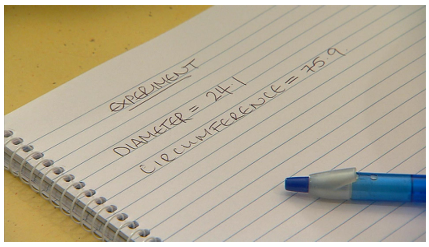
Pi from Pie

On SCOPE's Mathematics episode, Julia used a pie to find the mathematical constant– pi. Here's how you can do it at home:

What you need:
Calculator
Tape measure
Pen and paper
Round things (plate, cup, bowl, pie)



What to do:

1. Choose one round item.
2. Using the tape, measure the distance from one side of the object to the other (this is called the diameter).
3. Write down the measurement on the piece of paper.
4. Measure the distance around the outside of the object (this is called the circumference).
5. Write down the measurement.
6. Using the calculator, divide the circumference by the diameter, and write down the answer.
7. Repeat steps 1-6 using your other round objects.

   After a while you might start to notice that the numbers you calculated at step 6 are basically the same!

What's happening?
What you have done is calculate a very famous mathematical constant – pi.

3.14159265358979323846264338327950288419716939937510582097494459230781640…

Pi is the ratio of a circle's circumference to its diameter. It is the same value for any circle, big or small. You might have found that your numbers varied slightly – that's because it's hard to measure precisely and some pies just aren't made perfectly round!

Pi is what's known as an infinite or irrational decimal, because there are a never ending number of decimal places! In fact, did you know that there is a guy from Japan who memorised the first 83,431 decimal places of pi?!

Pi is vital in architecture, engineering and construction. It is used in calculations and turns up in a range of mathematical equations, like the one describing a rainbow!