

## 8+ PAST PAPER PACK

# Westminster Cathedral Choir School 8+ Maths 2025

## Complete Past Paper Pack

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Westminster Cathedral Choir School 8+ Maths. Work through this paper first.

Includes Paper Notes: overview, topics, revision tips, common mistakes.

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Includes Paper Notes: overview, topics, revision tips, common mistakes.

PRACTISE THE REAL THING

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# WCCS

8+ Mathematics

## **SPECIMEN PAPER**

Time allowed: 45 mins

Total marks: 100

Please read the following information carefully

- Try to answer **all** the questions in the space provided
- Remember to show your working out
- You will need to use a **ruler**
- You may **not** use a calculator

Name.....

Current School.....

(1) What is the value of the 4 in the number 5247?

\_\_\_\_\_ (2)

---

(2) Write the following numbers in order of size from the smallest to the largest

7051    7501    7015    6105    7051    6051

\_\_\_\_\_ (2)

---

(3) Use the column method of addition to answer the question below:

$$\begin{array}{r} 27 \\ + 456 \\ \hline \\ \hline \end{array}$$

(2)

---

(4) Fill in the blank in the following calculation:

$$48 + \underline{\hspace{2cm}} = 19 + 37$$

(2)

---

(5) Michael has 617 coins in his collection. His uncle gives him another 268 coins. How many coins does Michael have altogether?

\_\_\_\_\_ (2)

---

(6) Use the column method of subtraction to answer the question below:

$$\begin{array}{r} 567 \\ - 349 \\ \hline \\ \hline \end{array}$$

\_\_\_\_\_ (2)

---

(7) Fill in the blank in the following calculation:

$$74 + 11 = \underline{\hspace{2cm}} - 9$$

\_\_\_\_\_ (2)

---

(8) Peter has 418 chips on his plate. He gives 236 chips to Freddie. How many chips are left on Peter's plate?

\_\_\_\_\_ (2)

---

(9)  $347 \times 100$

\_\_\_\_\_ (2)

---

(10)  $16 \times 300$

\_\_\_\_\_ (2)

---

(11)  $60 \times 300$

\_\_\_\_\_ (2)

---

(12) Use the written method of multiplication to answer the question below:

$$\begin{array}{r} 28 \\ \times 9 \\ \hline \\ \hline \end{array}$$

(2)

---

(13) Fill in the answers to the following questions:

(a)  $6 \times 9 =$  \_\_\_\_\_

(b)  $3 \times 8 =$  \_\_\_\_\_

(c)  $5 \times 12 =$  \_\_\_\_\_

(d)  $36 \div 9 =$  \_\_\_\_\_

(2)

---

(14) Pupils from Westminster Cathedral Choir School go on a school trip to London Zoo. If the pupils fill up 7 minibuses and there are 16 pupils in each minibus, how many pupils are there altogether on the trip?

\_\_\_\_\_ (2)

---

(15)  $3400 \div 10$

\_\_\_\_\_ (2)

---

(16)  $6400 \div 200$

\_\_\_\_\_ (2)

---

(17) Edward has £60 in his money box. If he gives one fifth of his money to his brother, how much money does he have left?

\_\_\_\_\_ (2)

---

(18) Fill in the blank in the following calculation:

$$63 \times 4 = \text{_____} \times 3$$

\_\_\_\_\_ (2)

---

(19) Use the written method of division to answer the question below, giving a remainder in your answer if necessary. Write your final answer on the line at the bottom of the question

$$5 \overline{) 74}$$

\_\_\_\_\_ (2)

---

(20) Simon has 48 friends at his birthday party. At the start of a party game, he asks them to stand in rows. If there are 8 friends in each row, how many rows are there altogether?

\_\_\_\_\_ (2)

---

(21) Fill in the blank in the number pattern below:

5      9      13      17      \_\_\_\_\_

\_\_\_\_\_ (2)

---

(22) Fill in the blank in the number pattern below:

7    9    13    19    \_\_\_\_\_

(2)

---

(23) Fill in the blank in the number pattern below:

48    24    12    \_\_\_\_\_    3

(2)

---

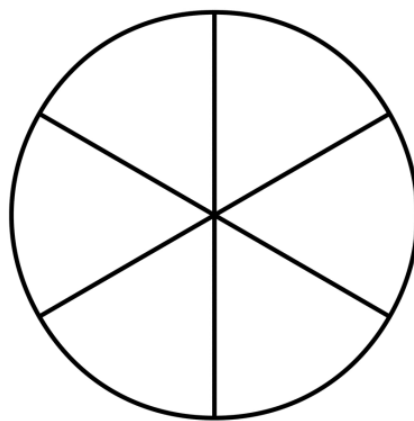
(24) Fill in the blank in the number pattern below:

1    \_\_\_\_\_    9    27    81

(2)

---

(25) Shade  $\frac{5}{6}$  of the following shape



(2)

---

(26) What number should replace the \* symbol so the following fractions have the same value?

$$\frac{3}{5} = \frac{*}{20}$$

\_\_\_\_\_ (2)

---

(27) Write the fraction  $\frac{12}{20}$  in its simplest form

\_\_\_\_\_ (2)

---

(28) What is  $\frac{1}{3}$  of £180?

\_\_\_\_\_ (2)

---

(29) What is  $\frac{2}{9} + \frac{5}{9}$  ?

\_\_\_\_\_ (2)

---

(30) Subtract £2.20 from £6.50

\_\_\_\_\_ (2)

---

(31) Emma buys a milkshake which costs £2.85. She pays with a £10 note. How much change does she receive?

\_\_\_\_\_ (2)

---

(32) Michael has £32.60 in his money box. If he spends £15.40 on snacks, how much money does he have left?

\_\_\_\_\_ (2)

---

(33) What is 47 rounded to the nearest 10?

\_\_\_\_\_ (2)

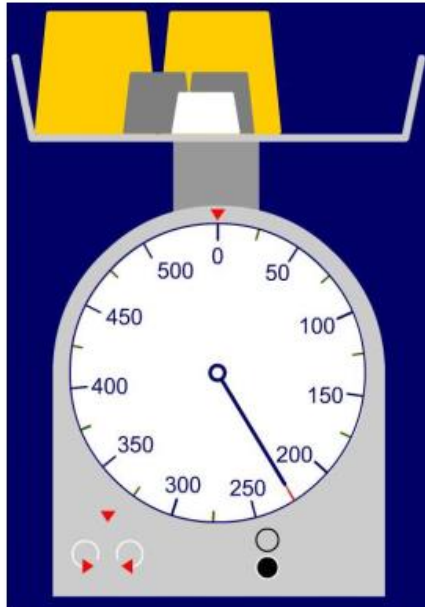
---

(34) What is 327 rounded to the nearest 100?

