from the damage caused by the war.

Sikh workers helped repair buildings, run public **services**, and support local **communities**. Their hard work helped shape modern Britain.



Mandeep

Izzy and Alex are discussing what to do next.



Izzy

How could we find out about how large the Sikh **community** is in the UK?

What about looking at the census? It is a survey of everyone in England and Wales. It asked people ‘What is their religion?’. That will give us some data.



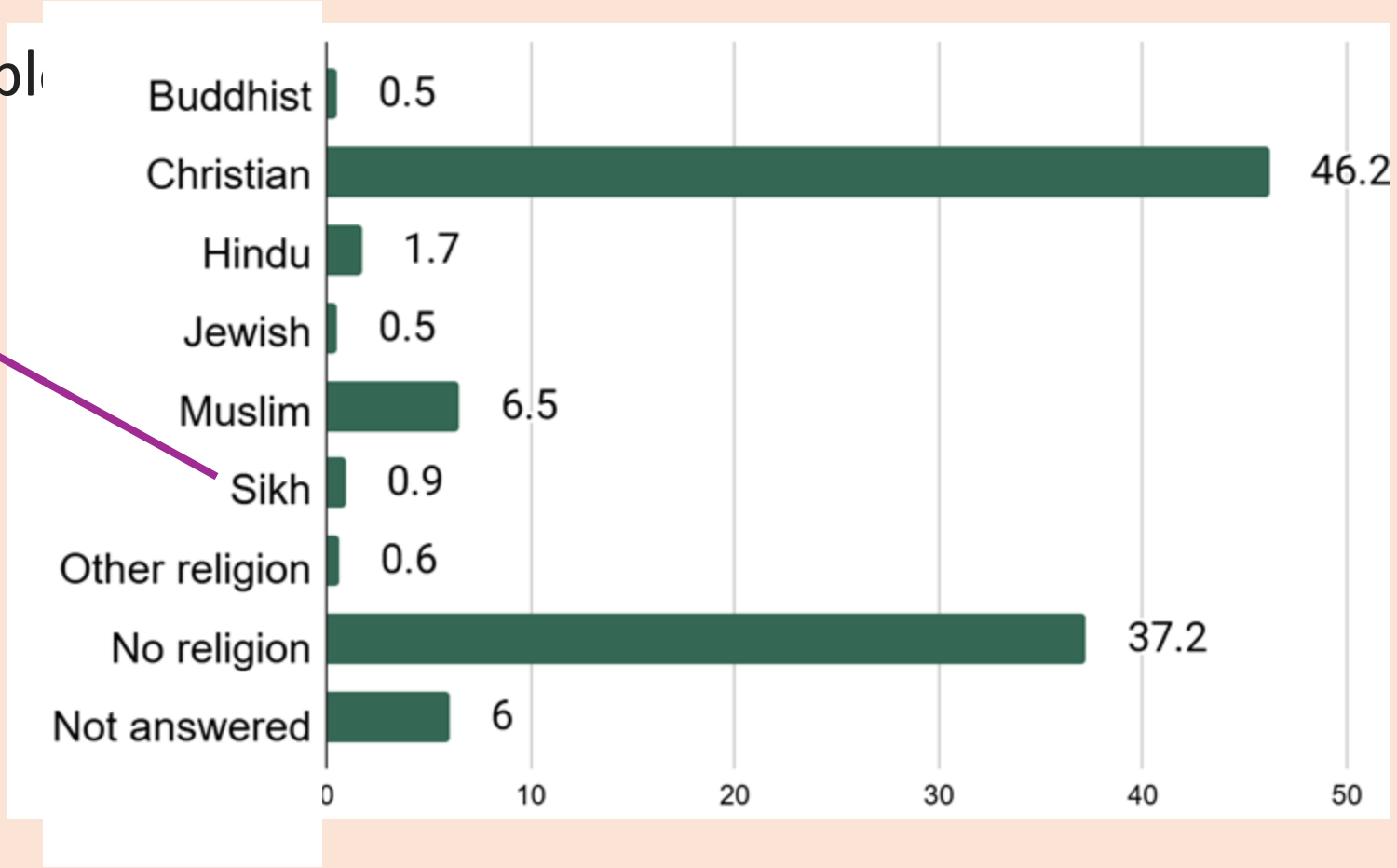
Alex

Here is the census data for 2021:

What percentage of peopl identified as Sikhs?

0.9% of people in England and Wales are Sikhs.

This is a relatively small percentage, but it still represents a significant number of people - 525,865 in total.



Data source: Office for National Statistics – Census 2021

Here is a map of part of England and Wales. It uses 2021 census data to show where Sikhs live.



The darker the colour on the map, the larger the Sikh **community** that can be found there.

What do you notice from looking at this map?

Where do most Sikhs live?

Source: Census 2021 from the Office for National Statistics

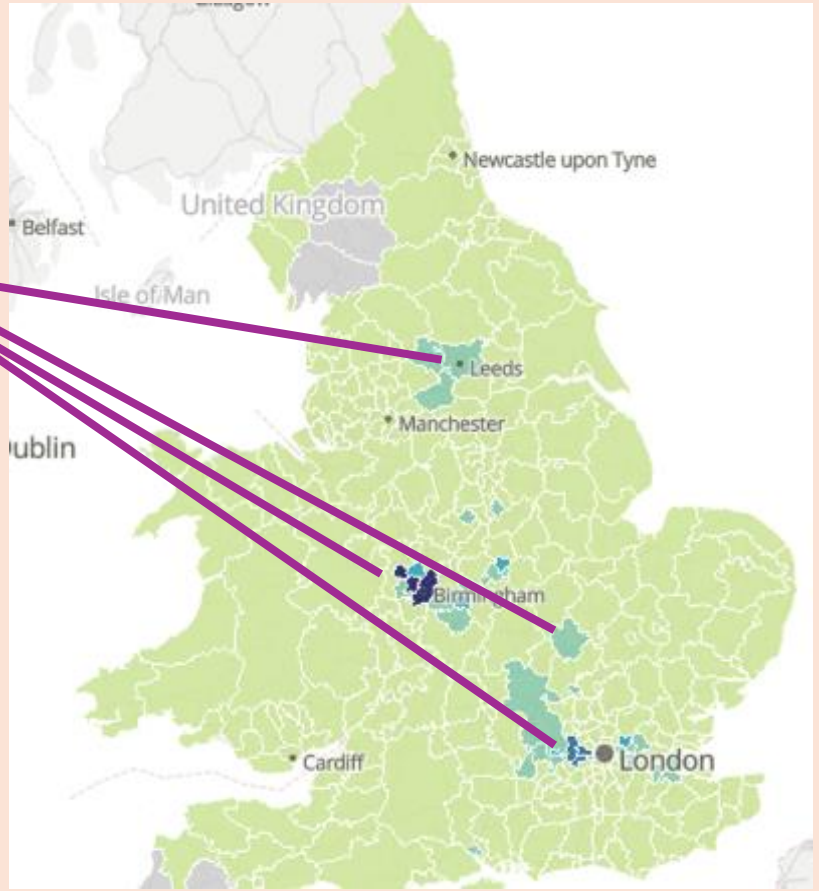
Why do some places have large Sikh communities?

Explanation



Izzy

I can see that most Sikh **communities** are in cities such as Birmingham, Wolverhampton, London, and close to Leeds.





Alex

This is really interesting. The data tells us where Sikhs live, but not why they live there. I wonder how we could find that out?

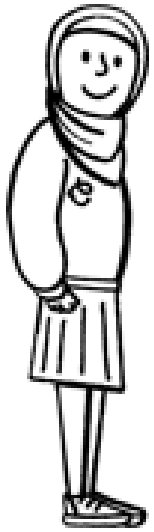
- The Sikh **community** has historic links with the UK, connected to the **British Empire**.
- Sikh soldiers were heavily involved in fighting for the **British Empire**. Their **service** cost many lives during the World Wars.
- Sikhs comprise 0.9% of the population of England and Wales according to the 2021 census.
- There are historic Sikh **communities** in London and the West Midlands.
- Many Sikh families choose to live in areas where they can practise their faith and be part of a **community**.

Thursday 5th November

KQ – Can I explain how Sikhs have contributed to British history?

Your task:

Aisha is thinking about Sikhs and British history.



Aisha

Sikhs' contribution to British history was to fight for the **British Empire** in the Second World War.

Is Aisha correct? Is that the only contribution?

What evidence from the case studies can you use to make your argument?

Challenge

I'm not sure why Sikhs often choose to live in the **communities** they do?

How would you explain an answer to this question?

Thursday 5th November

KQ – Can I explain how Sikhs have contributed to British history?

Exit Quiz

1 Sikh soldiers played an important role during the two World _____ . (Fill in the blank)

2 According to the 2021 _____ , 0.9% of people in England and Wales are Sikh. (Fill in the blank)

3 Where are historic Sikh communities found in the UK? (Tick **1** correct answer)

- ☐ Cornwall and Kent
- ☐ London and the West Midlands
- ☐ York and Cumbria

Challenge

Why have many Sikhs settled in the UK? (Tick **1** correct answer)

- ☐ for the beaches
- ☐ to find treasure
- ☐ to help rebuild after the war

Why is it wrong to say that all Sikhs living in the UK only recently moved here? (Tick **1** correct answer)

- ☐ some are from America
- ☐ they live in tents
- ☐ they've been here for generations

05.11.26

TBAT: spell words ending –able.

