

LEARNING and TEACHING POINTS
for
Chapter 15
Squares, Cubes and Number Shapes

Use square arrays of dots and square grids to explain square numbers. Connect the square of a number with the area of a square grid, given by counting the number of square units in the grid.

To introduce primary children to the method of trial and improvement using a calculator, get them to solve puzzles such as: 'I am thinking of a number; I add 23 to it and multiply the answer by my number. The result is 2124. What is my number?'

Explicitly teach children the calculator sequence for finding square numbers on a basic non-scientific calculator (number, \times , $=$).

Give children opportunities to investigate the relationships between sequences of geometric patterns and numerical sequences. The kind of thinking involved is an introduction to algebraic reasoning, involving the recognition of and articulation of generalizations.

Cube numbers can be explored by older and more able children in the primary school. Get them to construct cubes from cubic units. Connect the cube of a number with the volume of the cube, given by counting the number of cubic units used to construct it.

Squaring and finding a square root are excellent examples of inverse processes to discuss with children. Inverse processes are those where one process undoes the effect of the other.