

Thinking about Functions

Station guide

This station explores functions and their graphical representations.

Thinking about properties of functions and their graphs is a key aspect of many of the resources at this station. Properties discussed here include roots, types of symmetry such as being odd or even, increasing and decreasing behaviour, and asymptotes. [That's odd... or even](#) introduces odd and even functions and the use of increasing and decreasing functions when manipulating inequalities is discussed in [Inequality flip-flop](#). Students can develop their sense of what asymptotes are using the algebra-free resource [Approaching asymptotes](#). Many properties, such as domain and range, are touched on informally at this station but addressed in more detail at the [Combining functions](#) station.

It is important for students to understand what makes something a function. In [What relation are you?](#) the distinction between a function and a relation is drawn out by considering various situations.

Most of the functions considered at this station are polynomials, square and cube roots, or reciprocals of these. The approach is based on thinking about how properties are visible in the graphs of these functions, rather than focusing on formal definitions (more detailed work on polynomial and rational functions will be addressed at the [Polynomials](#) station). In addition to these functions, the modulus or absolute value function is introduced in [Absolutely!](#) and other piecewise functions are introduced in [Piece it together](#).

[Function squares](#) could provide an informal way to start thinking about properties of functions. It has cards that can be printed double sided to offer algebraic or graphical ways of tackling the problem. [Worth 1000 words](#) and [Two-way functions](#) bring together many of the ideas discussed at this station.