\_\_\_\_\_ (2)

---

(35) Write down the mass in grams shown on the scales below:



\_\_\_\_\_ (2)

---

(36) How many grams are there in 2.5 kilograms?

\_\_\_\_\_ (2)

---

(37) Use a ruler to measure the length of the thick black line to the nearest half-centimetre.  
Write your answer on the thin line below



\_\_\_\_\_ (2)

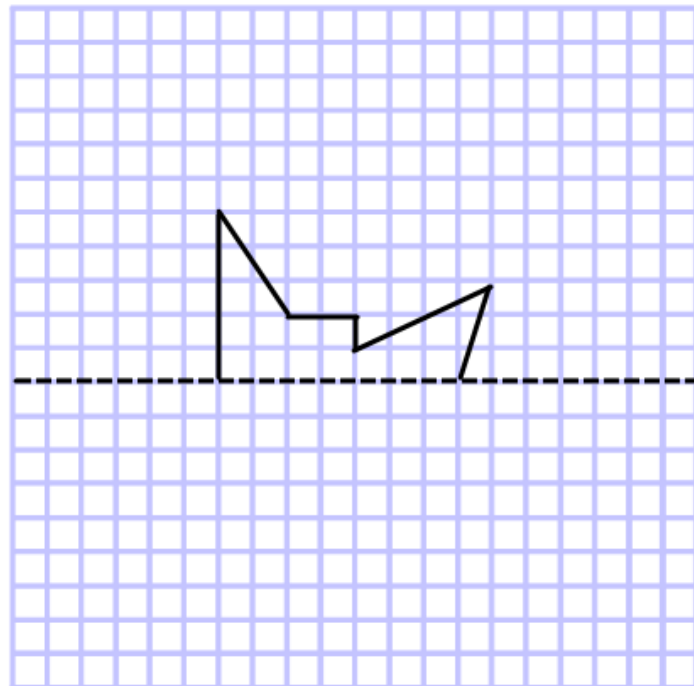
---

(38) Miss Jones went to the cinema to watch 'The Return of the Super Monsters'. If the film is 2 hours and 45 minutes long and finished at 9.30pm, at what time did the film start?

\_\_\_\_\_ (2)

---

(39) Draw the mirror image of this shape on the grid below.



(2)

(40) A bowl of fruit contains only apples, oranges, pears and bananas. Half of the fruit are apples. There are also 2 oranges, 1 pear and 6 bananas.

How many pieces of fruit are there in the bowl altogether?

(2)

(41) Max asked his friends to name their favourite ice-cream flavour.

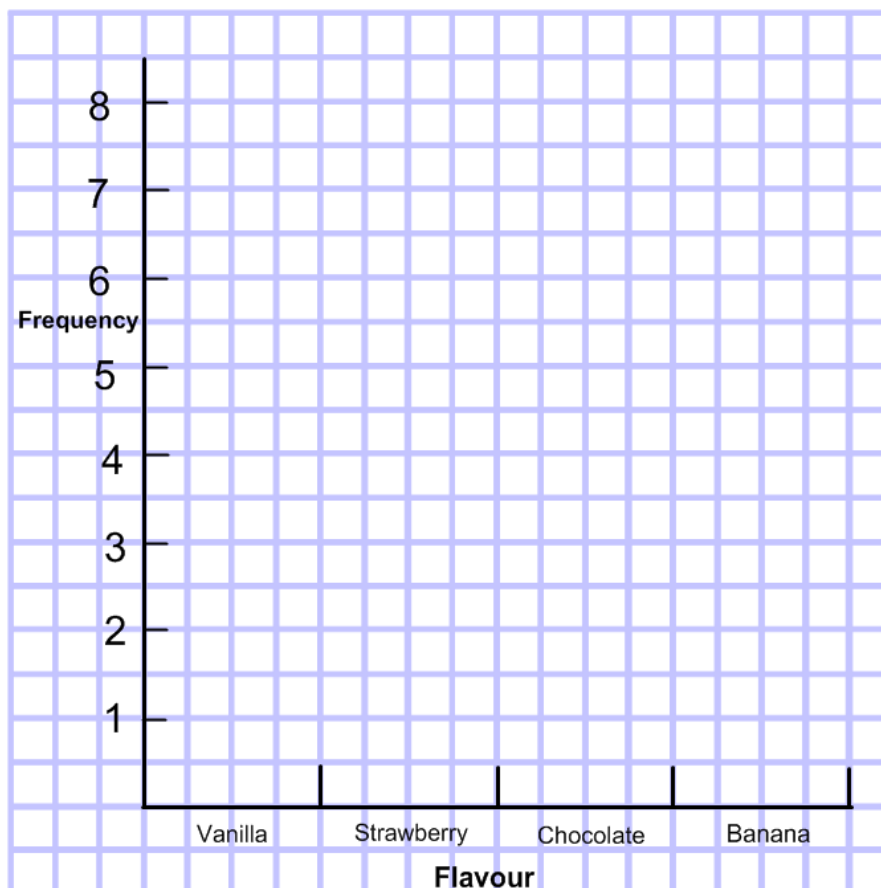
He collected his results in the frequency table below.

Flavour	Tally	Frequency
Vanilla		
Strawberry		
Chocolate		
Banana		

(a) Fill in the column marked 'frequency' in the table above.

(2)

(b) Use the data in this frequency table to draw a bar chart on the grid below.



(4)

(42) Tickets for a theme park cost £9 for a child and £13 for an adult.

If Mr. Brown has £95 pounds cash and then buys tickets for himself and 6 pupils, how much money does he have left over?

\_\_\_\_\_ (2)

---

(43) I have a pile of sweets which contains less than 30 sweets.

If I put them into piles of 3, I have none left over.

If I put them into piles of 2, 4 or 5, I always have one left over?

How many sweets do I have?

\_\_\_\_\_ (2)

---

(44) It takes Mr White exactly 45 minutes to walk to the cinema from his house. If the film he wants to see starts at 8.20pm, what is the latest time he can leave home?