Which –able word fits the sentence?

1. My new trainers are very _____ to wear.

2. Sam is a _____ friend who always helps when needed.

3. Milk is a _____ food and can go bad quickly.

4. Be careful with that vase because it is _____.

5. She wore a _____ coat to the party.

Challenge – Write a sentence in the passive voice including the spellings.

05.11.26

TBAT: identify how cams create movement.

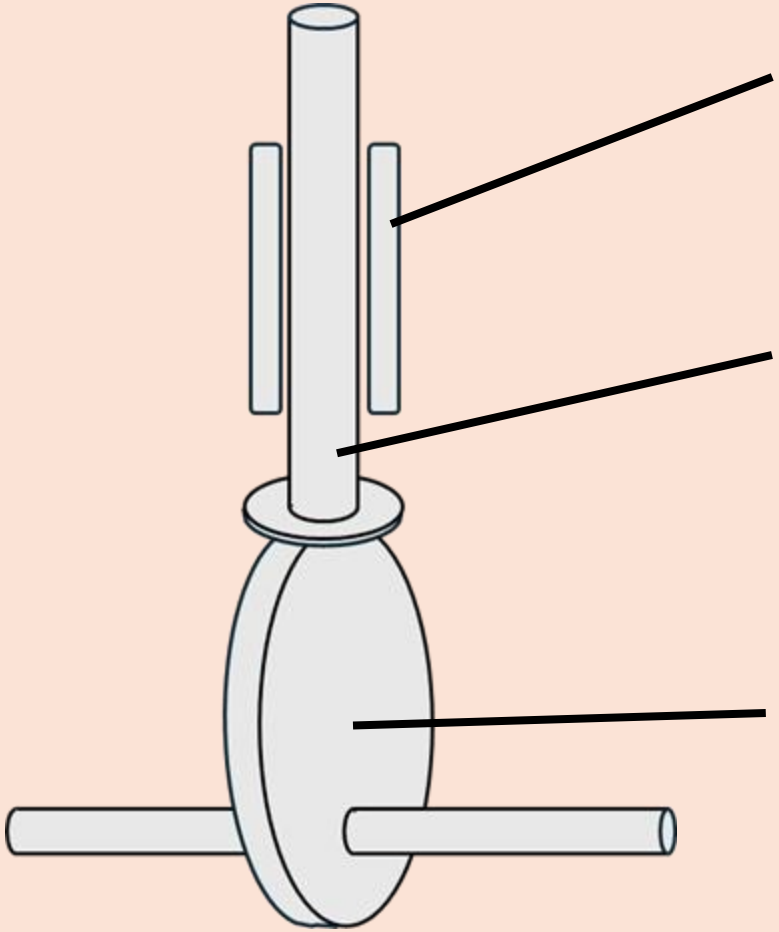
Keywords	
cam	a mechanism that changes one type of movement to another
rotary	movement that goes round in a circle 
linear	movement in a straight line 
reciprocating	backwards and forwards movement in a straight line, as in a slider 
oscillating	moving back and forth along a curved path 

A **cam** is a simple mechanism that converts one type of movement into another type.

Cams usually convert **rotary** motion, which is movement that goes round in a circle, into **linear** motion, which is movement that goes in a straight line.



A **cam** is made up of three main parts:



The slide, which holds the follower in place allowing the movement to repeat.

The follower, which sits above the **cam** and is affected by the rotation of the **cam**.

The **cam** itself, which is rotated on an axle using a crank (handle).

Cam mechanisms

Check

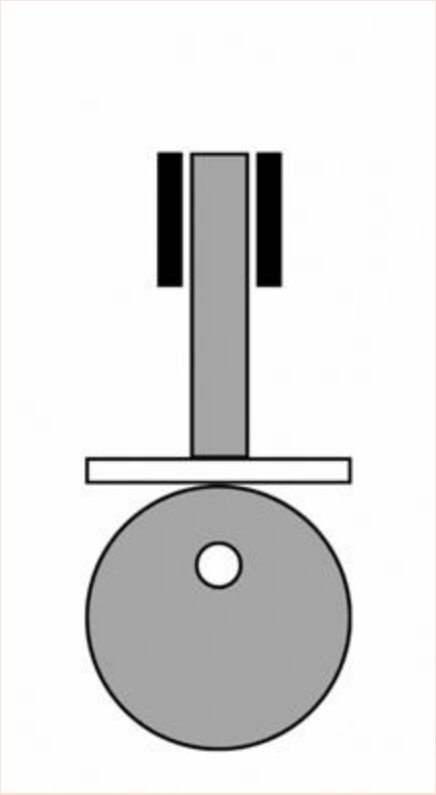
A **cam** turns **rotary** motion into…

a circular motion

b linear motion ✓

c sliding motion

A **cam** is designed to repeat the same movement over and over again.



When a **linear** movement is repeated like this we call it a **reciprocating** motion.

A **reciprocating** motion can be up and down or side to side.

Cams can be found in sewing machines, carousels and toys.







In all these examples, **rotary** motion in one part of the product turns into a **reciprocating** motion in another part of the product.

On this old fashioned sewing machine, the handle is turned in a **rotary** motion which moves the needle up and down (**linear**) in a **reciprocating** motion.

input - **rotary** motion



output - **reciprocating** motion

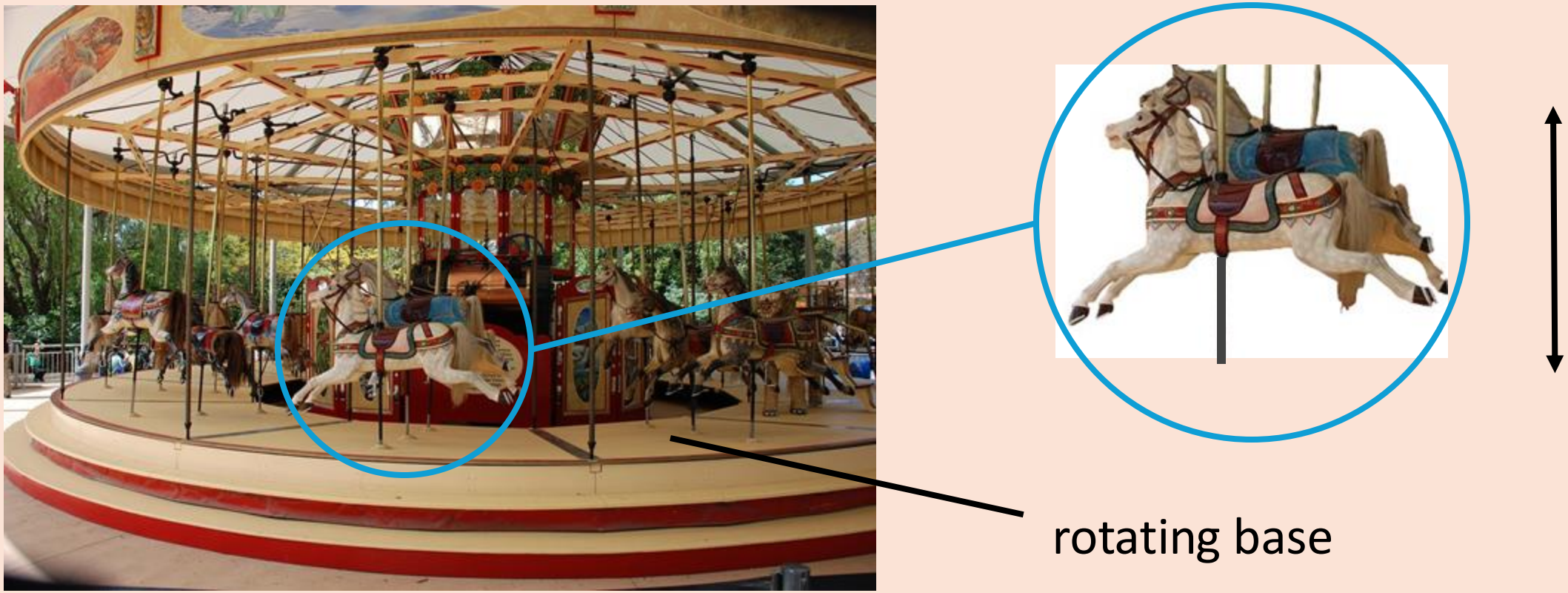
Modern sewing machines work in the same way but the **rotary** component is hidden inside and driven by electricity.

input - **rotary** motion



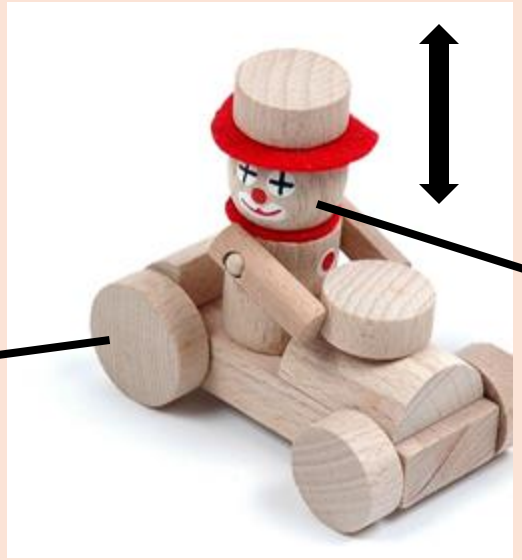
output - **reciprocating** motion

A carousel, or merry-go-round, converts the **rotary** motion of its base in to the **reciprocating** motion of the horses.



