NTS Assessments

STANDARDISED ASSESSMENTS

National Test-style Standardised Assessments

NEW

Mathematics | Second Edition

Ages 5–11

hachettelearning.com/nts-mathematics

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Contents

NTS Assessments

About New NTS Assessments

These termly, standardised, National Test-style assessments for Years 1 to 6 are designed to benchmark progress and attainment in mathematics against national averages.

- Written by **National Test authors** to the National Test framework.
- Standardised on a nationally representative sample of over 7,000 learners during the 2024/25 academic year.
- Content assesses England's KS1 and KS2 National Curriculum for Mathematics.
- Fully aligned to follow the teaching order of **White Rose Maths** primary schemes of learning (version 3.0).
- Free online gap analysis and reports available in Boost Insights, our digital assessment and reporting tool.
- Curriculum maps outline content covered in every test to ensure relevant material has been taught before each assessment is administered.
- Free downloadable mark schemes and test guidance.

Key Information

Age range covered:
5 to 11 years.

Number of assessments:
One test per term for each year group from Years 1 to 6.

Ideal testing time:
Second half of each term.

Price:
£21.00 per 10-copy test paper pack.

Measuring attainment and progress

NTS Assessments enable schools to build a **comprehensive profile** of each learner's attainment and progress in mathematics by converting raw scores into a range of other measures.

Easily generate the following metrics with learners' assessment results:

- **Standardised score**
  See whether a learner's attainment is above or below the national average for their year cohort.
- **Age-standardised score**
  See how a learner is performing against other children of the same age, calculated in years and months.
- **Maths Age**
  Easily measure the attainment of a learner against the age for which their performance is typical.
- **Strand/topic analysis**
  (including strand national average)
  Pinpoint strengths and weaknesses across the curriculum to inform future teaching.
- **Facility value**
  See the percentage of learners who answered each question correctly in the standardisation trial.
- **National Tests correlation and performance indicators**
  National Tests correlation is available for Years 2 and 6. Performance indicators are available for all years. These allow you to identify whether learners are working at the expected standard for their year.
- **NTS Scale**
  An independent scale designed to measure progress and estimate future performance of children who are working outside of their age range.

Assessment content

Current and previous year content

The curriculum maps (pages 21-25) break down the content in each assessment, showing what is taken from the current year group, and which questions test previous learning.

Autumn tests will usually contain more content from previous year groups than Spring and Summer, to ensure that **demand builds appropriately** and learners are only ever tested on **content they have been taught**. This enables valid results.

The Summer tests, like the National Tests, sample a **range of content** from the current year group and also from the years below. The balance of this in the Summer tests broadly reflects the balance in the National Tests, to ensure learners are **retaining knowledge**. By Summer, they will have been taught the whole curriculum for their year group, so the whole curriculum is sampled in the questions.

Content Domains

The curriculum is broken down into the National Test content domains for Key Stage 1 and Key Stage 2. The balance of content domains tested reflects the National Tests, and teachers can easily analyse performance in each content domain and spot both strengths and areas in need of intervention.

Content Domain References

Key Stages 1 & 2	
N	Number
C	Calculations
F	Fractions, decimals and percentages
M	Measurement
G	Geometry – properties of a shapes
P	Geometry – position and direction
S	Statistics

Key Stage 2	
R	Ratio and proportion
A	Algebra

Year 1 papers also test Early Learning Goals (ELG).

Assessment structure

Years	Term	Paper	Timings	Marks
1	Autumn	Paper 1: Arithmetic	15 minutes	10
		Paper 2: Reasoning	25 minutes	15
	Spring	Paper 1: Arithmetic	15 minutes	10
		Paper 2: Reasoning	25 minutes	15
	Summer	Paper 1: Arithmetic	20 minutes	15
		Paper 2: Reasoning	35 minutes	25
2	Autumn	Paper 1: Arithmetic	15 minutes	20
		Paper 2: Reasoning	25 minutes	25
	Spring	Paper 1: Arithmetic	15 minutes	20
		Paper 2: Reasoning	25 minutes	25
	Summer	Paper 1: Arithmetic	20 minutes	25
		Paper 2: Reasoning	35 minutes	35
3 – 6	Autumn	Paper 1: Arithmetic	25 minutes	30
		Paper 2: Reasoning	30 minutes	25
		Paper 3: Reasoning	30 minutes	25
	Spring	Paper 1: Arithmetic	25 minutes	30
		Paper 2: Reasoning	30 minutes	25
		Paper 3: Reasoning	30 minutes	25
	Summer	Paper 1: Arithmetic	30 minutes	40
		Paper 2: Reasoning	40 minutes	35
		Paper 3: Reasoning	40 minutes	35

Demand increases both within each test paper and also as the year progresses, so Spring assessments are more demanding than Autumn, and Summer assessments are more demanding than Spring.

Test papers are carefully reviewed to ensure that questions with higher facility values are placed near the beginning of the paper where possible, and those with lower facility values sit towards the end. This means that a **wide ability range is able to access the papers**.

Analysing test data with Boost Insights

Save time and gain actionable insights into your learners' progress and performance data.

With your NTS Mathematics Assessments purchase, all staff members in your school gain **free access** to Boost Insights, our assessment data analysis platform:

- Run **instant gap analysis** to identify areas of strength and weakness among groups and individual learners for effective targeted teaching.
- Compare attainment in your school with national (UK) averages.
- Effortlessly **track progress over time** with learner progress reports and compare group performances across multiple tests.
- Download **clear visual reports** to share with teachers, senior leaders, MAT leaders, governors, inspectors and parents.

> "This clarity allows educators to quickly identify areas where students may need additional support or where they are excelling, facilitating targeted and effective interventions."

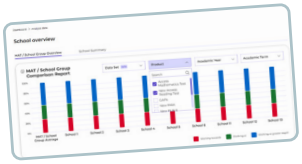
Primary Maths Co-ordinator, St. George School, Madrid

Instant reporting at your fingertips.

Find the insights you need with reports for individuals, classes, custom groups, schools and MATs in Boost Insights.

School Overview

Compare attainment across year groups throughout your school.

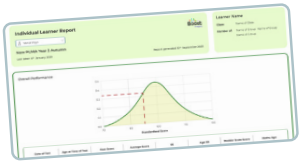


MAT/School Group Comparison

Compare the performance of multiple schools on a specific test suite.

Question-level Analysis

Analyse gaps in learning at a question and strand level.

