

Mathematical challenges for able pupils

Year 6 B Counting, partitioning and calculating



Age old problems

1. My age this year is a multiple of 8.

Next year it will be a multiple of 7.

How old am I?



Learning Objective:

- Solve mathematical problems or puzzles.
- Know multiplication facts to 10×10 .
- Recognise square and cube numbers.

Age old problems

2. Last year my age was a square number.

Next year it will be a cube number.

How long must I wait until my age is both a square number and a cube?



Learning Objective:

- Solve mathematical problems or puzzles.
- Know multiplication facts to 10×10 .
- Recognise square and cube numbers.

Age old problems

3. My Mum was 27 when I was born.

8 years ago she was twice as old as I shall be in 5 years' time.



How old am I now?



Learning Objective:

- Solve mathematical problems or puzzles.
- Know multiplication facts to 10×10 .
- Recognise square and cube numbers.

Solution to age old problems

1. I am 48 years old (or possibly 104).

2. I am now 26 years old. In 38 years' time, when I am 64, my age will be both a square number and a cube.

3. I am 9 years old now.

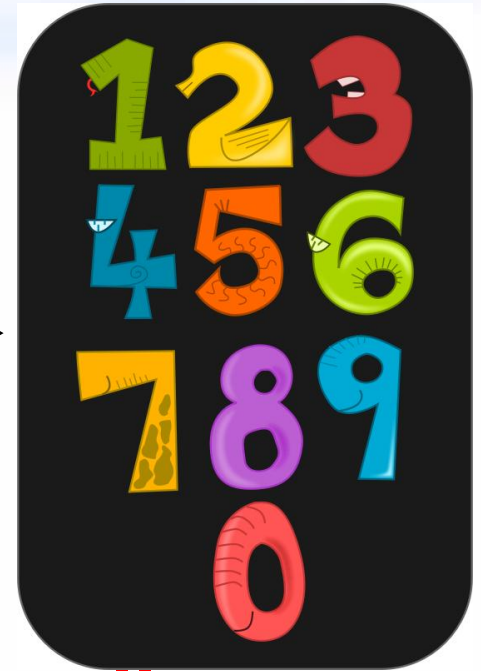
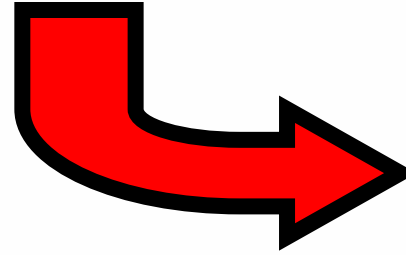


Learning Objective:

- Solve mathematical problems or puzzles.
- Know multiplication facts to 10×10 .
- Recognise square and cube numbers.

Make five numbers

Take ten cards numbered 0 to 9.



Each time use all ten cards.
Arrange the cards to make:

Make up more problems to use all ten cards to make five special numbers.



Learning Objective:

- Solve mathematical problems or puzzles.
- Know 3 and 7 times tables.
- Recognise prime numbers.

Solution to make five numbers

For example:

a. 12, 39, 45, 60, 78.

b. 7, 42, 63, 98, 105.

c. 5, 23, 67, 89, 401.

There are other solutions.



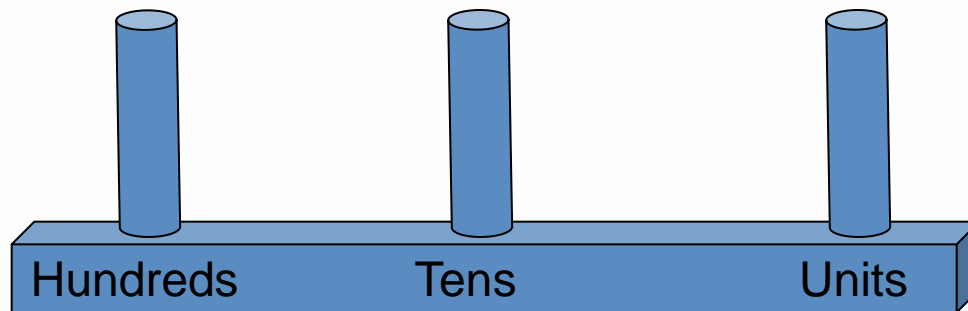
Learning Objective:

- Solve mathematical problems or puzzles.
- Know 3 and 7 times tables.
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Three digits

Imagine you have 25 beads. You have to make a three-digit number on an abacus.

You must use all 25 beads for each number you make.



How many different three-digit numbers can you make?

Write them in order.

Learning Objective:

- Solve mathematical problems or puzzles.
- Know what each digit represents.
- Order a set of whole numbers.



Solution to Three digits

You can make six different numbers.

In order, the numbers are:

799, 889, 898, 979, 988, 997.



The end, thank you!



References and additional resources.

The questions from this PowerPoint came from:

Mathematical challenges for able pupils in Key Stages 1 and 2

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Thank You

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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

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(<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)

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These units were organised using advice given at:

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