Cams can also be found in many toys, particularly ones which have parts that move when they are pushed or pulled along.

input - **rotary** motion



output - **reciprocating** motion

The **rotary** motion of the wheels usually makes another part of the toy move.

Cams can sometimes create a movement which travels backwards and forwards along a curved path.

This is called an **oscillating** motion.





Check

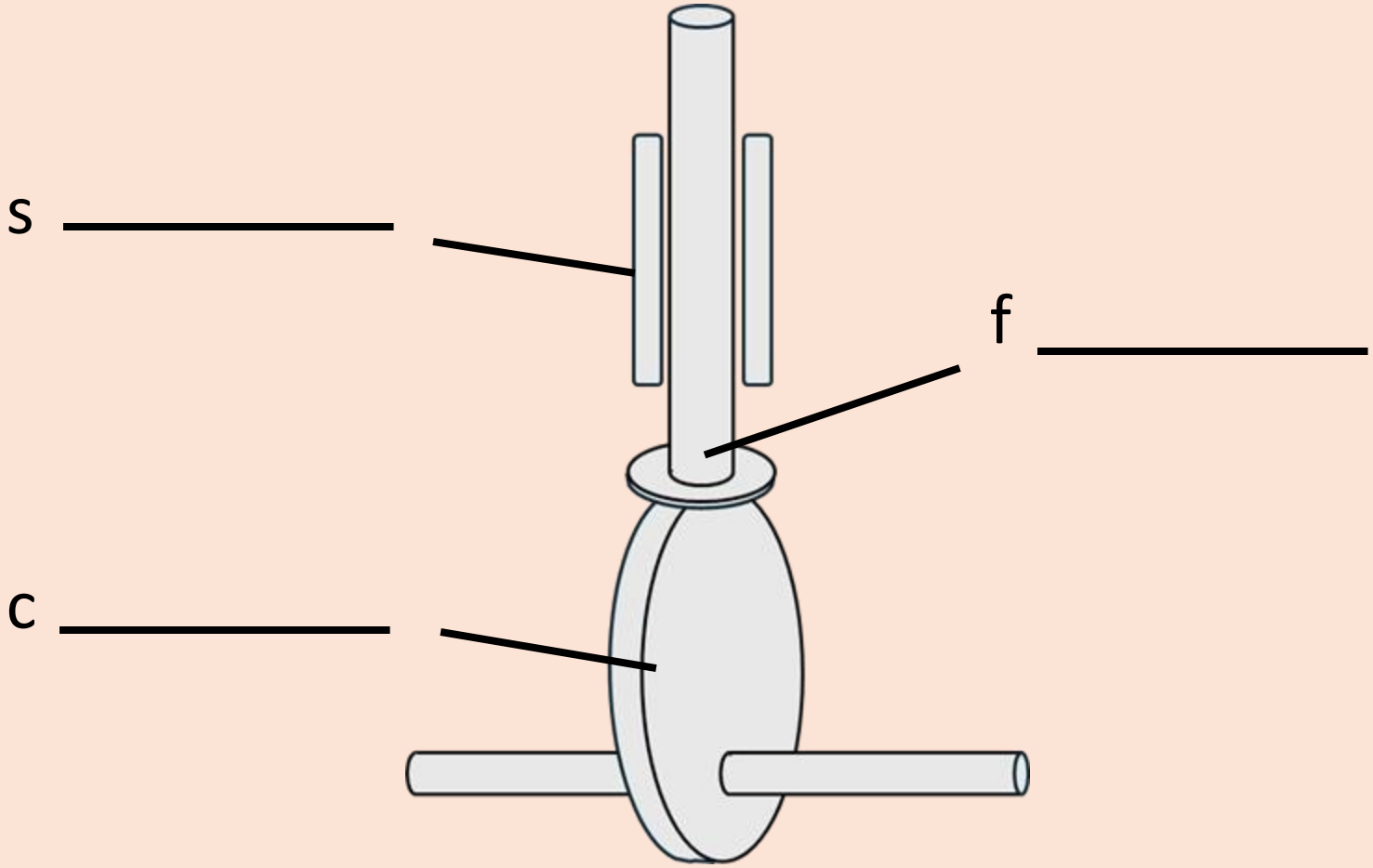
What does **reciprocating** mean?

a round in a circle

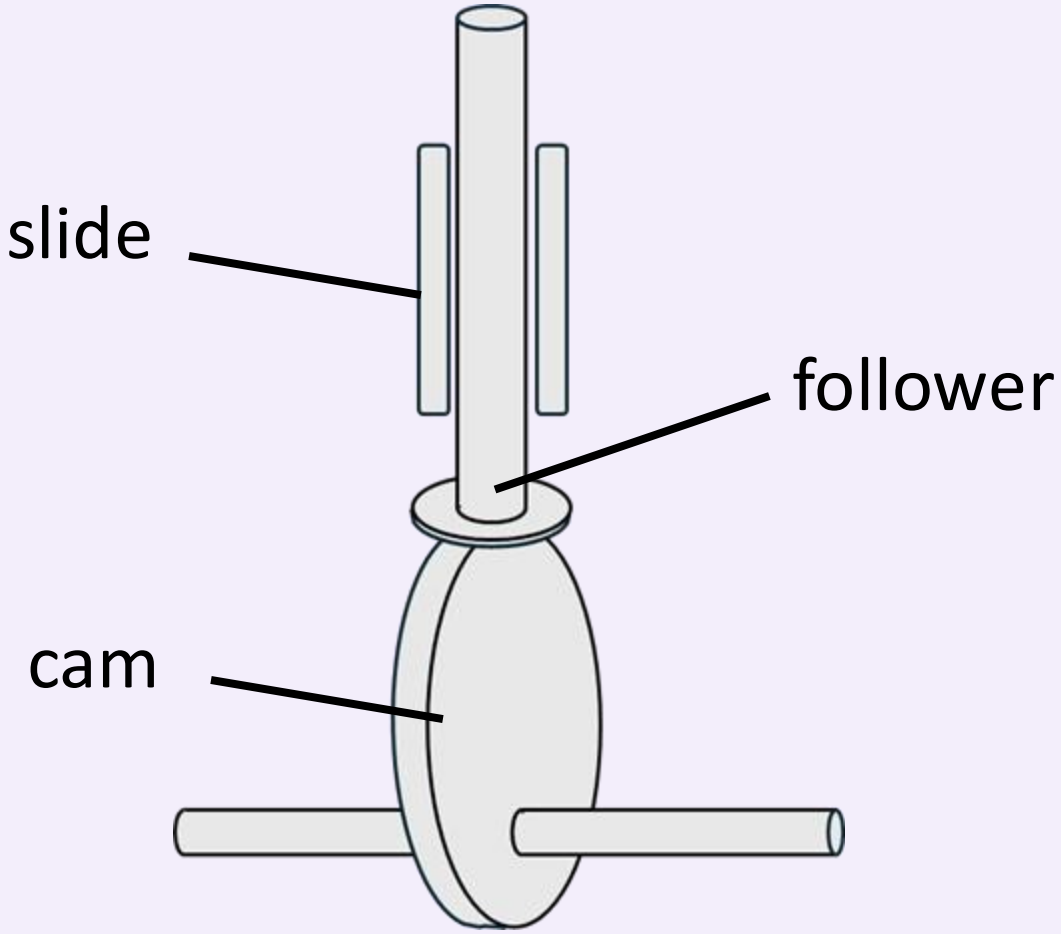
b swinging back and forth

c repeated linear movement ✓

1) Label the parts of the **cam** mechanism.



1) These are the correct labels:



2) Fill in the missing words using the word bank:

A **cam** turns _____ motion into _____ motion. _____

Linear motion that is repeated over and over again is called _____ motion.

Movement that goes back and forth along a curved path is called _____ motion.

_____

oscillating **rotary** **reciprocating** **linear**

2) These are the missing words:

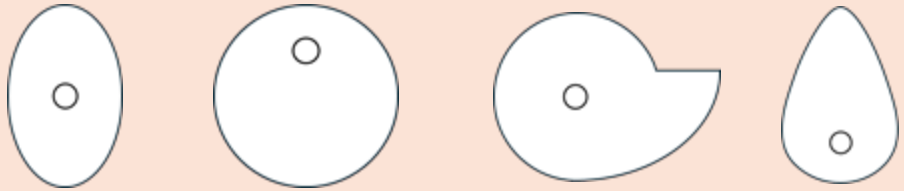
A **cam** turns rotary motion into linear motion.