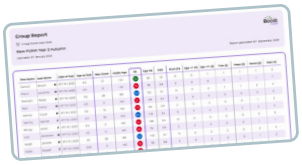


Individual Learner Report

Analyse the performance of a single learner on a specific test.

Learner Progress Report

Compare the performance of one learner across multiple tests.



Group Report

View the overall, average and strand performance of a group on a specific test.

Age Performance Review

Compare the age performance of a group on a specific test.

Test Performance Comparison

Compare the performance of a group on two tests with side-by-side results.

Group Average Review

Compare the average of a group across multiple test suites for an academic year.

Intervention Reports are only available with an active subscription to Shine Interventions. See page 26 for more information.

Individual Intervention Report

Identify knowledge gaps for a single learner and access Learning Sequences.

Grouped Intervention Report

Identify learners with keyknowledge gaps and access Learning Sequences.

Sample page: Year 2 Autumn: arithmetic

1 $19 + 1 =$ ☐

1N2b

1 mark

2 $7 + 12 =$ ☐

2C2b

1 mark

Sample page: Year 2 Autumn: reasoning

7 Tick (✓) the number that has **3 tens** and **6 ones**.

0	9
3	6
6	3
9	0

2N3
1 mark

8 Max has **8** coins.

Nia has **4** coins.

Ruby has **5** coins.

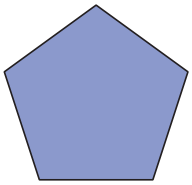
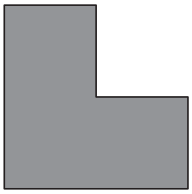
How many coins do they have **altogether**?

Show your working

coins

2C2b
2C4
2 marks

11 Complete the table.

Name	Shape	Number of sides
pentagon		
		6

2G2a
2 marks

12 Ruby and Max are skipping.

Ruby skips **63** times.

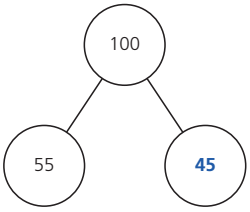
Max does **45** skips.

How **many more** skips does Ruby do than Max?

Show your working	skips

2C4
2 marks

Answers in Key Stages 1 & 2 Mark Scheme

Question number & content domain	Question & answer	Marking guidance	Mark	Facility %
6 2C1	Complete the part-whole model.  		1	24
7 2N3	Tick (✓) the number that has **3 tens** and **6 ones**. 0 9 ☐ 3 6 ☑ 6 3 ☐ 9 0 ☐	Second box indicated only for the award of **one** mark. Accept any other clear way of indicating the correct answer.	1	82

Question number & content domain	Question & answer	Marking guidance	Mark	Facility %
12 2C4	Ruby and Max are skipping. Ruby skips **63** times. Max does **45** skips. How **many more** skips does Ruby do than Max? **18** skips	Award **two** marks for a correct answer. Award **one** mark for a correct method, e.g. 63 – 45 = OR counting the difference (using a number line) from 45 to 63	2	56
13 2N1	Nia counts in steps of **5** She reaches **35** What are the next **three** numbers? **40** **45** **50**	**All three** answers needed for the award of **one** mark.	1	9

Sample page: Year 4 Autumn: arithmetic

19 $3{,}472 + 1{,}000 =$

4N2b

1 mark

20 $\square = 7 \times 6$

4C6a

1 mark

21 $4{,}523 + 2{,}266 =$

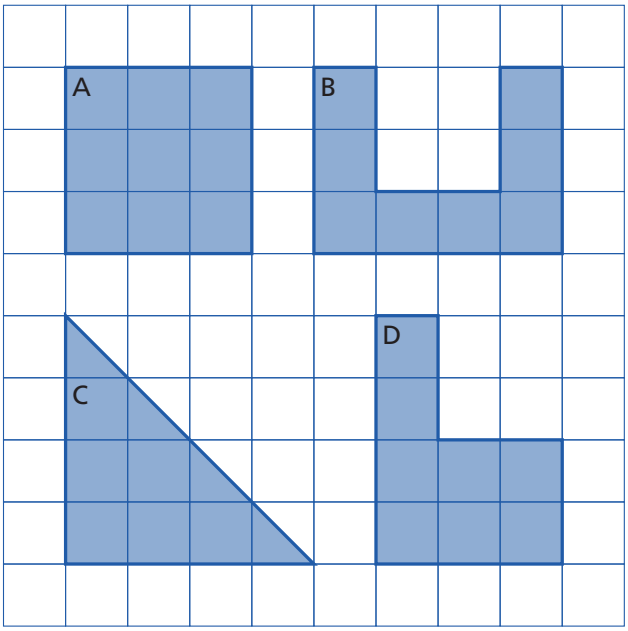
4C2

1 mark

/3

Total for this page

15 Four shapes are drawn on a square grid.



Which shape has the **greatest** area?

4M7b

1 mark

16 Write the following calculation as a 4-digit number.

$800 + 7 + 30 + 5{,}000 =$

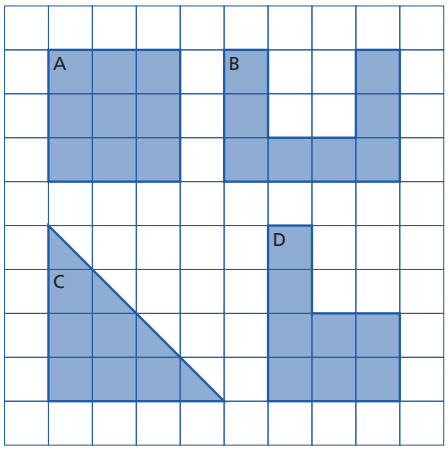
4N3a

1 mark

/2

Total for this page

Answers in Key Stages 1 & 2 Mark Scheme

Question number & content domain	Question & answer	Marking guidance	Mark	Facility %
15 4M7b	Four shapes are drawn on a square grid.  Which shape has the **greatest** area? **A**	Accept shape A indicated only on the grid for the award of **one** mark.	1	53
16 4N3a	Write the following calculation as a 4-digit number. 800 + 7 + 30 + 5,000 = **5,837**	Ignore comma in answer if not placed or incorrectly placed, e.g. 58,37	1	65

