M1. (a) Award **ONE** mark for an answer in the range £85 to £125, **inclusive**.

1

(b) Award **ONE** mark for the correct answer of £50.
Accept any estimate in the range £45 to £55, **inclusive.**

1

[2]

M2. (a) The answer is approximately 1/7. Accept any fraction, percentage or decimal in the range:

- 1/9 to 1/5, inclusive
- 11% to 20%, inclusive
- 0.11 to 0.2, inclusive

1

(b) The correct answer is 10. Accept any number in the range 8 to 12, **inclusive.**

1

(c) The explanation should make reference, in some form, to appropriate fractional estimates, eg:

- "Because it looks like a quarter of a half and that's 10."
- "I thought the violin looked like half the trumpet and that was about a quarter."
- "I decided this because 1/4 was 20 children, so I halved 20 and made it 10."

Explanations which lack specific reference to appropriate fractions should not be awarded the mark, eg:

- *"Because it's a bit less than the trumpet."*
- *"Because there are 6 parts to the pie chart."*

1

(d) Award **TWO** marks for the correct answer of 12, even if there are errors in the working.

Award **ONE** mark if the answer is incorrect, but there is evidence of an attempt to calculate 15% of 80 by any method, eg:

- 15/100 × 80 = (incorrect answer given)
- 10% of 80 = 8, 5% is 4, so 15% of 80 = (incorrect answer given)
- 1% of 80 = 80/100 = 4/5, so 15% = 4/5 × 15 = (incorrect answer given)

The writing of "15/100 × 80" (or equivalent) ***alone*** *is* ***not*** *sufficient evidence of an attempt to calculate.*

Up to 2

[5]

M3. (a) $\frac{3}{7}$ OR $\frac{3}{9}$ OR $\frac{3}{11}$ OR $\frac{5}{11}$

Accept only fraction formed by the cards given.

1

(b) $\frac{4}{7}$ OR $\frac{6}{9}$ OR $\frac{8}{11}$ OR $\frac{6}{11}$

consistent with part (a).

If part (a) is incorrect, accept working of 1 – (answer to part (a)) provided the numbers used are on the cards.

Accept decimals.

If answer to part (a) is greater than 1, answer to part (b) must be negative.

1

[2]

M4. (a) $^{1}/_{5}$ **OR** $^{10}/_{50}$

Accept other equivalent fractions, eg: $^{20}/_{100}$

1

(b) Explanations which imply that the results from a small sample cannot safely be applied to a large one, eg:

- ‘You could be wrong because every section is different’
- ‘The article is only a small proportion of the whole newspaper’
- ‘The rest could be different’
- ‘You can’t judge a whole newspaper by one article’

Do not *accept vague or arbitrary explanations such as:*
‘She might not have counted right’;
‘The words in the newspaper might be big’;
‘There are more bigger words than small’.

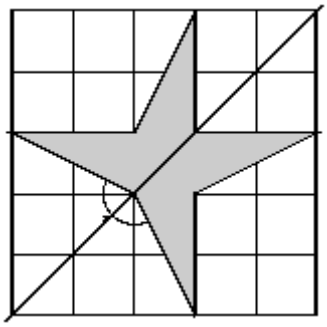
1

[2]

M5. 126

[1]

M6. (a) Line of symmetry drawn as shown.



The length of the line is unimportant, provided the intention is clear.

Accept slight inaccuracies in drawing provided the intention is clear.

1

(b) $^1/_5$ **OR** 0.2 **OR** 20%

Accept equivalent fractions, eg $^5/_{25}$

1

(c) Answer in the range of 140 to 146 inclusive.

1

[3]

M7. 4375

[1]

M8. 157.5 **OR** 157½

[1]

M9. (a) $\frac{3}{4}$ – **OR** 0.75

Accept equivalent fractions.

1

(b) Award **TWO** marks for the correct answer of 625

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

2.5 × 250

OR

250 + 250 + 125

*Accept for **ONE** mark 0.625 **OR** 6.25 **OR** 62.5 **OR** 6250 as evidence of appropriate method.*

Calculation need not be performed for the award of the mark.

Up to 2

[3]

M10. 69

[1]

M11. (a) £17 500

Accept 17500 with or without commas or spaces.