Linear motion that is repeated over and over again is called reciprocating motion.

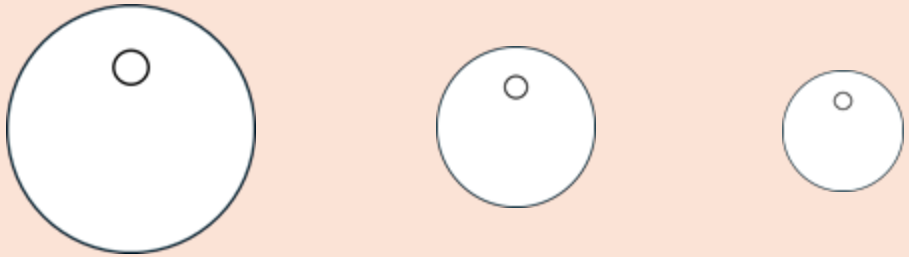
Movement that goes back and forth along a curved path is called oscillating motion.

The output movement of the follower can be changed by:

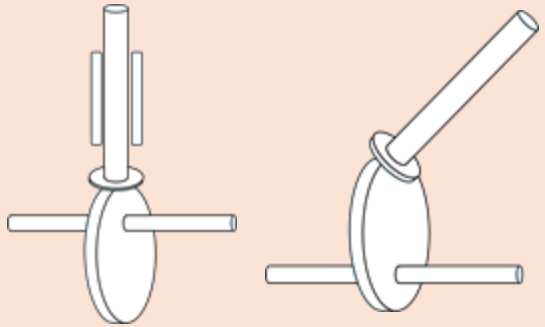
- the shape of the **cam**



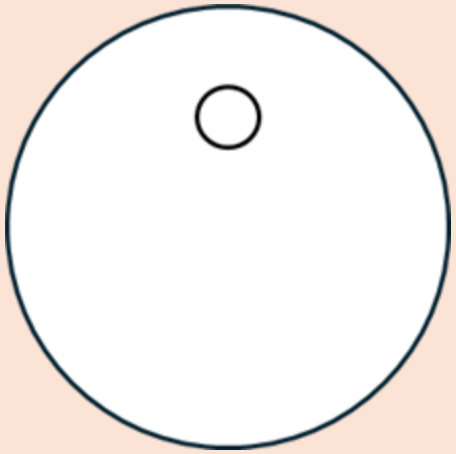
- the size of the **cam**



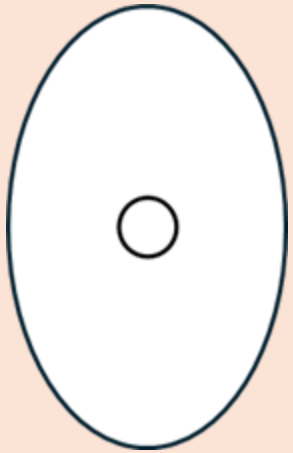
- the position or angle of the follower



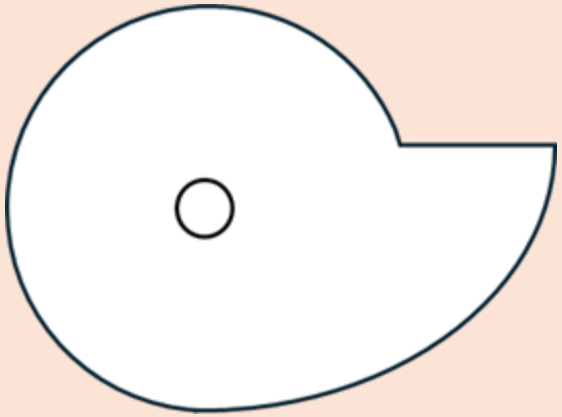
A **cam** can be any shape but these are the most common:



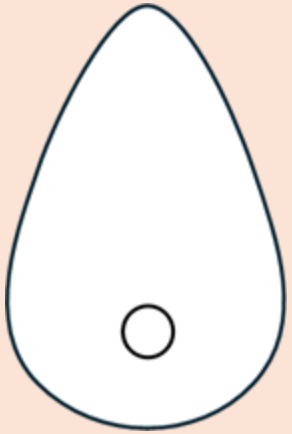
eccentric



elliptical



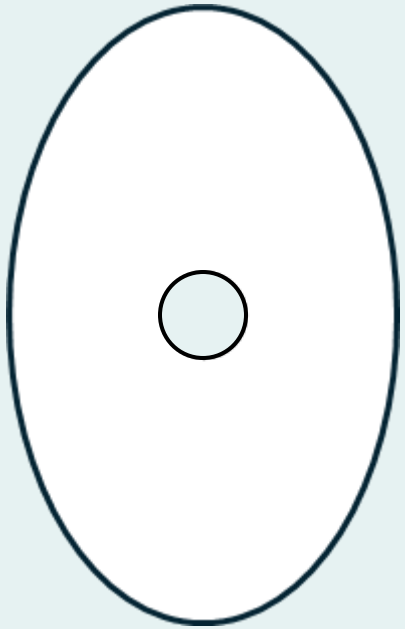
snail



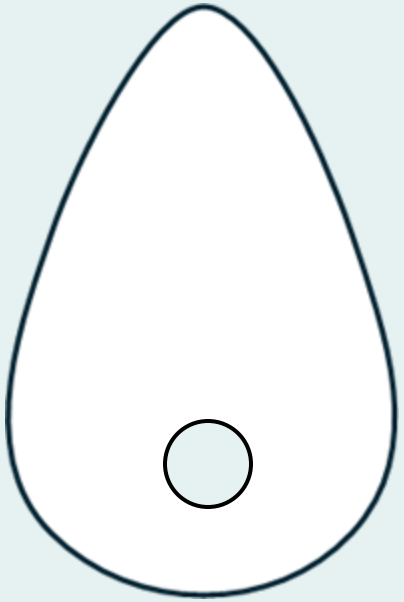
pear

Check

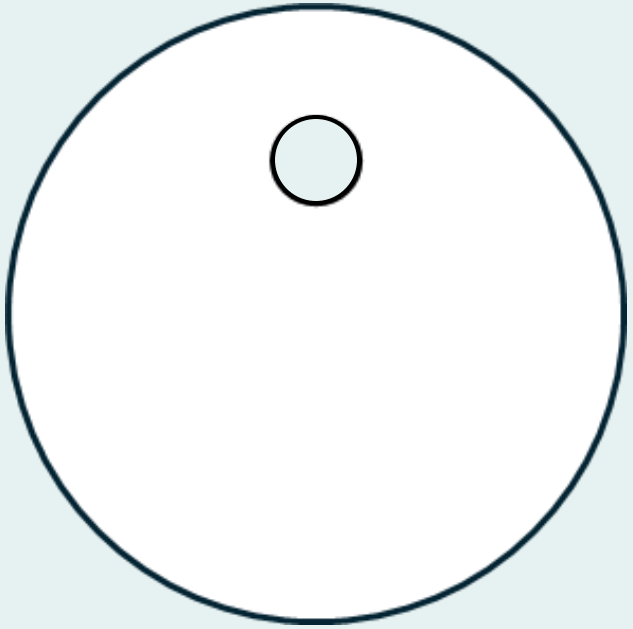
Which is the eccentric **cam**?