Question number & content domain	Question & answer	Marking guidance	Mark	Facility %
6 2M9	Kim buys a comic and 2 chews. How much change does she get from **50p**? comics 15p each chews 3p each **29** p	Award **two** marks for a correct answer. Award **one** mark for a correct method, e.g. 50 – (15 + 3 + 3) =	2	64
7 3C3	Arun completes this calculation. 72 ÷ 3 = 24 Tick the **inverse** of Arun's calculation. 24 ÷ 72 = ☐ 24 × 3 = ☑ 72 × 3 = ☐ 24 ÷ 3 = ☐	Accept positive indication of second box only for the award of **one** mark.	1	67

Instructions

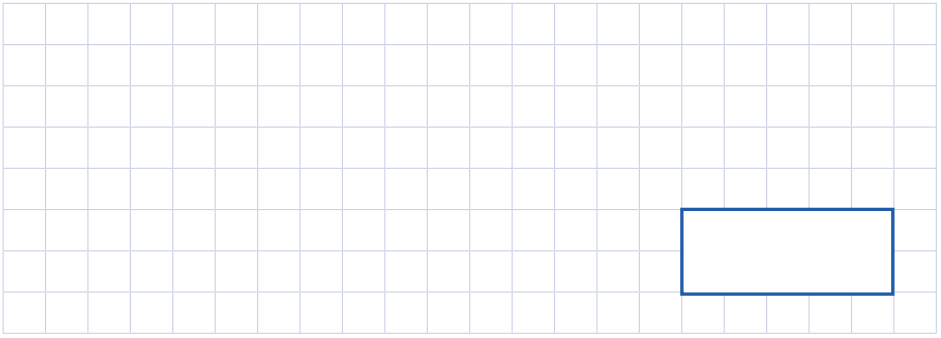
You **may not** use a calculator to answer any questions in this test.

Questions and answers

You have **25 minutes** to complete this paper.

Work as quickly and as carefully as you can.

Put your answer in the box for each question.



All answers should be given as a single value.

For questions expressed as common fractions or mixed numbers, you should give your answers as common fractions or mixed numbers.

If you cannot do a question, **go on to the next one**. You can come back to it later if you have time.

If you finish early, **go back and check your work**.

Marks

The number under each box at the side of the page shows you the maximum number of marks for each question.

In this paper, long division and long multiplication questions are worth **2 marks each**. You will be awarded 2 marks for the correct answer. You may get 1 mark for showing a formal method.

All other questions are worth **1 mark each**.

Sample page: Year 6 Autumn: arithmetic

25

Show your method

$$\begin{array}{r} 86 \\ \times\ 48 \\ \hline \end{array}$$

6C7a

2 marks

26

Show your method

$$2\,4\overline{)7\,6\,8}$$

6C7b

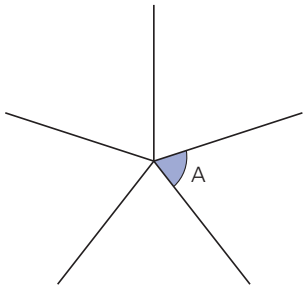
2 marks

/4

Total for this page

Sample page: Year 6 Autumn: reasoning

7 (a) Five equal angles are drawn around a point.

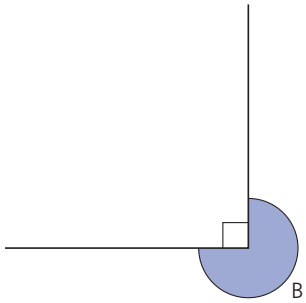


What is the size of the angle A?

° 5G4b

1 mark

(b) Two angles are drawn around a point.



What is the size of the angle B?

° 5G4b

1 mark

8 Here is a list of the trains that leave a station.

Destination	York	Leeds	Glasgow	Norwich	Dover	York	Liverpool	Dover
Time	13:15	13:30	14:25	15:20	15:50	15:55	16:35	17:25

5M4

How many trains leave between **2:00 p.m.** and **4:00 p.m**?

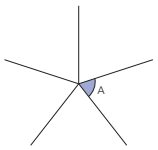
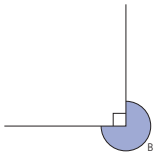
1 mark

trains

/3

Total for this page

Answers in Key Stages 1 & 2 Mark Scheme

Question number & content domain	Question & answer	Marking guidance	Mark	Facility %
7 5G4b	(a) Five equal angles are drawn around a point.  What is the size of the angle A? **72°** (b) Two angles are drawn around a point.  What is the size of the angle B? **270°**		(a) 1 (b) 1	37
8 5M4 (5S1 also covered)	Here is a list of the trains that leave a station. **Destination** | York | Leeds | Glasgow | Norwich | Dover | York | Liverpool | Dover **Time** | 13:15 | 13:30 | 14:25 | 15:20 | 15:50 | 15:55 | 16.35 | 17:25 How many trains leave between **2:00 p.m.** and **4:00 p.m**? **4** trains		1	46

Question number & content domain	Question & answer	Marking guidance	Mark	Facility %
11 6F2	(a) Kim collects basketball cards. There are **100** cards in the full set. Kim has collected **30** of the cards. What **fraction** of the full set has Kim collected? Write your answer as a fraction in the simplest terms. **$\frac{3}{10}$** (b) Kim says, 'I have **30** cards. **24** of the cards are in colour.' What **fraction** of Kim's cards are in colour? Write your answer as a fraction in the simplest terms. **$\frac{4}{5}$**	(a) **Do not** accept equivalent fractions, e.g. $\frac{30}{100}$ (b) **Do not** accept equivalent fractions, e.g. $\frac{24}{30}$	(a) 1 (b) 1	28
12 6F4	There are some pieces of fruit in a box. $\frac{1}{3}$ of the pieces of fruit are apples. $\frac{3}{8}$ of the pieces of fruit are pears. The rest of the pieces of fruit are bananas. What **fraction** of the pieces of fruit are bananas? **$\frac{7}{24}$**	Award **two** marks for a correct answer. Award **one** mark for a correct method, e.g. $\frac{1}{3} + \frac{3}{8} = \frac{17}{24}$ $1 - \frac{17}{24} =$	2	41

Meet the authors

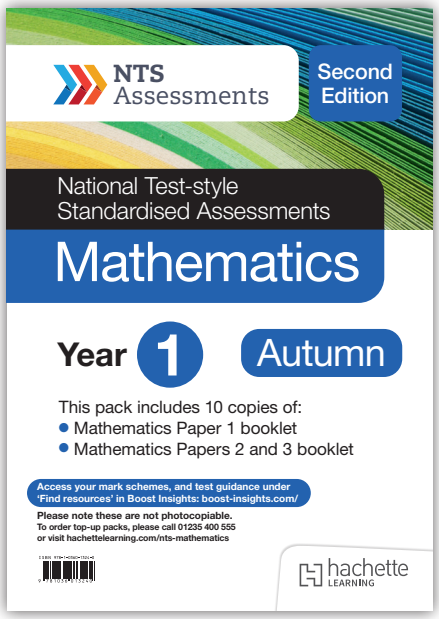
The writers behind NTS Mathematics Assessments are curriculum experts with experience of teaching, assessing and writing for the National Tests.