\_\_\_\_\_ (2)

---

(45) Steven is 8cm taller than Maddy. Peter is 12cm shorter than Steven. Maddy is 125cm tall. How tall is Peter? *Give your answer in centimetres*

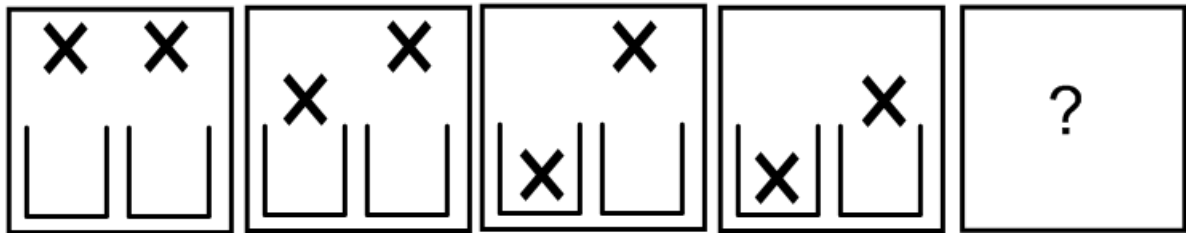
\_\_\_\_\_ (2)

(46) Nine bus stops are equally spaced along a bus route. The distance from the first to the third is 600m. How far is it from the first to the last?

\_\_\_\_\_ (2)

---

(47) Write down the letter of the box which comes next in the sequence.

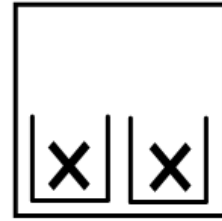
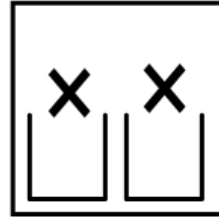
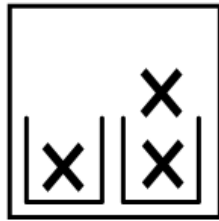
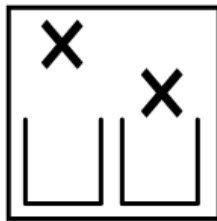


**A**

**B**

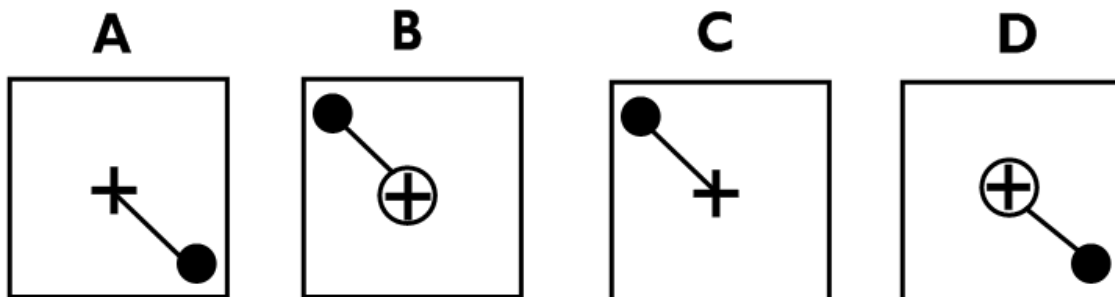
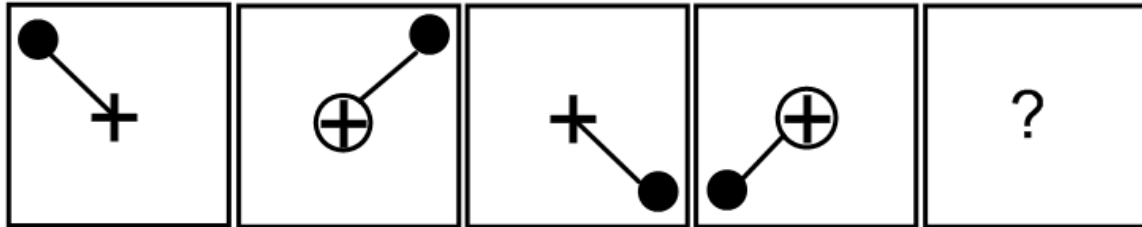
**C**

**D**



(2)

(48) Write down the letter of the box which comes next in the sequence.



\_\_\_\_\_ (2)

# Paper Notes: 8+ Maths Specimen Paper (8+ Maths Specimen Paper (2025))

Compiled by [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk) to help you get the most from this paper.

## Overview

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This is the **8+ Mathematics Specimen Paper** published by **Westminster Cathedral Choir School** in London, designed for candidates seeking **Year 4 entry** (age 8+). The paper offers a comprehensive test of core mathematical skills expected at the 8+ level, spanning arithmetic, place value, fractions, time, measurement, data handling, and problem solving.

The paper is structured as a single **45-minute** examination worth **100 marks**, containing **48 questions** that progress from straightforward computation to multi-step word problems and visual reasoning. Questions are presented in a clear, uncluttered format with space for working out, and the paper explicitly states that **calculators are not permitted**. A ruler is required for measurement and drawing tasks.

This specimen paper is an invaluable resource for families preparing for entry to Westminster Cathedral Choir School or similar independent preparatory schools. It provides insight into the school's expectations, the breadth of topics tested, and the level of mathematical reasoning required. The mix of procedural questions and applied problems reflects the school's aim to assess both technical fluency and the ability to apply maths in context.

## How this paper is organised

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The paper comprises **48 questions** distributed across a single continuous section, with each question typically worth **2 marks**, leading to a total of **100 marks**. Questions are numbered consecutively and presented in a broadly ascending order of difficulty, starting with place value and basic arithmetic operations before progressing to fractions, measurement, data interpretation, and more complex reasoning tasks.

Early questions focus on place value, ordering numbers, and the four operations using both column methods and mental strategies. The middle section introduces fractions (including finding fractions of amounts and simplifying), money problems, rounding, and conversions between metric units. Later questions test time calculation, measurement with a ruler, reflection symmetry, frequency tables, bar charts, and multi-step word problems.

The final questions (47 and 48) present visual pattern sequences, requiring candidates to identify the next shape in a series. Throughout the paper, working space is provided

beneath each question, and candidates are reminded to show their working. The instruction to use a ruler appears at the outset, and the ban on calculators underscores the emphasis on mental arithmetic and written methods.