1

(b) An explanation which recognises
that November sales were double October, eg

- 'October was 7500 and November was 7500 more which is 100%';
- 'November is twice October, which is 200%'.

No mark is awarded for circling 'Yes' alone.

***Do not** accept vague or arbitrary answers, eg*

- *'November is more than October';*
- *'Because November is £15000'.*

If 'No' is circled but a correct unambiguous explanation is given then award the mark.

1

[2]

M12. Fractions completed as shown below:

$\frac{\boxed{6}}{10}$ $\frac{\boxed{9}}{15}$ $\frac{12}{\boxed{20}}$

All three fractions must be correct for the award of the mark.

[1]

M13. (a) Award **TWO** marks for the correct answer of 2

If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg

$\frac{3}{4}$ of 24 = 18

green = 24 – 18 – 4

Answer need not be obtained for the award of the mark.

Up to 2

(b) $\frac{1}{5}$

Accept equivalent fractions.

Do not** accept '1 in 5' **OR '1 : 5'.

1

[3]

M14. An appropriate explanation which recognises that:

$\frac{1}{3} = \frac{5}{15}$ and $\frac{2}{5} = \frac{6}{15}$

No mark is awarded for writing $\frac{2}{5}$ *alone.*

OR

$\frac{1}{3} = \frac{2}{6}$ which is less than $\frac{2}{5}$

***Do not** accept vague or arbitrary explanations, eg*

- *'Because $\frac{2}{5}$ is bigger than $\frac{1}{3}$ ';*
- *'Because $\frac{1}{3}$ comes first on a number line'.*

OR

that $\frac{1}{3}$ is less than $\frac{2}{5}$ because $3 \times \frac{2}{5}$ is greater than 1

[1]

M15. 65

[1]

M16. Award **TWO** marks for the correct answer of 112 500

If the answer is incorrect, award **ONE** mark for evidence of appropriate method, eg

- 45% of 250 000

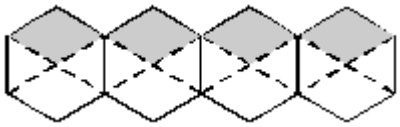
*Answer need not be obtained for the award of **ONE** mark.*

Up to 2

[2]

M17. Equivalent of one third of each hexagon shaded, or a total of $1\frac{1}{3}$ hexagons

shaded, eg



Accept part shapes shaded as long as the intention is clear.
Accept inaccuracies in shading provided the intention is clear.

[1]

M18. 367.5 **OR** 367½

[1]

M19. 64

[1]

M20. £180

***Do not** accept 180%*

[1]

M21. (a) 18

Do not *accept 18%*

1

(b) 200

Do not *accept 200%*

*If the answer for 23a is 18% **AND** the answer for 23b is 200%, award*
ONE *mark only in the 23b box.*

1

[2]

M22. $\boxed{\frac{3}{5}}$ $\boxed{\frac{3}{4}}$ $\boxed{\frac{17}{20}}$ $\boxed{\frac{9}{10}}$

Fractions must be written in the correct order for the award of the mark.

Accept equivalent fractions or decimals.

[1]

M23. 40%

Do not *accept equivalent fractions or decimals.*

[1]

M24. $\frac{1}{6}$

Accept: equivalent fractions, eg $\frac{4}{24}$

[1]

M25. Two numbers circled as shown:

1.1 (1.4) ($1\frac{1}{3}$) $1\frac{1}{5}$

Do not *award the mark if additional incorrect numbers are circled.*

Accept: alternative unambiguous indications, eg numbers ticked, crossed or underlined.

[1]

M26. Award **TWO** marks for the correct answer of 150

If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg:

- 15 + 25 = 40
  100 – 40 = 60
  10% of 250 = 25
  25 × 6 = wrong answer

OR

- 100% – 40% = 60%
  60% of 250 = wrong answer

OR

- 15% of 250 = $37\frac{1}{2}$
  25% of 250 = $62\frac{1}{2}$
  250 – $37\frac{1}{2}$ – $62\frac{1}{2}$ = wrong answer

Working must be carried through to reach an answer for the award of ***ONE*** *mark.*

Up to 2

[2]

M27. (a) $\frac{1}{3}$

Accept equivalent fractions or decimals.