a

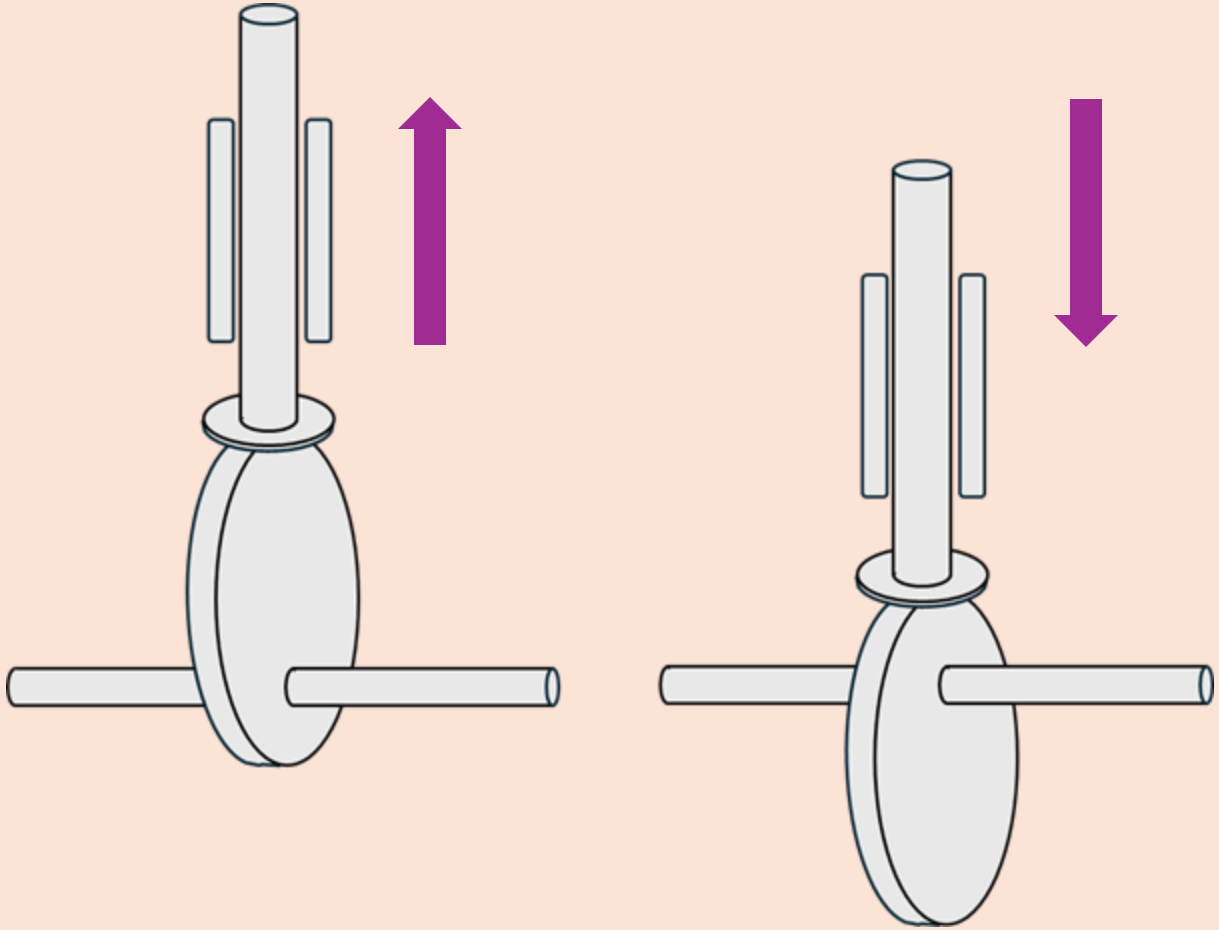


b



c

An eccentric **cam**

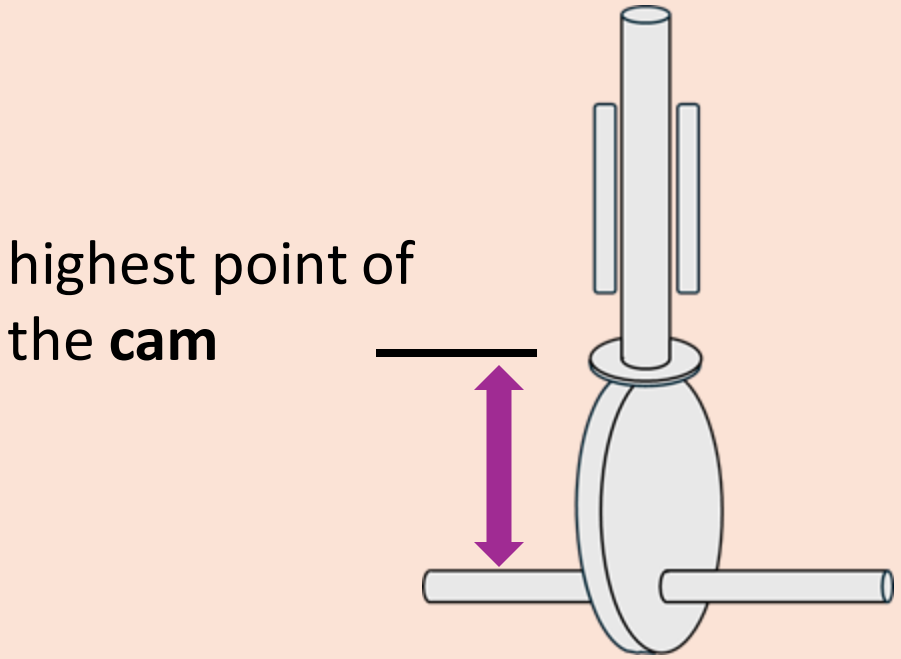


The **cam** turns on the axle.

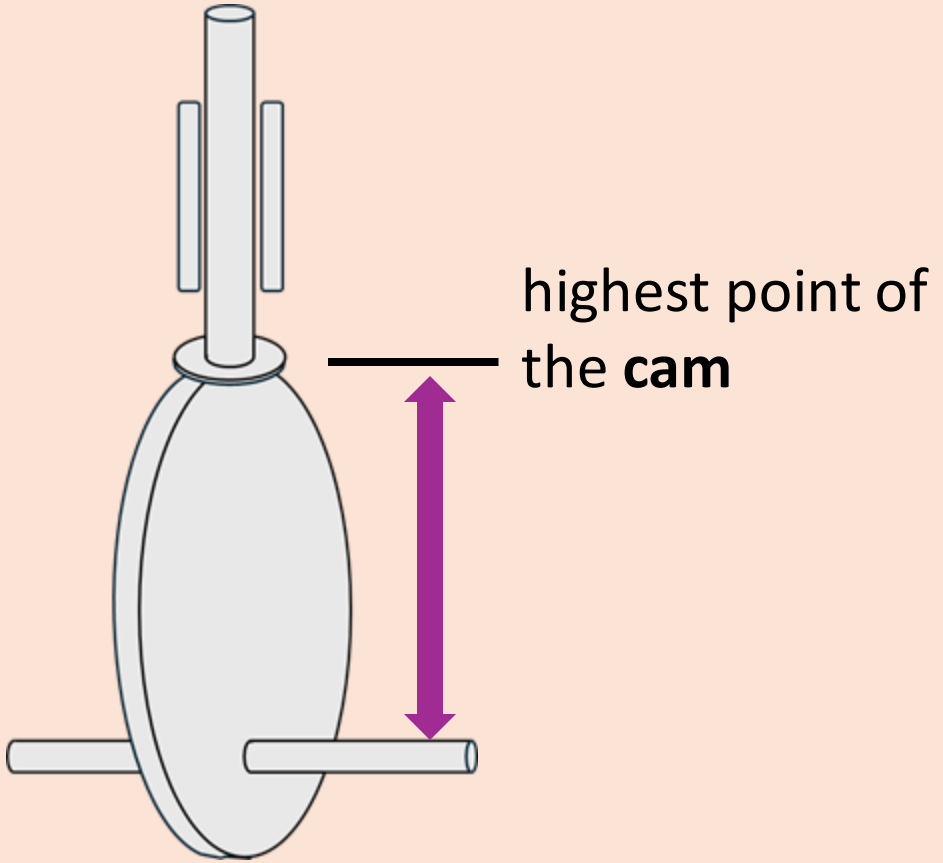
The hole in the **cam** is off-centre, which creates a gradual change of distance between the **cam** and follower. If the hole was central there would be no change.

The follower rises and falls with a smooth, constant motion.

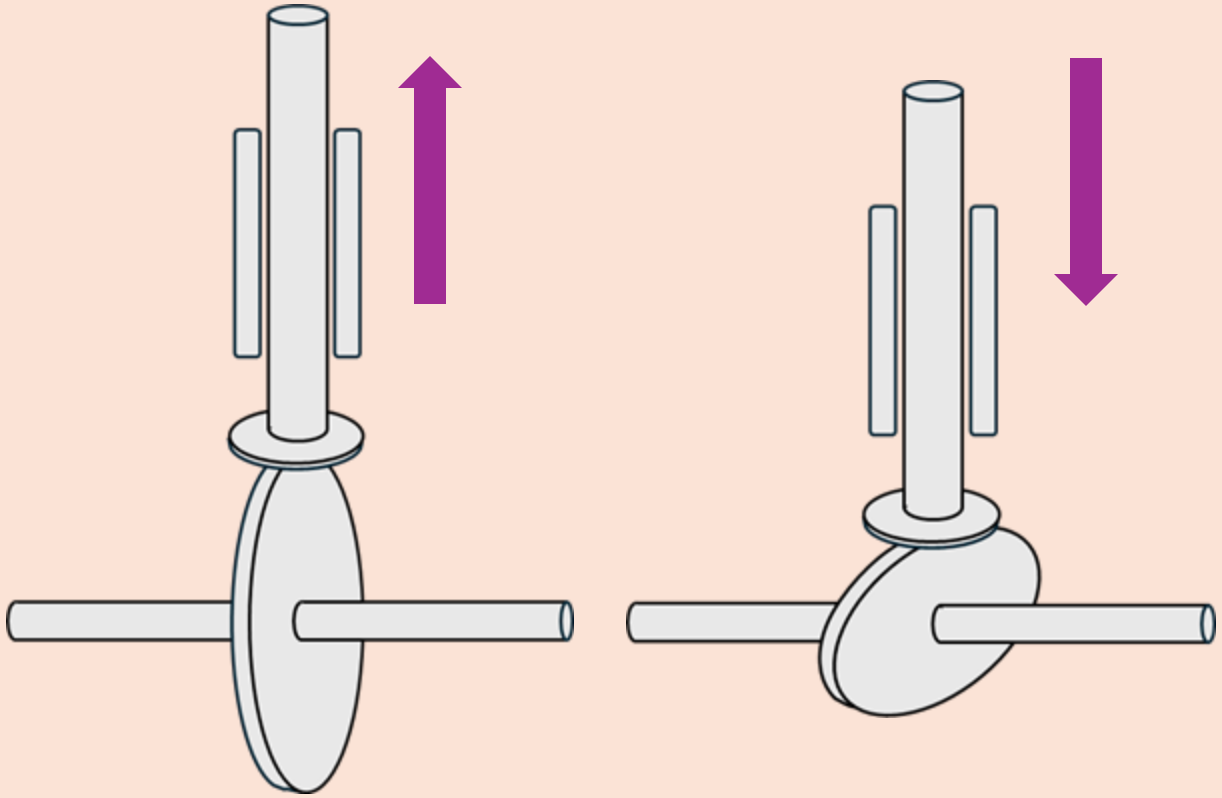
The larger the **cam**, the longer it will take to do a much slower but larger movement of the follower.



