

Mathematical challenges for able pupils

Year 4 A Counting, partitioning and calculating



Footsteps in the snow



Little has size 2 boots.



Middle has size 3 boots.

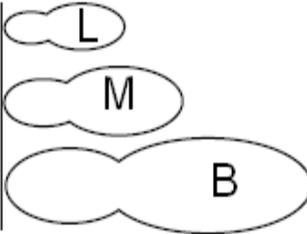
They are one and a half times the length of Little's boots.



Big has size 5 boots.



A little boot and a middle boot are the same length as a big boot.



They start with the heels of their boots on the same line.

They each walk heel to toe.



When will all three heels be in line again?



Learning Objective:

- Solve mathematical problems or puzzles.
- Recognise multiples of 2, 3 and 5.

Solution to Footsteps in the snow

Counting from zero in 2s, 3s and 5s will first match up at 30, when Little has taken 15 footsteps.



Learning Objective:

- Solve mathematical problems or puzzles.
- Recognise multiples of 2, 3 and 5.

Stickers

The twins collected some travel stickers.
They each had the same total number.



Winston had 3 full sheets and 4 loose stickers.
Wendy had 2 full sheets and 12 loose stickers.
Every full sheet has the same number of stickers.
How many stickers are there in a full sheet?



Learning Objective:

- Solve mathematical problems or puzzles.
- Know multiplication facts.
- Explain methods and reasoning.

Solution to Stickers

There are **8 stickers** in a full sheet.

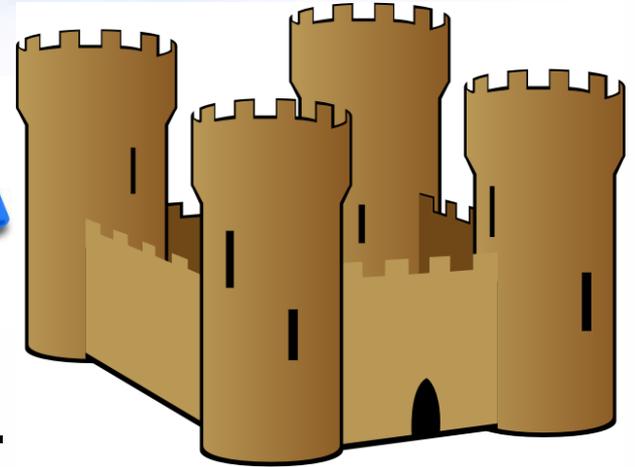
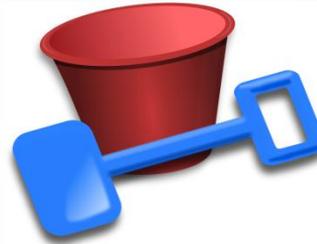
Learning Objective:

- Solve mathematical problems or puzzles.
- Know multiplication facts.
- Explain methods and reasoning.



Sandcastles

Lisa went on holiday.



In 5 days she made 80 sandcastles.

Each day she made 4 fewer castles than the day before.

How many castles did she make each day?

How many castles did she make altogether?



Learning Objective:

- Solve mathematical problems or puzzles.
- Add two-digit numbers.

Solution to Sandcastles

**Over the 5 days Lisa made 24, 20, 16, 12
and 8 sandcastles.**

She made 84 sandcastles altogether.

Learning Objective:

- Solve mathematical problems or puzzles.
- Add two-digit numbers.

