

# Building Squares

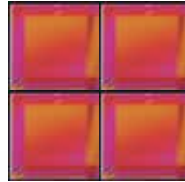
You need: square tiles (optional)

## ACTIVITY

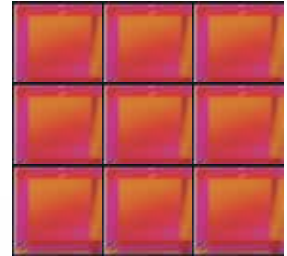
1. Mei Ling is building squares with tiles.



one tile



four tiles



nine tiles



Now I know why 2 is called “two squared”.

- What does Mei Ling mean?
- How many tiles will she need to add to the nine tiles to make the next biggest square?

2. a. Build squares to investigate how the pattern for the total number of squares develops.

$$\begin{array}{r} \text{Total} \quad 1 \quad 4 \quad 9 \dots \\ \quad \quad \quad \underbrace{\quad} \quad \underbrace{\quad} \quad \underbrace{\quad} \dots \\ \quad \quad \quad + 3 \quad + 5 \dots \end{array}$$

- b. Describe the pattern.

3. Mei Ling investigates some number patterns.

- a. Work out what number goes in each box to make each final equation true.

i.  $1^2 + 3 = 2^2$

ii.  $2^2 - 1^2 = 3$

$2^2 + 5 = 3^2$

$3^2 - 2^2 = 5$

$3^2 + 7 = 4^2$

$4^2 - 3^2 = 7$

$\vdots$

$\vdots$

$10^2 + \square = 11^2$

$\square^2 - \square^2 = 19$

- b. Describe the pattern. (You may find it helpful to use square tiles.)