1

(b) $\frac{1}{9}$

Accept equivalent fractions or decimals.

U1

[2]

M28. 30%

Do not *accept equivalent fractions or decimals.*

[1]

M29. Two fractions circled as shown:

(circled) $\frac{2}{3}$ $\frac{6}{10}$ $\frac{9}{12}$ (circled) $\frac{10}{15}$ $\frac{6}{20}$

Do not *award the mark if additional incorrect fractions are circled.*

Accept alternative unambiguous indications, eg fractions ticked, crossed or underlined.

[1]

M30. 126

[1]

M31. An explanation which recognises that 40% of the number must be multiplied by $2\frac{1}{2}$, or equivalent, eg:

- 'You multiply by 2.5'
- 'Halve it and multiply by 5'
- 'Divide by 4 to get 10% and then multiply by 10'
- 'Divide by 40 then multiply by 100'
- 'If you had 100, quarter of 100 is 25, then times by 10 to get 250'
- 'Double it and add half of it'.

***Do not** accept vague or incomplete explanations, eg:*

- *'Start with the original number and find 40% of it'*
- *'Find 10% and multiply by 10'*
- *'Divide by 4 to find 10% and then you can find 100%'*
- *'Find 1% and multiply by 100'*
- *'If you had 20 it would be 50'*
- *'Add 60%'*

U1

[1]

M32. Fraction circled as shown:

$\frac{7}{8}$ $\frac{2}{5}$ $\frac{1}{3}$ $\frac{5}{8}$ $\frac{3}{6}$

Accept alternative unambiguous indications, eg

fraction ticked, crossed or underlined.

[1]

M33. 1 : 3

1

28%

***Do not accept** equivalent fractions or decimals*

1

[2]

M34. 60%

U1

[1]

M35. 60%

U1

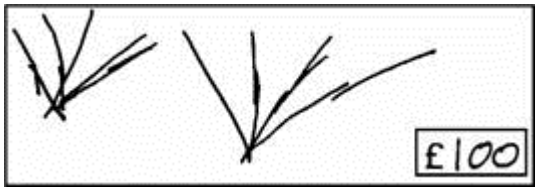
[1]

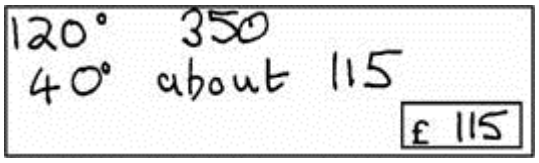
E1. The questions using pie charts in the 1995 tests were designed to assess the skills an understanding associated with Level 5.

The analysis of scripts indicates that children are less secure in their understanding an interpretation of pie charts than they are when working with bar charts and tables of data.

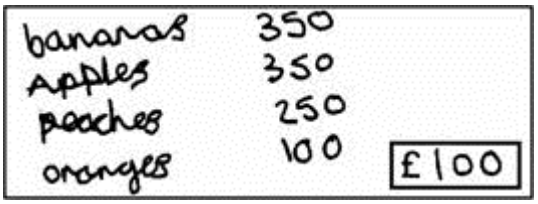
Only small proportions of the children were able to interpret the pie chart successfully.

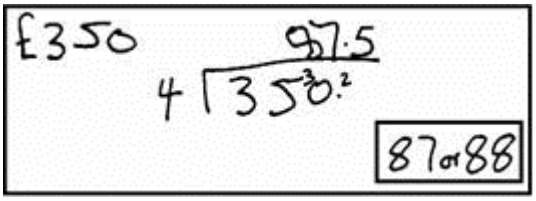
When asked to estimate how much Mrs Binns got selling oranges, children were credited with any value between £85 and £125. Some children arrived at correct answers by successfully using angle sizes:





Other children preferred a numerical approach:





When asked to compare how much two shopkeepers got for selling peaches (part b) only a very small proportion of children were successful.

E2. Use of pie charts

The questions using pie charts in the 1995 tests were designed to assess the skills an understanding associated with Level 5.

