maths investigations

elephant parade

intro

There are lots of investigations about putting things into different orders. This one is about elephants. Although it's quite straightforward, it is well worth doing – and you can use it to get across a few important maths ideas . . .

first steps

Every spring animals come from all parts of the jungle to watch the most exciting event of the year, the jumbo gymnastics. If you ever go there, remember not to stand too close – an elephant on a trampoline is not quite as safe as you might think. At each competition the judges choose the five best jumbo gymnasts and afterwards these five winners parade through the jungle – to great applause from the other animals! The boy elephants always wear blue and the girl elephants wear red. This year there were 2 boy winners and 3 girl winners and they paraded through the jungle in this order :

As you can see, the order here is red, blue, red, blue, red – but of course, they could chosen a different order . . . can anyone here think of a different order for these five elephants? (Don't let them give you more than one or two!)

the investigation

The challenge now for the children is to find as many different orders as they can for the five elephants, remembering that there are 2 male elephants and 3 female elephants in each victory parade . . .
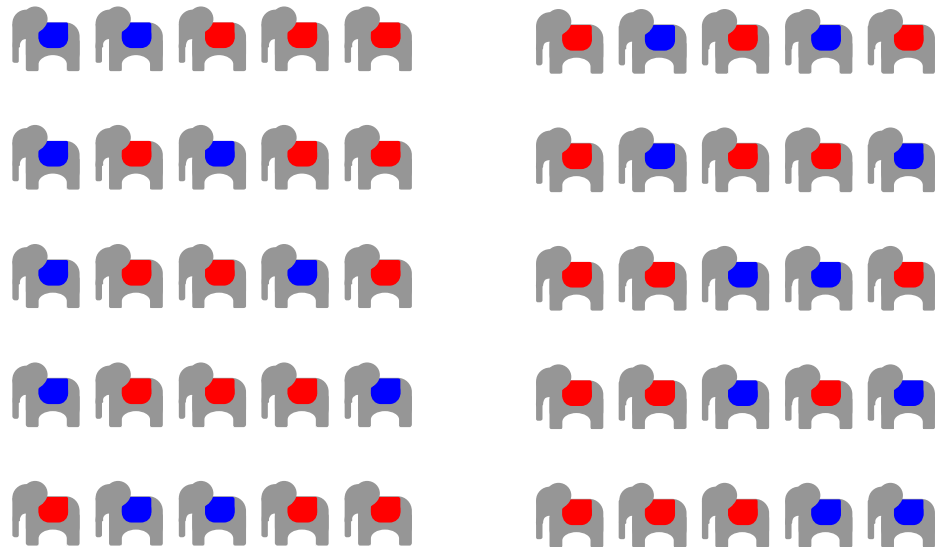
practical

Children can work on their own or in twos or threes. They can use red and blue counters (or anything else they can shuffle about easily) to stand for the elephants.

You might want to get them to think about how to record their results (some children like drawing elephants) or alternatively you could provide them with results sheets like the one given here (blank parades printed 12 to a sheet ie no need to tell them in advance how many different answers there are). If you have the energy, a different idea is to print this answer sheet on card and then cut into strips – which makes it easier when children want to compare one answer with another.

results The children should eventually find 10 different orders for the elephant parade. Here are all of them :

notes Once you've got all the results, you can get the children to answer one or two questions, such as :

- o How many of these parades have 2 blues next to each other?
- o How many parades are there with the first and last elephants in the same colour?
- o Is it the boy elephants or the girl elephants who are more often the leaders?
- o How many of the parades are 'palindromes' (same order from front to back as from back to front)?

extension For those who finish early or as something for the whole class to go on to, you can vary the initial terms of the investigation and ask pupils to see how many different orders they can find for eg :

- o A parade with 1 blue and 4 red elephants
- o A parade with 2 red and 2 blue elephants
- o A parade with 3 elephants and 3 different colours eg red, blue and yellow

Be careful, though, as interest fades quickly after more than one or two of these variations . . .