## Topics covered

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- Place value and digit recognition in three- and four-digit numbers
- Ordering and comparing four-digit numbers
- Column addition and subtraction with regrouping (up to three-digit numbers)
- Multiplication and division, including by 10, 100, and multiples of 10 and 100
- Times tables recall (up to  $12 \times 12$ ) and related division facts
- Fractions: recognising, shading, simplifying, finding fractions of amounts, and adding fractions with common denominators
- Money calculations: subtraction, addition, and multi-step problems involving change and totals
- Rounding whole numbers to the nearest 10 and 100
- Measurement: reading scales (mass in grams), converting between grams and kilograms, measuring lengths with a ruler to the nearest half-centimetre
- Time calculations involving hours and minutes, including working backwards from an end time
- Number sequences and patterns: linear sequences (addition), geometric sequences (multiplication), and halving sequences
- Data handling: completing frequency tables from tally charts and drawing bar charts
- Symmetry: drawing mirror images on a grid
- Multi-step word problems requiring logical reasoning and interpretation of problem structure
- Visual pattern recognition and spatial reasoning with abstract sequences

## How to use this paper for revision

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- Practise column addition and subtraction with three-digit numbers until you can regroup confidently across multiple place value columns without needing to recount.
- Memorise all times tables up to  $12 \times 12$  and their corresponding division facts; many questions in this paper rely on instant recall to save time.
- Work through a range of fraction problems: shading diagrams, simplifying fractions by finding common factors, and finding fractions of quantities using division and multiplication.
- Revise metric conversions (grams to kilograms, vice versa) and practise reading scales carefully, checking the value of each interval marked on the dial or axis.
- Practise time problems by drawing simple timelines on scrap paper and working backwards; for example, if a film ends at 9.30pm and lasts 2 hours 45 minutes, subtract in stages (2 hours to 7.30pm, then 45 minutes to 6.45pm).
- Get comfortable with multi-step word problems by underlining key numbers and circling the operation words (such as 'altogether', 'left over', 'each', 'per') to help you decide which calculations to perform and in what order.
- For visual sequence questions, look for patterns in position, shape, shading, and rotation; compare consecutive boxes to see what changes and what stays the same, then apply the same rule to the missing box.

## Common mistakes to avoid

---

- Forgetting to show working when using column methods; even if the answer is correct, examiners may withhold marks if no method is visible.
- Misreading the place value of digits, especially confusing hundreds and tens in four-digit numbers (for example, thinking the 4 in 5247 represents 400 rather than 40).
- Failing to simplify fractions when asked; for instance, leaving  $12/20$  as is instead of dividing both numerator and denominator by 4 to get  $3/5$ .
- Mixing up the order of operations in multi-step problems, such as calculating ticket costs for children before adding the adult ticket, or forgetting to subtract the total from the starting amount of money.
- Not checking units carefully in measurement questions, leading to answers in the wrong unit (for example, giving a mass as 435 when the question asks for grams, or writing 2500 instead of 2.5kg).
- Rushing through visual pattern questions without systematically checking each feature; missing a rotation or a change in shading can lead to choosing the wrong answer from the multiple-choice options.

## Exam technique

---

Begin by reading the front-page instructions carefully and ensuring you have a pencil, rubber, and ruler to hand. Attempt questions in order, as the paper is designed to progress from simpler to more challenging problems, and early questions build confidence and secure quick marks. If a question seems difficult, leave it and return at the end rather than spending too long on a single item.

Show all working clearly, particularly for column addition, subtraction, multiplication, and division. Even if you make an arithmetic error, clear working can earn method marks. For word problems, underline the numbers and key phrases, then decide which operations are needed and in what order; writing a short sentence plan (e.g. '7 buses  $\times$  16 pupils = total') helps avoid confusion. For questions involving fractions or percentages, write intermediate steps so you can check your logic.

Manage your **45 minutes** carefully: with 48 questions worth 100 marks, aim to spend roughly 50 seconds per mark on average, but adjust according to difficulty. Simpler arithmetic questions may take 30 seconds, while multi-step problems or the bar chart may take 2 to 3 minutes. Leave 5 minutes at the end to review your answers, check units (grams vs kilograms, pounds vs pence, cm vs m), and ensure you have answered every part of multi-part questions such as question 41.

## What to revise alongside this paper

---

Before attempting this paper, ensure you are confident with the four operations on whole numbers up to 1000, including mental arithmetic strategies such as partitioning and bridging through multiples of 10 or 100. Revisit equivalent fractions, simplifying by finding the highest common factor, and finding fractions of amounts by dividing and then multiplying. Consolidate your understanding of metric measurement, particularly the relationship between grams and kilograms (1 kg equals 1000 g) and the ability to read different types of scales.

Once you have completed this specimen paper, progress to past papers or practice sets that introduce decimals in the context of money and measurement, as well as more advanced fraction operations (adding fractions with different denominators, multiplying fractions by whole numbers). Explore harder multi-step problems involving ratios, proportion, and more complex time intervals, and practise interpreting a wider range of data displays such as pictograms and line graphs.

Alongside maths-specific revision, develop your reasoning and problem-solving skills by working through logic puzzles, pattern-spotting exercises, and non-standard word problems. These will build the flexibility and persistence needed for the more open-ended questions that appear in later sections of entrance exams at this level.

## Key terms

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**Place value, Column addition, Column subtraction, Regrouping (carrying, borrowing), Times tables, Division with remainder, Equivalent fractions, Simplifying fractions, Numerator and denominator, Tally chart, Frequency table, Bar chart, Rounding, Metric units (grams, kilograms, centimetres, metres), Mirror line (line of symmetry), Sequence (number pattern)**

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# WCCS

8+ Mathematics

## **SPECIMEN PAPER 2**

Time allowed: 45 mins

Total marks: 100

Please read the following information carefully

- Try to answer **all** the questions in the space provided
- Remember to show your working out
- You will need to use a **ruler**
- You may **not** use a calculator

Name.....

Current School.....

(1) What is the value of the 3 in the number 4391?

\_\_\_\_\_ (2)

---

(2) Write the following numbers in order of size from the smallest to the largest

8162    8612    7162    7621    8216    7261

\_\_\_\_\_ (2)

---

(3) Use the column method of addition to answer the question below:

$$\begin{array}{r} 35 \\ + 286 \\ \hline \\ \hline \end{array}$$

(2)

---

(4) Fill in the blank in the following calculation:

$$37 + \underline{\hspace{2cm}} = 15 + 28$$

(2)

---

(5) Sam has 335 stamps in his collection. His father gives him another 184 stamps. How many stamps does Sam have altogether?

