Squares and triangles (5th and 6th Class)

Resources: The shapes on the activity template cut out. Scissors.
Strands: Shape and space

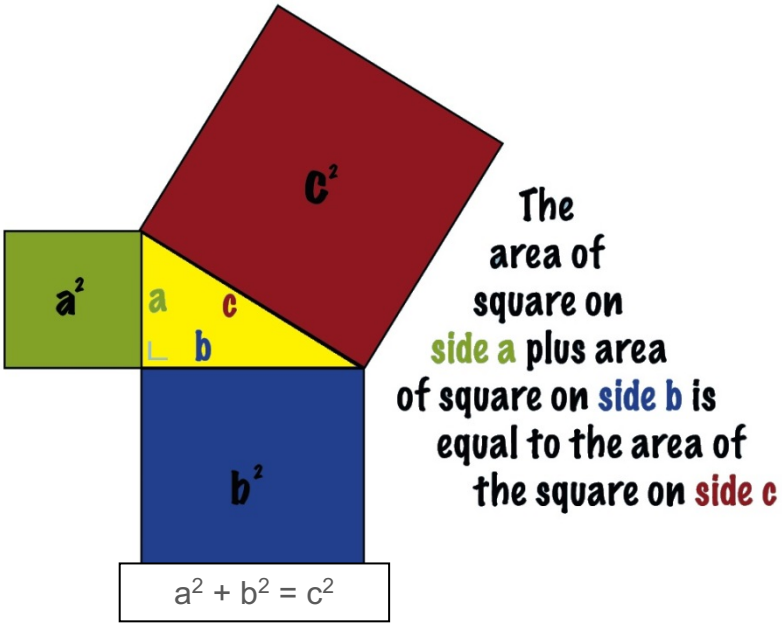
Activity:
Each pupil or pair of pupils has a set of coloured/shaded shapes which were cut out from the template below. The cut-out shapes were from two squares which were based on two of the sides of the right-angled triangle shown.
Pupils must assemble the shapes into the larger square, which is based on the third side of the right-angled triangle. The third side of the right-angled triangle is labelled c below. It is the longest side of the triangle and is known as the hypotenuse.
Students may have to twist, turn, flip and rotate the shapes to get all them to fit into the square of the hypotenuse.

Teacher's note:
This is a demonstration of Pythagoras's Theorem. Students will learn how to prove this theorem when they study Geometry in secondary school.
Pythagoras's Theorem applies to all right-angled triangles. It tells us that if we build a square on each side of the triangle, the area of square on the longest side of the triangle (hypotenuse) is equal to the areas of the other two squares added together.

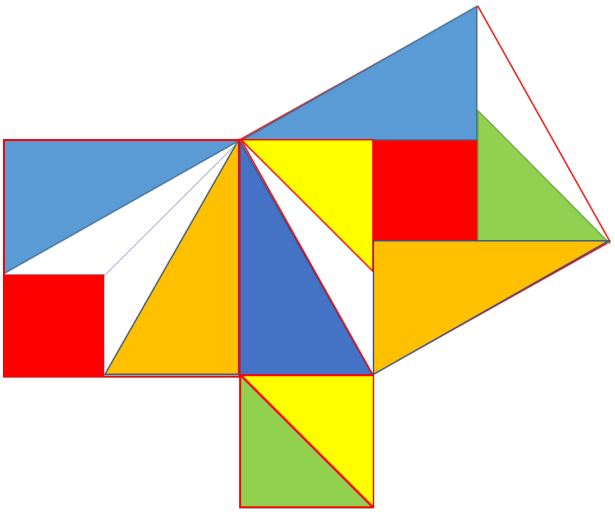
Questions:
What is the same/what is different about the shapes you are using to create the third square?
Is there another way to put the shapes together to make a square? How do you know?
What other shape could you make using all of the shapes?
Can you make a square/triangle/rectangle using only three of the shapes?

Challenge Questions:
The two squares shown are equal to the square made on the third side of the triangle. Without using the shapes what could you tell me about the third square?
Could you calculate the area?
How about the length of each side

Pythagoras's Theorem



Solution:



Solution