



Mathsercise

Year
5

CURRICULUM INTO THE CLASSROOM
Independent Learning Materials



Produced by:

Education Queensland C2C Project Team

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Icon legend



Sheet



Keep



Prac work



Tutor



English Pack



Send-in



Digital



Safety



Maths Pack



Science Pack



Focused teaching and learning



Play learning situations



Real life situations



Routines and transitions



Investigations

Introduction

This booklet is designed to support your student's knowledge of number facts, number, computation and content that underpins their understanding in mathematics.

The booklet has the following sections:

- Today's number
- Number facts — Addition and subtraction
- Let's calculate
- Everyday maths

It has been designed for tutors or teachers to use at their own discretion.

You may like to complete some of these activities as regular routines in the form of five-minute revision sessions each day or use them to reinforce and revise concepts that students have difficulty with. It is suggested that these activities be completed multiple times so that students work towards being flexible and confident mathematics learners.

With **Today's number**, students may choose a number or several numbers and then answer some of the activities.

To develop an understanding of **Number facts**, students need opportunities to:

- practise facts so that they can recall facts with fluency
- look for number patterns
- learn related facts together.

When learning number facts students can nominate:

- *Facts I know well*
- *Facts I do not know*
- *Facts I can work out.*

Visual models can be used to help students to learn number facts and to thoroughly develop knowledge.

Let's calculate is to practise calculating numbers. When teaching for understanding, students can begin to use concrete and visual representations and move along to symbolic representations.

The use of concrete material is appropriate for assisting all students in their mathematical development. The use of concrete materials will change as students progress throughout the year levels.

In **Everyday maths** students can be asked any practical mathematical questions that will help them in everyday life.

It may be useful to keep a separate exercise book for students to write their answers in or complete their working (if necessary).

Today's number

Number of the day

Have the students select and record a number between 10 000 and 1 000 000, for example:

167 356

Choose some activities from the following options:

Say the number

Write in words

Write the place value of each digit

Write the number on a number expander, close the number expander in different places, record the partitioning representations using number sentences, for example:

5 000 + 200 + 60 + 8 or 5 200 + 68

1 000, 10 000, 100 000 more than

100, 1 000 less than

100 more than

10 less than

Write the number before and after

Round to the nearest 100 000

Round to the nearest 10 000

Partitioning whole numbers

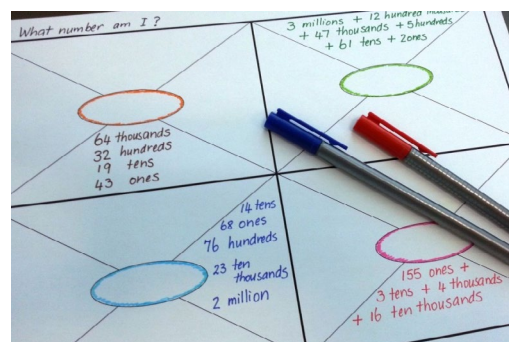
Provide students with examples of three-digit, four-digit, five-digit or six-digit numbers for students to name, expand into place value components or reconstruct from place value components. Use place value materials such as place value charts, arrow cards or number expanders to assist as required.

Choose one number and model non-standard partitioning in a variety of ways.

Have students reconstruct and identify numbers from non-standard partitioning by providing a partially completed **Quad thinkboard**.

Have the students:

- reconstruct the partitioned number to identify it
- write the number in digit form in the circle
- write its name in an adjoining cell
- expand it using place value partitioning in another adjoining cell
- partition it a different way.



Note: The number activities for each cell can be varied according to student learning needs, for example:

- write the number before and the number after the identified number
- round the number to a given place
- write the number that is 10, 100 or 1 000 more or less than the identified number.

Tiny ten frame

What you need:

- A set of tiny ten frames

What to do:

- Ask students to guess the combination of numbers that have been used to form a given number using the set of tiny ten frames
- State the target number for example '46'. Do not tell the students how many cards you have used. Ask students to make possible combinations of numbers with their tiny ten frame totalling '46'.
- Ask students to say what tiny ten frame cards they have, for example: I have a 30, a 10 and a 6. The student may have a 20, a 10, a 10, a 4 and a 2.
- Allow student to keep going until they have correctly guessed the combination.

Number facts — Addition and subtraction

Total speed

Play the game Total speed to reinforce fluency and accuracy of recall of facts.

What you need:

- Playing cards (remove all Kings, Queens, Jacks and Jokers; the Ace represents one).

What to do:

- Shuffle and deal the deck of cards face down between two students.
- Each student flips a card simultaneously on to the table.
- The first student to call out the correct total wins the pair of cards.
- The student who has all the cards at the end of the game is the winner.