\_\_\_\_\_ (2)

---

(6) Use the column method of subtraction to answer the question below:

$$\begin{array}{r} 346 \\ - 108 \\ \hline \\ \hline \end{array}$$

\_\_\_\_\_ (2)

---

(7) Fill in the blank in the following calculation:

$$61 + 15 = \underline{\hspace{2cm}} - 3$$

\_\_\_\_\_ (2)

---

(8) John has 316 peas on his plate. He gives 251 peas to Michael. How many peas are left on John's plate?

\_\_\_\_\_ (2)

---

(9)  $621 \times 100$

\_\_\_\_\_ (2)

---

(10)  $14 \times 200$

\_\_\_\_\_ (2)

---

(11)  $30 \times 500$

\_\_\_\_\_ (2)

---

(12) Use the written method of multiplication to answer the question below:

$$\begin{array}{r} 32 \\ \times 6 \\ \hline \\ \hline \end{array}$$

(2)

---

(13) Fill in the answers to the following questions:

(a)  $5 \times 8 =$  \_\_\_\_\_

(b)  $2 \times 7 =$  \_\_\_\_\_

(c)  $4 \times 12 =$  \_\_\_\_\_

(d)  $48 \div 6 =$  \_\_\_\_\_

(2)

---

(14) Teachers from Covent Garden Primary School go on a school trip to The Museum of London. If the teachers fill up 4 coaches and there are 21 teachers in each coach, how many teachers go on the trip altogether?

\_\_\_\_\_ (2)

---

(15)  $4200 \div 10$

\_\_\_\_\_ (2)

---

(16)  $4800 \div 200$

\_\_\_\_\_ (2)

---

(17) Steven has 80 football stickers. If he gives one quarter of them to his sister, how many stickers does he have left?

\_\_\_\_\_ (2)

---

(18) Fill in the blank in the following calculation:

$$24 \times 6 = \text{_____} \times 4$$

\_\_\_\_\_ (2)

---

(19) Use the written method of division to answer the question below, giving a remainder in your answer if necessary. Write your final answer on the line at the bottom of the question

$$6 \overline{) 81}$$

\_\_\_\_\_ (2)

---

(20) George has 32 toy cars. He organises them into rows. If there are 4 cars in each row, how many rows are there altogether?

\_\_\_\_\_ (2)

---

(21) Fill in the blank in the number pattern below:

6    9    12    15    \_\_\_\_\_

\_\_\_\_\_ (2)

---

(22) Fill in the blank in the number pattern below:

5      7      11      17      \_\_\_\_\_

(2)

---

(23) Fill in the blank in the number pattern below:

64      32      16      \_\_\_\_\_      4

(2)

---

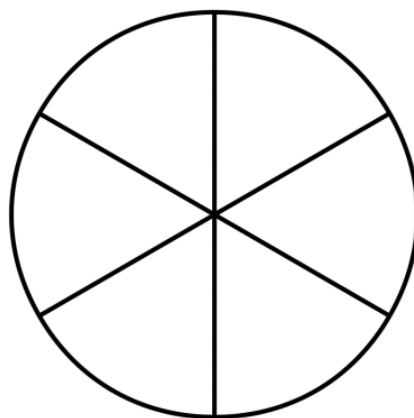
(24) Fill in the blank in the number pattern below:

1      \_\_\_\_\_      100      1000      10,000

(2)

---

(25) Shade  $\frac{2}{6}$  of the following shape



(2)

---

(26) What number should replace the \* symbol so the following fractions have the same value?

$$\frac{2}{5} = \frac{*}{25}$$

\_\_\_\_\_ (2)

---

(27) Write the fraction  $\frac{15}{25}$  in its simplest form

\_\_\_\_\_ (2)

---

(28) What is  $\frac{1}{5}$  of £60?

\_\_\_\_\_ (2)

---

(29) What is  $\frac{2}{7} + \frac{3}{7}$  ?

\_\_\_\_\_ (2)

---

(30) Subtract £1.40 from £7.50

\_\_\_\_\_ (2)

---

(31) Claire buys a sandwich which costs £3.35. She pays with a £10 note. How much change does she receive?

\_\_\_\_\_ (2)

---

(32) Stewart has £48.50 in his money box. If he spends £19.20 on sweets, how much money does he have left?

\_\_\_\_\_ (2)

---

(33) What is 38 rounded to the nearest 10?

\_\_\_\_\_ (2)

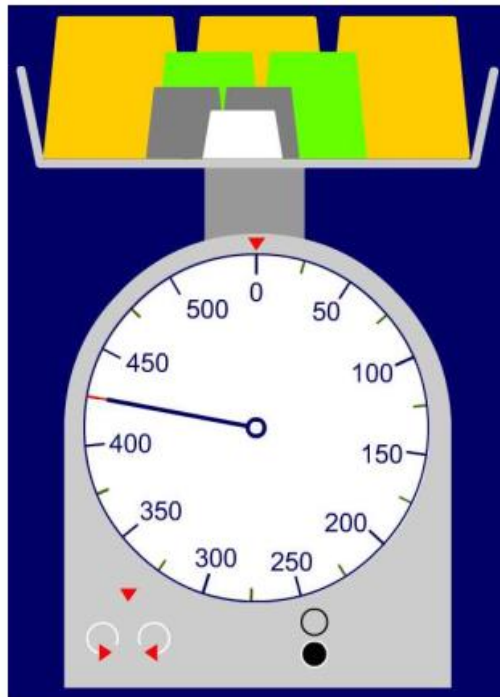
---

(34) What is 432 rounded to the nearest 100?

\_\_\_\_\_ (2)

---

(35) Write down the mass in grams shown on the scales below:



\_\_\_\_\_ (2)

---

(36) How many grams are there in 7 kilograms?