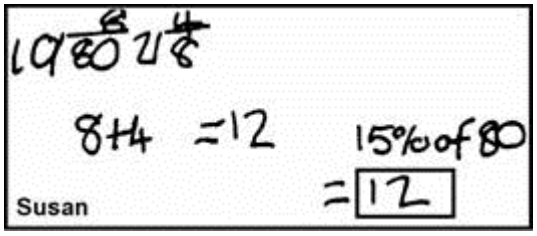
The analysis of scripts indicates that children are less secure in their understanding an interpretation of pie charts than they are when working with bar charts and tables of data.

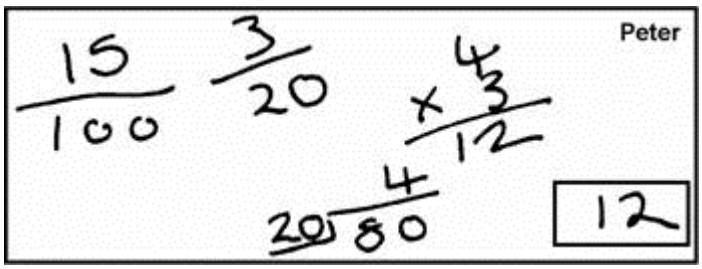
The question gave children a pie chart and asked them to: (a) estimate the fraction who chose a drum; (b) estimate the number who chose the violin and (c) explain how they arrived at their answer for (b). A significant proportion of answers to part (a) were incorrect with even fewer answering (b) and (c) correctly.

Estimation and calculation of percentages.

Many children were not able to calculate 15% of the 80 children (who chose a guitar). A common incorrect answer was 15 which showed a lack of basic understanding of percentages. The majority of errors were in the attempted application of the standard method: 151100 × 80.

The following two examples, which both use non-standard methods, show that Susan and Pete have a firm grasp of the concept of a percentage:





Peter shows a firm understanding of percentages and fractions and their inter-relationships. He reduces 15/100 to three twentieths, then finds one twentieth of 80 (four children) before finding three twentieths (12 children).

Susan shows good understanding and makes no explicit use of fractions. She found 10% first (eight children) then 5% by halving the 8 before finally adding them together to get 12 children.

However, not all percentage work will lend itself to the use of idiosyncratic methods such these. Children should, therefore, experience a range of problems involving percentage calculations which require different methods of working.

E3. No comment available.

E4. No comment available.

E5. There were two questions on percentages. Although nearly two thirds of children reaching level 4 and 93% of those reaching level 5 were able to shade in 10% of the grid correctly, only 13% of children reaching level 4 and just under half of those reaching level 5 were able to find 24% of 525, suggesting only a partial understanding of this particular

topic area. By far the most common error on was to calculate 24% as being equivalent to one twenty-fourth, giving an answer of 21.875.

E6. Forty percent of children reaching level 4 and over ninety percent of those reaching level 5 were also able to identify a shaded area of a shape as 1/5 in part (b). However, this question caused problems for children attaining level 3, and their errors suggest a lack of basic comprehension of fractions.

This question asked children to measure an obtuse angle marked on a given diagram. This question was well done by children working at level 5, but of the wide range of answers given by other children, the most common was to measure the acute angle between the horizontal line and one of the arms of the angle. This may suggest an over-emphasis on acute angles in the children's experiences of angular measurement.

E7. 34% (4% at level 3, 28% at level 4 and 79% at level 5) answered this question correctly.

Children achieving levels 3 and 4 showed a lower response rate on this question than on other questions at the end of the paper. They possibly did not know what to do to complete the fraction calculation, despite the availability of a calculator. Children who attempted this question but answered it incorrectly gave a large number of different answers. The most common incorrect answers were: 5078 (from adding 78 to 5000) 390000 (7 × 8 × 5000) 625 (1/8 of 5000) and 4992.2 (5000 – 7.8).

E8. This question assesses children's ability to calculate fractions of whole number quantities involving an exact non-integer answer.

Nearly 85% of children at level 5 found the correct answer, as did nearly 40% of those at level 4. Only 5% of children at level 3 were successful. Omission rates were high with 15% of children at level 4 and more than half of those at level 3 failing to attempt the question.

Incorrect responses were varied.

E9. The main focus of this question is on simple ratio and direct proportion in the context of measures. Children are required to identify and use the correct operations required to solve the number problems. For the second part of the question, children are asked to record the method that they used. The question uses the context of a recipe.

