School Fair Necklaces

Rob and Jennie were making necklaces to sell at the school fair.

They decided to make them very mathematical.

Each necklace was to have eight beads, four of one colour and four of another.

And each had to be symmetrical, like this. (You can draw it out using dots or use pasta or print off the sheet below which you can colour in.)

How many different necklaces could they make?

Can you find them all?

How do you know there aren't any others?

What if they had 9 beads, five of one colour and four of another?

What if they had 10 beads, five of each? 12 beads, 6 of each colour? Can you spot a pattern?

What if.....??????

You can draw extra on when you need to.