Reinforce extended facts using materials such as tens dice, larger number dice or interactive dice. Construct a set of cards using tens, hundreds and thousands to use for extended number facts.

Card sharks (for two players)

Play the game Card sharks to reinforce fluency and accuracy of recall facts.

What you need:

- Playing cards (remove all Kings, Queens, Jacks and Jokers; the Ace represents one).

What to do:

- Shuffle and divide the pack evenly between both students.
- Each student keeps their pack face down.
- Both students take their top two cards from their respective packs and places them face up.
- Each student adds their two cards together.
- The student with the highest number wins all the cards.
- If the answer is the same then a number war is declared.

A number war is where each student takes three cards from their pack and places them face down on the table. Each student then takes two more cards from their pack and places these face up on the table.

- Each student adds their own two cards together.
- The highest answer wins all the cards that have been placed on the table for the student for that hand.

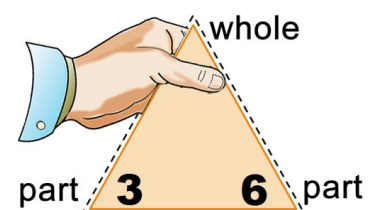
Hidden values

Display fact family triangles with one value hidden. Discuss strategies for calculating the missing value, for example dividing, thinking multiplication.

Have students to work with a partner, taking turns to:

- represent a multiplication fact in a fact family triangle
- cover one value on the triangle
- challenge the partner to calculate the missing value.

Students may use materials to help work out the hidden values.



Let's calculate

Addition game (a game for two players)

What you need:

- One dice and a scoresheet for each student

What to do:

- Throw the dice and all students write the number in one of their eight boxes.
- Throw the dice again and place the next number in one of the boxes.
- Once the number is written in a box it cannot be changed.
- Continue throwing the dice until all eight boxes are filled.
- When the boxes are filled, add together the four two-digit numbers.
- The winner is the student whose answer is the closest to 120.
- The winner scores four points.

Scoresheet:

<i>Round 1</i>	<i>Round 2</i>	<i>Round 3</i>	<i>Round 4</i>								
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+	+	+	+								
_____	_____	_____	_____								
_____	_____	_____	_____								

Subtraction game (a game for two or more players)

What you need:

- One dice and a scoresheet for each student

What to do:

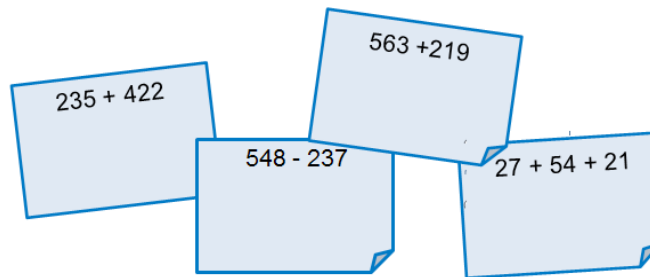
- Throw the dice and all students write the number in one of their four boxes.
- Throw the dice again and place the next number in one of the boxes.
- Once the number is written in a box it cannot be changed.
- Continue throwing the dice until all four boxes are filled.
- When the boxes are filled, subtract the lower two-digit number from the top.
- If the lower number is greater than the top number, then zero points are scored.
- The winner is the student whose answer is the closest to 27.
- The winner scores four points.

Scoresheet:

<i>Round 1</i>	<i>Round 2</i>	<i>Round 3</i>	<i>Round 4</i>								
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-	-	-	-								
_____	_____	_____	_____								
_____	_____	_____	_____								

How did you do it?

Give each student a sheet of paper with a different addition (or subtraction) problem, for example:



Students solve their problem mentally, using materials or visual models if required.

Ask the students:


- How did you do it?
- What number did you begin with?
- What did you do first, why?
- What did you do next?
- Could you have done it differently?

Practise strategies

Provide a selection of number problems for students to solve using mental computation strategies, for example:

56 + 78	34 + 49	83 + 59	66 + 36
324 + 457	420 + 420 + 420	526 + 763	975 + 120

Have students practise mental computation strategies of Jump, Split, and Compensate, for example:

$623 + 305$ $\begin{array}{r} 623 \\ 723 \\ 823 \\ 923 \\ 928 \end{array}$ <p>Example Jump strategy</p>	$\begin{array}{r} 623 + 305 \\ \swarrow \quad \searrow \\ 600 + 300 = 900 \\ 23 + 5 = 28 \\ \hline 928 \end{array}$ <p>Example Split strategy</p>	<div style="text-align: right; margin-bottom: 10px;">  </div> $\begin{array}{r} 623 + 305 \\ 623 + 300 = 923 \\ \text{Add the extra } 5 \\ \hline 928 \end{array}$ <p>Example Compensate strategy</p>
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Solving word problems

Present addition and subtraction word problems involving two-digit numbers. Include bridging for addition once this has been introduced. Do not include bridging for subtraction.