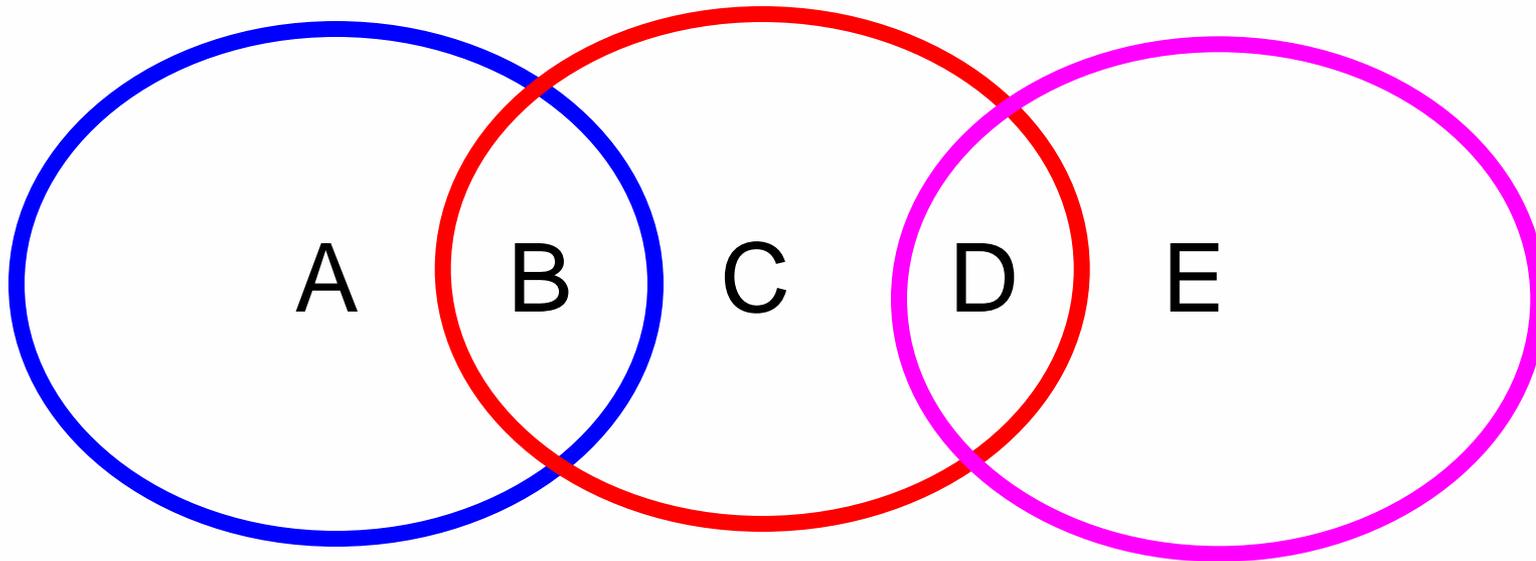


Circle sums

1. Use each of the digits 1 to 5 once.

Replace each letter by one of the digits.

Make the total in each circle the same.



Learning Objective:

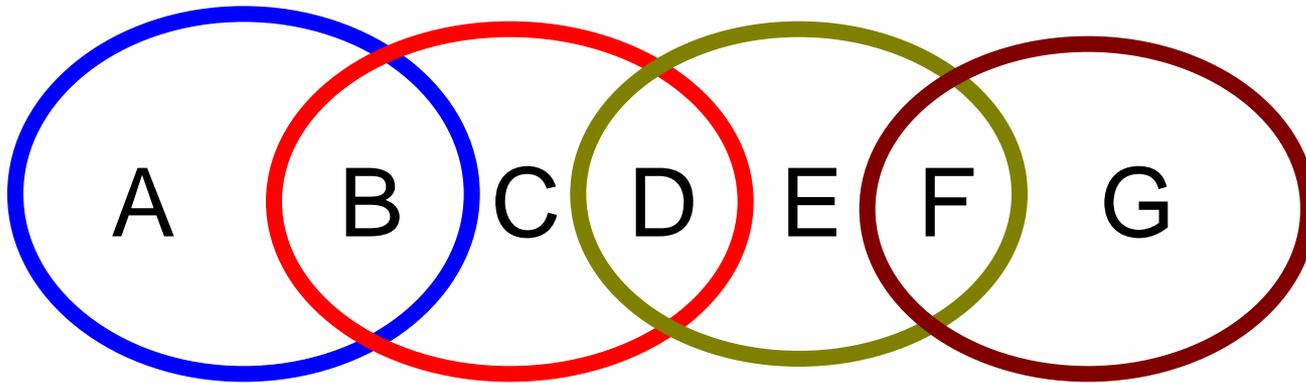
- Solve mathematical problems or puzzles.
- Add several single digits.
- Know addition and subtraction facts to 20.

Circle sums

1. Use each of the digits 1 to 5 once.

Replace each letter by one of the digits.

Make the total in each circle the same.



