Mathletics

The Mathletics Programme

# Lesson Plans for Year 4

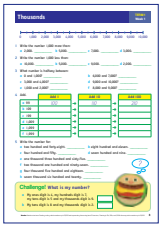
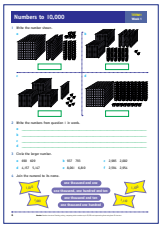
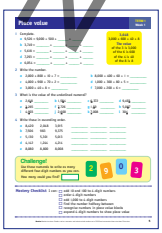
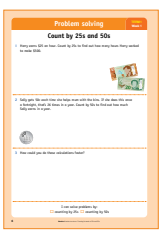
Everything you need to plan, teach and assess Year 4 mathematics, aligned to the curriculum and designed for effective, differentiated instruction.

- Weekly Overviews
- Daily Lesson Plans
- Explicit Instruction
- Differentiation
- Links to Student Workbook and Online lessons
- Curriculum and Planning Links

# Term 1 Teaching Overview Weeks 1–9

| Week & Unit | High-Level Curriculum Focus | Student Book and Online lessons | Resources |
|---|---|---|---|
| **Week 1**<br>**Number: Number structures: Numbers to 10,000** | **Number** Number structures<br>Reading, writing, comparing, and ordering whole numbers up to 10,000 and representing them using base 10 structure<br>Rounding whole numbers to the nearest thousand, hundred<br>Counting in 10s, 100s, and 1,000s from any whole number up to 10,000<br>Counting forwards in 25s and 50s | **Pages 2–6**<br>Mathletics Number Structure | Place-value charts<br>Base 10 blocks<br>0–9 digits on cards<br>Number lines<br>Mini whiteboards |
| **Week 2**<br>**Number: Number structures: Four-digit numbers** | **Number** Number structures<br>Reading, writing, comparing, and ordering whole numbers up to 10,000 and representing them using base 10 structure<br>Rounding whole numbers to the nearest thousand, hundred, or ten<br>Rounding can support predicting or estimating the result of a calculation<br>**Algebra** Equations and relationships<br>Checking the truth of number sentences | **Pages 7–11**<br>Mathletics Number Structure | Numeral expanders<br>Place-value chart<br>Base 10 blocks<br>0–9 digits on cards<br>Number lines<br>Mini whiteboards |
| **Week 3**<br>**Number: Operations: Addition** | **Number** Operations<br>Addition can be carried out mentally, using known facts, place value and partitioning, or column methods<br>Standard written algorithms rely on place value, regrouping, and renaming | **Pages 12–16**<br>Mathletics Operations: Add and Subtract | Number lines<br>Tens frames<br>Base 10 blocks<br>Mini whiteboards<br>Counters |
| **Week 4**<br>**Number: Operations: Subtraction** | **Number** Operations<br>Subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods<br>Standard written algorithms rely on place value, regrouping, and renaming<br>**Algebra** Equations and relationships<br>Completing open number sentences | **Pages 17–21**<br>Mathletics Operations: Add and Subtract | Number lines<br>Tens frames<br>Base 10 blocks<br>Mini whiteboards<br>Counters |
| **Week 5**<br>**Algebra: Equations and relationships: Patterns** | **Algebra** Equations and relationships<br>Recognising, continuing, creating, and describing growing patterns (including numerical and non-numerical patterns) that change by adding, subtracting or multiplying by a constant whole number<br>**Number** Number structures<br>Counting forwards in 2s, 4s, 5s | **Pages 22–25**<br>Mathletics Algebra | Place-value charts<br>Counters<br>Mini whiteboards |
| **Checkpoint 1**<br>**Mid-term review** | **Assessment and Review**<br>Review numbers to 10,000, addition, subtraction and patterns | Pages 26–27 | |
| **Week 6**<br>**Geometry: Spatial reasoning: 3D shapes** | **Geometry** Spatial reasoning<br>Visualising 3D shapes and connecting them with 2D diagrams, verbal descriptions, and the same shapes drawn from different perspectives | **Pages 28–32**<br>Mathletics Geometry | 3D shape models<br>Building blocks<br>Shape cards<br>Mini whiteboards |
| **Week 7**<br>**Number: Operations: More subtraction** | **Number** Operations<br>Adding and subtracting up to four-digit numbers<br>**Number** Financial mathematics<br>Calculating change; Representing amounts of currency using different combinations of denominations<br>**Algebra** Equations and relationships<br>Recognising and continuing growing patterns (including numerical patterns) | **Pages 33–37**<br>Mathletics Operations: Add and Subtract | Number lines<br>Counters/cubes<br>Place-value charts<br>Base 10 blocks<br>Mini whiteboards |
| **Week 8**<br>**Number: Operations: More addition** | **Number** Operations<br>Adding and subtracting up to four-digit numbers<br>**Number** Financial mathematics<br>Calculating the total cost of several items with different prices, including giving change<br>**Algebra** Equations and relationships<br>Completing open number sentences involving addition | **Pages 38–42**<br>Mathletics Operations: Add and Subtract | Number lines<br>Counters/cubes<br>Base 10 blocks<br>Place value charts<br>Play money<br>Mini whiteboards |
| **Week 9**<br>**Measurement: Measuring: Length** | **Measurement** Measuring<br>Estimating and measuring length (cm and m), using tools with labelled markings and whole-number metric units<br>Comparing and ordering objects using whole-number metric units of length<br>Using familiar objects (e.g. body parts) to create estimation benchmarks; Using the appropriate tool for measuring length | **Pages 43–47**<br>Mathletics Measuring Length | Rulers<br>Tape measures<br>Metre sticks<br>Classroom objects for measuring |
| **Checkpoint 2**<br>**End-of-term review** | **Assessment and Review**<br>Review numbers to 10,000, addition, subtraction, patterns, 3D shapes and length | Pages 48-49 | |

# Term 1 Week 1 Overview Number: Number structures: Numbers to 10,000

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1**<br>**Dollar amounts** | Whole numbers can be read, written, compared and ordered using base-10 place value to 10,000. | ✓ Read and write dollar amounts to 10,000<br>✓ Compare and order amounts of money<br>✓ Add and subtract simple amounts mentally<br>✓ Identify amounts closest to a given value | – Compare wallet amounts using place value<br>– Order money from least to greatest<br>– Add $10 and subtract $100 mentally<br>– Identify amounts closest to $100 and $1,000 | **Page 2:** Compare and order dollar amounts; add $10; subtract $100; identify closest values.<br>  |
| **2**<br>**Thousands** | Numbers increase and decrease in thousands following base-10 place value patterns. | ✓ Find 1,000 more or less<br>✓ Identify halfway points between thousands<br>✓ Add 1, 10 and 100 using place value<br>✓ Read and write numbers in words and numerals | – Use number line to explore thousands<br>– Add and subtract 1,000 mentally<br>– Find halfway between thousands<br>– Write numbers in words and digits | **Page 3:** 1,000 more/less; halfway between; add 1, 10, 100; write numbers in words and numerals.<br>  |
| **3**<br>**Numbers to 10,000** | Whole numbers to 10,000 can be represented using base-10 structure. | ✓ Read numbers using thousands, hundreds, tens and ones<br>✓ Write numbers in words and numerals<br>✓ Compare and identify larger numbers<br>✓ Match numerals to place-value names | – Build numbers with base-10 blocks<br>– Read and write numbers to 10,000<br>– Compare numbers<br>– Match numerals to written names | **Page 4:** Write numbers shown; write in words; compare numbers; match numerals to names.<br>  |
| **4**<br>**Place value** | Each digit has a value based on its position in the base-10 system. | ✓ Expand numbers into thousands, hundreds, tens and ones<br>✓ Identify value of a digit<br>✓ Order four-digit numbers<br>✓ Add 10, 100 and 1,000 using place value | – Expand numbers using place-value charts<br>– Identify digit values<br>– Order numbers<br>– Apply place-value reasoning to add 10, 100 and 1,000 | **Page 5:** Expand numbers; find value of digits; order numbers; place-value calculations.<br>  |
| **5**<br>**Problem solving – Count by 25s and 50s** | Counting in 25s and 50s creates predictable patterns that help solve money problems efficiently. | ✓ Count forward in 25s and 50s<br>✓ Use skip-counting to solve money problems<br>✓ Recognise repeated-addition patterns<br>✓ Explain a faster strategy | – Skip-count in 25s and 50s<br>– Solve money problems<br>– Use patterns to calculate totals<br>– Discuss faster strategies using multiplication | **Page 6:** Solve problems using counting in 25s and 50s; explain strategy.<br>  |

# DAILY LESSON PLAN Week 1 • Lesson 1

**Topic:** Dollar amounts

In this lesson, students explore whole numbers beyond 1,000 through money contexts. They read, write, compare and order dollar amounts, connect numbers to base-10 place value, and apply rounding to the nearest ten, hundred and thousand to estimate and reason about amounts.

## Learning Intention

Students will understand that whole numbers greater than 1,000 follow a base-10 structure and can be read, written, compared, ordered and rounded when working with dollar amounts.

## Success Criteria

- ✓ I can read and write dollar amounts greater than 1,000.
- ✓ I can compare and order money amounts using place value.
- ✓ I can represent numbers using thousands, hundreds, tens and ones.
- ✓ I can round dollar amounts to the nearest 10, 100 or 1,000.

## Language Focus

**Key terms:** thousands, hundreds, tens, ones, digit, place value, compare, order, greater than, less than, equal, round, nearest, estimate, value

**Sentence stems:**

- The number ___ has ___ thousands, ___ hundreds, ___ tens and ___ ones.
- ___ is greater than ___ because the ___ digit is larger.
- When I round ___ to the nearest hundred, I get ___.
- I know this amount is closest to ___ because ___.

## Launch Activity (5 minutes)

Display several wallet amounts from the page (e.g. $946, $1,035, $2,413, $1,197).

Ask: 'Which wallet holds the most money? Which holds the least?'

Then: 'How do you know?'

**Assessment for Learning**

Listen for place-value reasoning (students referring to thousands first, not just reading digits).



## Explicit Instruction (10–12 minutes)

### 1. Understanding Place Value in Dollar Amounts

**I Do** • Model $1,261 using a place-value chart: 1 thousand, 2 hundreds, 6 tens, 1 one.

Explain that each place is 10 times the value of the place to its right.

**We Do** • Build several amounts together (e.g. $1,035, $608, $2,413).

Ask: Which digit shows the thousands? What happens when the thousands digit changes?

**You Do** • Students represent given amounts using place-value charts or expanded form.

Check for understanding: Why is $1,197 greater than $946?

### 2. Comparing and Ordering Dollar Amounts

**I Do** • Compare $1,261 and $1,197. Start with thousands, then hundreds, then tens.

**We Do** • Order a set of wallet amounts from least to greatest together. Discuss reasoning aloud.

**You Do** • Students order the wallet values from the page independently.

### 3. Rounding Dollar Amounts

**I Do** • Model rounding $1,261 to the nearest 10 ($1,260), the nearest 100 ($1,300) and the nearest 1,000 ($1,000).

Ask: How does rounding help estimate and compare quickly?

