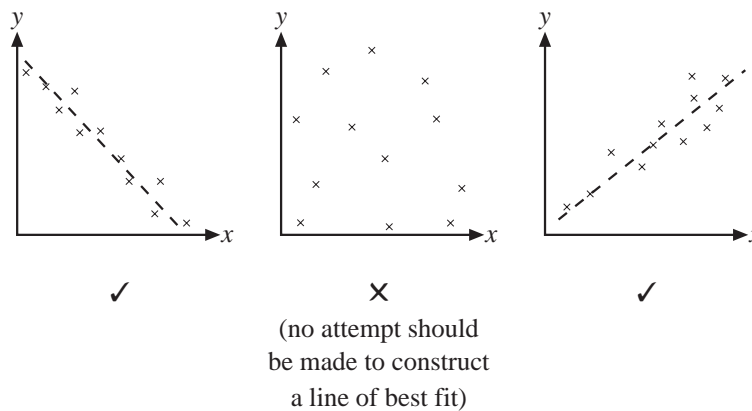


UNIT 8 *Statistical Diagrams*

Teaching Notes

Historical Background and Introduction

This unit builds on the earlier work of Unit 18 from Year 7 and Units 5 and 20 from Year 8, revisiting some topics and also extending the concepts and techniques. These include the idea of correlation, and the concept of a 'line of best fit'. The experimental nature of this type of analysis should be stressed so that pupils realise that an 'appropriate' model is being developed for the situation under study; they should appreciate that it makes little sense to construct a line of best fit unless there is strong correlation (as shown in the sketches below).



Routes

	Standard	Academic	Express
8.1 Data Collection, Extraction and Presentation	✓	✓	(✓)
8.2 Statistical Measures	✓	✓	✓
8.3 Plotting Scatter Diagrams	✓	✓	✓
8.4 Lines of Best Fit	✓	✓	✓
8.5 Equation of the Line Of Best Fit	×	(✓)	✓

Language

	Standard	Academic	Express
Scatter diagram	×	(✓)	✓
Correlation	×	(✓)	✓
Line of best fit	×	(✓)	✓
Interpolation and extrapolation	×	×	✓

UNIT 8 *Statistical Diagrams*

Teaching Notes

Misconceptions

- confusion often exists regarding the measures of central tendency, i.e. *mean*, *mode* and *median*, and when to use them
- when finding the median of an *even* number of data points, pupils must realise that they should take the average of the 2 middle values when the data is arranged in order, e.g. for 10 data points, the average of the 5th and 6th values, not the 5th value as might be expected if $\frac{n}{2}$ is used instead of, as is correct, $\frac{(n + 1)}{2}$.
- there should be no attempt to draw a line of best fit unless the data has strong correlation (positive or negative)
- pupils must appreciate that a line of best fit constructed from values outside the range of the data for which the line has been constructed (i.e. extrapolation) is not reliable

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>	8.1	16	203
" "	8.2	5, 7, 8	213-215
" "	8.3	9	220
" "	8.4	9, 10	225-227