full rotation on the axle. This creates a



An elliptical **cam**

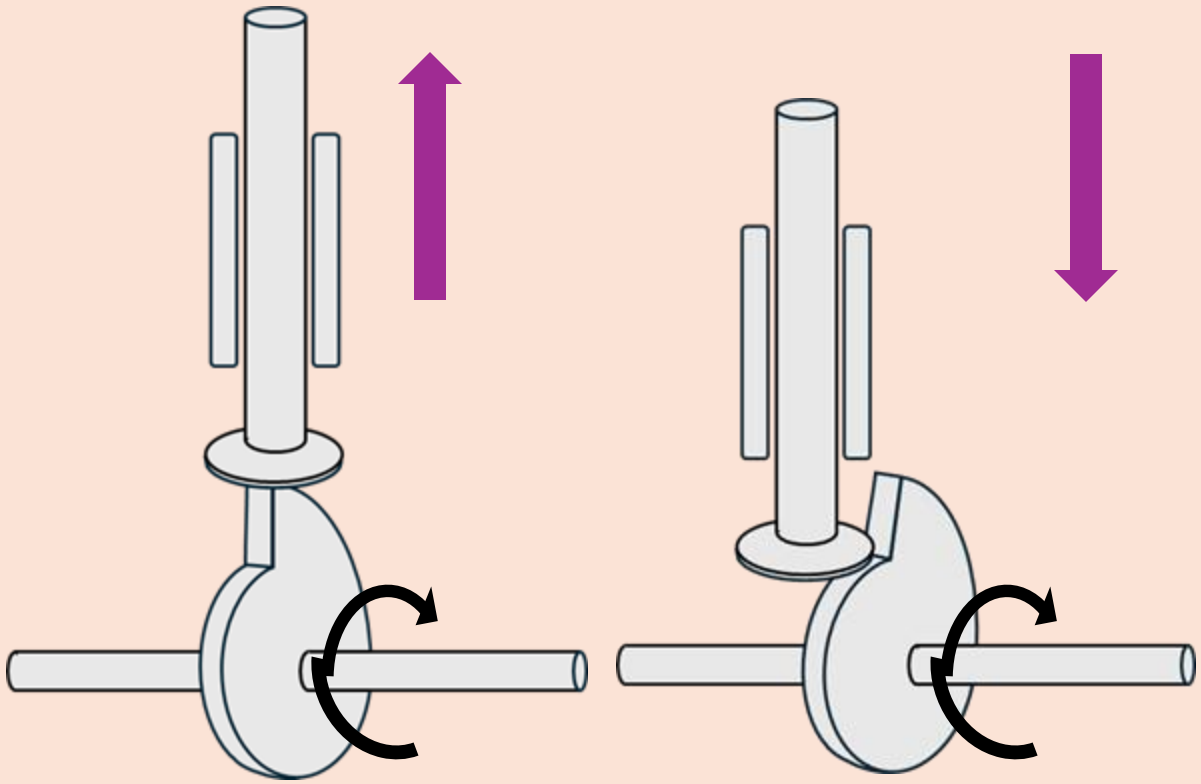


The **cam** turns on the axle.

As the widest part of this elongated **cam** reaches the top, the follower is pushed up.

The follower moves back down as the point moves away. The follower spends longer in the lower position.

A snail **cam**



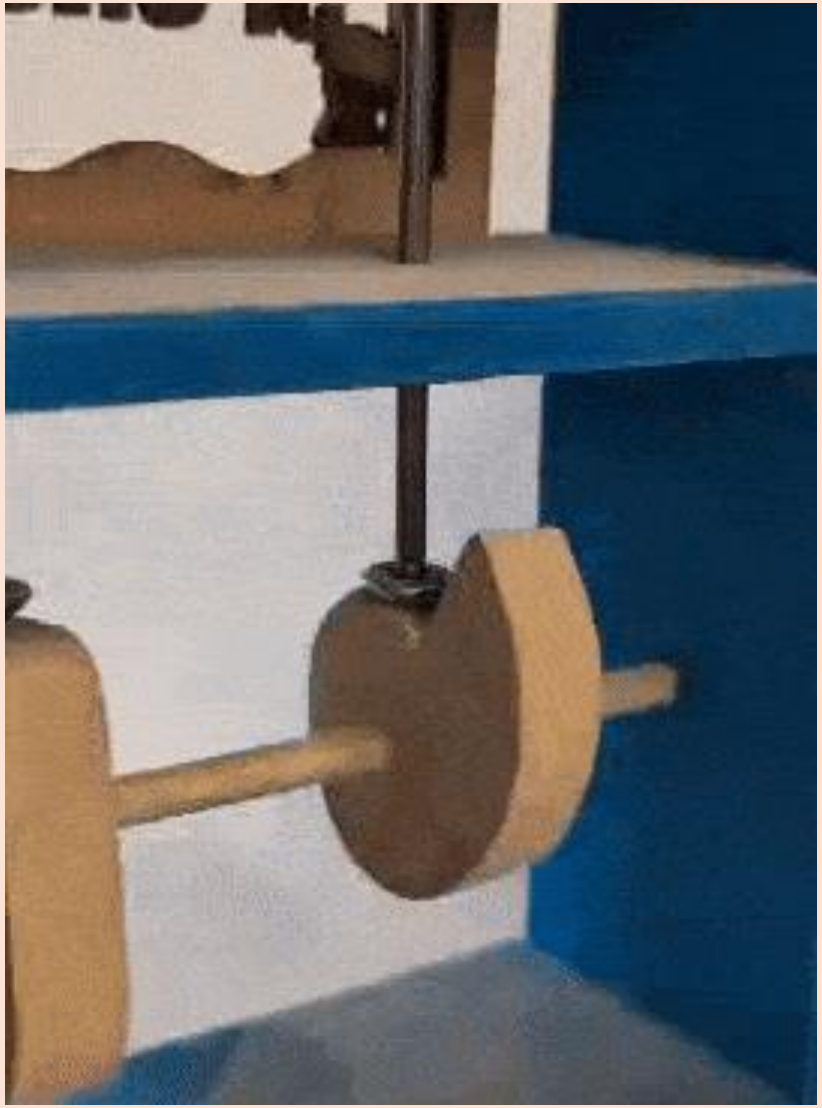
The **cam** turns on the axle. This only works in one direction for this **cam**.

As the point of the spiral reaches the top, the follower is pushed up.

When the point moves away, the follower makes a sudden drop back down.