\_\_\_\_\_ (2)

---

(37) Use a ruler to measure the length of the thick black line to the nearest half-centimetre.  
Write your answer on the thin line below



\_\_\_\_\_ (2)

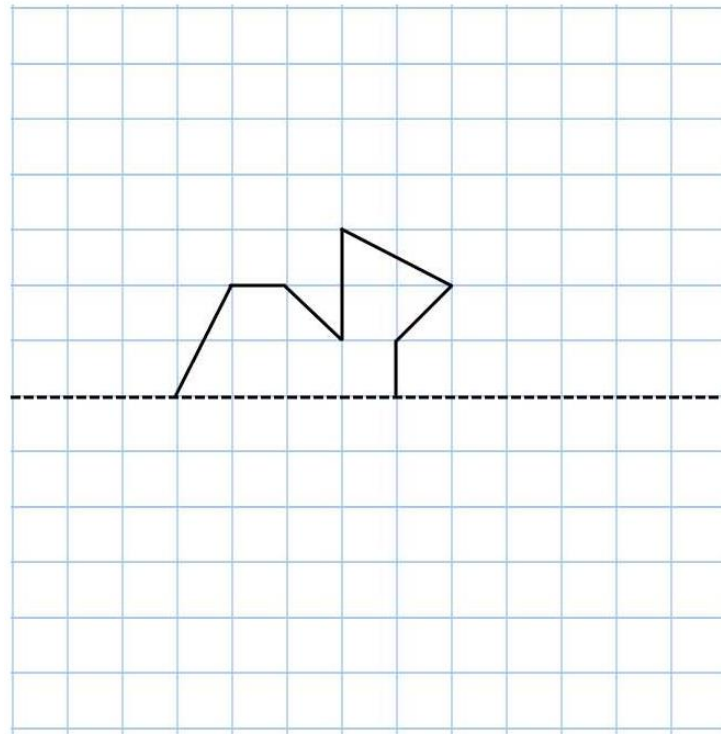
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(38) Mr Peters went to the theatre to see 'The Mousetrap'. If the play is 2 hours and 15 minutes long and finished at 9pm, at what time did the play start?

\_\_\_\_\_ (2)

---

(39) Draw the mirror image of this shape on the grid below.



(2)

---

(40) A bowl of sweets contains only gobstoppers, fizzers, wine gums and chew-its. Half of the sweets are gobstoppers. There are also 4 fizzers, 2 wine gums and 3 chew-its.

How many sweets are there in the bowl altogether?

\_\_\_\_\_ (2)

(41) Daniel asked his friends to name their favourite flavour of crisps.

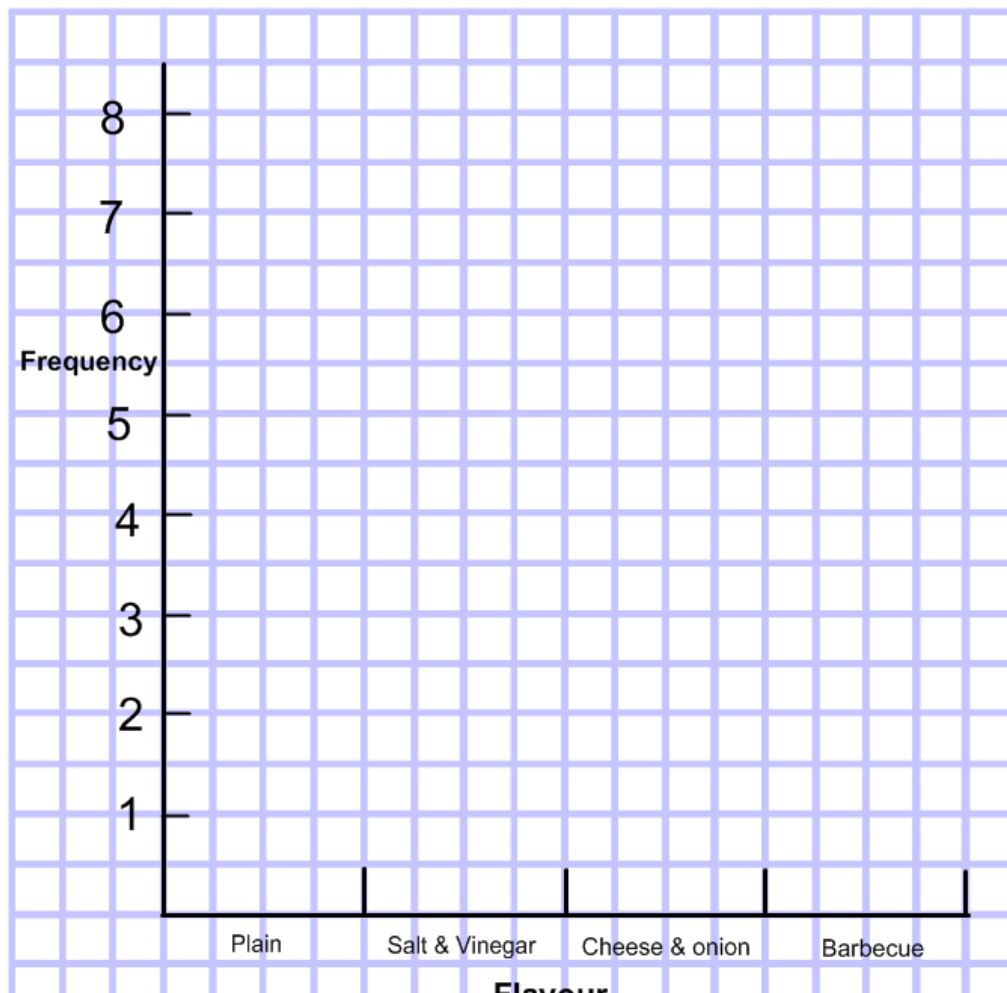
He collected his results in the frequency table below.

Flavour	Tally	Frequency
Plain		
Salt & Vinegar		
Cheese & Onion		
Barbecue		

(a) Fill in the column marked 'frequency' in the table above.

(2)

(b) Use the data in this frequency table to draw a bar chart on the grid below.



(4)

(42) Tickets for the circus cost £8 for a child and £15 for an adult.

If Mr White has £50 and then buys tickets for himself and 3 pupils, how much money does he have left over?

\_\_\_\_\_ (2)

---

(43) I have a packet of biscuits which contains less than 30 biscuits.

If I put them into piles of 2, I have none left over.

If I put them into piles of 3, I have one left over.

If I put them into piles of 4 or 5, I have two left over?

How many biscuits do I have?

\_\_\_\_\_ (2)

---

(44) It takes Mr Black exactly 35 minutes to walk to the football stadium from his house. If the football match starts at 7.15pm, what is the latest time he can leave home?