**We Do** • Round several values together (e.g. $946, $1,197, $2,413).

**You Do** • Students round selected wallet values to nearest 10, 100 and 1,000.

## Differentiation Tips

### Support

- Use numbers under 2,000.
- Provide place-value charts and base-10 blocks.
- Compare only two numbers at a time.

### Extension

- Ask students to create their own wallet values and order them.
- Round numbers to estimate total money from multiple wallets.
- Introduce differences between two large amounts.

### Teaching as Inquiry

Observe whether students compare by place value or by reading digits incorrectly.

## Hands-On Activity 1 (10 minutes)

**Wallet Order Challenge**

Students receive cards with different dollar amounts. They arrange themselves from least to greatest and explain reasoning using place value.

## Hands-On Activity 2 (10–15 minutes)

**Rounding for Estimation**

Students estimate the total of two wallet amounts by rounding first, then check using exact values. Discuss when rounding is useful in real life (shopping, budgeting).

## Student Book Practice

Students complete **p.2** of their workbook: **Dollar amounts**.

Focus: Identify greatest and smallest wallet values, order wallet amounts, add $10 and subtract $100, Word problems

## Mathletics Online Practice

**New Course Unit:** Number structure: Whole number

**Activity:** Are You Ready?

Tests prior knowledge and provides data on potential areas of weakness to address.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Which place do you check first when comparing numbers?
- What happens when you round to the nearest 100?
- Is $1,035 closer to $1,000 or $2,000? Why?
- Which is greater: $1,261 or $1,197? Explain.

### Reflect and Share

How does place value help you understand money amounts quickly?

### Feedback

Encourage students to use reasoning words such as *thousands*, *digit*, *value* and *nearest*.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students confusing digit size with place value.
- Provide additional rounding practice for students unsure about midpoint decisions.
- Extend confident students with multi-step money problems and estimation.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures, Operations & Financial Mathematics**

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position and the numeral in the position. Zero is used as a placeholder.
- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods.
- New Zealand currency is a decimal system of dollars made up of 100 cents.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure
- Rounding whole numbers to the nearest thousand, hundred or ten
- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 1 • Lesson 2

**Topic:** Thousands

In this lesson, students explore numbers in the thousands using place value and number-line reasoning. They practise finding numbers that are 1,000 more or less, identify halfway points between thousands, apply patterns when adding 1, 10 and 100, and read and write numbers using base-10 structure.

## Learning Intention

Students will understand that numbers in the thousands follow a base-10 structure and can be increased, decreased, compared and represented using place value patterns.

## Success Criteria

- ✓ I can find 1,000 more and 1,000 less than a number.
- ✓ I can identify halfway points between thousands.
- ✓ I can use place value to add 1, 10 and 100 to numbers in the thousands.
- ✓ I can read and write numbers to 10,000 correctly.

## Language Focus

**Key terms:** thousands, hundreds, tens, ones, digit, place value, increase, decrease, halfway, number line, pattern, sequence, value

**Sentence stems:**

- ___ is 1,000 more than ___ because the thousands digit increases by one.
- The number halfway between ___ and ___ is ___.
- When I add 10, the ___ digit changes.
- The number ___ has ___ thousands, ___ hundreds, ___ tens and ___ ones.

## Launch Activity (5 minutes)

Display a number line from 0 to 10,000. Mark 2,000 and 3,000.

Ask: What number is halfway between? (2,500)

Then: What is 1,000 more than 5,000?

Next: What is 1,000 less than 9,000?

**Assessment for Learning**

Check whether students recognise the pattern of thousands increasing or decreasing by one place-value unit.



## Explicit Instruction (10–12 minutes)

### 1. Finding 1,000 More and 1,000 Less

**I Do** • Show: 7,000 ➜ 8,000 (1,000 more) and 6,000 (1,000 less). Explain that only the thousands digit changes.

**We Do** • Work through examples together:
2,000 ➜ ___, 5,000 ➜ ___, 10,000 ➜ ___.

**You Do** • Students complete similar problems from the page.
Check for understanding: Why does only one digit change?

### 2. Halfway Between Thousands

**I Do** • Model finding halfway between 6,000 and 7,000 using a number line ➜ 6,500.

**We Do** • Find halfway between several pairs together (e.g. 3,000 and 4,000).

**You Do** • Students complete halfway questions independently.

### 3. Applying Place Value Patterns (Add 1, 10, 100)

**I Do** • Model starting with 1,009: +1 ➜ 1,010, +10 ➜ 1,019, +100 ➜ 1,109

Ask: Which digit changes each time?

**We Do** • Work through a table together (e.g. 99, 109, 199, 1,009).

**You Do** • Students complete the Add 1, Add 10, Add 100 table from page 3.

### 4. Reading and Writing Numbers in Words

**I Do** • Model: 1,365 = one thousand three hundred and sixty-five.

**We Do** • Convert several numbers together between words and numerals.

**You Do** • Students complete number-writing section.

## Differentiation Tips

### Support

- Use a number line to 5,000.
- Focus only on +1,000 and −1,000.
- Provide place-value charts.

### Extension

- Create numbers using clues (e.g. thousands digit is 9, tens digit is 5).
- Explore numbers beyond 10,000.
- Ask students to explain patterns across thousands, hundreds and tens.

### Teaching as Inquiry

Observe whether students rely on counting or understand digit changes through place value.

## Hands-On Activity 1 (10 minutes)

**Human Number Line**

Students stand in a line holding number cards (e.g. 2,000; 3,000; 4,000).

Ask: Who is 1,000 more than 4,000? Who is halfway between 6,000 and 7,000?

## Hands-On Activity 2 (10–15 minutes)

**Mystery Number Challenge**

Students solve clues such as, 'My ones digit is 4, hundreds digit is 7, tens digit is 5, thousands digit is 9.' Together they build the number.

Ask: How did you use the clues to determine place value?

## Student Book Practice

Students complete **page 3** of their workbooks: **Thousands**.

Focus: find 1,000 more and less, identify halfway numbers, complete add 1, add 10, add 100 table, read and write numbers in words, solve 'What is my number?' challenge.

## Mathletics Online Practice

**Skill Quest Topic:** Number structures: Count 10s 100 & 1,000

**Quest:** Counting in 1,000s

Reinforces key lesson skills through online tasks that use number lines and other models to support students in counting by 1,000s.

Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What changes when you add 1,000?
- What number is halfway between 8,000 and 9,000?
- Which digit changes when you add 100?
- Why is 7,000 greater than 6,500?

### Reflect and Share

Ask: How does place value help you work with large numbers?

### Feedback

Encourage students to explain using *digit*, *thousands*, *pattern* and *value*.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students confusing place value positions.
- Provide more number-line support for halfway understanding.
- Extend confident students with multi-step number reasoning.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures**

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position and the numeral in the position. Zero is used as a placeholder.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure
- Counting in 10s, 100s, and 1,000s from any whole number up to 10,000

# DAILY LESSON PLAN Week 1 • Lesson 3

**Topic:** Numbers to 10,000

In this lesson, students represent, read, write, compare and order whole numbers to 10,000 using base-10 structure. They interpret numbers using place-value blocks, write numbers in words, and compare numbers by analysing thousands, hundreds, tens and ones.

## Learning Intention

Students will understand that whole numbers to 10,000 can be represented using base-10 structure and compared by analysing place value from thousands to ones.

## Success Criteria

- ✓ I can represent numbers to 10,000 using place-value blocks.
- ✓ I can read and write numbers to 10,000 in numerals and words.
- ✓ I can compare numbers by looking at the thousands, hundreds, tens and ones.
- ✓ I can match numerals to their written number names correctly.

## Language Focus

**Key terms:** thousands, hundreds, tens, ones, place value, digit, numeral, value, compare, greater than, less than, equal, order, represent

**Sentence stems:**

- The number ___ has ___ thousands, ___ hundreds, ___ tens and ___ ones.
- ___ is greater than ___ because the thousands digit is larger.
- In the number ___, the digit ___ is in the ___ place.
- The number ___ written in words is ___.

## Launch Activity (5 minutes)

Display base-10 blocks showing 3,000 + 400 + 50 + 6.

Ask: What number is this? (3,456), Which place has the greatest value?, What happens if we add one more thousand?

**Assessment for Learning**

Check whether students recognise place-value structure rather than counting blocks individually.



## Explicit Instruction (10–12 minutes)

### 1. Representing and Reading Four-Digit Numbers

**I Do** • Build a four-digit number using base-10 materials or a place-value chart (1 thousand, 2 hundreds, 3 tens, 4 ones = 1,234). 1,234 has 1 thousand, 2 hundreds, 3 tens and 4 ones. I read the largest place first, then move across the places.

**We Do** • Build and read 2–3 numbers together.

Ask: How many thousands? How many hundreds? How many tens? How many ones? What number have we made? Use examples with zeros, such as: 2,507 and 3,040.

**You Do** • Students build or draw a four-digit number, write the numeral, and say the number to a partner.

### 2. Writing Four-Digit Numbers in Words

**I Do** • Write the 2,507 in words (two thousand five hundred and seven). Explain that the zero shows there are no tens. You don't say 'zero tens', but the zero is important because it holds the tens place.

**We Do** • Write these together in words: 1,010, 3,406, 5,070.

Ask: Which is the thousands, hundreds, tens or ones digit before writing each number.

**You Do** • Students write selected four-digit numbers in words, including at least one number with a zero placeholder.

### 3. Comparing, Ordering and Matching Numbers

**I Do** • Write the numbers 2,985 and 2,002.

Explain: Both numbers have 2 thousands so I look next at the hundreds. 2,985 has 9 hundreds and 2,002 has 0 hundreds, so 2,985 is greater.

**We Do** • Compare and order a small set together (1,001, 1,010, 1,100, 1,101)

Ask: Explain which place value helped them decide the order.

**You Do** • Students order a set of four-digit numbers from least to greatest and match each numeral to its written name.

## Differentiation Tips

### Support

- Use numbers to 5,000.
- Provide place-value charts and block visuals.
- Practise identifying thousands only.

### Extension

- Order a set of 5 numbers to 10,000.
- Explain why numbers differ even when digits are similar (e.g. 5,147 vs 4,157).
- Create their own base-10 model and have a partner interpret it.

### Teaching as Inquiry

Observe whether students compare correctly using highest place value rather than guessing.

## Hands-On Activity 1 (10 minutes)

**Build and Read**

Students use place-value blocks or drawn models to build a number (e.g. 4,362). Partners read the number aloud and write it in words.

## Hands-On Activity 2 (10–15 minutes)

**Largest Number Challenge**

Give students digit cards (0–9).

Ask: Build the largest and smallest possible 4-digit number. How did you sort the digits to build the biggest and smallest numbers?

## Student Book Practice

Students complete **page 4** of their workbooks: **Numbers to 10,000**.

Focus: interpret place-value block models, write numbers in words, compare numbers, match numerals and names.

