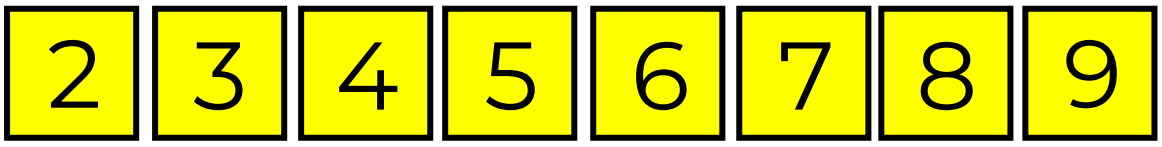
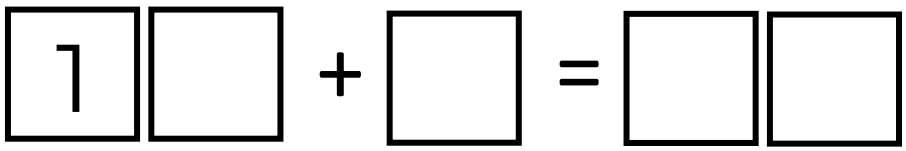
KS1 Problem

Addition Puzzle Part II

Using the following digit cards:



How many ways can you complete the calculation below without using any digit more than once?

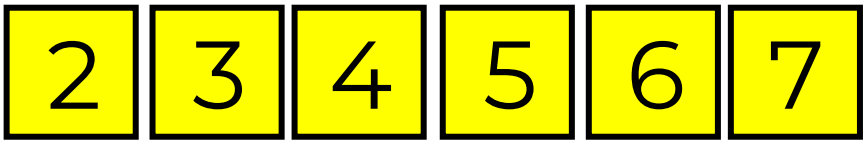


For example:

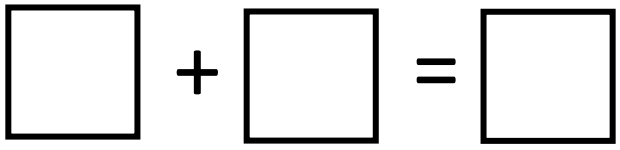
15 + 9 = 24 ✓	13 + 8 = 21 ✗	18 + 8 = 26 ✗
This would be allowed as no digit has been used twice.	This would not be allowed as there is not a 1 digit to use.	This would not be allowed as the 8 has been used twice.

Simplified Problem

Using the following digit cards:



How many ways can you complete the calculation below without using any digit more than once?



KS1 Problem

Support for Parents and Carers

This problem is aimed at children recognising that they need to use a system in order to find all of the possibilities for this calculation. The calculations will need to be written down so that repetitions are avoided and all possibilities are found. This is a vital part of learning mathematics and helps children to recognise and use relationships between numbers when finding new answers.

Children could be helped by using the calculation template provided and the digit cards on the resource page cut out.

Prompts to support your child could include:

- If you cannot use the same digit more than once, tell me about both of the two-digit numbers.
  They must have a different tens digit (be in the next decade).
- What is the smallest number that you could have as the first two-digit number?
  It cannot be 10 because there is no 0 digit, it cannot be 11 because that uses the digit 1 twice and it cannot be 12 because the answer must be in the next decade (only a single digit is being added to it) and the next decade is the 20s numbers which all need a digit 2. So the smallest number for the first two-digit number is 13. This is a good starting point.
- If 13 + 8 = 21, then what could you change to keep the answer of 21?
  Change it to 14 + 7 = 21, then change this into 15 + 6 = 21, then 16 + 5 = 21 and so on.

For children in EYFS, use the simplified problem.

Solution

1	4	+	9	=	2	3
1	5	+	8	=	2	3
1	6	+	7	=	2	3
1	7	+	6	=	2	3
1	8	+	5	=	2	3
1	9	+	4	=	2	3
1	5	+	9	=	2	4
1	6	+	8	=	2	4
1	8	+	6	=	2	4
1	9	+	5	=	2	4
1	6	+	9	=	2	5
1	7	+	8	=	2	5
1	8	+	7	=	2	5
1	9	+	6	=	2	5
1	7	+	9	=	2	6
1	9	+	7	=	2	6
1	8	+	9	=	2	7
1	9	+	8	=	2	7

KS1 Problem

Simplified Problem Solution

2	+	3	=	5
2	+	4	=	6
2	+	5	=	7
3	+	2	=	5
3	+	4	=	7
4	+	2	=	6
4	+	3	=	7

KS1 Problem

Digit Cards

2	3
4	5
6	7
8	9

Calculation Template