Example word problems:

- *Joe planted 35 seedlings on Saturday and 21 seedlings on Sunday. How many seedlings did he plant altogether?*
- *Hannah bought a box of 25 doughnuts. She gave 12 to her sister. How many doughnuts did Hannah have left?*

Ask students to:

- use the SCAN-THINK-DO strategy
- attempt a mental calculation first
- represent both numbers with base ten modelling materials to confirm the sum
- record the strategy using an informal written method.

Thinkboards

Present students with a variety of two-digit and three-digit addition problems, for example:

Demi went to the movies twice to see Tiger Queen. The first time she counted 187 people in the cinema. The second time she counted 253 people. How many people did Demi count altogether?



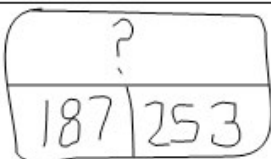
Have the students:

- draw a simple thinkboard (see example below)
- copy the number story into one cell of the thinkboard.

Discuss the problem.

Identify the values as parts and wholes, for example: 187 as one part; 253 as the other part (the whole is unknown).

Identify the missing value, for example, the total number of people.

<p><i>Demi went to the movies twice. The first time she counted 187 people. The second time she counted 253 people. How many people did Demi count altogether?</i></p>	<p>Day 1 : 187 people watching</p>  <p>Day 2 : 253 people watching</p> 
	$187 + 253 =$

Instruct students to complete the thinkboard with different representations for the same situation, including:

- a drawing
- a part-part-whole model
- a number sentence.

Year 5 Mathsercise

Practise written methods for addition

Present an addition problem to students.

Discuss whether the problem could be solved mentally or would be better suited to the application of a written method.

Model the steps of the *Place value* method to solve the problem.

Model the steps of the *Left to right regrouping* method to solve the same problem.

Refer back to the initial estimate to check that the answer is reasonable.

Provide further examples for independent practice.

$\begin{array}{r} 14\ 308 \\ + 22\ 846 \\ \hline 37\ 154 \end{array}$ <p><i>Mentally: $14\ 000 + 23\ 000 = 37\ 000$</i></p>	$\begin{array}{r} 6\ 215 + 3\ 098 \\ + 1\ 007 \\ \hline 10\ 320 \end{array}$ <p><i>Mentally: $6\ 000 + 3\ 000 + 1\ 000 = 10\ 000$</i></p>	$84\ 365 + 251\ 639$ <p><i>Mentally: $80\ 000 + 250\ 000 = 330\ 000$</i></p>	$488 + 96\ 517 + 22\ 229$ <p><i>Mentally: $500 + 96\ 500 = 97\ 000$ $97\ 000 + 22\ 000 = 119\ 000$</i></p>
$\begin{array}{r} 14\ 308 \\ + 22\ 846 \\ \hline 30\ 000 \\ 6\ 000 \\ 1\ 100 \\ 40 \\ 14 \\ \hline 37\ 154 \end{array}$	$\begin{array}{r} 6\ 215 \\ 3\ 098 \\ + 1\ 007 \\ \hline 10\ 000 \\ 200 \\ 100 \\ 20 \\ \hline 10\ 320 \end{array}$	$\begin{array}{r} 84\ 365 \\ + 251\ 639 \\ \hline 200\ 000 \\ 130\ 000 \\ 5\ 000 \\ 900 \\ 90 \\ 14 \\ \hline 336\ 004 \end{array}$	$\begin{array}{r} 488 \\ 96\ 517 \\ + 22\ 229 \\ \hline 110\ 000 \\ 8\ 000 \\ 1\ 100 \\ 110 \\ 24 \\ \hline 119\ 234 \end{array}$
$\begin{array}{r} 14\ 308 \\ + 22\ 846 \\ \hline 36\ 144 \\ 7\ 5 \\ \hline 37\ 154 \end{array}$	$\begin{array}{r} 6\ 215 \\ 3\ 098 \\ + 1\ 007 \\ \hline 10\ 200 \\ 32 \\ \hline 10\ 320 \end{array}$	$\begin{array}{r} 84\ 365 \\ + 251\ 639 \\ \hline 235\ 994 \\ 3\ 600 \\ \hline 336\ 004 \end{array}$	$\begin{array}{r} 488 \\ 96\ 517 \\ + 22\ 229 \\ \hline 118\ 144 \\ 9\ 23 \\ \hline 119\ 234 \end{array}$

Practise written methods for subtraction

Present a subtraction problem to students.

Discuss whether the problem could be solved mentally or would be better suited to the application of a written method.