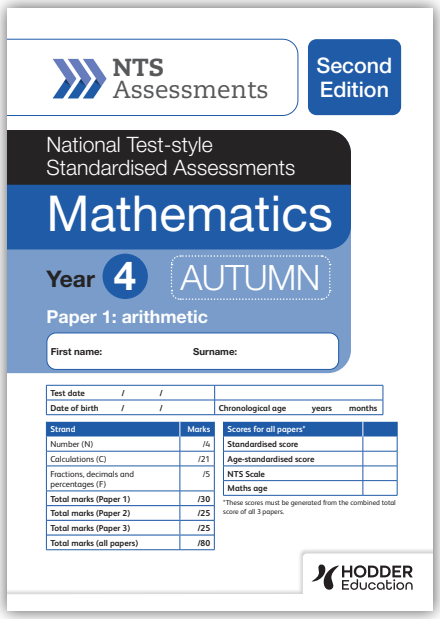
- **Sarah-Anne Fernandes**

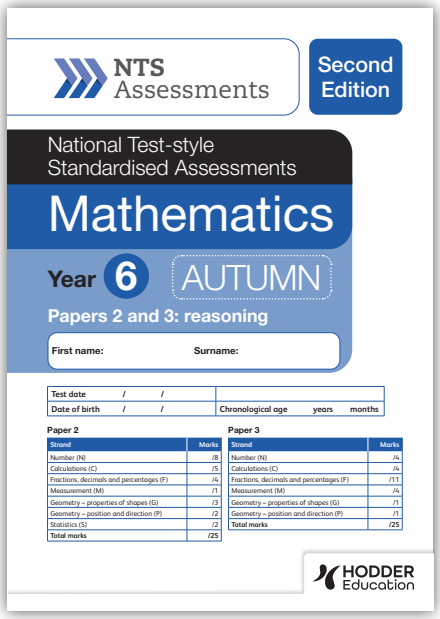
  Sarah-Anne is a leading UK Mathematics Educational Consultant who has had the privilege of working with several schools and school leaders across the country to help them improve mathematics curriculum teaching and results. Over the years, Sarah-Anne has been commissioned to author and be series editor for a range of titles for leading educational publishers. She is the co-founder of SMASH Maths with Trevor Dixon.

- **Trevor Dixon**

  Trevor has over 35 years' teaching experience and has been a maths subject leader in three primary schools, as well as working as an advanced skills teacher. He marked Key Stage 2 (KS2) mathematics National Tests for over 20 years and worked as a team leader. Trevor has written maths National Test questions for both Key Stage 1 (KS1) and KS2 and has been a member of Expert Review Panels reviewing National Test questions, test papers and mark schemes for the STA. He has written extensively for national publishers, producing a variety of assessment papers and study guides for KS1 and KS2 mathematics.







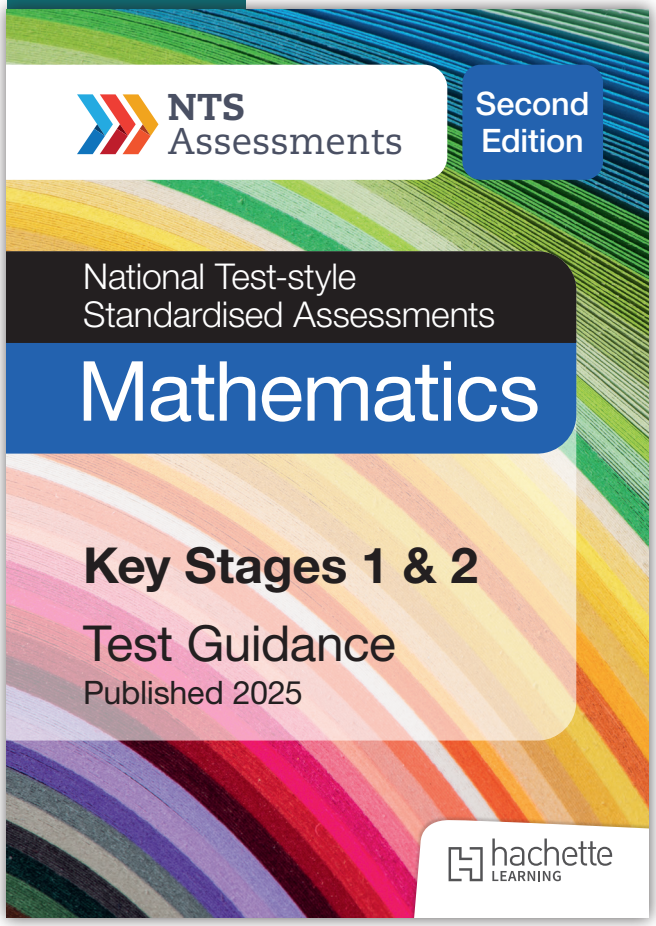
Test Guidance and Mark Schemes

Assessment resources to support all staff.