How cams create movement

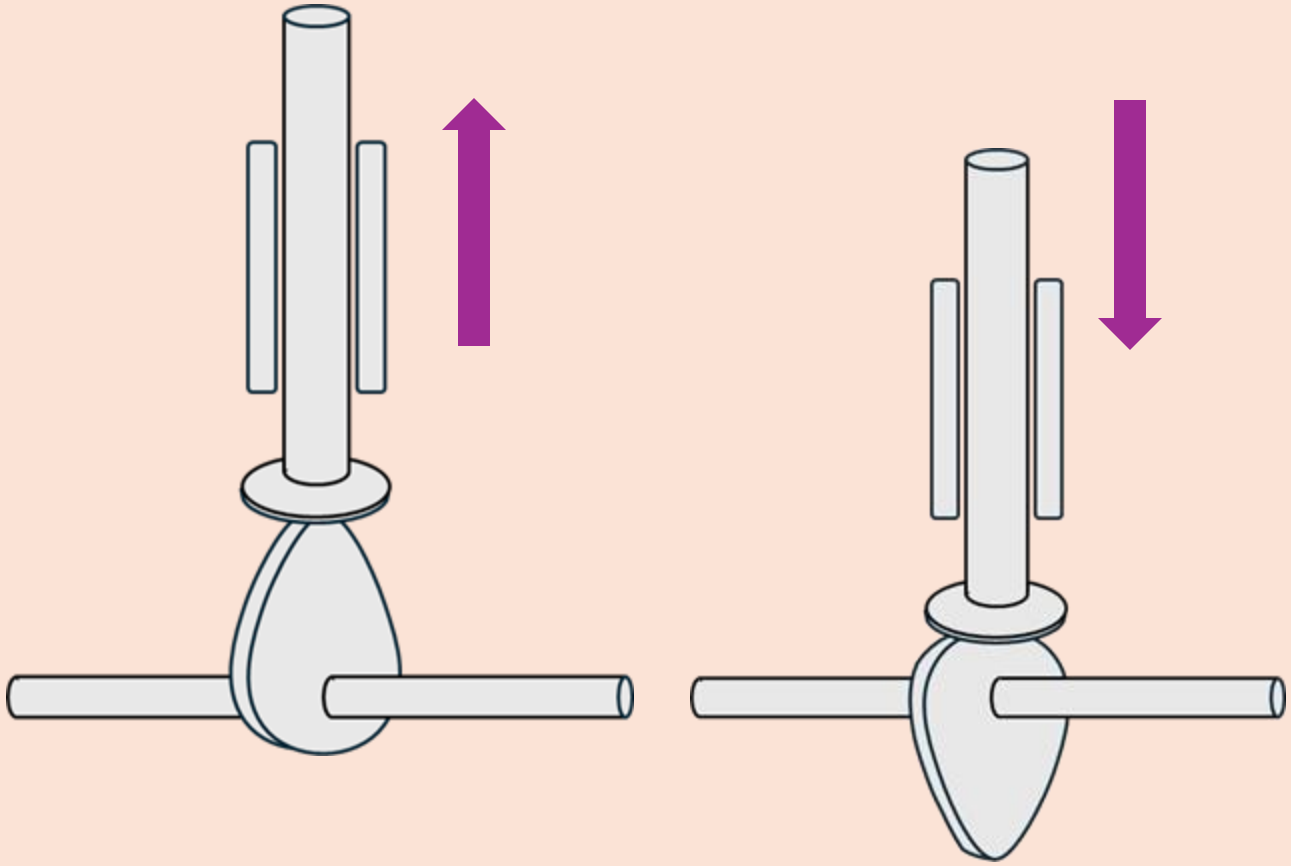
Explanation



Track the movement of the follower as it reaches the top of the snail **cam**.

It makes a sudden drop to a lower position.

A pear **cam**



The **cam** turns on the axle.

As the pointed end of the **cam** reaches the top, the follower is pushed up.

When the point moves away, the follower lowers back down. There is a short pause as the follower spends longer in the lower position.

Check

What happens to the follower when the widest part of a **cam** reaches the top of the axle?

a drops down suddenly

b moves up ✓

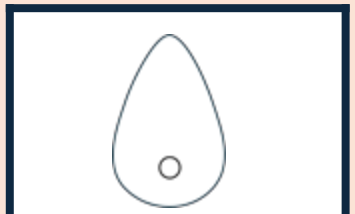
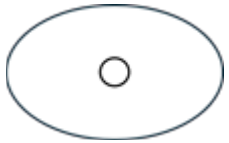
c moves down

d it stops

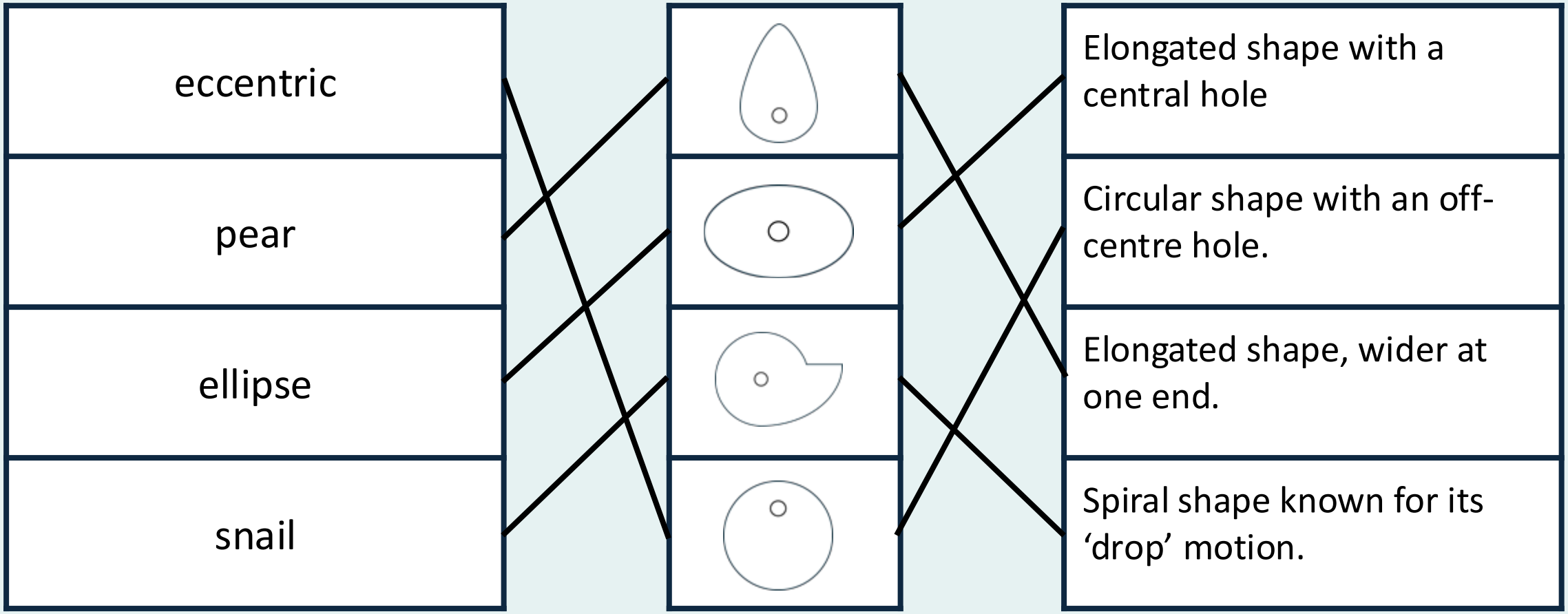
Task B How cams create movement

Practice

Match the **cam** name, picture and description. One has been done for you.

eccentric		Elongated shape with a central hole
pear		Circular shape with an off-centre hole.
ellipse		Elongated shape, wider at one end.
snail		Spiral shape known for its ‘drop’ motion.

They should be matched like this:



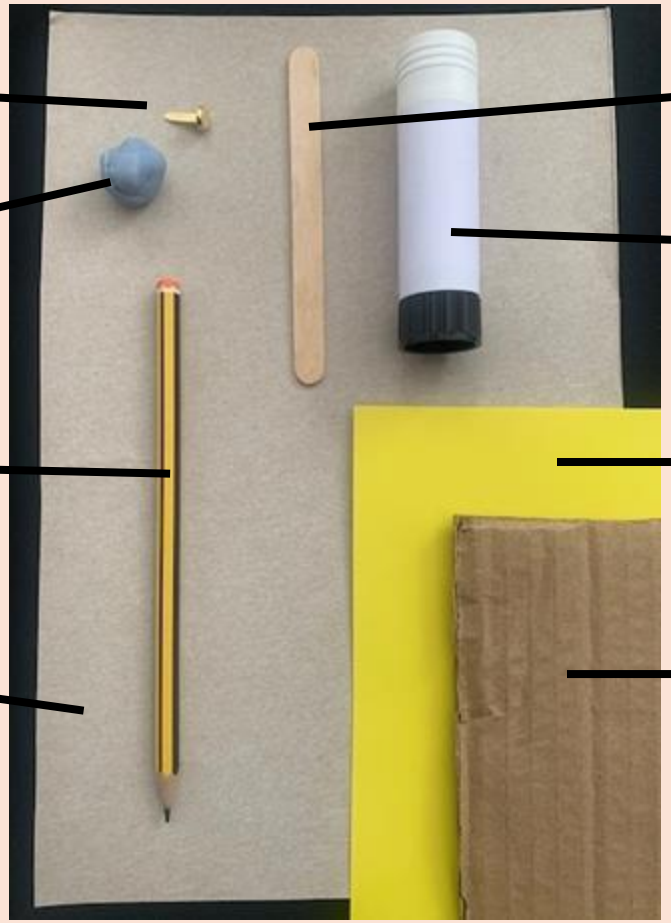
Make a prototype cam

Explanation

In order to test the effect of different **cams** on the movement of the follower, we can make a prototype **cam** mechanism.

A prototype is a model or mock-up to test how something works.