Model the steps of the *Place value* method to solve the problem.

Model the steps of the *Left to right regrouping* method to solve the same problem.

Refer back to the initial estimate to check that the answer is reasonable.

Provide further examples for independent practice.

$64836 - 17113$ $65000 - 20000 = 45000$	$265421 - 173908$ $270000 - 170000 = 100000$	$164803 - 49325$ $165000 - 50000 = 115000$	$342273 - 39848$ $340000 - 40000 = 300000$
$\begin{array}{r} 64836 \\ -17113 \\ \hline 54836 \text{ (-10 000)} \\ 47836 \text{ (-7000)} \\ 47736 \text{ (-100)} \\ 47726 \text{ (-10)} \\ 47723 \text{ (-3)} \end{array}$	$\begin{array}{r} 265421 \\ -173908 \\ \hline 165421 \text{ (-100 000)} \\ 95421 \text{ (-70 000)} \\ 92421 \text{ (-3000)} \\ 91521 \text{ (-900)} \\ 91513 \text{ (-8)} \end{array}$	$\begin{array}{r} 164803 \\ -49325 \\ \hline 124803 \text{ (-40 000)} \\ 115803 \text{ (-9000)} \\ 115503 \text{ (-300)} \\ 115483 \text{ (-20)} \\ 115478 \text{ (-5)} \end{array}$	$\begin{array}{r} 342273 \\ -39848 \\ \hline 312273 \text{ (-30 000)} \\ 303273 \text{ (-9000)} \\ 302473 \text{ (-800)} \\ 302433 \text{ (-40)} \\ 302425 \text{ (-8)} \end{array}$
$\begin{array}{r} 64836 \\ -17113 \\ \hline 57723 \\ 4 \\ \hline 47723 \end{array}$	$\begin{array}{r} 265421 \\ -173908 \\ \hline 192523 \\ 011 \\ \hline 91513 \end{array}$	$\begin{array}{r} 164803 \\ -49325 \\ \hline 125888 \\ 147 \\ \hline 115478 \end{array}$	$\begin{array}{r} 342273 \\ -39848 \\ \hline 312485 \\ 022 \\ \hline 302425 \end{array}$

Multiplication game (a game for two players)

What you need:

- Two dice and a scoresheet

What to do:

- Student 1 throws the two dice and multiplies the numbers together.
- Student 1 records the score on the scoresheet.
- Student 2 has his/her turn.
- The winner is the first player to reach a score of 100.

Name _____

Name _____

Dice numbers	Score

Dice numbers	Score

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Division game (a game for two players)

What you need:

- Two different coloured dice, a different coloured set of counters for each student and a playing board

What to do:

- Coloured dice 1 represents the 'tens' digit.
- Coloured dice 2 represents the 'ones' digit.
- The first student throws the two dice and makes a two-digit number.
- The first student places a counter on any number on the board that is a factor of the number made from the dice.
- If it is impossible to find a factor, then no counter is placed on the board.
- The second student has a turn.
- The winner is the first student to make a straight line with four of his/her counters.

7	4	2	3	6
6	2	4	7	3
8	5	7	4	9
3	5	2	3	4
8	6	2	6	5

Everyday maths

Time

Have the students:

- use a calendar (for the current year) to:
 - identify today, tomorrow, yesterday, day after, day before, next week, last week
 - order months of the year
 - identify which season we are in
 - identify day, date and month
 - find how many days in June
 - find how many days until ... (pick a date, for example a birthday or holiday).
-

Duration of time

Have the students:

- compare duration of time, for example:
 - activities that take a month, a week, a day, an hour
 - use a clock (analogue and digital)
 - ask about o'clock, half-past, quarter-to/past times
 - how long does it take to ...
 - convert to 24-hour
 - convert to digital/analogue.
-

Length

Have the students:

- use informal/formal units to measure length, for example:
 - how long is it
 - how wide is it
 - about how tall is it.
-

Capacity

Have the students:

- measure capacity using:
 - informal units
 - formal units to determine
 - how many CDs fill the bag
 - how much water fills the jar.
-

Location

Have the students:

- follow directions by moving:
 - forwards/backwards/sideways
 - left/right

Year 5 Mathsercise

- clockwise/anticlockwise
 - half turn/quarter turn
 - give directions.
-

Area

Have the students:

- use informal/formal units to measure area:
 - how many envelopes cover the desk.
-

Mass

Have the students use:

- informal/formal units to measure mass:
 - how heavy is it?
 - about how heavy is it?
-

Money

Have the students:

- use collections of money to:
 - count collections of coins (5c, 10c, \$1, \$2)
 - count how much change?
 - count how much will these items cost?
 - write a budget.