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Student Activity Book

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Introduction

Students learn mathematical skills and concepts in everyday life as they interact with their environment and the people around them. They pose and answer questions, recognise and represent numbers, count, estimate and calculate, measure, identify shapes and investigate spatial relationships.

Primary Maths Student Activity Book 4 provides a series of mathematics activities that encourage students to think about situations and problems, talk to others about their ideas and develop their own strategies as confident learners. In keeping with the Australian mathematics curriculum, *Primary Maths* fosters the development of the four proficiency strands – Understanding, Fluency, Problem solving and Reasoning – through the wide range of activities that it offers the student. These activities address and develop the descriptions and elaborations of the Australian curriculum's three content strands, as outlined below.

Within the *Primary Maths* Student Activity Book 4 there are links to our subscription-based Cambridge HOTmaths website, a comprehensive interactive maths learning system for both teachers and students. Cambridge HOTmaths offers various educational tools to assist with maths learning, ranging from walkthrough problems to interactive widget animations, worksheets, and online drill and practice. This content is connected to a powerful reporting system that provides comprehensive reports on student progress and understanding.

Number and Algebra

Primary Maths promotes the use of number and mathematical concepts so that students can investigate and use the properties of odd and even numbers, and are able to recognise, represent and order numbers to at least tens of thousands. Students will apply understanding of place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems.

Primary Maths will help students develop efficient mental and written strategies for multiplication and division and will assist students in the use of appropriate digital technologies.

Primary Maths develops students' understanding of fractions by using investigations of equivalent fractions in context. Students will count by quarters, halves and thirds, including with mixed numerals, and will be able to locate and represent these fractions on number lines. Students will recognise that the place-value system can be extended to tenths and hundredths and will make connections between fractions and decimal notation.

Problems involving calculations with money will develop students' ability to represent money values in multiple ways and to calculate change to the nearest five cents.

Mathematics involves a search for patterns and relationships. Accordingly, using Primary Maths develops the skills students will need to explore and describe number patterns resulting from performing multiplication. They will solve word problems by using number sentences involving multiplication or division and use equivalent number sentences involving addition and subtraction to find unknown quantities.

Measurement and Geometry

Number ideas are further developed in the context of measurement activities in *Primary Maths*. Objects are investigated using scaled instruments to measure and compare lengths, masses, capacities and temperatures. Estimation is encouraged and students will compare objects using familiar metric units of area and volume.

The measurement of time is examined, and students will convert between units of time and use a.m. and p.m. notation to solve simple time problems.

Students will further develop their understanding of location by using simple scales, legends and directions to interpret information contained in basic maps.

Primary Maths investigates the shape, size, pattern, position and movement of everyday objects to develop students' skills of spatial visualisation. Students will create symmetrical patterns, pictures and shapes, with and without digital technologies, and compare the areas of regular and irregular shapes by informal means. Students will further their understanding of two-dimensional space by comparing and describing shapes that result from combining and splitting common shapes. Angles are compared and classified as equal to, greater than or less than a right angle.

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Statistics and Probability

In the probability activities, students describe possible everyday events and order the chances of them occurring, and identify dependent and independent events. They increase their understanding by identifying events where the chance of an event occurring is not affected by the occurrence of the other.

While undertaking Primary Maths statistics activities, students select and trial methods for data collection, including survey questions and recording sheets, and construct suitable data displays, with and without the use of digital technologies, from given or collected data. They will interpret tables, column graphs and picture graphs where one picture represents many data values. They will also evaluate the effectiveness of different data displays in illustrating data features such as variability.

Page elements

The *Primary Maths* Student Activity Books use a system of subtle colour coding to indicate the level of difficulty of the questions, which is outlined below:

- 1 yellow beginning
 - 2 blue consolidation
- 3 red extension

The red arrow on the pages indicates a challenge question.

Reference throughout the books is made to our successful *Maths-in-a-Box* series that can be used in conjunction with the books to provide additional support and enrichment.

Discussion icons are indicated throughout the books to highlight areas where class or smallgroup discussion can take place.

This icon indicates material that has been included to ensure smooth and sensible bridging between the year levels. The authors of *Primary Maths* have presented a thorough and pedagogically sound interpretation of the Australian mathematics curriculum. They have also included material that they feel offers a whole and complete course and complements the core content to ensure students receive a complete understanding of the material.

In addition, purple boxes contain information to help students recall past learning, or offer hints and further explanation of difficult concepts.

Cambridge HOTmaths icons



Cambridge HOTmaths flames are positioned throughout the book indicating links to relevant interactive material available at the Cambridge HOTmaths site.

1 www.hotmaths.com.au

A complete list of all relevant Cambridge HOTmaths material can be found on the HOTmaths contents pages following.

The following icons on the HOTmaths contents pages illustrate the various types of additional material available on the HOTmaths site:



Widgets (interactive activities)

Walkthroughs (step-by-step demonstration of mathematical concepts)



HOTsheets (a variety of PDF worksheets that build upon concepts)

Cambridge HOTmaths is a live, dynamic and ever growing resource. Notifications on changes and additions to HOTmaths information post publication can be found here. www.cambridge.edu.au/primarymaths

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Course: Aus Curric 4

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á –	24	Multiplication & division	Introducing multiplication strategies	Ö ¢ MDGET	Expression calculator
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y 2	41	Fractions, decimals & money	Counting with fractions		Mixed vs improper
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