## Mathletics Online Practice

**Activities (Courses) Topic:** Number structure: Whole number & place value

**Activity:** Numbers in Words

Reinforces key lesson skills through questions that require translating words into numerals.

Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is the value of the digit 5 in 5,234?
- Which is larger: 4,157 or 5,147? Why?
- How do you read 3,406 in words?
- Why do we compare thousands first?

### Reflect and Share

How does place value help you understand large numbers?

### Feedback

Encourage use of vocabulary such as *digit*, *value*, *thousands* and *compare*.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students confusing hundreds and thousands.
- Provide additional place-value modelling where needed.
- Extend confident students with 5-digit reasoning challenges.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures**

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position and the numeral in the position. Zero is used as a placeholder.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure

# DAILY LESSON PLAN Week 1 • Lesson 4

**Topic:** Place value

In this lesson, students deepen their understanding of place value to 10,000 by expanding numbers into thousands, hundreds, tens and ones, identifying the value of digits, and ordering numbers. They use base-10 structure to explain how numbers are built and compared.

## Learning Intention

Students will understand that each digit in a number to 10,000 has a value determined by its place and that numbers can be expanded, interpreted and ordered using place-value knowledge.

## Success Criteria

- ✓ I can expand a number into thousands, hundreds, tens and ones.
- ✓ I can identify the value of a digit in a number.
- ✓ I can write numbers from expanded form.
- ✓ I can order numbers correctly using place value.

## Language Focus

**Key terms:** place value, thousands, hundreds, tens, ones, digit, value, expand, standard form, ascending order, numeral

**Sentence stems:**

- The number ___ is ___ thousands + ___ hundreds + ___ tens + ___ ones.
- The value of the digit ___ in ___ is ___.
- I know ___ is greater because the ___ place is larger.
- In ascending order means ___.

## Launch Activity (5 minutes)

Write **3,648** on the board.

Ask: How many thousands? Hundreds? Tens? Ones? What is the value of the digit 6? What number is 1,000 more?

**Assessment for Learning**

Check whether students recognise place value rather than reading digits individually.



## Explicit Instruction (10–12 minutes)

### 1. Expanding and Writing Numbers from Expanded Form

**I Do** • Write 5,284 and expand it using place value: 5,284 = 5,000 + 200 + 80 + 4.

Point to each digit and connect it to its place-value position: thousands, hundreds, tens and ones. Then model the reverse process by combining expanded parts into a numeral. Write an expanded number and combine it into a numeral.

**We Do** • Expand and combine numbers together (7,293, 6,054, 3,728, 9,806)

Ask: Which digit is in the thousands place? Which digit is in the hundreds place? What does the zero show? How do the expanded parts combine to make the number?

**You Do** • Students expand selected four-digit numbers and write selected expanded forms as numerals.

### 2. Identifying Digit Value

**I Do** • Show how to identify the value of a digit by locating its place in the number. In 6,372, the value of 6 is 6,000. Then show the same digit in a different place to reinforce that value depends on position. In 3,461, the value of 6 is 60. Use a place-value chart if students need visual support.

**We Do** • Identify digit values together. Use: value of 7 in **7,293**, value of 7 in **3,728**, value of 5 in **6,054**, value of 8 in **9,086**

Ask: What digit are we looking at? Which place is it in? Is it worth ones, tens, hundreds or thousands? How do you know?

**You Do** • Students identify the value of given digits in four-digit numbers and explain one answer using place-value language.

### 3. Ordering Numbers

**I Do** • Compare and order a set of four-digit numbers from least to greatest: 3,915, 2,048, 8,420. Model comparing the thousands first, then moving to hundreds, tens and ones if needed.

Write: 2,048, 3,915, 8,420

**We Do** • Order several sets of numbers together.

Use: 4,203, 4,230, 4,032; 6,054, 6,504, 6,045; 7,293, 7,239, 7,923

Ask: Which number has the fewest thousands? If the thousands are the same, which place do we compare next? Which digit helped us decide? What is the order from least to greatest?

**You Do** • Students order sets of four-digit numbers in ascending order and underline the first digit that helped them compare each pair.

## Differentiation Tips

### Support

- Use place-value charts.
- Focus on thousands and hundreds only.
- Provide concrete block models.

### Extension

- Create the largest and smallest 4-digit numbers using given digits.
- Explain why numbers change when adding 10, 100 or 1,000.
- Solve 'halfway between' number problems.

### Teaching as Inquiry

Notice whether students confuse digit name vs digit value (e.g. saying '6' instead of '600').

## Hands-On Activity 1 (10 minutes)

**Build and Expand**

Students build a number using place-value blocks or drawn models and write its expanded form. Partners check and explain the value of each digit.

## Hands-On Activity 2 (10–15 minutes)

**Digit Challenge**

Give digits **2, 9, 0, 3**.

Students create as many 4-digit numbers as possible and record them. Discuss which is largest and smallest and why.

## Student Book Practice

Students complete **page 5** of their workbooks: **Place value**.

Focus: expanding numbers, writing numbers from expanded form, identifying digit values, ordering numbers.

## Mathletics Online Practice

**Activities (Courses) Topic:** Number structure: Whole number & place value

**Activity:** Expanding numbers

Supports skills in identifying the value of digits in 3- and 4-digit numbers in expanded form.

Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is the value of the 4 in 3,472?
- Expand 6,305.
- Which is larger: 7,293 or 6,854? Why?
- What does ascending order mean?

### Reflect and Share

How does place value help you understand large numbers quickly?

### Feedback

Encourage use of vocabulary such as *value*, *digit*, *thousands* and *expand*.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students confusing place names and values.
- Provide more practice expanding numbers where needed.
- Extend confident students with reasoning and number-creation challenges.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures**

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position and the numeral in the position. Zero is used as a placeholder.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure
- Counting in 10s, 100s and 1,000s from any whole number up to 10,000

# DAILY LESSON PLAN Week 1 • Lesson 5

**Topic:** Problem solving – Count by 25s and 50s

In this lesson, students apply skip-counting in 25s and 50s to solve real-life money problems. They use number patterns and multiplication reasoning to calculate totals efficiently and explain faster strategies.

## Learning Intention

Students will understand that counting in 25s and 50s forms predictable number patterns that can be used to solve money and repeated-addition problems efficiently.

## Success Criteria

- ✓ I can count forward in 25s and 50s.
- ✓ I can use skip-counting to solve money problems.
- ✓ I can explain a faster strategy using patterns or multiplication.
- ✓ I can represent repeated addition as a number pattern or equation.

## Language Focus

**Key terms:** skip-count, pattern, multiple, repeated addition, total, strategy, efficient, multiply

**Sentence stems:**

- Counting by 25s gives the pattern ___.
- I counted ___ groups of ___ to get ___.
- A faster way is ___ because ___.
- This is the same as ___ × ___ = ___.

## Launch Activity (5 minutes)

Warm-up skip-count together:

0, 25, 50, 75, 100 … to 500.

Then count by 50s to 1,000.

Ask:

- What pattern do you notice?
- How many 25s make 100? (4)
- How many 50s make 100? (2)

**Assessment for Learning**

Check fluency with skip-counting and recognition of number patterns.



## Explicit Instruction (10–12 minutes)

### 1. Counting by 25s to Solve a Problem

**I Do** • Write the problem context and model how repeated addition can be used to solve it: Harry earns $25 per hour. How many hours will it take him to earn $500?

Record the count in a clear sequence: 25, 50, 75, 100 … 500

Track the number of counts or use a table:

| Hours | Amount Earned |
|---|---|
| 1 | $25 |
| 2 | $50 |
| 3 | $75 |
| 4 | $100 |

Continue the pattern until students can see that 20 hours = $500.

**We Do** • Count by 25s together and pause at benchmark amounts such as $100, $250 and $500.

Ask: How many hours to make $100?

**You Do** • Students solve a similar repeated-addition problem involving $25 amounts and record either a skip-counting sequence, table or equation.

### 2. Counting by 50s in a Repeated Situation

**I Do** • Write the problem context and model counting by 50s as repeated addition: Sally earns 50c each fortnight. There are 26 fortnights in one year. How much does she earn in one year?

Record the count in cents: 50, 100, 150, 200 … 1,300

Ask: How many cents in a dollar? How many dollars is 1,300 cents = $13.00

**We Do** • Count by 50s together and identify when the total reaches whole-dollar amounts.

**You Do** • Students solve a repeated-addition problem involving 50c amounts and convert the total from cents to dollars.

### 3. Choosing a More Efficient Strategy

**I Do** • Model repeated addition 25 + 25 + 25 + 25

Explain that it can be replaced with multiplication once the pattern is understood: 25 × 20

Record: 25 × 20 = 500

Then connect the 50c example: 50c × 26 = 1,300c = $13.00

Emphasise that skip-counting is useful for seeing the pattern, while multiplication is more efficient when the number of groups is known.

**We Do** • Compare strategies for the same problem: skip-counting, using a table, grouping benchmark amounts, multiplication.

Prompt students to decide which strategy is most efficient and why.

**You Do** • Students choose one strategy to solve a repeated-addition money problem and explain why their strategy was efficient.

## Differentiation Tips

### Support

- Use number lines marked in 25s and 50s.
- Skip-count with coins or counters grouped in 25 or 50.
- Focus on counting only (no multiplication).

### Extension

- Solve similar problems using multiplication.
- Predict totals without counting every step.
- Explore counting by 75s or $1.25 patterns.

### Teaching as Inquiry

Observe whether students rely on counting or begin using multiplicative reasoning.

## Hands-On Activity 1 (10 minutes)

**Money Skip-Count**

Students use play money to build groups of $25 and $50. They record totals after each group and describe the pattern.

## Hands-On Activity 2 (10–15 minutes)

**Pattern Builder**

Students create a skip-count chart for 25s and 50s to 1,000. They highlight connections: 4 × 25 = 100, 2 × 50 = 100.

Discuss efficiency in partner groups.

## Student Book Practice

Students complete **page 6** of their workbooks: **Problem solving: Count by 25s and 50s**.

Focus: Use skip-counting to solve real-world money problems and explain strategies.

## Mathletics Online Practice

**Skill Quest Topic:** Number structures: Count multiples

**Quest:** Counting in 25s & 50s

Reinforces key lesson skills through interactive online questions utilising number lines and a variety of question types as students count forward and back in 25s and 50s.

Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is 25 × 4?
- How many 50s make $500?
- What pattern do you see when counting by 25s?
- Why might multiplying be faster than counting?

### Reflect and Share

How did skip-counting help you solve the problems?

### Feedback

Encourage explanation using words like *pattern*, *groups*, *multiply* and *total*.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students needing more skip-count fluency.
- Provide extra support linking counting to multiplication.
- Extend confident students with larger totals or mixed skip-count patterns.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures & Operations**

**Knowledge**

- Multiplication can be represented as repeated addition, scaling or arrays, and larger numbers can be multiplied using an area model or column multiplication.