\_\_\_\_\_ (2)

---

(45) Paul is 12cm taller than Claire. Mike is 15cm shorter than Paul. Claire is 118cm tall. How tall is Mike?

*Give your answer in centimetres*

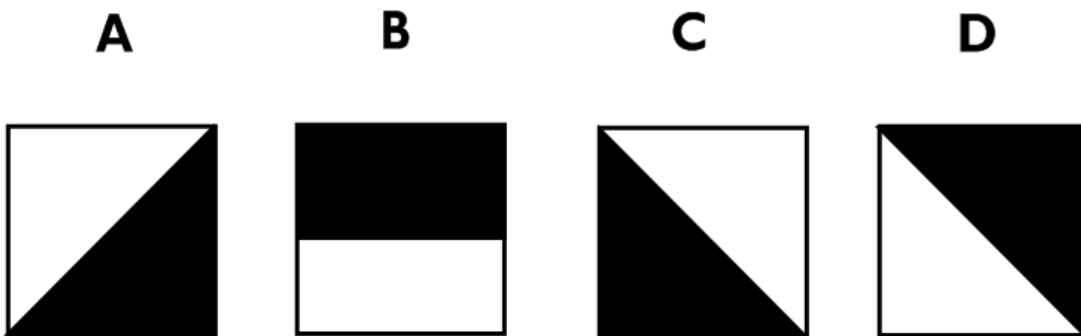
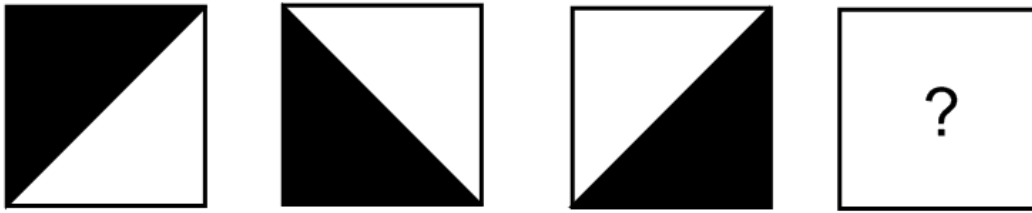
\_\_\_\_\_ (2)

(46) Eight fence posts are equally spaced along a fence. The distance from the first to the fourth is 45m. How far is it from the first post to the last post?

\_\_\_\_\_ (2)

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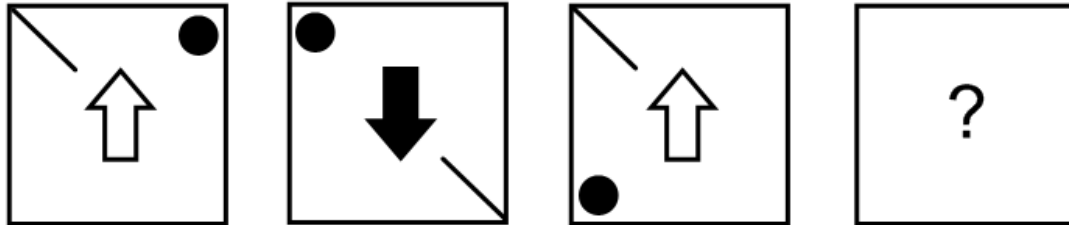
(47) Write down the letter of the box which comes next in the sequence.



(2)

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(48) Write down the letter of the box which comes next in the sequence.

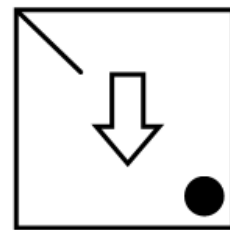
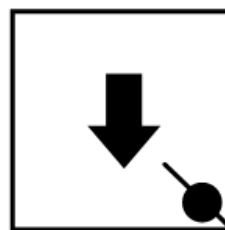
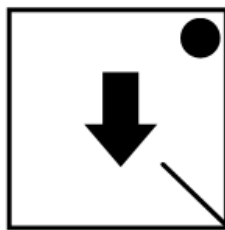
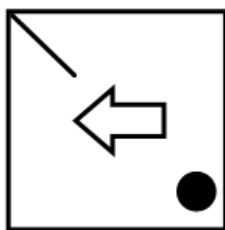


**A**

**B**

**C**

**D**



(2)

# Paper Notes: 8+ Maths Specimen Paper (8+ Maths Specimen Paper (2025))

Compiled by [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk) to help you get the most from this paper.

## Overview

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This is the **8+ Mathematics Specimen Paper 2** published by **Westminster Cathedral Choir School** in London for entry at **Year 4** level. The paper is designed to assess the mathematical ability of candidates applying to the school, testing core arithmetic, problem-solving, pattern recognition, and early data handling. It comprises **48 questions** worth a total of **100 marks** and must be completed in **45 minutes** without a calculator.

The paper covers a broad range of topics including place value, the four operations (addition, subtraction, multiplication, division), fractions, decimals, money, time, measurement (mass and length), rounding, simple algebra (missing number problems), and basic statistics (frequency tables and bar charts). Questions are presented in a variety of formats: short calculations, word problems, visual diagrams, number sequences, and graphical tasks. The emphasis is on demonstrating clear working and applying mental and written methods accurately.

This specimen paper is aimed at children in Year 3 (aged 7 to 8) preparing for selective independent school entrance at 8+. It offers a realistic preview of the expectations and challenge level for Westminster Cathedral Choir School's mathematics entrance examination. Parents and tutors can use this paper to identify strengths and areas for development, practise exam technique, and build confidence ahead of the real assessment.

## How this paper is organised

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The paper consists of **48 questions** distributed across **20 pages**, with each question typically worth **2 marks**. A small number of questions (such as Question 41(b), which asks candidates to draw a bar chart) carry higher mark allocations, reflecting their complexity. Candidates are given **45 minutes** to complete the paper, which translates to roughly one minute per question, though some require more time for working and others can be answered quickly.

Questions are presented in a single continuous sequence rather than divided into formal sections, but the content naturally progresses from basic arithmetic and place value (Questions 1 to 13) through multiplication, division, and multi-step word problems (Questions 14 to 20), then on to number patterns, fractions, money, rounding,

measurement, and time (Questions 21 to 38). The final portion (Questions 39 to 48) includes geometry (reflection), data handling (frequency tables and bar charts), and more challenging multi-step reasoning problems, including pattern sequences with shapes.

