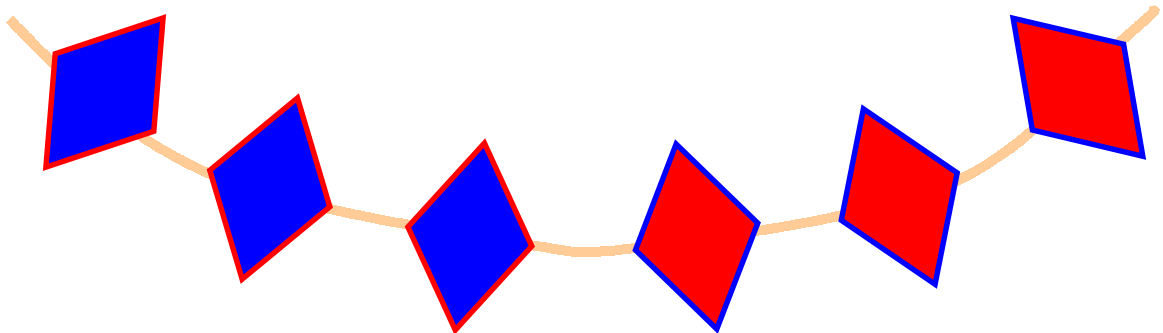




INVESTIGATION



Necklace



MathSphere

Necklace Investigation

Starter

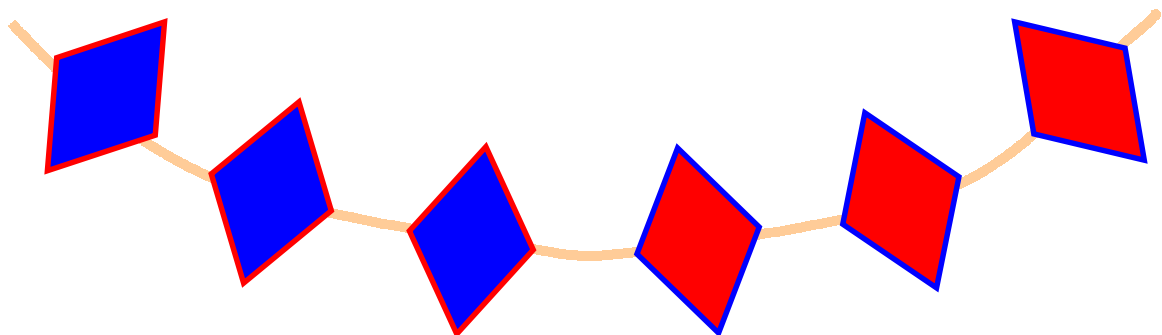
Hi, I'm trying to make a new necklace to wear.
I've got 3 red beads and 3 blue beads.
Can you help me design it?



