## Shape wheels

*Children make a sequence of coloured shapes, changing one attribute at a time so that the sequence can end where it started, forming a circular sequence.*

## Skills practised:

- Recognising 2-D
- shapes Creating sequences

*Conjecture: It is possible to make a sequence of red, blue and yellow squares, triangle and circles, changing just colour of shape each time to form a 'shape wheel'.*

## What to do:

*Children work in pairs.*
*Each pair needs one each of the following shapes: blue square, blue circle, blue triangle, red square, red circle, red triangle, yellow square, yellow circle and yellow triangle.*

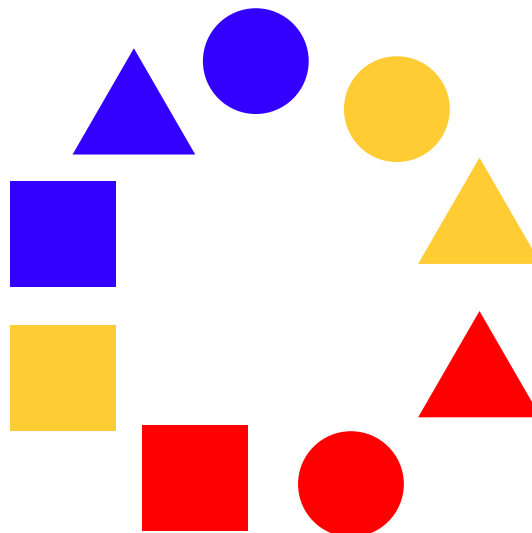1. Show children the following sequence of shapes:

   

   Say that only the shape OR colour changes as we add another shape.
   What shape could come next?
   Agree that this could be a yellow triangle, or a blue square (as the red square is already used).

2. Explain the task for children is to create a sequence like this where the next shape in the sequence changes only in colour OR shape, not both.

3. The next challenge is to create a similar sequence BUT this time their sequence must be a wheel shape so that the last of the nine shapes is followed by the first shape in the sequence!

**CHALLENGE**: Can children make a shape wheel which uses all nine shapes? For example:



Can they create a different shape wheel?

## Aims:
- To create sequences according to a given rule
- To use trial and improvement
- To begin to plan ahead to solve a problem
- To realise that some mathematical problems have more than one solution

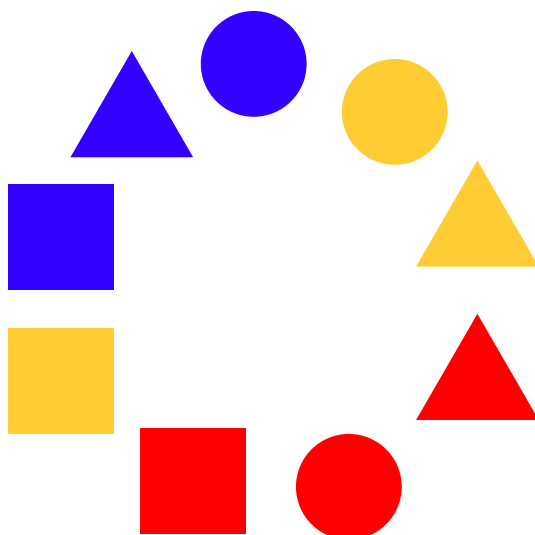## Minimum number of calculations expected

N/A

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1. Look at the sequence of shapes:



Only the shape OR colour changes as we add another shape.
What shape could come next?

2. Create a sequence like this where the next shape in the sequence changes only in colour OR shape, not both.

3. Create a new sequence BUT this time your sequence must be a wheel shape so that the last of the nine shapes is followed by the first shape in the sequence!
Like this:



**Challenge**

Can you make a shape wheel which uses all nine shapes?
Can you create a different shape wheel?

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