**Practices**

- Counting forwards and backwards in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 25s and 50s from multiples of the counting unit

## Unit: Number structures: Numbers to 10,000

**Focus:** Reading, writing, comparing and ordering whole numbers to 10,000, understanding place value, using rounding, and applying number patterns to money and problem solving.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Place Value to 10,000** | Students understand that each digit has a value based on its position (thousands, hundreds, tens, ones). | Correctly expands numbers (e.g. 3,648 = 3,000 + 600 + 40 + 8); identifies value of digits; explains place-value reasoning. |
| **Reading and Writing Numbers** | Students can read, write and represent numbers to 10,000 using base-10 structure. | Writes numbers in words and numerals accurately; matches numerals to place-value names; represents numbers using base-10 models. |
| **Comparing and Ordering Numbers** | Students compare and order whole numbers using place-value understanding. | Correctly orders numbers; explains which digit determines the larger number; uses <, >, = appropriately. |
| **Number Patterns and Place Value Changes** | Students recognise patterns when adding or subtracting 1, 10, 100 and 1,000. | Correctly identifies which digit changes; applies patterns to find 1,000 more/less; explains reasoning using place-value language. |
| **Money and Real-World Number Use** | Students apply place value and number skills to money and real-life contexts. | Correctly compares money amounts; adds or subtracts simple values mentally; identifies closest value (e.g. to $100 or $1,000). |
| **Problem Solving with Number Patterns** | Students use skip-counting (25s, 50s, 100s) and place-value strategies to solve problems. | Uses efficient counting strategies; explains pattern-based reasoning; solves money and number problems accurately. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation (Formative)** | Watch students represent and expand four-digit numbers using place-value charts or base-10 materials. | Are students correctly identifying thousands, hundreds, tens and ones? Can they explain digit value clearly? |
| **Oral Check** | Ask: 'Which is larger, 3,482 or 3,842? How do you know?' or 'What is 1,000 more than 5,276?' | Listen for correct use of place-value vocabulary: thousands, hundreds, digit, value, greater, less. |
| **Written Work** | Review Student Book pp. 2–6. | Check correct number reading/writing, ordering, place-value expansion, rounding and problem-solving accuracy. |
| **Practical Task** | Money comparison task: Provide different dollar amounts and ask students to order them and find closest to $1,000. | Can students compare using place value? Do they use rounding or estimation appropriately? |
| **Exit Ticket/Quick Quiz** | Provide 5 short mixed questions covering place value, ordering, rounding and number patterns. | Identify students needing reinforcement in place value, rounding or pattern reasoning. |



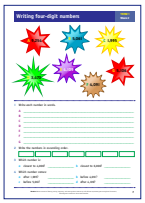
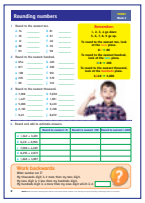
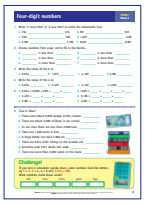
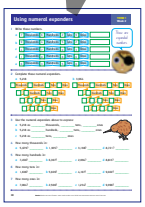
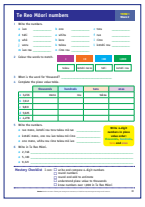
## Quick Quiz / Exit Ticket (5 Questions)

1. Write this number in expanded form: 4,372
2. Which number is larger: 5,409 or 5,490? Explain.
3. What is 1,000 more than 6,285?
4. Round 3,648 to the nearest hundred.
5. Count by 50s: 200, 250, ___, ___, ___

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently reading, writing and expanding numbers to 10,000: | |
| Students confidently comparing, ordering and rounding numbers: | |
| Students successfully applying place value to money and real-life contexts: | |
| Students needing support (e.g. place value, digit value, rounding, number patterns): | |
| Misconceptions noticed (e.g. digit size confusion, incorrect rounding, ordering by last digit): | |

# Term 1 Week 2 Overview Number structures: Four-digit numbers

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1** **Writing four-digit numbers** | Four-digit numbers can be read, written, compared and ordered using thousands, hundreds, tens and ones. | ✓ Read four-digit numbers correctly<br>✓ Write four-digit numbers in words<br>✓ Order four-digit numbers from smallest to largest<br>✓ Identify numbers before and after<br>✓ Use place value to identify numbers closest to benchmark values | – Read numbers shown on the page<br>– Write numbers in words<br>– Order numbers in ascending order<br>– Identify numbers closest to 4,000 and 6,000<br>– Find numbers before and after given four-digit numbers | **Page 7**: Write numbers in words; order numbers in ascending order; identify closest numbers; write numbers before and after.<br>  |
| **2** **Rounding numbers** | Rounding uses place value to estimate whole numbers to the nearest 10, 100 or 1,000. | ✓ Round numbers to the nearest 10<br>✓ Round numbers to the nearest 100<br>✓ Round numbers to the nearest 1,000<br>✓ Explain which digit to look at when rounding<br>✓ Use rounding to estimate addition answers | – Use rounding rules: 1–4 round down, 5–9 round up<br>– Round numbers to nearest 10, 100 and 1,000<br>– Use number lines and place value to justify rounding<br>– Round and add to estimate totals<br>– Solve a work-backwards digit challenge | **Page 8**: Round to nearest 10, 100 and 1,000; round and add to estimate; solve place-value challenge.<br>  |
| **3** **Four-digit numbers** | Four-digit numbers can be compared, represented and explained using place value. | ✓ Compare numbers using 'is more than' and 'is less than'<br>✓ Identify the value of a digit<br>✓ Write numbers in expanded form<br>✓ Check whether number statements are true or false<br>✓ Use reasoning to explain number relationships | – Complete comparison statements<br>– Choose numbers to make true 'more than' and 'less than' sentences<br>– Identify digit values in different numbers<br>– Write numbers in expanded form<br>– Check true or false real-world number statements<br>– Explore calculator-word challenge | **Page 9**: Compare four-digit numbers; identify digit values; write expanded form; check true/false statements; solve calculator challenge.<br>  |
| **4** **Using numeral expanders** | Four-digit numbers can be represented, partitioned and renamed using thousands, hundreds, tens and ones. | ✓ Use numeral expanders to make four-digit numbers<br>✓ Write numbers from thousands, hundreds, tens and ones<br>✓ Partition numbers in different ways<br>✓ Identify how many thousands, hundreds, tens and ones are in a number<br>✓ Use place value to rename numbers flexibly | – Write numbers from numeral expanders<br>– Complete numeral expanders for given numbers<br>– Rename 5,218 in different place-value ways<br>– Identify how many thousands, hundreds, tens and ones are in numbers<br>– Discuss the difference between 'the tens digit' and 'how many tens' | **Page 10**: Write numbers from expanders; complete numeral expanders; rename numbers; identify how many thousands, hundreds, tens and ones.<br>  |
| **5** **Te reo Māori numbers** | Whole numbers up to 10,000 can be read, written and represented using Te reo Māori number words and base-10 place value. | ✓ Read and write numbers from 1 to 10 in Te reo Māori<br>✓ Match Te reo Māori words to 1, 10, 100 and 1,000<br>✓ Identify the word for thousand<br>✓ Use place value to read and write four-digit numbers in Te reo Māori<br>✓ Reflect on understanding of four-digit numbers and rounding | – Match te reo Māori number words to numerals<br>– Identify tekau, rau and mano<br>– Complete a place-value table using te reo Māori<br>– Write numbers from te reo Māori words<br>– Write four-digit numbers in te reo Māori<br>– Complete mastery checklist | **Page 11**: Write te reo Māori numbers as numerals; match place-value words; complete place-value table; translate between numerals and te reo Māori; complete mastery checklist.<br>  |

# DAILY LESSON PLAN Week 2 • Lesson 1

**Topic:** Writing four-digit numbers

In this lesson, students read, write, compare and order four-digit whole numbers up to 10,000. They practise writing numbers in words, arranging numbers in ascending order, identifying numbers closest to benchmarks, and finding numbers that come before or after a given number.

## Learning Intention

Students will understand how to read, write, compare and order four-digit numbers using place value knowledge.

## Success Criteria

- ✓ I can read four-digit numbers correctly.
- ✓ I can write four-digit numbers in words.
- ✓ I can compare four-digit numbers using place value.
- ✓ I can order numbers in ascending order.
- ✓ I can identify numbers closest to 4,000 and 6,000.
- ✓ I can find the number before and after a given number.

## Language Focus

**Key terms:** digit, four-digit number, thousands, hundreds, tens, ones, place value, ascending order, before, after, closest, compare, order

**Sentence stems:**

- The number ___ is written in words as ___.
- The digit ___ is in the ___ place.
- I know ___ is greater than ___ because ___.
- The numbers in ascending order are ___.
- ___ comes before ___.
- ___ comes after ___.
- ___ is closest to ___ because ___.

## Launch Activity (5 minutes)

Write the number 5,061 on the board.

Ask: 'What digit is in the thousands place? What digit is in the hundreds place? What digit is in the tens place? What digit is in the ones place? How do we say this number aloud?'

Then: 'How are four-digit numbers read using thousands, hundreds, tens and ones?'

**Assessment for Learning**

Ask: 'How do we know a number has four digits? What place value column do we look at first when comparing numbers?'



## Explicit Instruction (10–12 minutes)

### 1. Reading and Writing Four-Digit Numbers

**I Do** • Model breaking a four-digit number into place value parts (e.g. 9,254 = 9 thousands, 2 hundreds, 5 tens, 4 ones, nine thousand, two hundred and fifty-four)

Emphasise reading from left to right: thousands, hundreds, tens, ones.

Model zero as a placeholder: 5,061 = 5 thousands, 0 hundreds, 6 tens, 1 one, five thousand and sixty-one

Explain that the zero holds the hundreds place but is not said aloud.

**We Do** • Write one thousand and ninety-five (1,095)

Ask: 'What is the value of each digit? Why is the zero important? How do we say the number correctly?'

**You Do** • Students read and write four-digit numbers in words and explain the value of each digit.

### 2. Comparing and Ordering Four-Digit Numbers

**I Do** • Compare the numbers 1,995 and 3,470 (1 thousand is less than 3 thousands, so 1,995 < 3,470).

Model comparing numbers with the same thousands digit: 5,061 and 5,106 (both have 5 thousands, so compare hundreds: 0 hundreds is less than 1 hundred, so 5,061 < 5,106)

**We Do** • Order: 4,091, 4,109, 3,470 by comparing thousands, then hundreds, tens and ones.

Correct order is 3,470, 4,091, 4,109

Ask: 'Which place value helped us decide?'

**You Do** • Students order four-digit numbers from smallest to largest and explain their thinking using place value language.

### 3. Finding Closest Numbers and Before/After

**I Do** • Model finding the closest number to a benchmark. Emphasise that closest means the smallest distance.

**We Do** • Guide students to find the closest number to 6,000 with the numbers 5,061, 5,106, 9,254 (5,106 is closest to 6,000).

**You Do** • Students practise finding one more and one less. After 1,995 is 1,996, before 4,091 is 4,090, before 5,061 is 5,060, after 4,109 is 4,110

Ask: 'What changed in the place value columns?'