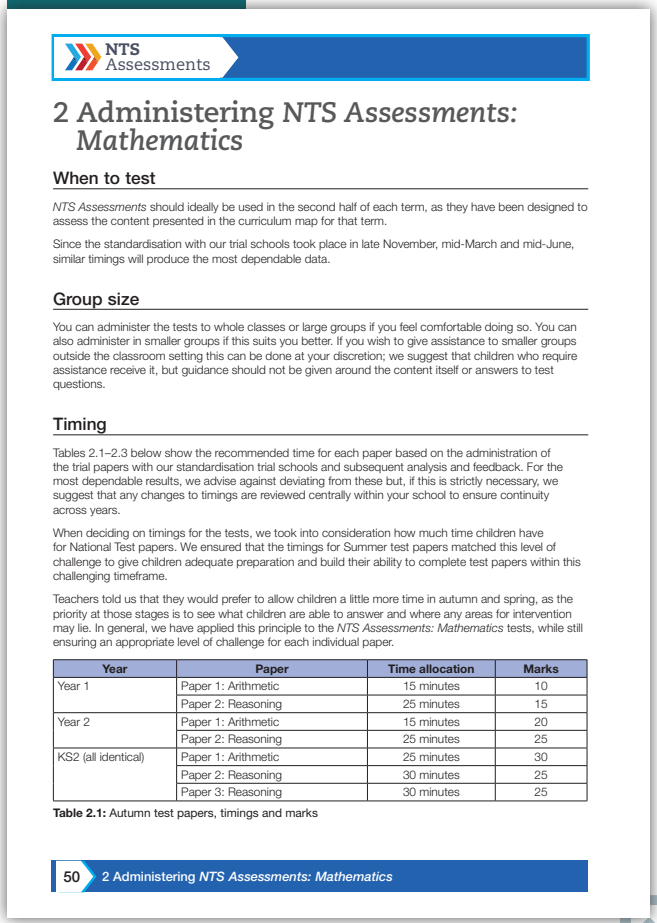
Free resources provide clear and thorough support to ensure optimal use of NTS Mathematics Assessments in your school, including guidance on administering, marking and analysing assessment results.

- **Test Guidance** is given on interpreting test scores and outcomes, including summative measures, diagnostic and formative profiles, and performance predictions. Technical information is also provided on how we ensure the reliability and validity of these outcomes.
- **Mark Schemes** provide correct answers to each question, alongside the strand reference and facility range.
- **Additional resources** are available online or to download from your Assessment Resources section in Boost Insights, such as audio downloads of the read-aloud Y1/2 questions, and correlation studies.

Free access



Free access



NTS Assessments

2 Administering *NTS Assessments: Mathematics*

When to test

NTS Assessments should ideally be used in the second half of each term, as they have been designed to assess the content presented in the curriculum map for that term.

Since the standardisation with our trial schools took place in late November, mid-March and mid-June, similar timings will produce the most dependable data.

Group size

You can administer the tests to whole classes or large groups if you feel comfortable doing so. You can also administer in smaller groups if this suits you better. If you wish to give assistance to smaller groups outside the classroom setting this can be done at your discretion; we suggest that children who require assistance receive it, but guidance should not be given around the content itself or answers to test questions.

Timing

Tables 2.1–2.3 below show the recommended time for each paper based on the administration of the trial papers with our standardisation trial schools and subsequent analysis and feedback. For the most dependable results, we advise against deviating from these but, if this is strictly necessary, we suggest that any changes to timings are reviewed centrally within your school to ensure continuity across years.

When deciding on timings for the tests, we took into consideration how much time children have for National Test papers. We ensured that the timings for Summer test papers matched this level of challenge to give children adequate preparation and build their ability to complete test papers within this challenging timeframe.

Teachers told us that they would prefer to allow children a little more time in autumn and spring, as the priority at those stages is to see what children are able to answer and where any areas for intervention may lie. In general, we have applied this principle to the *NTS Assessments: Mathematics* tests, while still ensuring an appropriate level of challenge for each individual paper.

Year	Paper	Time allocation	Marks
Year 1	Paper 1: Arithmetic	15 minutes	10
	Paper 2: Reasoning	25 minutes	15
Year 2	Paper 1: Arithmetic	15 minutes	20
	Paper 2: Reasoning	25 minutes	25
KS2 (all identical)	Paper 1: Arithmetic	25 minutes	30
	Paper 2: Reasoning	30 minutes	25
	Paper 3: Reasoning	30 minutes	25

Table 2.1: Autumn test papers, timings and marks

50 2 Administering *NTS Assessments: Mathematics*

Curriculum maps

Our free online curriculum maps allow you to check what content is covered in each termly test, so that you can build this into your planning at the beginning of the year and ensure everything has been taught in class before the tests are administered.

Scheme of learning (SOL) maps are available to show how each assessment questions maps to the small steps in White Rose Maths termly schemes of learning.

Below are excerpts from the curriculum maps for each Autumn assessment paper. Full mapping documents can be found at hachettelearning.com/nts-mathematics or downloaded from your Assessment Resources section in Boost Insights.

Year 1 Autumn	
Strand	**Content assessed**
Number (N)	**Prior learning:** ELG **From Year 1 curriculum:** **1N1a** – count to and across 100, forward and backwards, beginning with 0 or 1, or from any given number *(questions only cover numbers to 10)* **1N2b** – given a number, identify one more and one less
Calculations (C)	**Prior learning:** n/a **From Year 1 curriculum:** **1C1** – represent and use number bonds and related subtraction facts within 20 *(questions only cover numbers to 10)* **1C2a** – add and subtract one-digit and two-digit numbers to 20, including zero *(questions only cover numbers to 10)* **1C2b** – read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs **1C4** – solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ – 9
Fractions (F)	–
Measurement (M)	–
Geometry – properties of shapes (G)	**Prior learning:** ELG **From Year 1 curriculum:** **1G1a** – recognise and name common 2-D shapes [e.g. rectangles (including squares), circles and triangles] **1G1b** – recognise and name common 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]

Year 2 Autumn	
Strand	**Content assessed**
Number (N)	**Prior learning from Year 1 curriculum:** **1N2b** – given a number, identify one more and one less **1N4** – identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most and least **From Year 2 curriculum:** **2N1** – count in steps of 2, 3 and 5, from 0, and in tens from any number, forward or backward **2N2a** – read and write numbers to at least 100 in numerals and in words **2N3** – recognise the place value of each digit in a two-digit number (tens and ones) **2N4** – identify, represent and estimate numbers using different representations, including the number line
Calculations (C)	**Prior learning from Year 1 curriculum:** **1C2a** – add and subtract one-digit and two-digit numbers to 20, including zero **1C4** – solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9 **1C8** – solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher **From Year 2 curriculum:** **2C1** – recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 **2C2b** – add and subtract numbers using concrete objects and pictorial representations, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers **2C3** – recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems **2C4** – solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods
Fractions (F)	–
Measurement (M)	**Prior learning from Year 1 curriculum:** **1M4a** – tell the time to the hour and half past the hour and draw the hands on a clock face to show these times

