

## Square order

*Children place four digit cards on a grid to create 2-digit numbers and order them. They move the digits around to make smaller/larger numbers.*

## Skills practised:

- Comparing and ordering 2-digit numbers
- Using knowledge about the value of each digit in a 2-digit number

**Conjecture:** *It is possible to arrange four digit cards on a grid so as to create the four smallest 2-digit numbers possible and then the four largest 2-digit numbers possible.*

### What to do:

*Children work individually or in pairs*

*Children will need a set of 1 to 9 digit cards, Y2s need a 0 card for the challenge*

1. Draw a 2 by 2 grid.
2. Choose four cards to place on the grid, e.g.

2	5
6	3

3. Read across the grid and write down the two 2-digit numbers, e.g. 25 and 63.
4. Read down the grid and write down the two 2-digit numbers, e.g. 26 and 53.
5. Write these numbers in order, smallest to largest, e.g. 25, 26, 53, 63.
6. Rearrange the four cards on the grid so as to get:
  - smallest possible set of numbers, including the smallest number possible at the start of the sequence
  - largest possible set of numbers, including the largest number possible at the end of the sequence

Can you DEMONSTRATE that your two sequences are the very smallest and the very largest possible?

**Y2 CHALLENGE:** Swap one of your cards with 0. If 0 is the first part of a 2-digit number, e.g. 03, read this as 3.

What is the smallest possible sequence of numbers now? Where is the best place to put 0? Does having a '0' in the pack affect the largest possible sequence or is it still the same as it was before?

### Aim:

- To investigate if different possible answers can be found
- To realise the effect of placing digits in different places

### Minimum number of calculations expected

N/A

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25, 26, 53, 63		
6	5	
2	3	

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### Y2 Challenge

Swap one of your cards with 0. If 0 is the first part of a 2-digit number, e.g. 03, read this as 3. What is the smallest possible sequence of numbers now? Where is the best place to put 0? Does having a '0' in the pack affect the largest possible sequence or is it still the same as it was before?