Space is provided beneath each question for working, and candidates are reminded on the front cover to show all working clearly and to use a ruler where necessary. The instructions emphasise that calculators are not permitted, reinforcing the expectation of fluent mental and written calculation throughout.

## Topics covered

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- Place value and the value of digits in three-digit and four-digit numbers (e.g. identifying the value of 3 in 4391)
- Ordering whole numbers, comparing four-digit numbers and arranging them from smallest to largest
- Column addition and subtraction with three-digit numbers, including exchanging (regrouping) across columns
- Missing number problems involving addition and subtraction, requiring simple algebraic reasoning
- Multiplication by single digits, two-digit by single-digit using written column methods (e.g.  $32 \times 6$ ), and multiplication by multiples of 10, 100, and 200 (e.g.  $621 \times 100$ ,  $14 \times 200$ ,  $30 \times 500$ )
- Division by single digits using written methods, including problems with remainders (e.g.  $81 \div 6$ ), and division by 10, 100, and 200 (e.g.  $4200 \div 10$ ,  $4800 \div 200$ )
- Fractions: shading specified fractions of shapes, finding equivalent fractions, simplifying fractions, calculating unit and non-unit fractions of amounts (e.g.  $\frac{1}{5}$  of £60), and adding fractions with the same denominator
- Money calculations involving addition, subtraction, and finding change from notes (e.g. subtracting £1.40 from £7.50, calculating change from £10)
- Rounding whole numbers to the nearest 10 and 100 (e.g. rounding 38 and 432)
- Measurement: reading mass from analogue scales in grams, converting kilograms to grams, and measuring lengths to the nearest half-centimetre using a ruler
- Time problems: calculating start and finish times, working backwards from a given time (e.g. a play finishing at 9pm after lasting 2 hours 15 minutes)
- Number patterns and sequences: identifying arithmetic progressions (e.g. adding 3 each time, doubling patterns, powers of 10), and recognising more complex patterns (e.g. differences that increase each step)
- Data handling: completing frequency tables from tally charts and drawing bar charts with labelled axes and accurate bars to represent categorical data
- Multi-step word problems involving real-world contexts (e.g. purchasing tickets, sharing stickers, calculating totals and remainders)
- Geometry: reflecting a shape across a mirror line on a square grid, demonstrating understanding of line symmetry
- Visual and logical reasoning: identifying the next shape in a sequence based on rotation, shading, and pattern transformations

## How to use this paper for revision

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- Practise column addition and subtraction daily, ensuring you can exchange (carry and borrow) confidently across multiple columns without mistakes.
- Learn times tables up to  $12 \times 12$  by heart, and practise related division facts so you can answer Questions 13 and 20 quickly and accurately.
- Work on fractions using shapes and number lines: shade fractions of circles and rectangles, simplify fractions by finding common factors, and calculate fractions of amounts mentally.
- Time yourself completing similar 48-question papers in 45 minutes to build speed and stamina; aim to leave a few minutes at the end for checking your answers.
- Review place value by writing four-digit numbers in words and identifying the value of each digit, then ordering sets of numbers from smallest to largest.
- Practise measuring with a ruler to the nearest half-centimetre, and reading scales (mass, volume, length) where not every division is labelled.
- Revise time problems by working backwards from end times and converting between hours and minutes, using both analogue and digital clocks.

## Common mistakes to avoid

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- Misunderstanding place value when ordering numbers: confusing thousands with hundreds, or failing to compare digits systematically from left to right.
- Forgetting to exchange (carry) in column addition or subtraction, leading to incorrect totals, especially in questions like  $35 + 286$  or  $346 - 108$ .
- Rushing through word problems without reading carefully: for example, missing that Steven gives away one quarter of his stickers and must calculate three quarters remaining.
- Not simplifying fractions fully: writing  $15/25$  as  $3/5$  but forgetting to check that both numerator and denominator share no further common factors.
- Misreading scales or rulers: assuming each mark represents one unit rather than counting intervals carefully, leading to errors in Questions 35 and 37.
- Confusing multiplication and division by powers of 10: moving the decimal point the wrong direction or the wrong number of places in questions like  $4200 \div 10$  or  $621 \times 100$ .

## Exam technique

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Start by scanning the entire paper quickly to identify questions you can answer immediately (times tables, rounding, simple ordering) and tackle these first to build confidence and bank marks. Then return to the beginning and work through systematically, showing all working clearly in the space provided. If a question is taking too long, move on and return to it at the end rather than losing time.

For multi-step word problems, underline or highlight key information (numbers, operations, what the question is asking for) to avoid missing steps. Write down intermediate calculations even when you think you can do them in your head, especially for questions involving money, time, and fractions. Check your units carefully: Question 45 asks for an answer in centimetres, and failing to convert or label correctly loses marks.

Leave the last three to five minutes to review your answers, particularly checking arithmetic, rounding, and whether you have answered the actual question asked. Look for common errors such as missing minus signs, incorrect place value, and forgotten units. If you finish early, use the time to attempt any skipped questions and to verify that bar charts, diagrams, and mirror images are accurate and neatly drawn.

## What to revise alongside this paper

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Before attempting this paper, ensure you are confident with basic number bonds to 20, times tables up to  $12 \times 12$ , and the inverse relationship between multiplication and division. Practise column addition and subtraction with three-digit numbers until exchanging becomes automatic, and review equivalent fractions and simplifying fractions using factor pairs. These foundational skills underpin many questions in the paper and must be secure.

After completing this specimen paper, extend your revision to include decimals (adding and subtracting amounts of money to two decimal places), more complex fraction problems (adding fractions with different denominators, finding fractions of quantities), and multi-step word problems involving all four operations. Explore geometry topics such as identifying lines of symmetry in 2D shapes, calculating perimeters, and working with coordinates on grids.

For further practice, look at similar 8+ and early 11+ mathematics papers from other independent schools, as well as publisher practice books (Bond, CGP, Schofield & Sims) that cover the same topics at this level. Strengthen your problem-solving skills by working through puzzles and investigations that require logical reasoning, pattern spotting, and systematic trial and improvement.

## Key terms

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**Place value, Column method, Exchange (carry, borrow), Rounding, Equivalent fractions, Simplest form, Unit fraction, Remainder, Frequency table, Tally chart, Bar chart, Mirror image, Reflection, Sequence, Pattern**

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