Year 3 Autumn	
Strand	**Content assessed**
Number (N)	**Prior learning from Year 1 curriculum:** **1N1b** – count in multiples of twos, fives and tens **1N2b** – given a number, identify one more and one less **From Year 3 curriculum:** **3N1b** – count from 0 in multiples of 4, 8, 50 and 100 **3N2a** – compare and order numbers up to 1,000 **3N2b** – find 10 or 100 more or less than a given number **3N3** – recognise the place value of each digit in a three-digit number (hundreds, tens, ones) **3N4** – identify, represent and estimate numbers using different representations
Calculations (C)	**Prior learning from Years 1 and 2 curricula:** **1C1** – represent and use number bonds and related subtraction facts within 20 **1C2a** – add and subtract one-digit and two-digit numbers to 20, including zero **1C4** – solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9 **2C2b** – add and subtract numbers using concrete objects and pictorial representations, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers **2C4** – solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods **2C6** – recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers **2C8** – solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts **From Year 3 curriculum:** **3C1** – add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds **3C2** – add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction **3C3** – estimate the answer to a calculation and use inverse operations to check answers

	3C4 – solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction **3C6** – recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
Fractions, decimals and percentages (F)	**Prior learning from Year 2 curriculum:** **2F1a** – recognise, find, name and write fractions $\frac{1}{3}$ (one-third), $\frac{1}{4}$ (one-quarter), $\frac{2}{4}$ (two-quarters) and $\frac{3}{4}$ (three-quarters) of a length, shape, set of objects or quantity **From Year 3 curriculum:** n/a
Measurement (M)	**Prior learning from Years 1 and 2 curricula:** **1M1** – compare, describe and solve practical problems for: • lengths and heights [e.g. long / short, longer / shorter, tall / short, double / half] • mass / weight [e.g. heavy / light, heavier than, lighter than] • capacity and volume [e.g. full / empty, more than, less than, half, half full, quarter] • time [e.g. quicker, slower, earlier, later] **1M3** – recognise and know the value of different denominations of coins and notes **1M4c** – recognise and use language relating to dates, including days of the week, weeks, months and years **2M2** – choose and use appropriate standard units to estimate and measure length / height in any direction (m / cm); mass (kg / g); temperature (°C); capacity (litres / ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels **2M4a** – tell and write the time to five minutes, including quarter past / to the hour and draw the hands on a clock face to show these times **From Year 3 curriculum:** n/a
Geometry – properties of shapes (G)	**Prior learning from Years 1 and 2 curricula:** **1G1b** – recognise and name common 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres] **2G2b** – identify and describe the properties of 3-D shapes including the number of edges, vertices and faces **From Year 3 curriculum:** n/a
Geometry – position and direction (P)	**Prior learning from Year 2 curriculum:** **2P1** – order and arrange combinations of mathematical objects in patterns and sequences **From Year 3 curriculum:** n/a

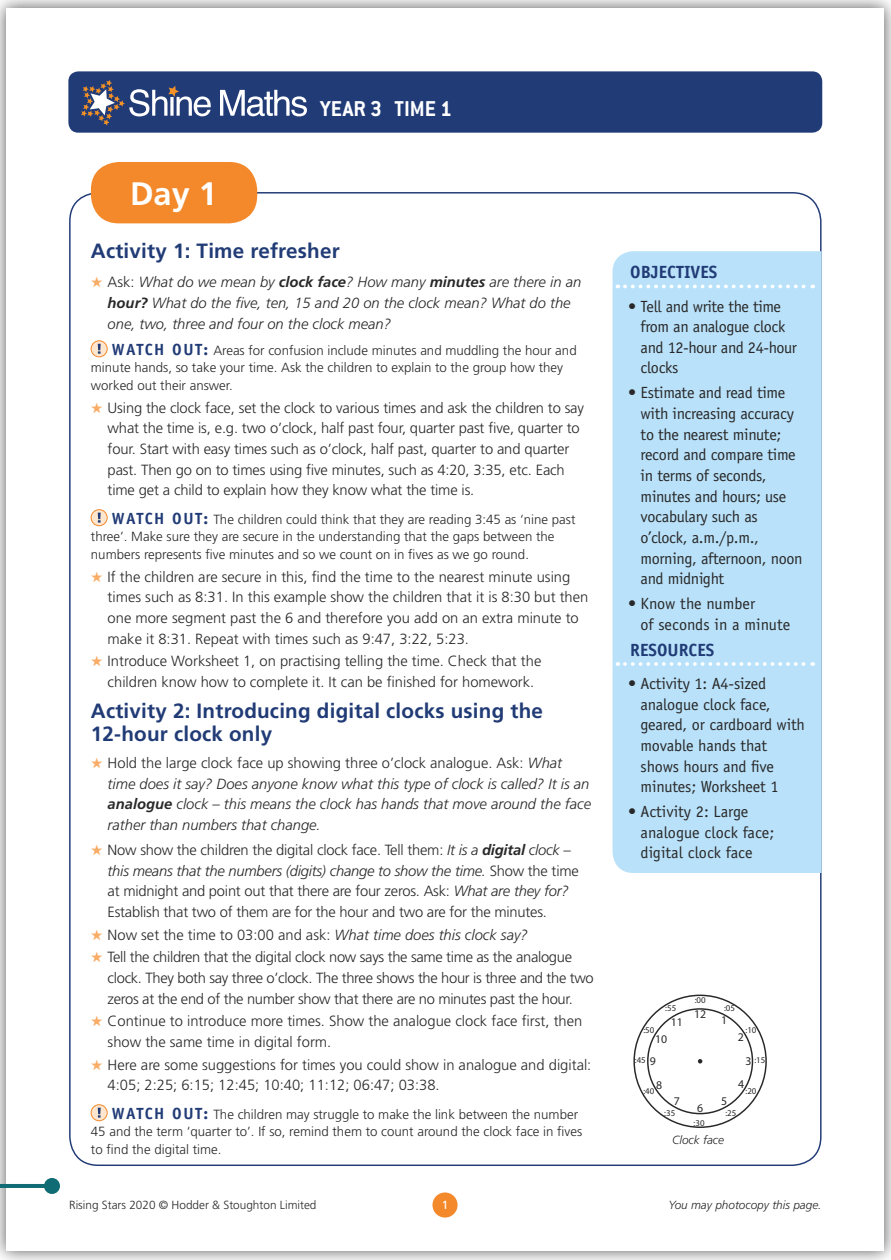
Year 4 Autumn	
Strand	**Content assessed**
Number (N)	**Prior learning from Years 2 and 3 curricula:** **2N2a** – read and write numbers to at least 100 in numerals and in words **2N2b** – compare and order numbers from 0 up to 100; use <, > and = signs **2N3** – recognise the place value of each digit in a two-digit number (tens and ones) **2N4** – identify, represent and estimate numbers using different representations, including the number line **3N3** – recognise the place value of each digit in a three-digit number (hundreds, tens, ones) **From Year 4 curriculum:** **4N1** – count in multiples of 6, 7, 9, 25 and 1,000 **4N2a** – order and compare numbers beyond 1,000 **4N2b** – find 1,000 more or less than a given number **4N3a** – recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones) **4N3b** – read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value **4N4b** – round any number to the nearest 10, 100 or 1,000 **4N6** – solve number and practical problems that involve **4N1–4N5** and with increasingly large positive numbers
Calculations (C)	**Prior learning from Years 2 and 3 curricula:** **2C2b** – add and subtract numbers using concrete objects and pictorial representations, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers **2C6** – recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers **3C2** – add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction **3C3** – estimate the answer to a calculation and use inverse operations to check answers **3C6** – recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables **From Year 4 curriculum:** **4C2** – add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate **4C3** – estimate and use inverse operations to check answers to a calculation **4C4** – solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

