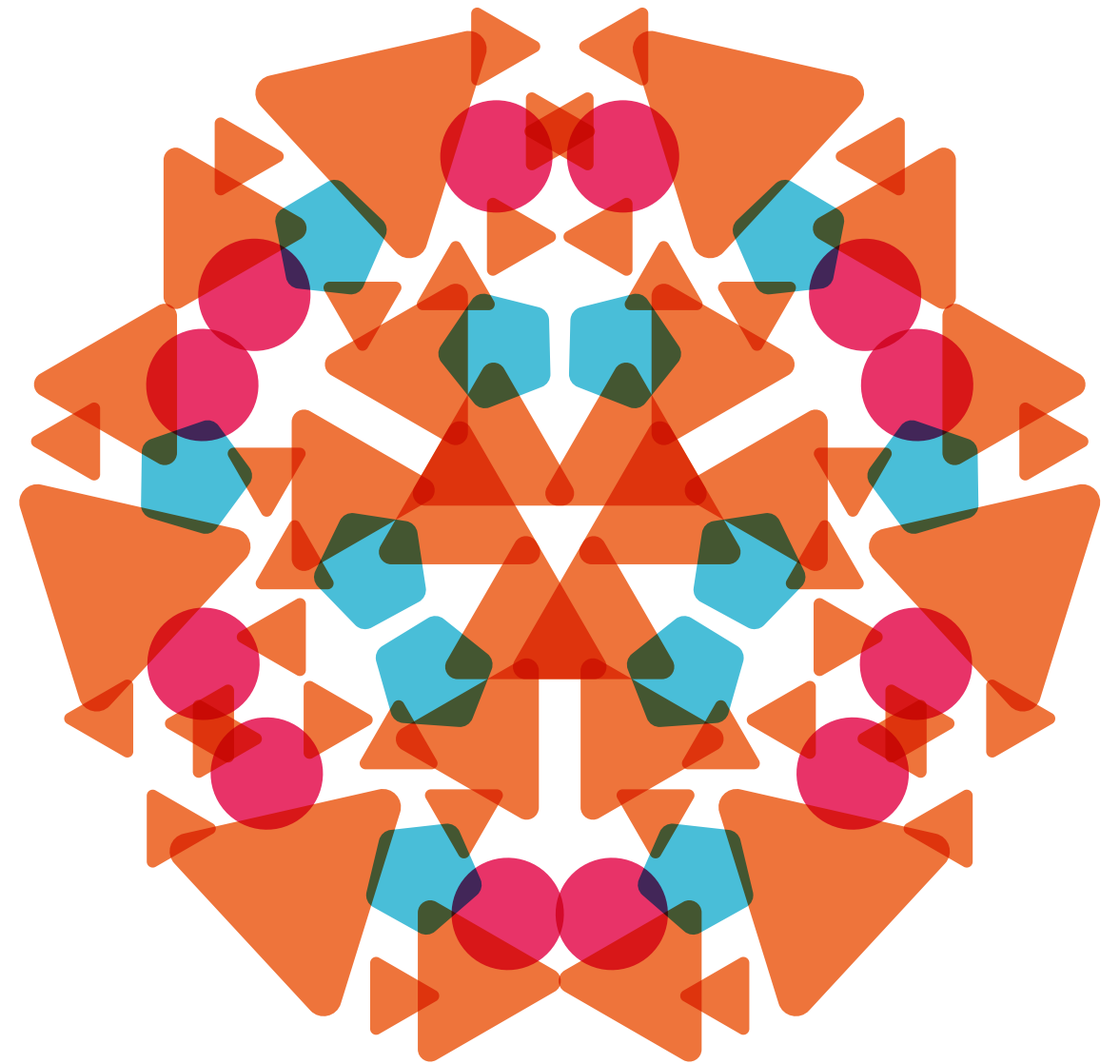


Oxford  
International  
Curriculum

# Maths

Subject Guide



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# I see problem-solvers who can clearly communicate their mathematical thinking

The Oxford International Curriculum is a new approach to teaching and learning focused on wellbeing, which places joy at the heart of the curriculum and develops the skills your learners need for their future academic, personal and career success.

Maths is one of six subjects that make up the curriculum, part of a coherent and holistic approach that ensures continuity and progression across every student's educational journey.