## Problem Solving & Reasoning

Discuss:

- Why is 4,091 closer to 4,000 than 4,109?
- How can place value help us order numbers quickly?
- Why do we compare the thousands digit first?
- What changes when we count one more or one less?

Encourage students to explain using place value, number lines, difference from a benchmark, before and after language

## Differentiation Tips

### Support

- Use place value charts
- Use base-10 blocks or place value counters
- Read numbers aloud before writing them
- Highlight thousands, hundreds, tens and ones
- Compare two numbers at a time
- Use a number line for closest-to questions

### Extension

- Write each number in expanded form
- Create three more four-digit numbers and order them
- Find numbers closest to 5,000
- Explain how to compare two numbers with the same thousands digit
- Write before and after numbers for larger four-digit numbers

### Teaching as Inquiry

Observe which students read four-digit numbers accurately; understand the role of zero as a placeholder; can explain closest number reasoning and need support with before and after across tens or hundreds.

## Hands-On Activity 1 (10 minutes)

**Place Value Builder**

Students use place value cards or base-10 materials to build selected numbers: 5,061, 4,109, 3,470. They record each number as standard form, expanded form and words

Ask: 'Which is easiest to read?'

## Hands-On Activity 2 (10–15 minutes)

**Human Number Line**

Give students number cards: 1,995, 3,470, 4,091, 4,109, 5,061, 5,106, 9,254. Students stand in ascending order.

Ask: 'Who should move first? Which two numbers are closest together? Which number is closest to 4,000? Which number is closest to 6,000?'

Students justify their position using place value language.

## Student Book Practice

Students complete **page 7 of their workbooks: Writing four-digit numbers**.

Focus: Writing four-digit numbers in words, ordering numbers in ascending order, identifying closest numbers, finding numbers before and after, reading and comparing numbers up to 10,000

## Mathletics Online Practice

**New Course Unit:** Numbers to 10,000

**Activity:** Place Value 3

## Reflect and Check (5 minutes)

Quick-fire questions:

- How do you write 4,091 in words?
- Which is greater: 5,061 or 5,106?
- What number comes before 4,091?
- What number comes after 1,995?
- What does ascending order mean?

**Exit Question**

How can place value help you decide whether 5,061 or 5,106 is greater?

### Next Steps for Teacher

- Reinforce reading four-digit numbers with zeros
- Support students who confuse tens and hundreds places
- Continue practising ascending and descending order
- Use number lines to strengthen closest-number reasoning
- Extend confident students with expanded form and rounding

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number Structures**

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position (e.g. the tens position) and the numeral in the position. Zero is used as a placeholder.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure

# DAILY LESSON PLAN Week 2 • Lesson 2

**Topic:** Rounding numbers

In this lesson, students explore rounding whole numbers to the nearest 10, 100 and 1,000. They use place value to decide whether numbers round up or down, apply rounding to estimate addition answers and solve a place-value reasoning challenge by working backwards from digit clues.

## Learning Intention

Students will understand that rounding uses place value to estimate whole numbers to the nearest 10, 100 or 1,000.

## Success Criteria

- ✓ I can round numbers to the nearest 10.
- ✓ I can round numbers to the nearest 100.
- ✓ I can round numbers to the nearest 1,000.
- ✓ I can explain which digit I look at when rounding.
- ✓ I can use rounding to estimate addition answers.
- ✓ I can solve place-value problems using digit clues.

## Language Focus

**Key terms:** round, nearest, estimate, ones place, tens place, hundreds place, thousands place, digit, place value, round up, round down, midpoint, approximately

**Sentence stems:**

- To round ___ to the nearest ten, I look at the ___ digit.
- ___ rounds to ___ because the ___ digit is ___.
- If the digit is 1, 2, 3 or 4, I round ___.
- If the digit is 5, 6, 7, 8 or 9, I round ___.
- My estimate is ___ because I rounded ___ to ___.
- I know the number is ___ because the digit clues tell me ___.

## Launch Activity (5 minutes)

Write these numbers on the board: 74, 81, 654, 3,248

Ask:

- Which number is closest to 70?
- Which number is closest to 80?
- How could rounding help us estimate quickly?
- When rounding to the nearest ten, which digit do we look at?
- When rounding to the nearest hundred, which digit do we look at?

Display the reminder rule from the page:

- 1, 2, 3, 4 go down.
- 5, 6, 7, 8, 9 go up.

**Assessment for Learning**

Listen for students identifying the correct 'checking digit' when rounding: ones for nearest 10, tens for nearest 100, and hundreds for nearest 1,000.



# Explicit Instruction (10–12 minutes)

## 1. Round to the Nearest Ten

**I Do** • Write 74.

Explain: To round to the nearest ten, look at the ones digit. 4 means round down, so 74 ➜ 70.

**We Do** • Work through 81, 25 and 67 together. Ask:

- What is the ones digit?
- Do we round down or up?
- What is the nearest ten?

**You Do** • Students complete the nearest ten questions. Check for understanding: ask students to explain why 58 rounds to 60.

## 2. Round to the Nearest Hundred or Thousand

**I Do** • Write 654.

Explain: To round to the nearest hundred, look at the tens digit. 5 means round up, so 654 ➜ 700.

Write 7,398.

Explain: To round to the nearest thousand, look at the hundreds digit. 3 means round down, so 7,398 ➜ 7,000.

**We Do** • Work through 463, 202, 5,650 and 1,901 together. Ask:

- Which place are we rounding to?
- Which digit do we look at?
- Do we round down or up?

**You Do** • Students complete the nearest hundred and nearest thousand questions.

Check for understanding: ask students to explain why 5,650 rounds to 6,000.

## 3. Round and Add to Estimate

**I Do** • Write 1,342 + 3,453.

Explain: We can round numbers before adding to estimate an answer.

Model:

- 1,342 ➜ 1,300
- 3,453 ➜ 3,500
- 1,300 + 3,500 = 4,800

**We Do** • Work through 6,431 + 6,956 together.

Ask:

- Which place are we rounding to?
- What does each number round to?
- What is the estimated answer?

**You Do** • Students complete the rounding and estimating table.

Check for understanding: ask students to explain how rounding helps us check if an answer is reasonable.

## Differentiation Tips

### Support

- Use number lines with multiples of 10, 100 and 1,000 marked.
- Provide rounding rule cards: '1–4 round down, 5–9 round up.'
- Highlight the digit students need to look at before rounding.
- Start with two-digit numbers before moving to three- and four-digit numbers.
- Use place-value charts to support students with zeros and carrying to the next hundred or thousand.

### Extension

- Ask students to explain why rounding to the nearest 10 is usually more accurate than rounding to the nearest 1,000.
- Have students compare estimates with exact answers.
- Ask students to create their own rounding table using four-digit addition problems.
- Challenge students to find numbers that round to the same nearest 100 but different nearest 10.
- Ask students to create their own 'work backwards' digit puzzle.

### Teaching as Inquiry

Observe whether students know which digit to check when rounding. Notice if they round based on the place being rounded instead of the digit to the right.

## Hands-On Activity 1 (10 minutes)

**Rounding Number Line**

Give students number cards such as: 74, 25, 654, 871, 5,650, 8,072

Students place each number on a number line between the nearest benchmark numbers. Examples:

- 74 between 70 and 80
- 654 between 600 and 700
- 5,650 between 5,000 and 6,000

Students decide which benchmark it is closest to and explain why.

## Hands-On Activity 2 (10–15 minutes)

**Estimate the Shopping Total**

Give students pairs of four-digit 'shopping prices,' such as:

- 1,342 and 3,453
- 6,431 and 6,956
- 8,255 and 2,873

Students round both amounts to the nearest 10, 100 and 1,000, then add the rounded amounts to estimate the total.

Discuss:

- Which estimate is easiest?
- Which estimate is closest?
- When might rounding be useful in real life?

## Student Book Practice

Students complete **page 8 of their workbooks: Rounding numbers**

Focus: Round two-digit numbers to the nearest 10, 100 or 1,000, round and add to estimate answers, solve a place-value 'work backwards' challenge

## Mathletics Online Practice

**New Course Unit**: Number structure: Whole number

**Activity**: Rounding to the Nearest 10, 100 and 1,000

This task supports students to apply place-value understanding to round numbers and use rounding for estimation.

## Reflect and Check (5 minutes)

Quick-fire questions:

- When rounding to the nearest ten, which digit do you look at?
- When rounding to the nearest hundred, which digit do you look at?
- When rounding to the nearest thousand, which digit do you look at?
- What does 654 round to when rounded to the nearest hundred?
- What does 5,650 round to when rounded to the nearest thousand?
- Why is rounding useful when estimating addition answers?

### Reflect and Share

How does place value help you decide whether to round up or down?

### Feedback

Encourage students to use reasoning words such as nearest, round up, round down, ones digit, tens digit, hundreds digit, estimate and place value.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students who are checking the wrong digit when rounding.
- Provide number-line support for students unsure about midpoint decisions.
- Revisit numbers ending in 5, such as 25, 5,650 and 8,255.
- Support students who struggle when rounding creates a new hundred or thousand, such as 961 → 1,000 or 945 → 1,000.
- Extend confident students by comparing estimates with exact answers and explaining which level of rounding is most useful for different situations.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures**

**Knowledge**

- Rounding can support predicting or estimating the result of a calculation.
- Rounding is based on identifying the nearest place value or unit (ten, hundred, thousand) for a given number; a number line supports this.

**Practices**

- Rounding whole numbers to the nearest thousand, hundred or ten

# DAILY LESSON PLAN Week 2 • Lesson 3

**Topic:** Four-digit numbers

In this lesson, students deepen their understanding of four-digit numbers by comparing numbers, identifying digit values, writing numbers in expanded form, and checking whether number statements are reasonable or true. They use place value to explain 'is more than' and 'is less than' relationships, connect digits to their values, and apply mathematical reasoning to real-life quantity statements.

## Learning Intention

Students will understand that four-digit numbers can be compared, represented and explained using place value.

## Success Criteria

- ✓ I can compare numbers using 'is more than' and 'is less than'.
- ✓ I can explain why one number is greater or smaller than another.
- ✓ I can identify the value of a digit in a number.
- ✓ I can write four-digit numbers in expanded form.
- ✓ I can decide if number statements are true or false using reasoning.

## Language Focus

**Key terms:** four-digit number, compare, more than, less than, greater than, smaller than, digit, value, place value, thousands, hundreds, tens, ones, expanded form, true, false, reasonable, statement

**Sentence stems:**

- ___ is more than ___ because ___.
- ___ is less than ___ because ___.
- The ___ digit in ___ has a value of ___.
- ___ can be written as ___ + ___ + ___ + ___.
- I know this statement is true because ___.
- I know this statement is false because ___.
- This number is reasonable because ___.