Unlock targeted interventions

Effectively plug knowledge gaps with **Shine Interventions:** diagnostically driven by your learners' NTS Mathematics Assessments results.

- **Intervention Reports** instantly pinpoint areas of weakness and **identify learners** whose assessment results indicate an intervention is needed.
- Learners are grouped according to **learning area**, and direct links to suggested interventions (known as **Learning Sequences**) are provided for each learning area, designed to address that specific knowledge gap.
- Each Learning Sequence includes thorough **Prepare, Do, Review** guidance documentation to ensure successful delivery from all staff members, regardless of subject knowledge.
- Instructions for each activity outline learning objectives and resources needed. **Tips** and **Watch Outs** provide handy guidance on key learning areas and common stumbling blocks.

Example delivery instructions from a Year 3 Learning Sequence on Time.



Shine Maths YEAR 3 TIME 1

Day 1

Activity 1: Time refresher

★ Ask: *What do we mean by **clock face**? How many **minutes** are there in an **hour?** What do the five, ten, 15 and 20 on the clock mean? What do the one, two, three and four on the clock mean?*

WATCH OUT: Areas for confusion include minutes and muddling the hour and minute hands, so take your time. Ask the children to explain to the group how they worked out their answer.

★ Using the clock face, set the clock to various times and ask the children to say what the time is, e.g. two o'clock, half past four, quarter past five, quarter to four. Start with easy times such as o'clock, half past, quarter to and quarter past. Then go on to times using five minutes, such as 4:20, 3:35, etc. Each time get a child to explain how they know what the time is.

WATCH OUT: The children could think that they are reading 3:45 as 'nine past three'. Make sure they are secure in the understanding that the gaps between the numbers represents five minutes and so we count on in fives as we go round.

★ If the children are secure in this, find the time to the nearest minute using times such as 8:31. In this example show the children that it is 8:30 but then one more segment past the 6 and therefore you add on an extra minute to make it 8:31. Repeat with times such as 9:47, 3:22, 5:23.

★ Introduce Worksheet 1, on practising telling the time. Check that the children know how to complete it. It can be finished for homework.

Activity 2: Introducing digital clocks using the 12-hour clock only

★ Hold the large clock face up showing three o'clock analogue. Ask: *What time does it say? Does anyone know what this type of clock is called? It is an **analogue** clock – this means the clock has hands that move around the face rather than numbers that change.*

★ Now show the children the digital clock face. Tell them: *It is a **digital** clock – this means that the numbers (digits) change to show the time.* Show the time at midnight and point out that there are four zeros. Ask: *What are they for?* Establish that two of them are for the hour and two are for the minutes.

★ Now set the time to 03:00 and ask: *What time does this clock say?*

★ Tell the children that the digital clock now says the same time as the analogue clock. They both say three o'clock. The three shows the hour is three and the two zeros at the end of the number show that there are no minutes past the hour.

★ Continue to introduce more times. Show the analogue clock face first, then show the same time in digital form.

★ Here are some suggestions for times you could show in analogue and digital: 4:05; 2:25; 6:15; 12:45; 10:40; 11:12; 06:47; 03:38.

WATCH OUT: The children may struggle to make the link between the number 45 and the term 'quarter to'. If so, remind them to count around the clock face in fives to find the digital time.

OBJECTIVES

- Tell and write the time from an analogue clock and 12-hour and 24-hour clocks
- Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
- Know the number of seconds in a minute

RESOURCES

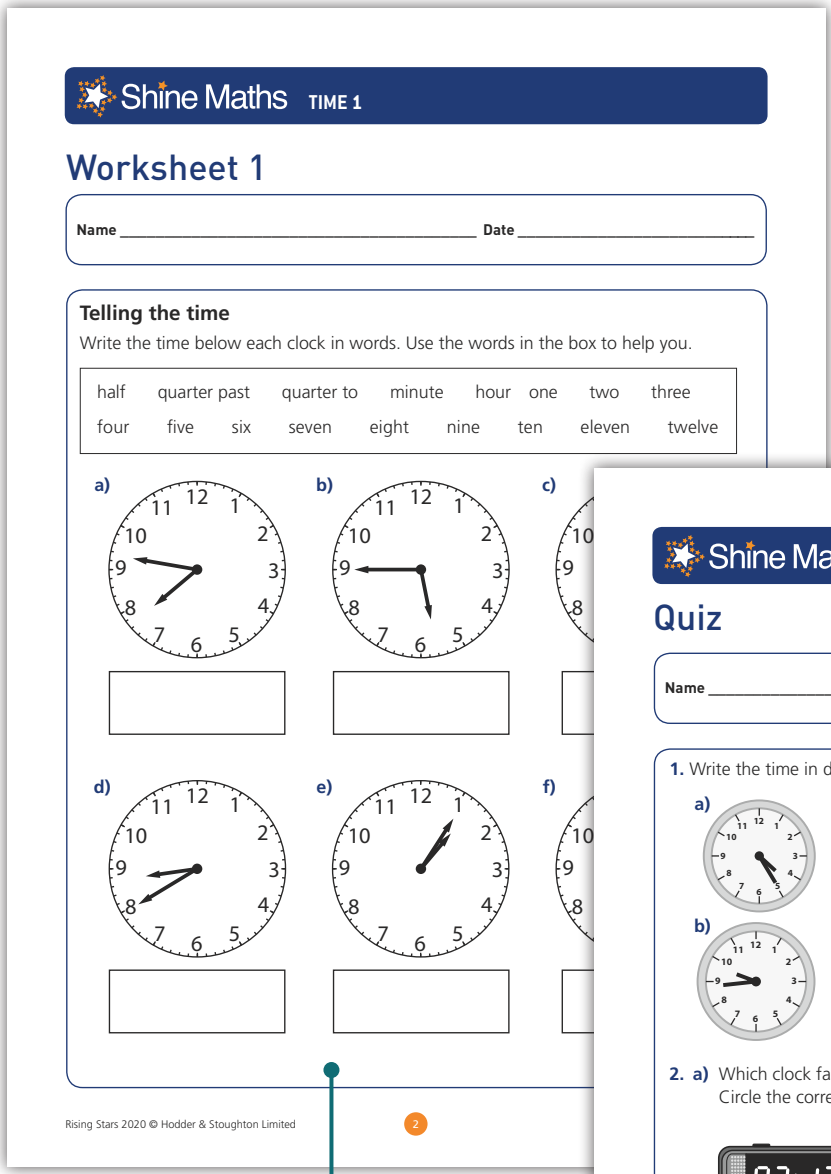
- Activity 1: A4-sized analogue clock face, geared, or cardboard with movable hands that shows hours and five minutes; Worksheet 1
- Activity 2: Large analogue clock face; digital clock face