Six strands encompass the full spectrum of skills and understanding that young learners will need to develop at primary and lower secondary level, to both prepare them for further mathematical study, and in their everyday lives:

- Number
- Calculating
- Measure, ratio and proportion
- Geometry
- Algebra
- Statistical thinking

### What does the Oxford International Curriculum for Maths offer you?

- An inherently inter-connected and overlapping spiral curriculum, building in complexity each year, with elements of mastery throughout.
- A problem-solving approach that encourages students to use their mathematical skills in a real-world context.
- A variety of concrete and pictorial representations used to introduce new learning, allowing students to build a strong mental schema.
- Language support with new vocabulary, to help students communicate their thinking clearly, and support EAL learners.

# Curriculum at a glance

The Oxford International Curriculum for Maths offers end-to-end teaching and learning support with year-on-year progression of learning outcomes for nine year groups.



The spiral development model means that learning themes are revisited each year, building on previous achievement, and giving coherence and structure to the learning journey.

Compact, concise and accessible learning outcomes are easy to use for today's busy educators.

Strand	Year 1	Year 7
<b>1 Number</b>	<p>Students can:</p> <p><b>1.1a:</b> Count to 50, forwards and backwards</p> <p><b>1.1b:</b> Count in multiples of 2, 5, 10 and other small multiples</p> <p><b>1.1c:</b> Read and write numbers to 50 in numerals and to 20 in words</p> <p><b>1.1d:</b> Compare numbers and quantities to 50 including the use of pictorial representations</p> <p><b>1.1e:</b> Identify one greater/fewer than any number to 50</p> <p><b>1.1f:</b> Order numbers to 50</p> <p><b>1.1g:</b> Use the early ordinal numbers</p> <p><b>1.1h:</b> Use the language of simple fractions</p> <p><b>1.1i:</b> Understand the relationship between whole numbers and parts of numbers</p> <p><b>1.1j:</b> Know and apply the fact that half is one of two equal parts and one quarter is one of four equal parts</p>	<p>Students can:</p> <p><b>7.1a:</b> Compare and order positive and negative numbers</p> <p><b>7.1b:</b> Recognize and use powers and roots (up to 3)</p> <p><b>7.1c:</b> Determine the value of each digit in any number</p> <p><b>7.1d:</b> Use estimates to check answers</p> <p><b>7.1e:</b> Compare and simplify fractions</p> <p><b>7.1f:</b> Write one number as a fraction of another and find a fraction of an amount</p> <p><b>7.1g:</b> Recognize and use the equivalence of fractions, decimals and percentages</p> <p><b>7.1h:</b> Convert between fractions, decimals and percentages</p> <p><b>7.1i:</b> Compare and order fractions, decimals and percentages</p> <p><b>7.1j:</b> Use mental methods to find a simple percentage of an amount</p> <p><b>7.1k:</b> Round any decimal to 1 decimal place</p>
<b>2 Calculating</b>	<p><b>1.2a:</b> Use the language and symbols for addition, subtraction and equality</p> <p><b>1.2b:</b> Recognize the relationship between addition and subtraction</p> <p><b>1.2c:</b> Add and subtract numbers to 20 including 0</p> <p><b>1.2d:</b> Recognize and use number bonds to 20</p> <p><b>1.2e:</b> Use part whole reasoning</p> <p><b>1.2f:</b> Solve simple addition and subtraction problems using objects or pictorial representations</p> <p><b>1.2g:</b> Use grouping and sharing as an introduction to multiplication and division</p> <p><b>1.2h:</b> Double and halve simple numbers and quantities</p> <p><b>1.2i:</b> Solve simple multiplication and division problems using objects or pictorial representations</p> <p><b>1.2j:</b> Find one half and one quarter of a shape, a length/height, a mass/weight, a capacity/volume, a group of objects or a small amount</p>	<p><b>7.2a:</b> Use written and mental methods to add and subtract positive and negative numbers</p> <p><b>7.2b:</b> Add and subtract mixed numbers</p> <p><b>7.2c:</b> Add and subtract decimals</p> <p><b>7.2d:</b> Multiply proper fractions and mixed numbers by positive whole numbers and by fractions</p> <p><b>7.2e:</b> Use division to write a fraction as a decimal</p> <p><b>7.2f:</b> Divide decimals by whole numbers, and solve problems involving decimals</p> <p><b>7.2g:</b> Find lists of factors, multiples, primes and factor pairs and use them to find the highest common factor and lowest common multiple of a pair of numbers</p>

Sample from Maths Curriculum at a glance, Years 1 and 7

# Assessment framework

## Year 3

### Introduction

The focus of teaching in Year 3 should be to ensure that pupils become increasingly fluent with whole numbers, the four operations and the concept of place value. Students should develop this fluency mainly through everyday tasks that involve problem solving and reasoning. They should also be taught to use measuring instruments with accuracy and learn to make connections between measure and number.