Nearly 90% of children at level 5 answered the first part of the question successfully, as did more than half of those at level 4. The question was difficult for children at level 3, only 10% were successful and 15% omitted the question.

The most common error was given by more than 10% of children at level 4 and 15% of those at level 3. These children thought one litre of cream would be needed; possibly they doubled the amounts given. A variety of other wrong answers were given at all levels.

The second part of the question was answered correctly by three-quarters of children at level 5, and one-third of those at level 4, but less than 5% of those at level 3. At each level a small number of children who gave wrong answers gained one mark for recording a correct method. This part of the question was omitted by one quarter of children at level 3.

The most common error made by 15% of children at level 3, was either 125 or 500 grams, this corresponds to correctly completing one part of the answer but being unable to complete the rest of the question. At all levels there was a variety of wrong answers.

There was evidence that many children did not make use of a calculator. Forty per cent of children at level 5 recorded non-calculator methods, at level 4 the figure was 30%.

Informal methods were the most common methods at all three levels, they were given by nearly three-quarters of children at level 5, almost half of children at level 4 and just over a quarter at level 3. Only 15% of children at levels 4 and 5 used a standard multiplication algorithm.

* Two marks awarded for fully correct answer

E10. This question assesses children's ability to calculate a percentage of a whole number quantity.

Three-quarters of children at level 5 were successful at this question, as were 30% of those at level 4. Of those at level 3, only 5% gave correct answers and almost 40% failed to answer. More than 15% of children at level 4 also omitted the question. These omission rates were the highest for this test, showing that children found this question difficult to engage with.

Errors were varied for this question, with no common trends.

E11. This question involves the interpretation of a horizontally presented bar chart. Children are also required to explain their reasoning regarding whether or not a given statement is correct, relating this to information on the chart.

Less than half the children attaining level 5 answered the first part correctly, as did under 10% of those at other levels. Correct answers were more often obtained by boys than girls. More than 15% of children obtaining level 3 failed to attempt this part of the question, as did nearly 10% of those obtaining level 4.

Obtaining the answer required children to read two bars on a chart graduated in £2,500 sections, and then find the difference between these values. The answers £15,000 and £20,000 were given by about 20% of children at level 3 and level 4, and by nearly 10% of those at level 5.

The second part of the question was answered correctly by nearly two-thirds of children awarded level 5 and by nearly a quarter of those awarded level 4. Of those children at level 3 about 5% were awarded the mark, with more than one-third omitting this part of the question. This part of the question was also omitted by nearly 20% of children at level 4. As in the first part of the question, boys were more successful than girls.

Of children at level 5, a quarter incorrectly thought the statement was untrue, as did a quarter of children at level 3 and a third of children at level 4. Other children recognised the truth of the statement, but were unable to provide an adequate or correct explanation. This was the case with nearly 10% of children at level 5, 20% of children at level 4, and 30% of children at level 3.

E12. This question assesses children's understanding of equivalent fractions. Children are required to complete three given fractions to make them equivalent to three-fifths.

Nearly 90% of children at level 5 completed all three fractions without error. Fewer children working at the other levels were successful, but nevertheless more than 45% of children at level 4 and 10% of those at level 3 were awarded the mark. Nearly 20% of children at level 3 made no attempt at the question.

Children found completing the fraction with the smallest numbers, 6/10, rather less difficult than the others. Incorrect responses were varied, but it was common for children at levels 3 and 4 to write either three or five into answer boxes in their attempts to make fractions equal to three-fifths. This error was made by about 20% of children at level 3 and over 10% of children at level 4.

E13. The first part of this question assesses children's ability to choose and use appropriate number operations to solve a number problem. They are asked to record the method they use to solve the problem.

In the first part of the question, about 90% of children at level 5 gained both marks for a correct answer; this was also true of 60% of children at level 4 and more than 10% of those at level 3. Very few children who described a viable method failed to carry it through to a successful completion, so it was rare for a single method mark to be awarded. The question was omitted by more than 15% of children at level 3.

Two-thirds of children at level 5 and one-third at level 4 showed a correct method for calculating three-quarters of 24 in their working.

A common answer given by 5% of children at level 3 and level 4 was 12. This suggests that these children's first stage may have been to divide 24 by three, add four blue cubes and then subtract the result from 24, in an incorrect attempt to find three-quarters of 24.