Learning Objective:

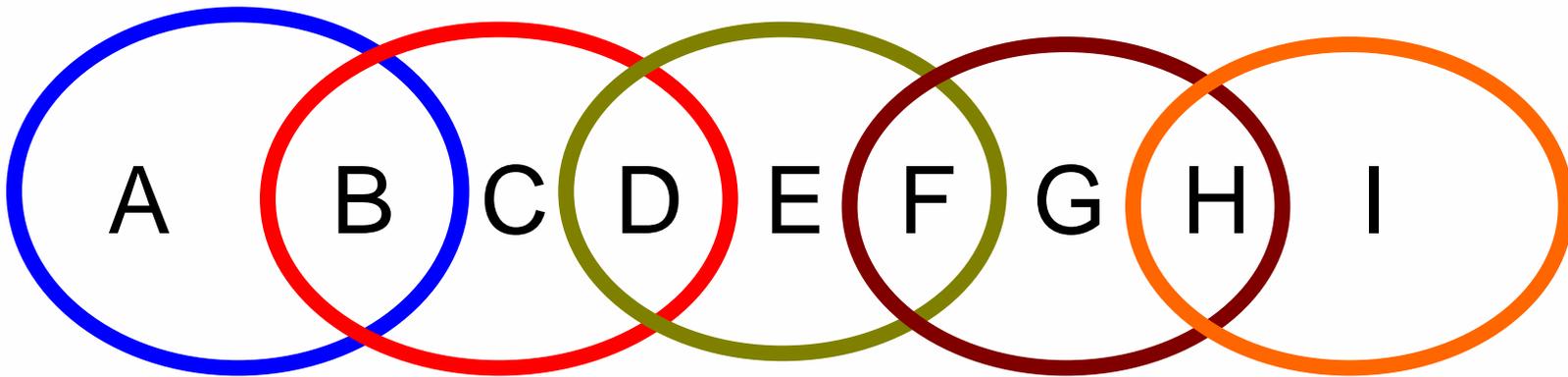
- Solve mathematical problems or puzzles.
- Add several single digits.
- Know addition and subtraction facts to 20.

Circle sums

1. Use each of the digits 1 to 9 once.

Replace each letter by one of the digits.

Make the total in each circle the same.

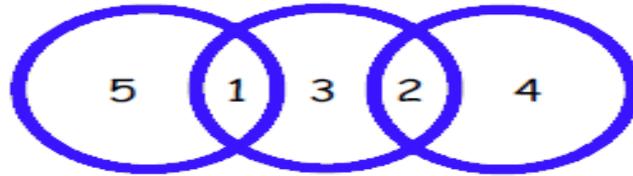


Learning Objective:

- Solve mathematical problems or puzzles.
- Add several single digits.
- Know addition and subtraction facts to 20.

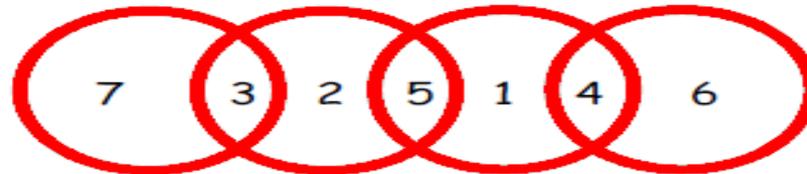
Solution for circle sums

1.



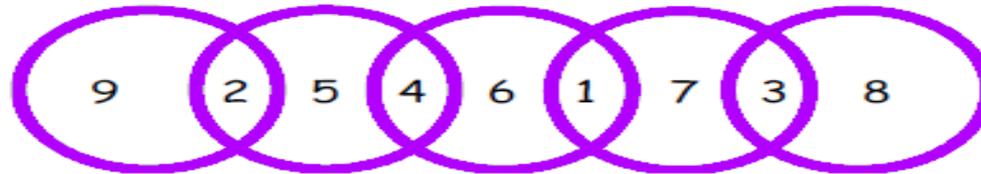
or its reverse

2.



or its reverse

3.



or its reverse

Learning Objective:

- Solve mathematical problems or puzzles.
- Add several single digits.
- Know addition and subtraction facts to 20.



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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These units were organised using advice given at:

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