## Launch Activity (5 minutes)

Display these number pairs from the page:

- 764 and 674
- 991 and 919
- 1,465 and 1,456
- 8,691 and 8,961

Ask:

- Which number is greater in each pair?
- Which digit helped you decide?
- Why is 1,465 more than 1,456?
- Why is 8,691 less than 8,961?

**Assessment for Learning**

Listen for students comparing from the largest place value first. Notice whether they compare hundreds, tens and ones only after confirming the thousands are the same.



# Explicit Instruction (10–12 minutes)

## 1. Compare Four-Digit Numbers

**I Do** • Write 764 ___ 674.

Explain: Compare digits from left to right. The hundreds digit in 764 is 7 and the hundreds digit in 674 is 6, so 764 is more than 674.

Model recording: 764 is more than 674

**We Do** • Work through 991 ___ 919 and 2,091 ___ 2,109 together.

Ask:

- Which digit do we compare first?
- Are the thousands the same?
- Which number is greater?
- Should we write is more than or is less than?

**You Do** • Students complete the comparison statements. Check for understanding: ask students to explain why 8,691 is less than 8,961.

## 2. Identify Place Value

**I Do** • Write 9,254.

Explain: The value of a digit depends on its place. In 9,254, the 9 is in the thousands place, so its value is 9,000.

Model recording: 9,254 = 9,000 + 200 + 50 + 4

**We Do** • Work through 1,975, 4,109 and 4,091 together.

Ask:

- Where is the digit 9?
- What is the value of the 9?
- What is the value of the whole number?
- How can we write it in expanded form?

**You Do** • Students complete the value of 9 and expanded form questions. Check for understanding: ask students to explain the difference between the value of 9 in 4,109 and 4,091.

## 3. Judge Reasonableness of Four-Digit Numbers

**I Do** • Read: 'There were about 9,000 people at the cinema.'

Explain: We can use what we know about numbers and real life to decide if a statement is true or false. A cinema could have many people, but 9,000 is probably too many for one cinema.

Model recording: False

**We Do** • Read statements such as 'There are 1,000 cents in $10 and A large bottle can hold 2,000 mL together.'

Ask:

- Does the number make sense?
- What do we know that helps us decide?
- Is the statement true or false?

**You Do** • Students complete the true or false statements. Check for understanding: ask students to justify one answer using place value or real-world knowledge.

## Differentiation Tips

### Support

- Use place-value charts to identify digit values.
- Compare only two numbers at a time.
- Highlight the first digit that is different in each comparison.
- Use base-10 blocks or place-value counters to show expanded form.
- Provide a comparison prompt: 'Start at thousands, then hundreds, then tens, then ones.'
- Discuss real-life quantities before answering true or false questions.

### Extension

- Ask students to create their own true and false statements using four-digit numbers.
- Ask students to write expanded forms that include zero placeholders.
- Challenge students to write numbers in standard form from expanded form.
- Ask students to create more calculator words using digit-letter rules.
- Ask students to explain comparison statements using greater-than and less-than symbols.

### Teaching as Inquiry

Observe whether students understand that the value of a digit depends on its place. Notice students who say the 9 in 4,091 is simply '9' without recognising it is worth 90.

## Hands-On Activity 1 (10 minutes)

**Place-Value Detective**

Give students number cards such as:

9,254, 1,975, 4,109, 4,091, 3,470, 5,106

Call out a digit and ask students to identify its value. Examples:

- What is the value of the 9?
- What is the value of the 4?
- What is the value of the 0?
- Which number has a 9 worth 90?
- Which number has a 4 worth 4,000?

Students explain using: 'The ___ is in the ___ place, so it is worth ___.'

## Hands-On Activity 2 (10–15 minutes)

**Expanded Form Build**

Students use place-value cards or base-10 equipment to build a number, then write it in expanded form. Example: 5,061

Students build:

- 5 thousands
- 0 hundreds
- 6 tens
- 1 one

Then write: 5,061 = 5,000 + 60 + 1

Students swap numbers with a partner and check each other's expanded form.

## Student Book Practice

Students complete **page 9 of their workbooks: Four-digit numbers**

Focus: More-than and less-than comparison statements, choose numbers to make true comparison sentences, identify the value of digits in different places, write four-digit numbers in expanded form, decide whether number statements are true or false, solve a calculator-word place-value challenge

## Mathletics Online Practice

**New Course Unit**: Number structure: Whole number

**Activity**: Place Value to Thousands

Identify digit values, compare whole numbers and represent numbers using base-10 place value.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Which is greater: 764 or 674? How do you know?
- What is the value of the 9 in 4,091?
- What is the value of the 4 in 3,470?
- Write 5,106 in expanded form.
- Is 'There are 1,000 cents in $10' true or false? Why?
- How can place value help you compare numbers quickly?

### Reflect and Share

Why can the same digit have different values in different numbers?

### Feedback

Encourage students to use reasoning words such as place value, digit, thousands, hundreds, tens, ones, greater than, less than, expanded form, true and false.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students who confuse a digit with its value.
- Revisit zero as a placeholder in numbers such as 4,091 and 5,106.
- Provide extra practice comparing numbers where the first few digits are the same.
- Support students who need more practice writing expanded form.
- Extend confident students with standard, expanded and word-form conversions.
- Use true-or-false contexts to build number sense and reasonableness.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

#### Number structures

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position (e.g. the tens position) and the numeral in the position. Zero is used as a placeholder.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure
- Checking the truth of number sentences and completing open number sentences involving addition and subtraction

# DAILY LESSON PLAN Week 2 • Lesson 4

**Topic:** Using numeral expanders

In this lesson, students explore four-digit numbers using numeral expanders to show how thousands, hundreds, tens and ones combine to make whole numbers. They read and write expanded numbers, complete numeral expanders, rename numbers in different place-value ways, and identify how many thousands, hundreds, tens and ones are in a number.

## Learning Intention

Students will understand that four-digit numbers can be represented, partitioned and renamed using thousands, hundreds, tens and ones.

## Success Criteria

- ✓ I can use numeral expanders to make four-digit numbers.
- ✓ I can write a number from its thousands, hundreds, tens and ones.
- ✓ I can partition a number in different ways.
- ✓ I can explain how many thousands, hundreds, tens and ones are in a number.
- ✓ I can use place value to rename numbers flexibly.

## Language Focus

**Key terms:** numeral expander, expanded number, expand, partition, rename, thousands, hundreds, tens, ones, digit, place value, base 10, regroup

**Sentence stems:**

- The number ___ has ___ thousands, ___ hundreds, ___ tens and ___ ones.
- ___ can be written as ___ thousands, ___ hundreds, ___ tens and ___ ones.
- I can rename ___ as ___ hundreds and ___ ones.
- There are ___ tens in ___ because ___.
- A numeral expander helps me see ___.
- I know the digit ___ is worth ___ because it is in the ___ place.

## Launch Activity (5 minutes)

Display one numeral expander from the page: 7 thousands, 6 hundreds, 2 tens, 9 ones

Ask:

- What number does this make?
- How do you know?
- What is the value of the 7?
- What is the value of the 6?
- What does the numeral expander show us?

Record: 7,629 = 7,000 + 600 + 20 + 9

**Assessment for Learning**

Listen for students connecting each digit to its place value, rather than simply reading the digits as separate numbers.



## Explicit Instruction (10–12 minutes)

### 1. Read Numeral Expanders

**I Do** • Show 7 thousands, 6 hundreds, 2 tens and 9 ones.

Explain: A numeral expander shows the value of each digit.

Model recording: 7,629

**We Do** • Work through another example together, such as 9 thousands, 4 hundreds, 5 tens and 2 ones. Ask:

- How many thousands?
- How many hundreds?
- How many tens?
- How many ones?
- What number does this make?

**You Do** • Students write the numbers shown by the numeral expanders. Check for understanding: ask students to explain why 0 tens must still be shown in a number like 4,703.

### 2. Complete Numeral Expanders

**I Do** • Write 5,218.

Explain: We can break a number into thousands, hundreds, tens and ones.

Model: 5,218 = 5,000 + 200 + 10 + 8

**We Do** • Complete a numeral expander for 3,964 together. Ask:

- What digit is in the thousands place?
- What digit is in the hundreds place?
- What digit is in the tens place?
- What digit is in the ones place?

**You Do** • Students complete the numeral expanders for the given numbers. Check for understanding: ask students to say the value of each digit in 5,218.

### 3. Rename Numbers as Thousands, Hundreds, Tens and Ones

**I Do** • Write 5,218.

Explain: The same number can be described in different ways.

Model: 5,218 = 5 thousands, 21 tens and 8 ones because 5 thousands and 21 tens make 5,210.

**We Do** • Work through examples from the page together. Ask:

- How many thousands are in the number?
- How many hundreds are in the number altogether?
- How many tens are in the number altogether?
- How many ones are in the number altogether?

**You Do** • Students answer the 'How many thousands/hundreds/tens/ones?' questions. Check for understanding: ask students to explain how many tens are in 1,638 and how they know.

## Differentiation Tips

### Support

- Use place-value charts alongside numeral expanders.
- Begin with numbers that do not contain zeros before moving to 4,703 or 1,086.
- Colour-code thousands, hundreds, tens and ones.
- Provide partially completed expanders for students who need support.

### Extension

- Ask students to rename numbers in multiple ways, such as hundreds and ones or tens and ones.
- Ask students to explain why 7,450 has 74 hundreds, not just 4 hundreds.
- Have students create their own numeral expanders for a partner to solve.
- Extend to five-digit numbers for confident students.

### Teaching as Inquiry

Observe whether students understand total place-value quantities, such as 592 tens in 5,920 or whether they only identify the digit in the tens place.

## Hands-On Activity 1 (10 minutes)

**Build the Expander**

Give students place-value cards labelled: Thousands, Hundreds, Tens, Ones

Call out or display numbers from the page, such as: 7,629, 4,703, 1,086, 6,350

Students build the number by placing digit cards into the correct place-value positions. They then say: 'The number ___ has ___ thousands, ___ hundreds, ___ tens and ___ ones.'

## Hands-On Activity 2 (10–15 minutes)

**Rename the Number**

Give pairs of students a four-digit number, such as: 5,218, 3,964, 7,450, 5,920

Students use base-10 equipment, drawings or place-value charts to rename the number in different ways. Example: 5,218

- 5 thousands, 2 hundreds, 1 ten, 8 ones
- 52 hundreds, 1 ten, 8 ones
- 521 tens, 8 ones
- 5,218 ones

Students share one renaming and explain how they know it is correct.

## Student Book Practice

Students complete **page 10 of their workbooks: Using numeral expanders**

Focus: Complete numeral expanders for four-digit numbers, rename numbers using thousands, hundreds, tens and ones, identify how many thousands/hundreds/tens/ones are in a number

## Mathletics Online Practice

**New Course Unit**: Number structure: Whole number

**Activity**: Place Value Partitioning

Partition and rename whole numbers using thousands, hundreds, tens and ones.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What number is 6 thousands, 3 hundreds, 5 tens and 0 ones?
- What does the zero mean in 4,703?
- Write 5,218 in expanded form.
- How many hundreds are in 7,450?
- How many tens are in 5,920?
- What is the difference between the tens digit and the number of tens?