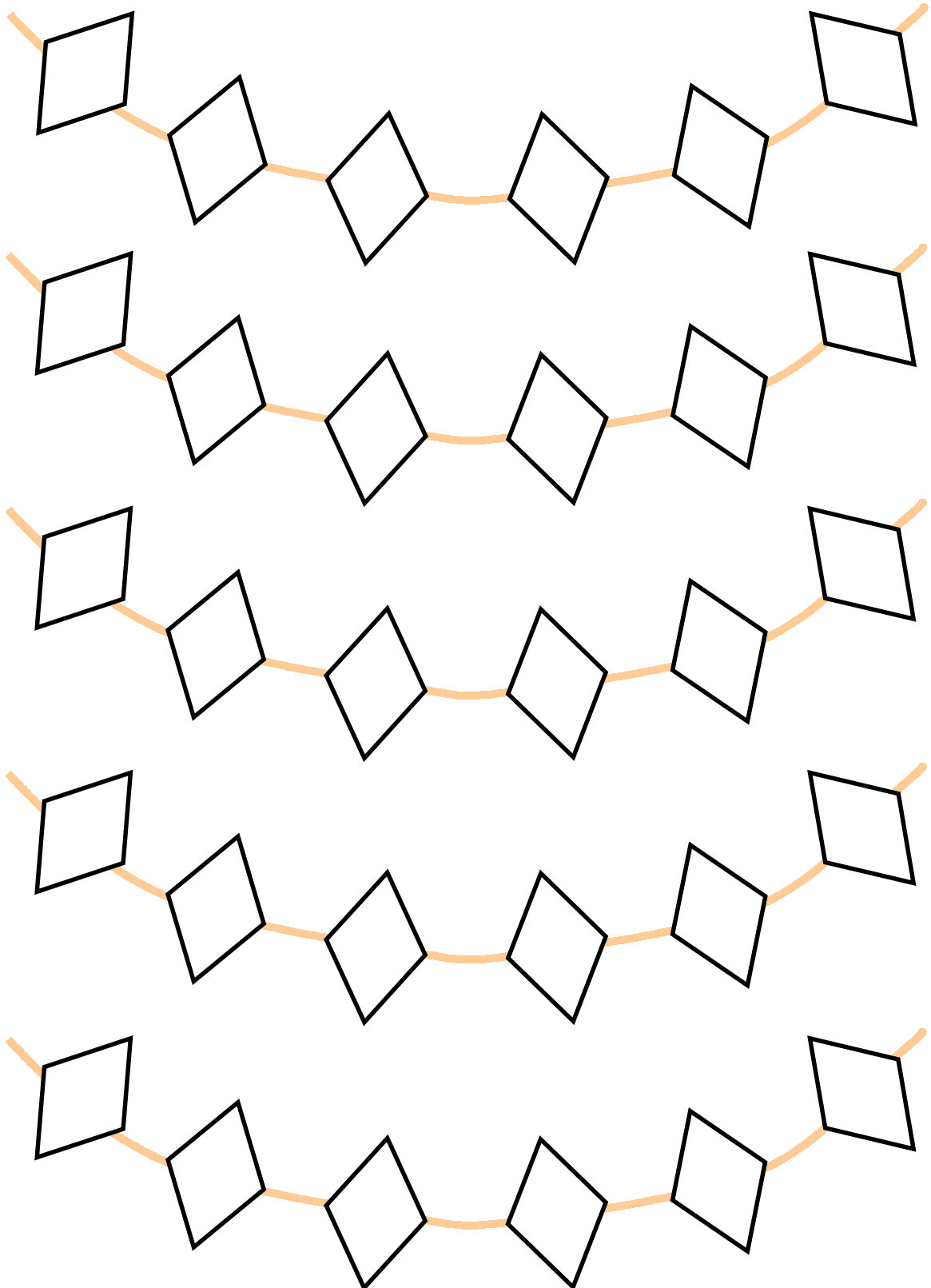
How many patterns of necklace can you find?

You have to use all the beads, but they can be in any order.

Here's one that I quite like:



Necklace Investigation



Some Ideas

Work in a methodical way, recording your results carefully as you go.

You could start with three blue beads at one end, then two blue and see how many different ways you can do it.

Think about how to set your results clearly. You can use the necklace sheet or make your own one up.

Try to find as many patterns as you can.

Can you describe your favourite pattern?

Can you be sure that you have got all the possible necklaces?

What would happen if you had a different number of beads, such as 5 or 7?

What would happen if you had three different colours?

What would happen if you had different shapes for each bead?

Answer Guide

Coloured beads would be useful for this investigation.

An OHP of the necklace sheet would be a good starting point for whole class discussion, with children making suggestions about how they could be arranged.

At first children are likely to work in a random way, but after a while they should be encouraged to be more systematic and look for all the possibilities when there are two red beads on the left hand side, then one red etc.

Eg

R	R	R	B	B	B
R	R	B	R	B	B
R	R	B	B	R	B
R	R	B	B	B	R

Encourage children to talk about their necklaces, explaining the order of them eg "a red bead followed by two blue..." etc

There are a good many possibilities for extension work on this investigation. Encourage the use of "What would happen if....?" questions.

Possible areas of extension include:

1. Changing the number of colours to three or four.
2. Changing the number of beads.
3. Having different shapes farther than colours.