Clock face

30-day free trial available.

Annual Shine subscriptions from £410 per subject.

- **Activity Worksheets** engage individuals or groups of learner with tasks that target the key learning objectives. Teaching tips help guide the activities with questions to encourage discussion and challenge misconceptions.
- Quick **Quizzes** at the end of each Learning Sequence measure a learners' understanding of the key objectives.
- **Record** and **Impact Forms** help to track and evidence learners' progress and the impact of interventions.



Shine Maths TIME 1

Worksheet 1

Name _____ Date _____

Telling the time

Write the time below each clock in words. Use the words in the box to help you.

half	quarter past	quarter to	minute	hour	one	two	three
four	five	six	seven	eight	nine	ten	eleven	twelve

a) b) c)

d) e) f)

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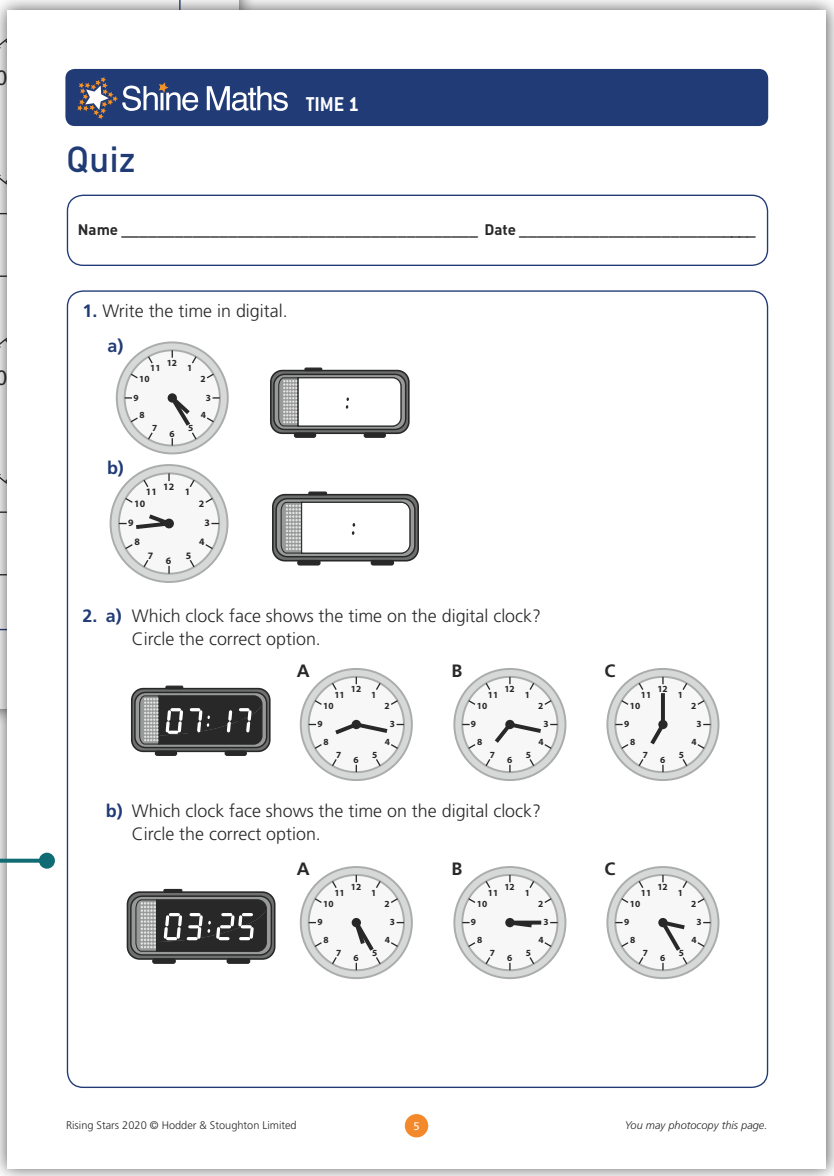

Shine Maths TIME 1

Quiz

Name _____ Date _____

1. Write the time in digital.

a)

b)

2. a) Which clock face shows the time on the digital clock? Circle the correct option.

07:17 A B C

b) Which clock face shows the time on the digital clock? Circle the correct option.

03:25 A B C

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Example Worksheet and Quiz from a Year 3 Learning Sequence on Time.

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Together, we unlock every learner's unique potential.

Wherever you are, whatever curriculum you follow, and whatever your budget, we'll work with you to understand your unique challenges and needs – providing tailored teaching and learning solutions to help you and your students thrive.

Find your local Assessment Consultant at **hachettelearning.com/consultants**

Our three steps to success:

Assess > Identify > Intervene

1. Assess your learners with National Test-style Standardised Mathematics Assessments.
2. Identify areas of strength and pinpoint knowledge gaps among your learners.
3. Take action with Shine's innovative targeted interventions to build understanding and consolidate learning.