**Button Challenge**

If I had 2 different coloured buttons to sew onto a top, I could do so in 2 different ways:

1)

 2)

1. How many different ways could I do this with 3 different coloured buttons? (Draw small circles or use coloured dots to find out. Try to work in a logical way, with the 1st button staying the same and changing the others before using a different coloured button to start the sequence.)
2. Now you have thought about recording the different possibilities and working systematically (in a logical order), how many different ways could you sew on 4 different coloured buttons? Remember to record your findings.
3. Based on what you found out about the variations for 2, 3 and 4 coloured buttons, can you **predict** how many different ways there would be for 5 different coloured buttons? Write down your thinking which led to your prediction.