### Reflect and Share

How do numeral expanders help you understand the size and structure of a number?

### Feedback

Encourage students to use reasoning words such as thousands, hundreds, tens, ones, digit, value, expanded form, rename, partition and base 10.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students who can read digits but cannot explain their place value.
- Revisit zero as a placeholder in numbers such as 4,703 and 1,086.
- Provide additional practice distinguishing between 'the digit in the tens place' and 'how many tens altogether'.
- Support students who need concrete materials to understand renaming hundreds as tens or thousands as hundreds.
- Extend confident students with flexible renaming and multi-step place-value reasoning problems.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures**

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position (e.g. the tens position) and the numeral in the position. Zero is used as a placeholder.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure

# DAILY LESSON PLAN Week 2 • Lesson 5

**Topic:** Te reo Māori numbers

In this lesson, students connect their understanding of four-digit numbers and place value with te reo Māori number words. They read, write and match Māori number words for ones, tens, hundreds and thousands, complete a place-value table, translate four-digit numbers between digits and te reo Māori, and reflect on their learning from the week.

## Learning Intention

Students will understand that whole numbers up to 10,000 can be read, written and represented using te reo Māori number words and base-10 place value.

## Success Criteria

- ✓ I can read and write numbers from 1 to 10 in te reo Māori.
- ✓ I can match te reo Māori words to 1, 10, 100 and 1,000.
- ✓ I can identify the te reo Māori word for thousand.
- ✓ I can use place value to read and write four-digit numbers in te reo Māori.
- ✓ I can translate between digits and te reo Māori number words.
- ✓ I can reflect on my understanding of four-digit numbers and rounding.

## Language Focus

**Key terms:** Te reo Māori, tahi, rua, toru, whā, rima, ono, whitu, waru, iwa, tekau, kotahi rau, kotahi mano, place value, thousands, hundreds, tens, ones, digit

**Sentence stems:**

- ___ means ___ in English.
- The word for thousand is ___.
- ___ has ___ thousands, ___ hundreds, ___ tens and ___ ones.
- I write ___ in te reo Māori as ___.
- I know ___ means ___ because ___.
- The number ___ is written in place-value order: thousands, hundreds, tens and ones.

## Launch Activity (5 minutes)

Write these familiar numbers on the board: 1, 2, 3, 4, 5, 10, 100, 1,000

Ask:

- Do you know any of these numbers in te reo Māori?
- What is the Māori word for 1?
- What is the Māori word for 10?
- What is the Māori word for 100?
- What is the Māori word for 1,000?

Introduce or revise:

- 1 = tahi
- 2 = rua
- 3 = toru
- 4 = whā
- 5 = rima
- 6 = ono
- 7 = whitu
- 8 = waru
- 9 = iwa
- 10 = tekau
- 100 = kotahi rau
- 1,000 = kotahi mano

**Assessment for Learning**

Listen for students who already know basic te reo Māori number words and those who need support connecting the words to numerals.



## Explicit Instruction (10–12 minutes)

### 1. Read Te reo Māori Number Words

**I Do** • Write tahi = 1, tekau = 10, rau = 100 and mano = 1,000.

Explain: These words help us read and build numbers in te reo Māori.

Model:

- kotahi rau = 100
- kotahi mano = 1,000

**We Do** • Match examples together, such as tekau, kotahi mano, tahi and kotahi rau. Ask:

- Which word means one?
- Which word means ten?
- Which word means hundred?
- Which word means thousand?

**You Do** • Students write the numerals for the te reo Māori number words and colour the matching words. Check for understanding: ask students to say the word for thousand.

### 2. Complete Place Value Tables

**I Do** • Write 3,456.

Explain: We can show each digit using te reo Māori place-value words.

Model:

- 3 thousands = toru mano
- 4 hundreds = whā rau
- 5 tens = rima tekau
- 6 ones = ono

**We Do** • Work through 7,612 together. Ask:

- What digit is in the thousands place?
- What digit is in the hundreds place?
- What digit is in the tens place?
- What digit is in the ones place?
- How do we say each part in te reo Māori?

**You Do** • Students complete the place value table. Check for understanding: ask students to identify the hundreds part of 9,831 in te reo Māori.

### 3. Write Four-Digit Numbers in Te reo Māori

**I Do** • Write 2,746.

Explain: To write a four-digit number in te reo Māori, say the thousands, then hundreds, then tens, then ones.

Model: 2,746 = rua mano, whitu rau, whā tekau mā ono

**We Do** • Work through 5,183 together. Ask:

- How many thousands?
- How many hundreds?
- How many tens?
- How many ones?
- How do we put the parts together?

**You Do** • Students write the given numbers in te reo Māori. Check for understanding: ask students to write or say 9,321 in te reo Māori.

## Differentiation Tips

### Support

- Provide a te reo Māori number word chart from 0–10.
- Colour-code thousands, hundreds, tens and ones.
- Allow students to work with a partner when reading longer Māori number phrases.
- Practise smaller numbers such as 12, 25 and 83 before moving to four-digit numbers.

### Extension

- Ask students to write their own four-digit numbers in te reo Māori for a partner to solve.
- Ask students to compare two numbers written in te reo Māori.
- Challenge students to write number sentences using te reo Māori numbers.

### Teaching as Inquiry

Observe whether students can connect te reo Māori number words to place-value structure or whether they are memorising words without understanding the thousands, hundreds, tens and ones.

## Hands-On Activity 1 (10 minutes)

**Te reo Māori Number Match**

Give students cards with numerals and te reo Māori words. For example:

- 1, 2, 3, 4, 5, 10, 100, 1,000
- tahi, rua, toru, whā, rima, tekau, kotahi rau, kotahi mano

Students match the cards, then say each pair aloud.

Extension cards:

- 500 = rima rau
- 900 = iwa rau
- 2,000 = rua mano
- 7,000 = whitu mano

## Hands-On Activity 2 (10–15 minutes)

**Build and Say the Number**

Give pairs of students digit cards and a place-value chart. Students build a four-digit number, such as: 5,183

They then say and write the number in te reo Māori: rima mano, kotahi rau waru tekau mā toru

Partner checks:

- Is the thousands part correct?
- Is the hundreds part correct?
- Are the tens and ones correct?
- Does the written number match the digits?

## Student Book Practice

Students complete **page 11 in their workbooks: Te reo Māori numbers**

Focus: Write numerals for te reo Māori number words, match 1, 10, 100 and 1,000 to te reo Māori words, complete a place-value table using te reo Māori, write four-digit numbers from te reo Māori words, write four-digit numbers in te reo Māori

## Mathletics Online Practice

**New Course Unit**: Number structure: Whole number

**Activity**: Place Value to Thousands

This task supports students to consolidate place-value understanding for numbers up to 10,000, which connects directly to reading and writing four-digit numbers in te reo Māori.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does tahi mean?
- What does tekau mean?
- What does rau mean?
- What does mano mean?
- How would you write 3,000 in te reo Māori?
- How would you write 600 in te reo Māori?
- What is rua tekau mā rima as a number?
- How do you say 1,000 in te reo Māori?

### Reflect and Share

How does place value help you read and write numbers in te reo Māori?

### Feedback

Encourage students to use mathematical and language words such as mano, rau, tekau, tahi, place value, thousands, hundreds, tens, ones and digit.

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students who need more practice with basic te reo Māori numbers from 0–10.
- Revisit the difference between tekau, rau and mano.
- Provide extra practice reading tens and ones with mā, such as toru tekau mā whā.
- Extend confident students by asking them to write, compare and order four-digit numbers in te reo Māori.
- Use the mastery checklist to plan revision groups for Week 3.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures**

**Knowledge**

- Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right.
- Each digit's value depends both on its position (e.g. the tens position) and the numeral in the position. Zero is used as a placeholder.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure

## Unit: Number structures: Four-digit numbers

**Focus:** Reading, writing, comparing and ordering four-digit numbers; understanding digit value and numeral expanders; rounding to the nearest ten, hundred and thousand; estimating by rounding; representing numbers flexibly using thousands, hundreds, tens and ones; and reading and writing numbers over 1,000 in te reo Māori.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Reading and Writing Four-Digit Numbers** | Students can read and write four-digit numbers in numerals and words. | Writes numbers such as 5,061 and 4,091 accurately in words; uses zero correctly as a placeholder; reads numbers without reversing or omitting digits. |
| **Comparing and Ordering Numbers** | Students compare and order four-digit numbers using place-value understanding. | Correctly orders numbers in ascending order; explains comparisons by referring to thousands, hundreds, tens and ones; uses 'is more than' and 'is less than' accurately. |
| **Digit Value** | Students understand that a digit's value depends on its position in the number. | Identifies the value of digits, e.g. the 9 in 9,254 is 9,000, while the 9 in 4,091 is 90; explains that the same digit can have different values. |
| **Expanded Form and Numeral Expanders** | Students represent four-digit numbers using expanded form and numeral expanders. | Writes numbers such as 7,629 as 7,000 + 600 + 20 + 9; completes numeral expanders; explains how thousands, hundreds, tens and ones combine. |
| **Flexible Place-Value Renaming** | Students understand that numbers can be renamed using different place-value groupings. | Identifies how many thousands, hundreds, tens or ones are in a number, e.g. 5,920 has 592 tens; explains the difference between 'the tens digit' and 'how many tens.' |
| **Rounding and Estimation** | Students round whole numbers to the nearest ten, hundred and thousand and use rounding to estimate. | Correctly identifies the digit to check when rounding; explains why numbers round up or down; estimates sums by rounding addends first. |
| **Te reo Māori Numbers** | Students read, write and match te reo Māori number words for ones, tens, hundreds and thousands. | Matches tahi, tekau, kotahi rau and kotahi mano to 1, 10, 100 and 1,000; writes four-digit numbers in te reo Māori using place-value order. |



## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation – Formative** | Watch students write four-digit numbers in words and digits during Student Book work. | Are students reading numbers with zeros correctly? Do they understand the role of zero as a placeholder? |
| **Oral Check** | Ask: 'Which is greater, 4,109 or 4,091? How do you know?' | Listen for comparison from left to right: thousands, hundreds, tens, then ones. |
| **Written Work** | Review Student Book pages 7–11. | Check accuracy with writing numbers in words, ordering, digit value, expanded form, rounding and te reo Māori number writing. |
| **Te reo Māori Match** | Students match numerals to te reo Māori words and write one four-digit number in te reo Māori. | Can students identify mano, rau and tekau? Can they keep the number in place-value order? |
| **Exit Ticket/ Quick Quiz** | Provide 5 short mixed questions covering place value, rounding, expanded form and te reo Māori numbers. | Identify students needing reinforcement in digit value, rounding, renaming or te reo Māori number structure. |

## Quick Quiz / Exit Ticket (5 Questions)

1. Write 4,091 in words.
2. Which number is greater: 5,061 or 5,106?
   Explain how you know.
3. Write 9,254 in expanded form.
4. Round 5,650 to the nearest thousand.
5. What is the te reo Māori word for 1,000?

