

UNIT 5 *Linear Graphs and Equations*

Teaching Notes

This unit builds on earlier work dealing with graphs and equations, linking them together; it also covers in depth the characteristics of parallel and perpendicular lines. Two approaches (graphical and analytical) to solving simultaneous equations are given: for the analytical approach, two equivalent methods are shown, namely elimination and substitution; pupils should be able to recognise which to use.

This is a key unit for mathematically able pupils, who should be able to readily extend their algebraic skills to solve simultaneous equations; for others, it is reinforcement. When solving linear equations, the concept of balancing across an 'equals sign' should be stressed so that pupils *understand* what they are doing, rather than just 'following the rules'.

As with other units, you should ensure that pupils can successfully tackle the KS3 questions.

Routes

	Standard	Academic	Express
5.1 Coordinates	✓	(✓)	✗
5.2 Straight Line Graphs	✓	✓	(✓)
5.3 Linear Equations	✓	✓	(✓)
5.4 Parallel and Perpendicular Lines	✗	✓	✓
5.5 Simultaneous Equations	✗	(✓)	✓
5.6 Equations in Context	✗	✓	✓

Language

	Standard	Academic	Express
Simultaneous equations	✗	(✓)	✓

Misconceptions

- a common misconception is that $x - 4 = 8 \Rightarrow x = 4$, instead of, as is correct, $x = 12$
- another common mistake is to write $\frac{x + 4}{2} = 3 \Rightarrow x + 2 = 3 \Rightarrow x = 1$
instead of $x + 4 = 2 \times 3 = 6$, etc.

Challenging Questions

The following questions are more challenging than others in the same section:

	<i>Section</i>	<i>Question No.</i>	<i>Page</i>
<i>Practice Book Y9A</i>	5.1	7	84
" "	5.2	12	94
" "	5.4	11	106
" "	5.5	12	115