Pythagoras (say "pie-thag-or-as") of Samos was a Greek philosopher who lived from about 580 BC to about 500 BC. He made important developments in mathematics, astronomy, and the theory of music.

Pythagoras spent much of his life studying mathematics and formed a special school where members followed strict rules, such as never eating meat. Pythagoras believed that everything in the world could be explained by numbers and his school worked hard to try to learn enough about numbers to be able to understand the universe.

Some of the things they believed about numbers seem odd to us now. For example, numbers were thought to have their own special nature. Pythagoreans thought numbers were male or female, ugly or beautiful, or had a special meaning.

1 is the number of reason.

2 is the first even or female number, the number of opinion.

3 is the first true male number, the number of harmony.

4 is the number of justice or retribution.

5 means marriage.
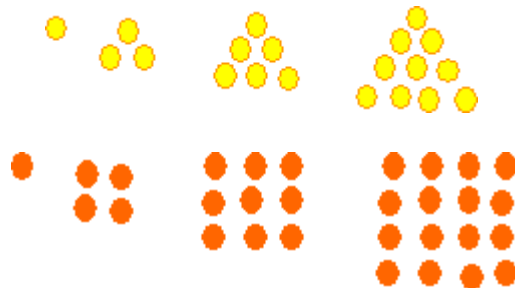
6 is creation ...and so on.

Other ideas they worked on are things you still learn about in school and that mathematicians still use. Some of these are:

Odd numbers, like 1, 3, 5, 7, 9, 11

Even numbers, like 2, 4, 6, 8, 10, 12

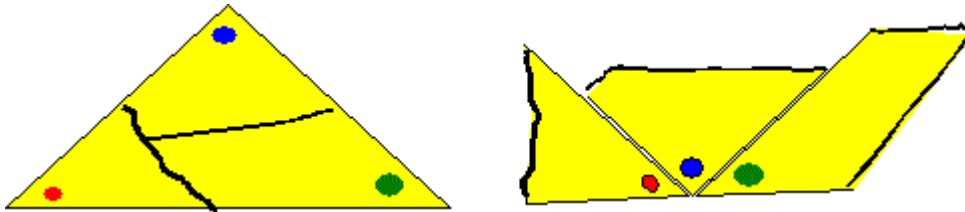Triangular numbers, like 1, 3, 6, 10, 15

Square numbers, like 1, 4, 9, 16, 25

**The sum of the angles of a triangle is equal to two right angles** .

This means that if you take any triangle, tear off the corners and fit them together like a puzzle, you will make a straight line (that is the same as two right-angles).

Perhaps the most famous theorem in the world is known as Pythagoras' theorem. It is thought that it was known to the Babylonians 1000 years earlier but Pythagoras may have been the first to prove it.

The theorem is: for a right-angled triangle the square on the hypotenuse is equal to the sum of the squares on the other two sides.

'Hypotenuse' is the name given to the side that is opposite the right angle.
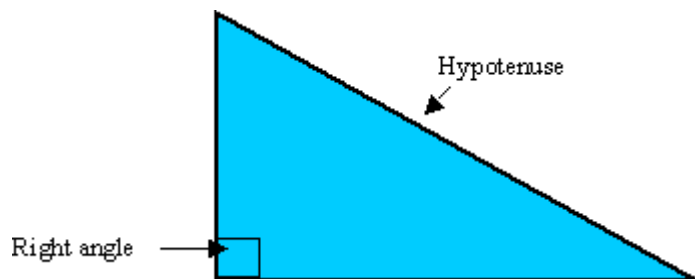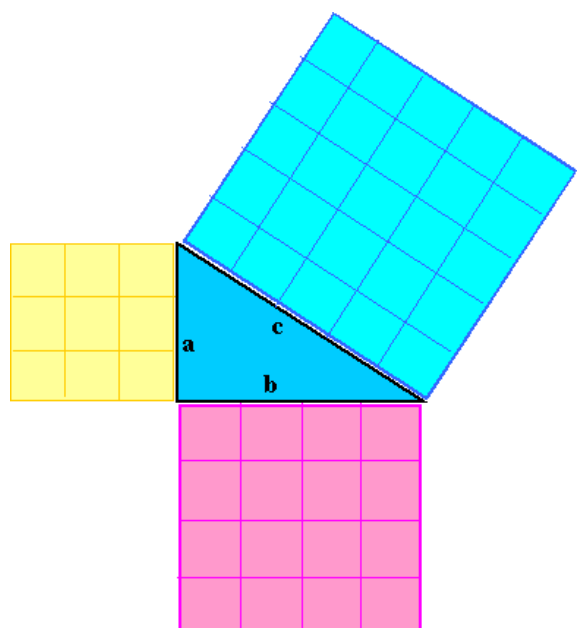
In this example, Side a is 3 cm long, so the area of the square on that side is 3 x 3 = 9.

Side b is 4 cm long, so the area of the square on that side is 4 x 4 = 16.

Side c is 5 cm long, so the area of the square on that side is 5 x 5 = 25.

Pythagoras' theorem says that if we add the smaller squares together we should get the big square: 9 + 16 = 25

Challenge 1: sample questions

1. What country is Pythagoras from?
2. What three subjects did he spend much of his life studying?
3. What special meaning did the Ancient Greeks think the number 5 had?
4. Can you name the first 4 square numbers?
5. What is the hypotenuse?

Challenge 2: can you make theories like Pythagoras?

Are the following statements always true, sometimes true or never true?
How do you know?

Can you find examples or counter-examples for each one?

The sum of three numbers is odd	If you add 1 to an odd number you get an even number
Multiples of 5 end in a 5	If you add two odd numbers you get an odd number
If you add a multiple of 10 to a multiple of 5 the answer is a multiple of 5	A square number has an even number of factors