

All about pi

Zoe was telling her friend about her trip to London ...

...and then we went to the London Eye! That's the big wheel right on the river.

You go round really slowly in a capsule.

The fact sheet said the diameter is 120 metres.

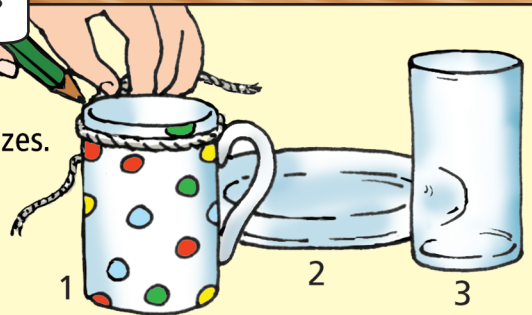
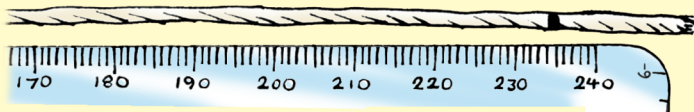
...with pi! Have you ever done the pi experiment?

I wonder how far you go in one rotation?

We can work out the circumference...

Do the 'pi' experiment

Take three objects that are all circular but different sizes.



1. Write in the names of your objects on the table. Measure the circumference of each with a piece of string. Mark the string and then measure it using the ruler on the Mathomat. Write in the measurements on the table.
2. Measure the diameter across the top.
3. Divide the circumference by the diameter (you may need a calculator). Put your results in the table.

What numbers do you get?

	1	2	3
circumference			
diameter			
circumference ÷ diameter			

The number you'll get when you divide the circumference of a circle by its diameter is always close to 3.14

This is true for all circles no matter how big or small.

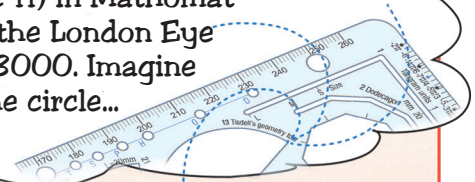
The number isn't an exact whole number - so we refer to it as π , the Greek letter 'pi'.

The Babylonians and the Ancient Egyptians knew about this constant ratio, thousands of years ago.

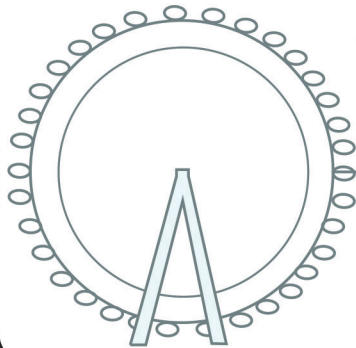
Unwrap the circle



The TGT (circle 11) in Mathomat can represent the London Eye on the scale 1:3000. Imagine unwrapping the circle...



To calculate the circumference, use the formula $circumference = \pi d$ ($3.14 \times 40\text{mm} = 125.7 \text{ mm}$).



Use the TGT (shape 11) in Mathomat to draw a 40mm diameter circle then draw a line of 125.7mm length to represent the length of its unwrapped circumference.

Mathomat circle 11 has a circumference of 125.7 mm. On the scale of 1:3000. That's approximately 377 metres.



The Chicago Ferris wheel was the largest in the world in 1893 (its actual diameter was 76 m).



The Moscow Ferris Wheel 850, built in 1997, has both open and closed cars.



'Big Eli' in 1900 was the world's first portable wheel.

Compare these other famous wheels. They are illustrated here using an approximate scale of 1:3000. Find the circles on Mathomat that most closely fit and mark their circumferences.

There are other big wheels we can compare. I've heard of one called the Singapore Flyer...

There's an even bigger one in Las Vegas! The diameter is 158.5m. Can you imagine the circumference unwrapped?