### Learning outcomes

These learning outcomes set out a programme of study in mathematics for Year 3. During the year, every student will:

- 3.1a:** Count in multiples of 4, 8, 50 and 100 from 0
- 3.1b:** Read and write numbers to 1000 in numerals and words
- 3.1c:** Compare and order numbers up to 1000
- 3.1d:** Determine the value of each digit in a 3-digit number
- 3.1e:** Find 100 more or less than a given number
- 3.1f:** Represent and estimate numbers using different representations
- 3.1g:** Partition numbers into hundreds, tens and ones
- 3.1h:** Solve problems involving number to 1000
- 3.1i:** Count forwards and backwards in tenths
- 3.1j:** Relate tenths to decimal measures and division by ten
- 3.1k:** Compare and order fractions with the same denominator
- 3.1l:** Recognize and show, using diagrams, equivalent fractions with small denominators
- 3.1m:** Solve simple problems using fractions
- 3.2a:** Use efficient mental and expanded formal written methods for addition and subtraction of numbers of up to three digits
- 3.2b:** Use addition and subtraction to solve more complex problems
- 3.2c:** Use the inverse relationship between addition and subtraction to solve more complex problems and to check working
- 3.2d:** Add and subtract fractions with the same denominator
- 3.2e:** Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- 3.2f:** Use efficient mental and written methods for multiplication and division of a 1-digit or 2-digit number by a 1-digit number
- 3.2g:** Recognize and use the patterning in multiplying and dividing by 10
- 3.2h:** Solve simple 2-step problems in context

Built-in end of year tests support the assessment framework.

Access Testbase's online question bank and tailor assessment to support the needs of you and your students.

**testbase**

Aligned to the requirements of the Maths examination syllabi, including OxfordAQA's International GCSEs, AS and A-levels.



- 3.3a:** Use appropriate apparatus to measure and compare length (m/cm/mm), mass (kg/g) and volume/capacity (l/ml)
- 3.3b:** Express measurements using appropriate mixed units
- 3.3c:** Tell and write the time to the nearest minute using analogue clocks (including using Roman numerals)
- 3.3d:** Convert between 12-hour and 24-hour clock times
- 3.3e:** Know the number of seconds in a minute and the number of days in each month, year and leap year
- 3.4f:** Recognize that a right angle is a quarter turn, two right angles are a half turn and so on
- 3.5a:** Continue halving and doubling sequences
- 3.5b:** Solve missing number problems, involving subtraction
- 3.6a:** Solve one and two step real-life questions, interpret and present data using bar charts, pictograms and tables

### Assessment criteria

The assessment criteria allow the teacher to assess the level of achievement of each student.

- 3.1a:** *Count in multiples of 4, 8, 50 and 100 from 0*
  - Developing:** The student can count to 500 in multiples of 50 and 100.
  - Secure:** The student can count to 500 in multiples of 4, 8, 50 and 100.
  - Extended:** The student can use their understanding of multiples of 4, 8, 50 and 100 to identify missing numbers on grids and number lines.
- 3.1b:** *Read and write numbers to 1000 in numerals and words*
  - Developing:** The student can read and write numbers to 500 in numerals and words.
  - Secure:** The student can read and write numbers to 1000 in numerals and words.
  - Extended:** The student can read and write numbers to 1000 in their work across the curriculum.
- 3.1c:** *Compare and order numbers up to 1000*
  - Developing:** The student can compare and order numbers and quantities to 500.
  - Secure:** The student can compare and order numbers and quantities to 1000.
  - Extended:** The student can use their understanding of comparing and ordering numbers to 1000 solve problems.
- 3.1d:** *Determine the value of each digit in a 3-digit number*

# Lesson plans and worksheets

**YEAR 1, Term 1, Unit 1: Number: Counting and ordering numbers to 50**  
**Week 2: Can you count?, Lesson 4: What's the order?**  
**Learning outcome: 1.1g**

**Context**

- Children should have a secure understanding of numbers to 50 and be familiar with number names and cardinality.
- This lesson focuses on children developing their understanding of the ordinal aspect of number and be able to use this in their description of positions.
- Children will have an opportunity to talk about their ideas and share their thinking.
- This session has been planned to last between 45 minutes to 1 hour. The timings are flexible and the additional tasks can be used to extend the children's learning.