We can make a prototype **cam** using these materials and tools.



split pin

sticky tack

pencil

recycled card (such as a cereal box)

lollipop stick

glue stick

thin card

thick corrugated card

Make a prototype cam

Check

What is a prototype?

a a drawing

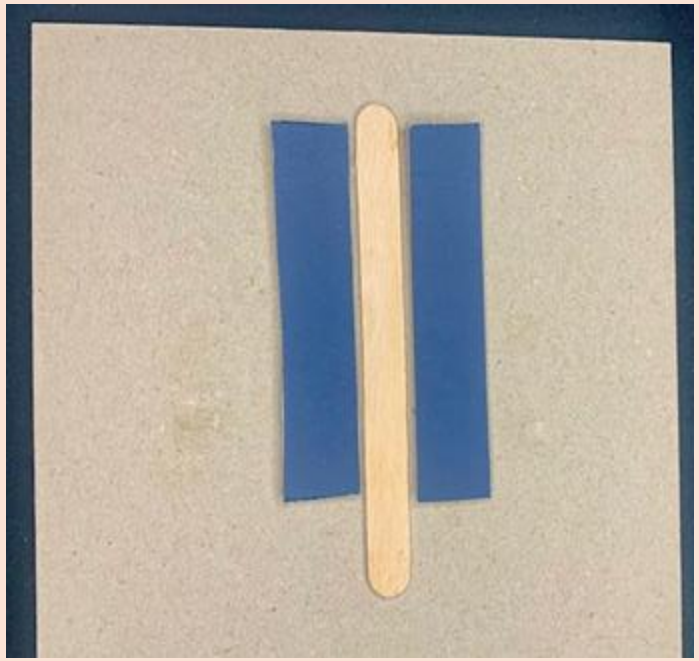
b an idea

c a model or mock-up ✓

d a finished product

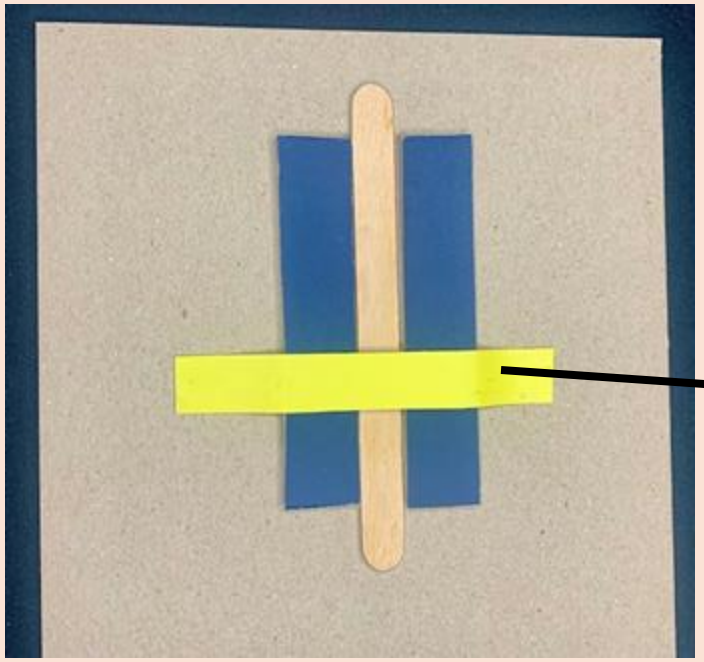
Make a prototype cam

Explanation



Step 1

Place a lollipop stick on a rectangular piece of recycled card. Glue two strips of thick card either side of the lollipop stick.

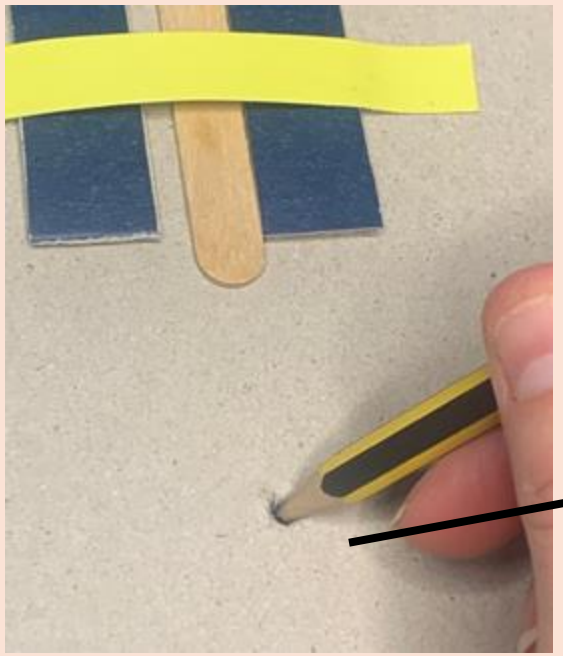


Step 2

Cut a strip of thin card to make a bridge over the lollipop stick. Glue each end to the background.

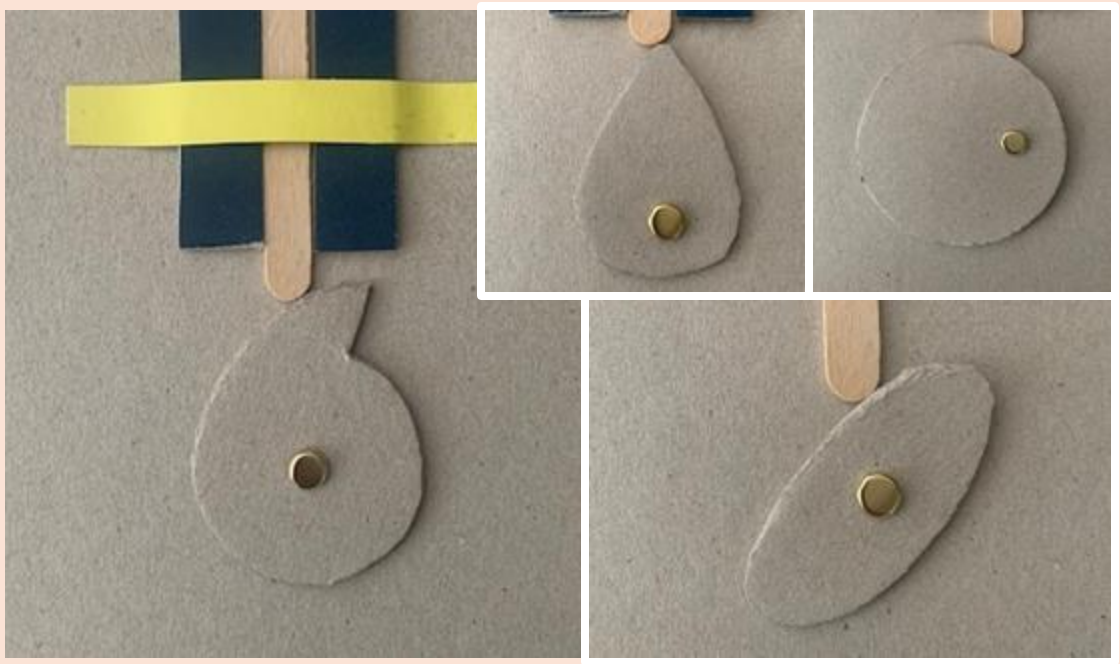
Make a prototype cam

Explanation



Step 3

Safely pierce a hole about 3cm below the thick card, directly underneath the lollipop stick, using the pencil and sticky tack.



Step 4

Experiment by cutting different **cams** out of the thick corrugated card and attaching them using the split pin.

Make a prototype cam

Check

Which part of the **cam** mechanism will the lollipop stick be?

a slide

b follower ✓

c cam

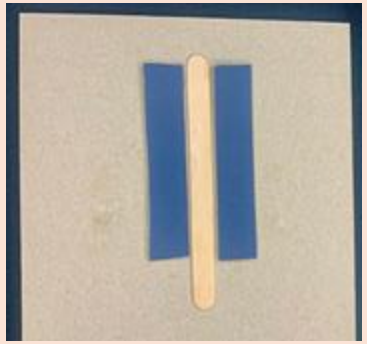
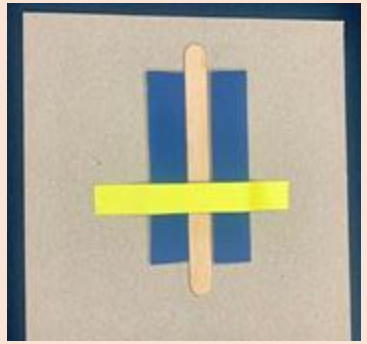
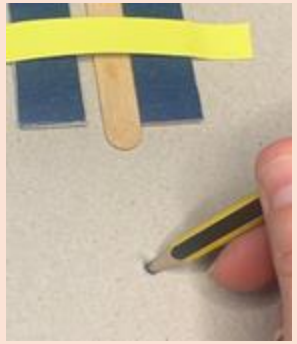
d axle

Task C

Make a prototype cam

Practice

Use the steps to make your own **cam** prototype.


I have:

- [ ] 2 strips of thick card either side of the lollipop stick.
- [ ] 1 strip of thin card across the thick strips and the lollipop stick.
- [ ] A hole about 3cm directly underneath the lollipop stick.
- [ ] A selection of thick card **cams** to test.

Task C

Make a prototype cam

Feedback

You should have:

- [x] 2 strips of thick card either side of the lollipop stick.
- [x] 1 strip of thin card across the thick strips and the lollipop stick.
- [x] A hole about 3cm directly underneath the lollipop stick.
- [x] A selection of thick card **cams** to test.



Top tips!

Hold the card at an angle to allow the lollipop stick to fall in correct place. Move the **cam** slowly.

You may need to adjust your **cam** or hole position.

Cams are mechanisms that usually convert **rotary** motion into **linear** motion.

Rotary motion is movement that goes round in a circle.

Oscillating motion is movement back and forth along a path.

Reciprocating motion is a backwards and forwards movement in a straight line, as in a slider.

Thursday 5th November

Gymnastics

To develop rolling into sequence work and on apparatus.

Success Criteria

- Use momentum to help you to roll.
- Use strong body tension to keep your shape in the straddle roll.