

Year 6 had a go at the FITTED problem and discussed how we would approach it. We decided either to make the shapes and try and put them together or make a sketch – which turned out to be two of the starting points which were suggested.

At first Brandon tried sketching the squares but found it quite tricky. "I got the 14 and the 4 squares together and used the 18 square to make the 2 'ends' of the rectangle and tried to fit the other pieces in between but it didn't work out. I thought I had an 18 x 56 rectangle where the pieces fitted together."

After trying this for a while some of us looked at Chandra's idea and worked out (because we have been doing some maths with composite areas) that we could calculate the area of the rectangle by adding together the areas of the 9 squares so we made a table and calculated the area of each of the nine squares which came to 1056 sq cm.

The next problem was how to make 1056 by multiplying together two whole numbers (the long and short sides of the rectangle). We used Chandra's idea then of starting with 1 x 1056 then doubling and halving which led us to 32 x 33 as a solution.

Lauren said, "We knew that one of the sides had to be at least 18 squares because we had to fit the 18 square in somewhere." We then had a go at fitting together the squares so that they made a rectangle, which was 32 x 33. The children said "We used the 18 and the 14 square together to make the 32 side and then the 18 side (which we already had) and the 15 square (which was just one square bigger than the 14 square) to make the 33 side." It was then a case of fitting the other pieces in which we did mainly by trial and improvement. Kieran was one of the first to put the whole rectangle together: "The tricky piece was the single square because we were often left with a large gap to fit it into so we looked at ways of 'surrounding' that square with the other squares which were left."

Interestingly, when we solved the problem, we noticed that it was the 7, 8, 9 and 10 squares, which went around the 1 square as the 1 seemed to make up the difference between the other squares around it.

HOWEVER, we also wondered if there was another possible solution apart from the 32 x 33 rectangle, so we investigated any other pairs of whole numbers, which might have the product of 1056. Lauren said "We found that 22 x 48 also gave us 1056 as did 24 x 44." When we tried to make a 22 x 48 rectangle however, we realised straight away that it wouldn't work. We found that we could make

the 22 side of the rectangle with the 18 and 4 squares but it left a section of the rectangle, which we couldn't fill at all. When we tried to make the 24 x 44 rectangle, we made the 24 side from the 10 and 14 squares or the 15 and 9 squares but then found it was going to be impossible to fit the 18 square into the rectangle. So we decided that the only way to make a rectangle from the squares was by making a rectangle with dimensions of 32 x 33 squares. Morgan said that we used a whole range of strategies to help us solve this – trial and improvement; make a picture/diagram; act it out; make a table and look for patterns.