More than 65% of children at level 5 demonstrated a complete written method to solve this problem, eg finding a value for three-quarters of 24 cubes and subtracting that value and four blue cubes to find the remaining number of green cubes. Children at the lower levels were less able to record a complete method. Only one-third of children at level 4 and 10% of children at level 3 were able to do this. There is evidence to suggest that over 10% children at levels 4 and 5 completed only one stage of their working and therefore failed to gain any marks.

In the second part of this question, children are required to solve a problem and write a simple fraction to describe a proportion.

In this part of the question, approximately 70% of children at level 5, 40% at level 4 and nearly 20% of those at level 3 gave a correct answer. Nearly 20% of children at level 3 omitted this part of the question.

A common error was 5/24; this was made by more than 20% of children at level 5, 30% at level 4 and over 10% of those at level 3. This suggests that although they understood there were now five blue cubes in total, they had not appreciated the increase in the total number of cubes.

E14. This question assesses children's ability to order two fractions. They may solve this problem by converting them to fractions with a common denominator or equivalent decimals or percentages or fractions of a number. Children are required to explain their reasoning.

Less than half of children at level 5 were successful on this question, dropping to below 10% of those at level 4. This was one of the most difficult questions on Test A for children at level 3 and level 4, with over 20% of those at level 3 and 15% at level 4 omitting the question.

A common response, given by nearly 20% of children at level 5, over 30% of those at level 4 and nearly half the children at level 3, was to give 2/5 correctly as the answer but with an incorrect or ambiguous explanation.

Fractions were the most common feature in children's explanations. This type of explanation tended to be of the form, '2/5 is equivalent to 6/15 and 1/3 is equivalent to 5/12' or '2/5 is two parts out of five and 1/3 is one part out of three'. Nearly 60% of children at level 5, over 45% of level 4 and about one-third at level 3 used fractions in their explanations. Other types of explanation given by children at level 5 involved using diagrams, using decimals and using fractions of numbers, and tended to be of the form '1/3 of 100 = 33 and 2/5 of 100 = 40'. Each type of response was made by 10% of children at level 5. Use of decimals and fractions of numbers was relatively uncommon at the other levels, although about 10% of children at level 4 used diagrams.

E16. Target Level: 5

Curriculum Coverage (POS ref: Ma2/2f3, 4a)

This question assesses children's ability to calculate a percentage of a whole number quantity. Children are required to identify and use the appropriate operation to solve a real-life problem. They are asked to record the method they use to solve the number problem.

Performance

Over 50% of children working at level 5 and 10% of those working at level 4 gave a correct answer for two marks.

A further 10% of children working at level 4 and 5% of children working at level 5 gained only one mark, for a correct method.

Common errors and misconceptions

- About 5% of children working at level 5 and nearly 15% of those working at level 4 gave an answer of 45, the percentage of people rather than the number who visited in the rest of the year.

Methods

- Of the children working at level 5 who gave the correct answer 60% used a standard written method.
- Of the children working at level 5 who gave a correct answer nearly 25% used an informal method; 40% of successful children working at level 4 also used an informal method.
- Over 15% per cent of children working at level 5 recorded a method suggesting that they might not have used a calculator to help them answer this question.

E17. Target Level: 5

Curriculum Coverage (POS ref: Ma2/2d)

This question assesses children's ability to identify a fraction of a shape. Children are asked to shade one-third of the shape, where the shape is made of four hexagons each divided into four unequal parts.

Performance

Over 60% of children working at level 5 and 20% of those working at level 4 were able to shade one-third of the diagram correctly.

Common errors and misconceptions

- A common error made by nearly 10% of children working at level 5 and over 5% of those working at level 4 was to shade 1/6 hexagons suggesting that they may have been confused about how each hexagon was divided up.

E18. Target Level: 5

Curriculum Coverage (POS ref: Ma2/2d)

This question assesses children's ability to calculate fractions of whole number quantities involving a non-integer answer.

Performance

Almost 90% of children working at level 5 gave the correct answer, as did 45% of those working at level 4 and less than 10% of those working at level 3.

Forty per cent of children working at level 3 and nearly 15% of those working at level 4 omitted this question.

Common errors and misconceptions

- No common errors were identified.

