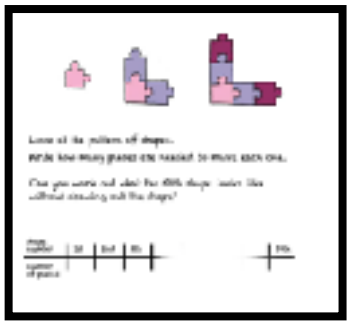
E5 Height and Width

The Big Picture

Recommended for Year 5

Strategy E - Find The Pattern.

Children must look for a pattern to help them solve the problem.



NC Objectives

To solve problems by applying their mathematics to a variety of routine and non routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. (National Curriculum Aims, number 3)

Stickability

To use simple formulae

To generate and describe linear number sequences (year 6, algebra)

Key Questions

What patterns can you see?

Can we find a rule to link the number in the sequence with the number of pieces needed?

Resources

Mini-whiteboards

Interlocking-cube toys if needed for practical demonstration.

Problem based learning

Children will begin to record a simple arithmetic sequence in a table and should identify that the number of pieces increases by the same amount each time.

Children can then be shown how to find a simple rule (formula) for the sequence.

LEARNING SEQUENCE

HOOK

Show the children the first two or three shapes in the pattern and ask them to describe it. What rules can we find? Ask the children how long they could continue the pattern for? Ask if they could find the number of pieces in the 50th shape without making them all.

Teacher Led

Introduce the PitSTOP 2 problem to the children. Model how to complete the table to show how many pieces are in each shape. Comment on any patterns that the children see.

Student Led

Children to work on PitSTOP 4 in pairs, completing the missing spaces in the table and testing each of the rules to see which is the rule they could use.

Support: PitSTOP 1 or 3

Extension: if we know the rule, what other shapes in the sequence can you find?

Teacher Led

Return to PitSTOP 5 and use the formula/rule to establish the number of pieces needed for the 15th shape. Repeat with other examples.

AFL & Independent

For children that have understood the method of working, give out PitSTOP 6. Extend PitSTOP 6 by asking for the number of pieces in the 62t shape, the 200th shape etc.

Support: continue with PitSTOP 5

Extension: PitSTOP 7

PLENARY

Address any misconceptions and consolidate children's understanding of the formula of the sequence.

Use inverse to solve extension, if appropriate.