Outdoor Magic Number Squares

A problem solving challenge involving the physical manipulation of data

12+

Number processes

Background

A magic number square is a grid in which every row, column and diagonal adds up to the same number (the magic number.) It is a novel way for students to **problem solve** through trial and error, consolidate **number bonds** and work as a team.

15 is the magic number for a 3x3 magic square in which the numbers 1-9 are all used only once.

34 is the magic number for a 4x4 magic square in which the numbers 1-16 are all used only once.

Equipment

- Sticks
- Chalk
- Small tokens such as pine cones, pebbles, shells, conkers or seeds

Activity

1. Small groups draw a 3x3 grid with chalk or create one out of sticks.

2. Can the pupils see how the grid size is related to the numbers used within it with reference to **square numbers**?

3. Challenge them to create a magic number square in which each row, column and diagonal of the grid will add up to 15.

4. Collect 45 individual loose tokens (that is the total of 3 columns each adding up to 15.)

5. With trial and error the tokens must be arranged so that the numbers 1-9 each only appear once in the grid.

Solution

4	9	2
3	5	7
8	1	6

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