E19. Target Level: 5

Curriculum Coverage (POS ref: Ma2/2d, 3a)

This question explores children's understanding of fractions, operations and inverses. Children are required to find the whole number given the value of a fraction of it.

Performance

Over one-half of children working at level 5 gave the correct answer as did over 10% of those working at level 4.

Common errors and misconceptions

- About 10% of children working at levels 4 and 5 gave an answer of 36, finding three-quarters of 48 rather than the number of which 48 is three-quarters.
- Over 5% of children working at level 5 and over 10% of those working at level 4 gave an answer of 144, reached by multiplying 48 by three.

E20. Target Level: 5

Curriculum Coverage (POS ref: Ma2/2f)

This question assesses children's ability to calculate a percentage of a whole number quantity.

Performance

Eighty per cent of children working at Level 5 answered correctly as did 35% of those working at Level 4.

Nearly 20% of children working at Level 4 failed to give an answer to this question.

Common errors and misconceptions

- Errors were varied with no common trends.

Methods

- The most common method to solve this problem was to work out 10% of £3600, then halve this amount to find 5%. This method was used by 40% of children working at

Level 5 and 20% of those working at Level 4.

- Almost 20% of children working at Level 5 used informal methods.
- Of all the children who gave a correct answer, nearly half of children working at Levels 4 and 5 first found 10% of £3600 then halved this to find 5%.

E21. Target Level: 5

For this question, pupils are required to complete two calculations involving percentages.

Performance

- Almost 90% of pupils working at level 5 gave the correct answer to the first calculation, as did 55% of pupils working at level 4 and almost 20% of those working at level 3.
- Success rates dropped slightly for the second part of the question, with over 70% of pupils working at level 5 answering correctly. Almost one-quarter of pupils working at level 4 were also correct.

Common errors and misconceptions

- For the first calculation, over 5% of pupils working at level 5 gave an answer of 20. These pupils probably assumed 30% is equivalent to 1/3 and therefore divided 60 by 3. Almost 10% of pupils working at the lower levels also made this error.
- For the second calculation, over 10% of pupils working at level 5 gave the missing number as 180. These pupils probably multiplied 3 by 60, possibly because they assumed 30% is equivalent to 1/3.
- Over 5% of pupils working at level 5 and more than 15% of those working at level 4 omitted the second part of the question.
- Nearly one-quarter of all pupils working at level 4 and over 30% of those working at level 3 gave the same answer for both parts of the question.

E22. Target Level: 5

Curriculum Coverage (POS ref: Ma2/2e)

This question assesses pupils' ability to order a set of fractions, with different denominators, by size from smallest to largest.

Performance

- Two-thirds of pupils working at level 5 ordered the fractions correctly. More than 15% of pupils working at level 4, and almost 5% of those working at level 3, were also successful.

Common errors and misconceptions

- The most common incorrect response among pupils working at level 5 was to order the fractions according to the size of their denominators, with these in descending order. This would have been a correct response if the numerators had been the same for each fraction; however, these pupils failed to notice that after the first two fractions the numerator varied. Fewer than 10% of pupils working at level 5 made this error. More than one-quarter of pupils working at level 4 also gave this incorrect response. It was also common among pupils working at level 3.

- The most common error among pupils working at level 3 was again to order the fractions according to the size of their denominators, but this time in ascending order. Pupils who made this error probably believed that the smaller the denominator, the smaller the fraction, suggesting that they did not understand the meaning of the denominator. These pupils also failed to take any account of the size of the numerator.

E23. Target Level: 5

Curriculum Coverage (POS ref: Ma2/2f, 2g)

This question assesses pupils' understanding of percentages. They are required to calculate the shaded percentage of a grid of 25 squares.

Performance

About two-thirds of pupils working at level 5 gave the correct answer. Nearly 15% of pupils working at level 4 were also successful.

Common errors and misconceptions

- More than 10% of pupils working at level 5 gave an incorrect answer of 10%, probably because 10 squares were shaded. About 30% of pupils working at level 4 and more than half of all pupils working at level 3 also gave this response.

- Over 5% of pupils working at levels 4 and 5 gave an answer of 2.5%. They may have divided the number of squares on the grid (25) by the number of shaded squares (10).

Resource currently unavailable.