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## TEACHER'S NOTES

### Introduction

Schofield & Sims **Mental Arithmetic** provides differentiated practice tests in key areas of maths, to be administered regularly. The series consists of seven pupil books – all of them conforming to a standard layout. **Mental Arithmetic 6** pupil book contains:

- 36 one-page tests, each comprising three parts – Parts A, B and C
- three Achievement Charts for recording pupils' results (see pupil book pages 15, 30 and 45)
- three Revision Tests, consisting of 40–45 questions each (see pupil book pages 16, 31 and 46).

### Parts A, B and C

Each test appears on one page and is divided into three parts (see below). Parts A and B follow the same topic order throughout. Part C comprises longer problem-solving questions. Give your pupils one test each week, with Parts A, B and C on separate days. Speed with accuracy is important, so a time limit of 10 minutes per part is recommended.

- Part A Questions 1–4: Number:** four operations with positive and negative integers (including remainders, brackets). Numbers in words and figures; powers/index notation. Fractions, decimals, percentages, ratios, mixed numbers. Equivalence; ordering (including negative numbers, symbols  $<$ ,  $>$ ).
- Questions 5–9: Calculation:** involving fractions, decimals, percentages and ratios. Four operations with decimals (including remainders, brackets). Approximations to significant figures/decimal places; estimations.
- Questions 10–12: Algebra:** substitutions, simple equations. Squares, square roots, cubes, factors, multiples, primes, sequences.
- Part B Questions 1–2: Money:** four operations, shopping, costing, sharing, ratio. Percentages, profit, loss; buying and selling; interest. Deposits, instalments; sales, discounts; foreign exchange.
- Questions 3–6: Measurement:** metric units, imperial units, conversions. Time. Compound measures.
- Questions 7–9: Geometry:** circumference, perimeter, area, volume of simple 2-D/3-D shapes. Angles of 2-D shapes including circles. Symmetry and order. Enlargements and scale factors.
- Question 10: Approximations**
- Part C Questions 1–12: Longer problem-solving questions:** coordinates: identification, location; reflections, translations, mappings. **Handling data:** graphs, tables, spreadsheets. **Scale drawings:** maps, charts. **Probability. Number puzzles:** number properties (revision); mathematical symbols. **Practical situations:** measures: length, area, money.

### Answering the test questions

The material in each section is graded: before any question is attempted, the work will usually have been covered in class. The term 'mental arithmetic' implies that answers only are required. However, most pupils working at this level will need spare paper, for workings out or to note down information from the tables and graphs.

### Marking

When the pupils have completed a test, read out the answers as they mark their own work – or give them answer books to refer to. Then ask them to complete the Achievement Chart appearing at the end of each pupil book section. Alternatively, you may yourself complete the Diagnostic Charts on pages 15, 30 and 45 of this book.

## Mental Arithmetic 6 Answers

A	Answer
1 $154 + 67 =$	221
2 $(2 \times 45) + (1 \times 45) =$	135
3 Write in digits the number one thousand one hundred and one.	1101
4 33% is larger than $\frac{1}{3}$ . True or false?	false
5 Write as a decimal $5 + \frac{5}{100}$ .	5.05
6 $1.59 + 0.73 =$	2.32
7 $1.5 \times (1.5 + 2.5) =$	6
8 Approximate 7846 to the nearest thousand.	8000
9 a Calculate exactly, then b approximate to 1 decimal place.	a 2.16 b 2.2
$8.64 \div 4$	
10 If $a = 2$ , find the value of $3a$ .	6
11 $4m = 10$ so $m =$	2.5
12 $6^2 =$	36

  

B	Answer
1 $86p + 35p + 71p =$	£1.92
2 Find 1% of £5.	5p
3 Change 317mm to centimetres.	31.7cm
4 $510\text{mm} + 815\text{mm} =$	1m 325mm
	1.325m
5 90 days =	12 weeks 6 days
6 An aeroplane flies 3900km in 6 hours. What is the mean (average) speed?	650km/h
7 Find the perimeter of a rectangular field measuring 35m by 22m.	114m
8 What size is the interior angle in each corner of an equilateral triangle?	60°
9 Which letters of the word WAIST have at least one axis of symmetry?	W A I T
10 Approximate £13.63 to the nearest £1.	£14

## SECTION 1 | Test 1

C	Answer
1 Write down the coordinates of each corner of triangle A.	(2, 10), (2, 6), (8, 6)
2	(2, 10), (8, 12)
3	(5, 9)
4 Write down the coordinates of the two corners of quadrilateral B that have the same x-value as each other.	(7, 8), (7, 10)
5	(7, 12)
6 Write down the coordinates of the corner of triangle C that has the largest y-value.	(0, 8)
7 Write down the coordinates of the corner of pentagon D that has the smallest x-value.	(5, 6)
8 Write down the coordinates of the corner of triangle E whose x-value is twice the corresponding y-value.	(4, 2)
9 Write down the coordinates of the mid-point of the shortest side of triangle E.	(3, 3)
10 Write down the coordinates of the point where the diagonals of square F intersect each other.	(8, 2)
11 Estimate the coordinates of the mid-point of the longest side of triangle A.	(3, 10.5)
12 Estimate the coordinates of the mid-point of the longest side of quadrilateral B.	(9.5, 10.5)