

Mathematical challenges for able pupils

Year 2 A Counting, partitioning
and calculating



Card sharp

Take ten cards numbered 0 to 9.



1. Pick three cards with a total of 10. How many different ways can you do this?
2. Now pick two cards with a total of 10. How many different ways can you do this?
3. Can you pick five cards with a total of 12? 10 different ways. Different ways can you do this?

Learning Objective:

- Solve mathematical problems or puzzles.
- Know addition facts to at least 10.
- Solve a problem by sorting, classifying and organising information

Solution to the problem.

1. There are 10 different ways to choose three cards with a total of 12:

0, 3, 9	1, 2, 9	2, 3, 7	3, 4, 5
0, 4, 8	1, 3, 8	2, 4, 6	0, 5, 7
1, 4, 7	1, 5, 6		

2. There are 9 different ways to choose four cards with a total of 12:

0, 1, 2, 9	0, 2, 3, 7	1, 2, 3, 6	0, 1, 3, 8
0, 2, 4, 6	1, 2, 4, 5	0, 1, 4, 7	0, 3, 4, 5
0, 1, 5, 6			

3. **No.**

Learning Objective:

- Solve mathematical problems or puzzles.
- Know addition facts to at least 10.
- Solve a problem by sorting, classifying and organising information

Ones and twos

Holly has six numbers, three 1s and three 2s.
She also has lots of + signs, x signs and = signs.

1 2 1 2 1 2

She is trying to make the biggest number possible.
Here are some she tried.

First try

$$1 \times 2 = 2$$

$$1 \times 2 = 2$$

$$1 \times 2 = 2$$

$$2 + 2 + 2 = 6$$

Second try

$$1 + 2 + 1 + 2 + 1 + 2 = 9$$

Can you beat Holly's score?

Learning Objective:

- Solve mathematical problems or puzzles.
- Use known number facts to add mentally.
- Carry out simple multiplication.

Solution to Ones and twos

Some higher scores:

$$2 \times 2 \times 2 = 8$$

$$1 + 1 + 1 = 3$$

$$8 \times 3 = 24$$

$$2 + 1 = 3$$

$$2 + 1 = 3$$

$$2 + 1 = 3$$

$$3 \times 3 \times 3 = 27$$

Did you beat these scores?

Learning Objective:

- Solve mathematical problems or puzzles.
- Use known number facts to add mentally.
- Carry out simple multiplication.

Twos and Threes

Holly has six numbers, three 1s and three 2s.
She also has lots of + signs, x signs and = signs.

2 3 2 3 2 3

She is trying to make the biggest number possible.

Here are some she tried.

First try

$$3 \times 2 = 6$$

$$3 \times 2 = 6$$

$$3 \times 2 = 6$$

$$6 + 6 + 6 = 18$$

Second try

$$2 + 3 + 2 + 3 + 2 + 3 = 15$$

Can you beat Holly's score?

Learning Objective:

- Solve mathematical problems or puzzles.
- Use known number facts to add mentally.
- Carry out simple multiplication.

Solution to Ones and twos

Some higher scores:

$$2 \times 2 \times 2 = 8$$

$$3 \times 3 \times 3 = 27$$

$$27 + 8 = 35$$

$$2 + 3 = 5$$

$$2 + 3 = 5$$

$$2 + 3 = 5$$

$$5 \times 5 \times 5 = 125$$

Did you beat these scores?

Learning Objective:

- Solve mathematical problems or puzzles.
- Use known number facts to add mentally.
- Carry out simple multiplication.

Thank You

The background is a smooth gradient of blue, transitioning from a darker shade on the left to a lighter, cyan shade on the right. At the bottom, there are several overlapping, wavy bands. The topmost band is a bright yellow, followed by a light blue band, and then a white band at the very bottom. The overall effect is clean and modern.

References and additional resources.

These units were organised using advice given at:

http://www.edu.dudley.gov.uk/numeracy/problem_solving/Challenges%20and%20Blocks.doc

PowerPoint template published by www.ksosoft.com

These Mental Maths challenges can be found as a PDF file at :

http://www.edu.dudley.gov.uk/numeracy/problem_solving/Mathematical%20Challenges%20Book.pdf

The questions from this PowerPoint came from:

Mathematical challenges for able pupils in Key Stages 1 and 2

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