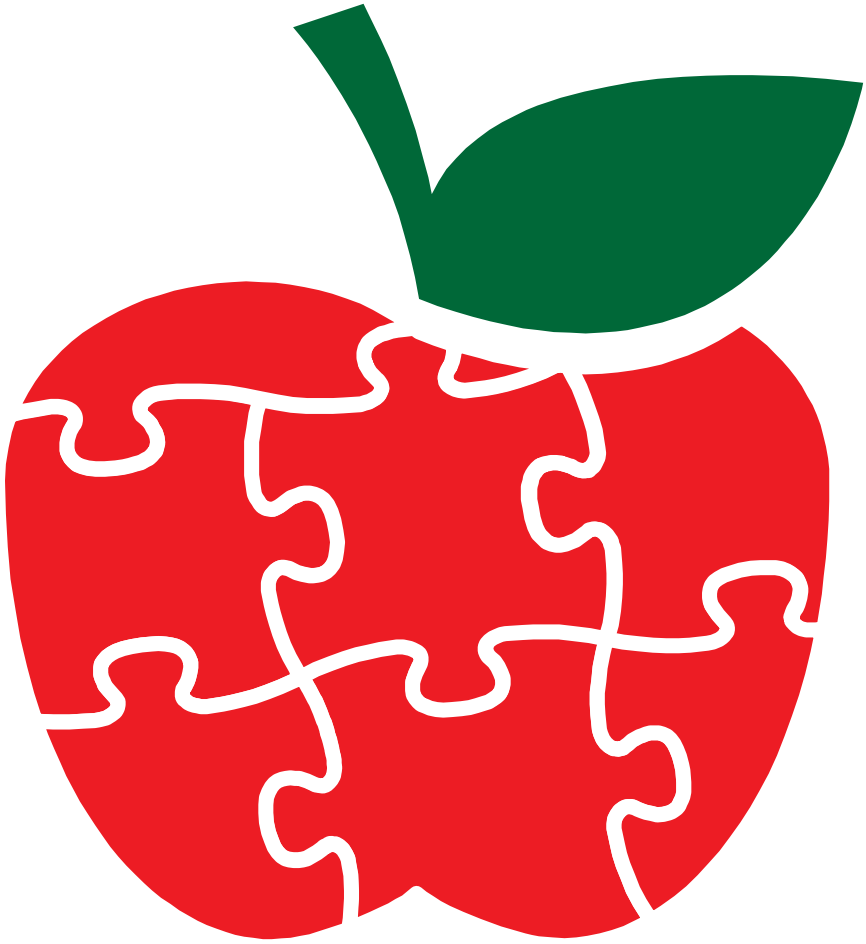
Problem-solving

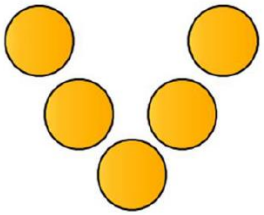


Workshop 1 & 2

www.pdst.ie/Mathematics

Magic V's

https://nrich.maths.org/6274



- Place each of the numbers 1 to 5 in the V shape so that the two arms of the V have the same total.
    - How many different possibilities are there?
    - Can you convince someone that you have all the solutions?
    - What happens if we use the numbers from 2 to 6? From 12 to 16? From 37 to 41? From 103 to 107?
- Investigate the same problem with a V that has arms of length 4.

School Fair Necklaces

https://nrich.maths.org/9692

- Rob and Jennie were making necklaces to sell at the school fair.
- They decided to make them very mathematical.
- Each necklace was to have eight beads, four of one colour and four of another.
- And each had to be symmetrical, like this

- How many different necklaces could they make?
- Can you find them all?
- How do you know there aren't any others?
- What if they had 9 beads, five of one colour and four of another?
- What if they had 10 beads, five of each?
- What if.....??????

Teddy Town

https://nrich.maths.org/108

Part A:

- In Teddy Town, there are 6 teddies and 6 houses;
    - 2 red
    - 2 yellow
    - 2 blue
- Can you match each teddy to a house so that the 6 pairs are all different?

Part B:

- In Teddy Town, the streets are very special. If you walk along a street from east to west, or west to east, all the houses are a different colour and the teddies living in the houses are a different colour too. The same is true if you walk along the streets in a north-south or south-north direction. In other words, looking at the map grid, each row and column must have different coloured houses and different coloured teddies. Can you arrange the nine different combinations you've found on the map grid?

Dice Train

https://nrich.maths.org/9747

Rule 1

- Faces that touch each other have the same number i.e. underneath the white dice is a 3 touching a 3 on the blue dice. The blue dice has a 6 that touches a 6 on the middle blue dice. The middle blue dice has a 1 that touches the last dice.

Rule 2

- The number on the top of the funnel must equal the total of the numbers showing on the top of the remaining dice (carriages) that can be seen.

Rule 3

- Always use 4 or more dice, so there are at least 2 'carriages' to add up.

Task between Workshops

Name of problem

How classroom climate contributed

-
-
-
-
-

Facilitating discussion with pupils

-
-
-
-
-

Pupils' strategies observed

-
-
-
-
-

Other observations / comments

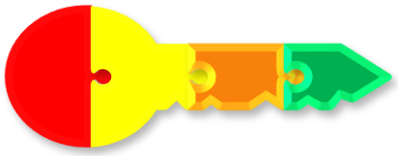
-
-
-
-
-

Low Threshold High Ceiling (LTHC)

Sort the Street https://nrich.maths.org/5157	Ring a Ring of Numbers https://nrich.maths.org/2782	Cubes https://nrich.maths.org/42
Number Differences https://nrich.maths.org/2790	Square It https://nrich.maths.org/2526	I'm Eight https://nrich.maths.org/55
Dotty Six https://nrich.maths.org/7337	Poly Plug Rectangles https://nrich.maths.org/7511	The Amazing Splitting Plant http://nrich.maths.org/159

Headline Stories

Statement	• I have 9 cent.
Missing Information	• Conor bought 12 rolls of yellow wrapping paper and 9 rolls of brown wrapping paper. How many metres of wrapping paper did Conor buy in all?
Extra Information	• Sam picked 8 plums and Mary picked 3 plums from a tree. Melanie picked 6 apples from a tree. How many plums were picked altogether?
New Questions	• Omar had €6. Then he saved €5 from his allowance and spent €3 on a comic book and €3 on a puzzle. How much money does Omar have left?



Solver - recorder

Planning

Focus of the lesson

Opportunities for sharing learning

Differentiation

Key questions

Assessment (forms of recording)

Resources

Key Learning