

As outcomes, Year 8 pupils should, for example:

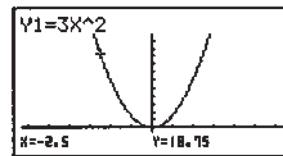
As outcomes, Year 9 pupils should, for example:

**Generate points and plot the graphs of simple quadratic or cubic functions, on paper or using ICT.**  
For example:

Construct tables of values, including negative values of  $x$ , and plot the graphs of these functions:

- $y = x^2$
- $y = 3x^2 + 4$
- $y = x^3$

Use a **graphical calculator** to plot the graph of, for example,  $y = 3x^2$ . Trace along it. Read coordinates. Describe the relationship between the values for  $x$  and the values for  $y$ .



Use a **graphical calculator** to explore the effect of changing the values of the parameters  $a$  and  $c$  in the following functions:

- $y = x^2 + c$
- $y = x^3 + c$
- $y = ax^2$

Construct a table of values and plot the graph of a general quadratic function. For example:

- $y = 2x^2 - 3x + 4$

$x$	-2	-1	0	1	2	3	4
$x^2$	4	1	0	1	4	9	16
$2x^2$	8	2	0	2	8	18	32
$-3x$	6	3	0	-3	-6	-9	-12
$+4$	4	4	4	4	4	4	4
$y$	18	9	4	3	6	13	24

Recognise that  $(1, 3)$  is not the lowest point on the graph. Identify the axis of symmetry.

Use a **graphical calculator** to investigate graphs of functions of the form  $y = ax^2 + bx + c$ , for different values of  $a$ ,  $b$  and  $c$ .

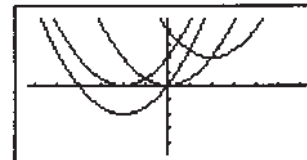
- Investigate families of curves such as:

$$y = ax^2$$

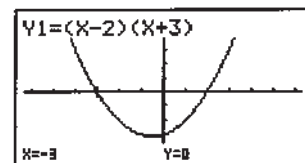
$$y = (x + b)^2$$

$$y = x^2 + c$$

$$y = (x + b)^2 + c$$



$$y = (x + a)(x + b)$$



**Link to properties of quadratic functions (pages 162–3).**