**Equipment**  
 Pictures of frogs  
 Labels: first 1st; second 2nd; 3rd third; fourth 4th; fifth 5th

**Lesson summary**  
 In this lesson children will use ordinal language to describe the position of frogs.

**Joy of learning**

- Global Skills Projects
  - 1.1c: participate in free play.
  - 1.2b: follow simple instructions.
- Wellbeing
  - 1.3b: practise taking turns and sharing in games.

**Vocabulary**  
 Ordinal numbers, first, second, third...up to tenth, before, after

**Resources**  
 Worksheets 1 and 2  
 DIPM *Ordering Numbers – Discover*, p.20-21

**Where have you heard ordinal numbers being used?**

**Introductory activity**

- Search online for the rhyme '5 little speckled frogs' and show it to the children.
- Have visuals to support the rhyme such as pictures or models of frogs.
- Share the picture of the five frogs from Worksheet 1.
- Ask the children which frog is going to be 'first' to jump off the log. Emphasise the original language.
- Ask children what the word 'first' means and where the children have heard this being used before. Ask a child to decide which frog will be first, according to the song, and mark this frog with the word 'first'
- Ask the children which frog will jump off next. What word can we use to describe this frog? Take feedback from the children and label this frog with the word 'second'
- Repeat until all the frogs have labels from first to fifth.
- Sing the song again and take the frogs off the log in order.
- Children can also be given a copy of Worksheet 1 to map the ordinal boxes to the correct frog, as the labels are added, to help to consolidate their understanding.

**Main activity**

- Give each child a copy of Worksheet 2 with the illustration of a line of 10 frogs.
- Tell the children that they are going to colour in the frogs by following the instructions. Complete the first together, 'Colour the fourth frog green'.
- Ask children to check with their partner that they have coloured the same frog.
- Complete the remainder of the task.

**Additional tasks**

- Children can colour further examples following labels with ordinal numbers.
- Children can use ordinal language to describe a pattern or line of objects.
- Children can give a partner instructions on how to place a group of items in order.

**Learning review**

- The position of objects can be described using ordinal numbers.
- Instructions can be given using ordinal numbers.

**Differentiation**

- Children can be supported with the ordinal numbers arranged in order as a prompt.


**Extension tasks**

- Children can create a pattern, picture, or sequence following ordinal language and share this with a partner.
- Students can complete activities in *Oxford International Primary Maths*.

YEAR 1, Term 1, Unit 1: Number: Counting and ordering numbers to 50

**Maths**

**What's the order?**  
 Which frog is first into the water? Join up each frog with the correct word.



First
Second
Third
Fourth
Fifth

Term 1, Week 2, Lesson 4, Worksheet 1  
 © Oxford University Press 2020

**OXFORD**

**YEAR 7, Unit 3: Measures**  
**Term 1, Week 9, Lesson 4: Converting between metric measures**  
**Learning outcome: 7.3a**

**Context**

- In this unit, students will revisit various topics involving measures before studying metric to metric conversions and metric to imperial conversions.
- In this lesson, students will learn how to convert between different metric units.
- Students will work independently.
- This lesson has been planned to last between 45 minutes to 1 hour. The timings are flexible and the additional tasks can be used to extend the student's learning.

**Equipment**  
 White boards  
 Markers

**Lesson summary**  
 The lesson looks at how to convert

**Vocabulary**  
 mm, cm, metre, km, mg, g, kg, tonne, ml, cl, l

**Introductory activity**

- Give each student a white board and marker.
- Ask student several questions such as: what metric units would you use to measure the length of a pencil, the weight of a brick, the amount of water in a bath etc. Students should answer on their whiteboards and hold up their answers when asked.
- Teacher and students to discuss answers.

**Main activity**

- Students should copy and complete the following metric conversion chart.

Length	Weight	Capacity
1 cm = mm	1 g = mg	1 cl = ml
1 m = cm	1 kg = g	1 l = cl
1 km = m	1 t = kg	1 l = ml

- After a suitable period of time discuss their answers.
- Give students a copy of the correct conversion chart.

Length	Weight	Capacity
1 cm = 10 mm	1 g = 1000 mg	1 cl = 10 ml
1 m = 100 cm	1 kg = 1000 g	1 l = 100 cl
1 km = 1000 m	1 t = 1000 kg	1 l = 1000 ml

- Ask students to answer: a Convert 65 ml into litres b 360 mm into cm
- Discuss answers with students.
- Show students how to convert from one unit to the other and back.
- Students answer questions 2 and 3 from *Mymaths for KS3 1B* page 27 Exercise 2c OR
- Students answer Exercise 1.1 Q 2 from *Discovering Mathematics 1B* p.27
- Teacher and students to discuss the answers.
- Encourage students to discuss their reasoning.
- Students should work independently as far as possible before the discussion.
- After a suitable period of time discuss the answers with students.

**Additional tasks**

- Students answer questions 4 and 5 from *Mymaths for KS3 1B* page 27 Exercise 2c.
- Discuss their answers.

**Learning review**

- Students have further developed their skills in converting between metric units.

**Differentiation**

- Students work with support from an adult where possible/necessary. If not possible then pair more able students with less able students.



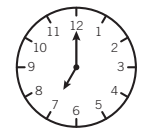
**Extension tasks**

- Ask students if they know any prefixes that give an order of magnitude to a unit. For example: megatonne, gigatonne (students should be aware of kb, Mb and Gb). Do they know what these prefixes mean?

YEAR 7, Term 1, Unit 3: Measures

**Maths**

**Review and practice of Unit 3**

- How much liquid is in the jug?  

- How much liquid is in the jug?  

- What time is it?  


Term 1, Week 10, Lesson 2, Worksheet 1  
 © Oxford University Press 2020

**OXFORD**

Step-by-step guidance navigates through the delivery of the lesson, with differentiation suggestions provided.

Every lesson highlights the learning outcomes it covers, linking back to the curriculum-at-a-glance document.

Includes links to recommended resources and worksheets where relevant.

Opportunities to link to the Global Skills Projects and Wellbeing curricula are highlighted.

Worksheets accompany lesson plans where appropriate to aid teaching.

# Resources

We recommend that schools use **Oxford International Primary Maths Second Edition** alongside **MyiMaths** at Primary level, and **MyMaths for Key Stage 3** alongside **MyiMaths** at Lower Secondary to support the implementation of the Oxford International Curriculum for Maths.

Together, these series provide a complete and integrated nine-year (Years 1–9) Maths course. Offering a problem-solving approach to maths, with seamless progression from primary to lower secondary learning, they lay the foundation for success at international GCSE level.

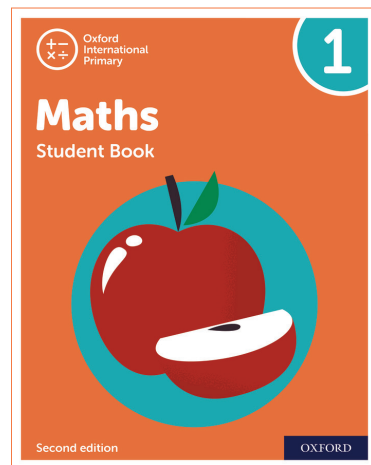
These resources are signposted within the Oxford International Curriculum for Maths lesson plans.

## Primary & Lower Secondary



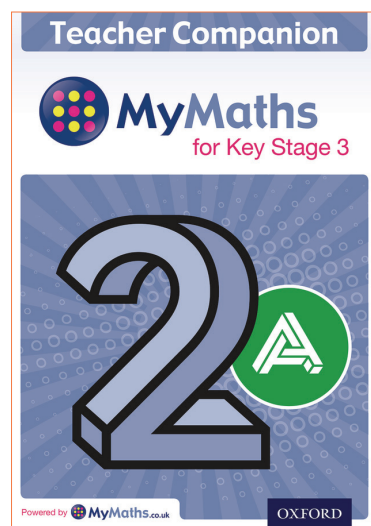
MyiMaths  
www.myimaths.com

## Primary



**Oxford International Primary Maths**  
www.oxfordprimary.com/international-maths

## Lower Secondary



**MyMaths for KS3**  
www.oxfordsecondary.com/mymathsks3

Find out more at  
oxfordinternationalcurriculum.com

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