## Teaching as Inquiry: Reflection Notes

### Reflection Prompts

Students confidently comparing and ordering four-digit numbers using place value:

Students accurately identifying digit value in thousands, hundreds, tens and ones places:

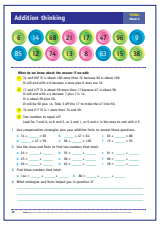
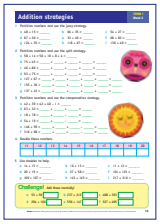
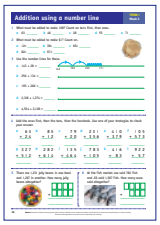
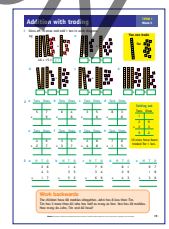
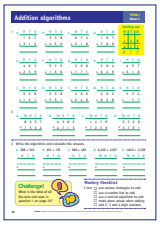
Students successfully using expanded form and numeral expanders:

Students successfully reading and writing numbers in te reo Māori:

Students needing support with place value, digit value, zero placeholders, rounding or te reo Māori number words:

### Notes/Next Steps

# Term 1 Week 3 Overview Operations: Addition

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1**<br>**Addition** | Addition problems can be solved efficiently by using known facts, compensation and place value strategies. | ✓ Use addition facts to solve missing-number problems<br>✓ Use compensation to add more efficiently<br>✓ Find two or three numbers that make a given total<br>✓ Explain the strategy used<br>✓ Check whether the total is correct | – Explore compensation with numbers close to 10, 50 and 100<br>– Solve missing-number addition problems<br>– Find two numbers and three numbers that total a given amount<br>– Discuss efficient mental strategies | **Page 12**: Use compensation strategies and addition facts to solve totals and missing-number problems.<br>  |
| **2**<br>**Addition strategies** | Numbers can be partitioned and recombined to make addition easier and different strategies can be used flexibly depending on the numbers involved. | ✓ Use the jump strategy to add numbers<br>✓ Use the split strategy to partition numbers and add parts<br>✓ Use compensation to make addition easier<br>✓ Use doubles and near doubles to help solve addition facts<br>✓ Explain which strategy was used and why | – Partition numbers and use jump strategy<br>– Use split strategy with tens and ones<br>– Use compensation with near-friendly numbers<br>– Double and near-double numbers<br>– Solve mental addition challenge questions | **Page 13**: Use jump, split, compensation and doubles strategies to solve addition problems.<br>  |
| **3**<br>**Addition using a number line** | Addition can be solved by counting on in tens, ones and hundreds and number lines and place value help make larger additions easier. | ✓ Use a number line to count on and add numbers<br>✓ Work out what must be added to make 100 or $1<br>✓ Partition numbers into ones, tens and hundreds<br>✓ Add larger numbers using place value<br>✓ Explain how jumps and strategies worked | – Count on to make 100<br>– Count on to make $1<br>– Use number lines for larger additions<br>– Add using ones, tens and hundreds<br>– Solve real-life addition word problems | **Page 14**: Use number lines and place value to add numbers and solve missing-addend and word problems.<br>  |
| **4**<br>**Addition with trading** | When adding ones, 10 ones can be traded for 1 ten and this helps solve addition problems with regrouping accurately. | ✓ Add numbers using tens and ones<br>✓ Trade 10 ones for 1 ten<br>✓ Use diagrams to show regrouping<br>✓ Solve written addition problems with trading<br>✓ Explain why trading works | – Use base-ten diagrams to show regrouping<br>– Trade 10 ones for 1 ten<br>– Solve tens-and-ones addition problems<br>– Explore a working-backwards reasoning problem<br>– Explain regrouping using place value | **Page 15**: Use diagrams and place value charts to solve addition with trading.<br>  |
| **5**<br>**Addition algorithms** | The vertical addition algorithm uses place value to organise numbers and solve addition problems accurately. | ✓ Line up numbers correctly in hundreds, tens and ones columns<br>✓ Use the vertical algorithm to add 2-digit and 3-digit numbers<br>✓ Regroup when the ones or tens total more than 9<br>✓ Explain why place value helps in written addition<br>✓ Check whether an answer is reasonable | – Set out addition algorithms in HTO columns<br>– Add 2-digit and 3-digit numbers<br>– Regroup in ones and tens<br>– Write and solve vertical algorithms<br>– Complete challenge question using tens and ones totals | **Page 16**: Use the vertical algorithm to add 2-digit and 3-digit numbers with regrouping.<br>  |

# DAILY LESSON PLAN Week 3 • Lesson 1

**Topic:** Addition thinking

In this lesson, students use addition facts and compensation strategies to solve missing-number addition problems and create number combinations that make a given total. They learn to use rounding, making tidy numbers and known facts to add more efficiently and explain their reasoning.

## Learning Intention

Students will understand that addition problems can be solved efficiently by using known facts, compensation and place value strategies.

## Success Criteria

- ✓ I can use addition facts to solve missing-number problems.
- ✓ I can use compensation to add numbers more efficiently.
- ✓ I can find two or three numbers that make a given total.
- ✓ I can explain the strategy I used.
- ✓ I can check whether my total is correct.

## Language Focus

**Key terms:** add, total, compensation, strategy, place value, ones, tens, estimate, sum, number fact

**Sentence stems:**

- I know ___ + ___ = ___ because ___.
- I used compensation by ___.
- I made ___ into ___ to make it easier.
- These numbers total ___.
- I checked my answer by ___.

## Launch Activity (5 minutes)

Write on the board:

74 + 96

17 + 47

74 + 21

Ask:

- What do you notice about these additions?
- Which one could be made easier by changing one number?
- What number is close to 100?
- What number is close to 50?

Quick warm-up—Ask students mentally:

- 47 + 3
- 96 + 4
- 21 + 9
- 74 + 20

Discuss that sometimes we can make numbers ‘friendlier’ before adding.



## Explicit Instruction (10–12 minutes)

### 1. Solving Missing Addends

**I Do** • Write 74 + ___ = 83. Model counting on through a tidy ten.

74 ➔ 80 = 6

80 ➔ 83 = 3

6 + 3 = 9

Record: 74 + 9 = 83

**We Do** • Solve 2–3 examples together. Identify the start number, target number and tidy ten.

**You Do** • Students solve missing-addend problems and record the missing number.

### 2. Finding Two Addends

**I Do** • Write 43 = ___ + ___. Model choosing one part, then finding the other.

43 = 37 + ___

37 + 6 = 43

43 = 37 + 6

Show that more than one pair is possible.

**We Do** • Generate pairs together for totals such as 24, 55, 91. Check each pair by adding.

**You Do** • Students write two numbers that add to each target total.

### 3. Finding Three Addends

**I Do** • Write 44 = ___ + ___ + ___. Model making a tidy subtotal first.

18 + 12 = 30

30 + 14 = 44

44 = 18 + 12 + 14

**We Do** • Build one three-addend total together, using a friendly pair first.

86 = 35 + 15 + 36

**You Do** • Students find three addends for each target total and record one fact or strategy used.

## Differentiation Tips

### Support

- Use number lines or tens frames
- Work with tidy-number additions first
- Model compensation step by step
- Use smaller totals before moving to larger ones
- Provide addition fact cards for support

### Extension

- Find more than one strategy for the same addition
- Create their own missing-number problems
- Find multiple pairs and triples for one total
- Explain which strategy is most efficient and why

### Teaching as Inquiry

Observe which students:

- can use compensation effectively
- can solve missing-number problems accurately
- use known addition facts confidently
- can make totals using two or three numbers
- explain their thinking clearly
- need support with flexible number strategies.

## Hands-On Activity 1 (10 minutes)

**Make It Tidy**

Students are given addition cards such as:

- 68 + 32
- 47 + 19
- 96 + 28

They decide whether compensation would help and explain how they would use it.

## Hands-On Activity 2 (10–15 minutes)

**Target Total Challenge**

Students are given target numbers such as 24, 55, 91, 144 and 86. They find:

- two numbers that make the total
- three numbers that make the total

Then they compare answers with a partner.

## Student Book Practice

Students complete **page12 of their workbooks: Addition thinking**

Focus: Using compensation strategies, solving missing-number addition problems, using addition facts flexibly, finding two or three numbers that total a given amount, explaining addition strategies

## Mathletics Online Practice

**New Course Unit**: Operations: Addition

**Set**: Are you ready?

Tests prior knowledge and provides data on potential areas of weakness to address.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Why is 74 + 96 close to 74 + 100?
- What do you add to 47 to make 64?
- Can 24 be made in more than one way?
- Why might compensation be faster than standard counting?
- How can you check your total?

### Reflect and Share

How does compensation help make addition easier?

### Next Steps for Teacher

- Reinforce compensation with friendly numbers like 10, 50 and 100
- Continue building confidence with missing-number addition
- Support students who need help using subtraction to check addition
- Extend confident students with larger totals and multiple strategies
- Build fluency in explaining mental addition methods

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods.

**Practices**

- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 3 • Lesson 2

**Topic:** Addition strategies

In this lesson, students strengthen their mental and written addition strategies by partitioning numbers and using jump, split, compensation and doubles strategies. They solve addition problems efficiently, explain which strategy they chose, and compare different ways of reaching the same total.

## Learning Intention

Students will understand that numbers can be partitioned and recombined to make addition easier and that different strategies can be used flexibly depending on the numbers involved.

## Success Criteria

- ✓ I can use the jump strategy to add numbers.
- ✓ I can use the split strategy to partition numbers and add parts.
- ✓ I can use compensation to make addition easier.
- ✓ I can use doubles and near doubles to help solve addition facts.
- ✓ I can explain which strategy I used and why.

## Language Focus

**Key terms:** addition, strategy, partition, split, jump, compensation, double, near double, total, place value, tens, ones

**Sentence stems:**

- I partitioned ___ into ___ and ___.
- I used the jump strategy by ___.
- I used compensation by changing ___ to ___.
- I used doubles because ___.
- The total is ___.
- This strategy was helpful because ___.

## Launch Activity (5 minutes)

Write on the board:

48 + 15

42 + 39

16 + 15

Ask:

- Which one would you solve by jumping?
- Which one would you solve by compensation?
- Which one could be solved using doubles or near doubles?
- Why might different questions need different strategies?

Quick warm-up:

Ask students mentally:

- 10 + 10
- 15 + 15
- 40 + 20
- 39 + 1

Discuss that strong mathematicians choose a strategy that fits the numbers.

**Assessment for Learning**

Ask:

- What does partition mean?
- How does the jump strategy work?
- Why does compensation make some additions easier?
- How do doubles help when numbers are close together?
- How can you check if your total is correct?



## Explicit Instruction (10–12 minutes)

### 1. Use the Jump Strategy

**I Do** • Write 48 + 15.

Explain: Partition the second number, then jump in parts.

Model recording:

48 + 10 = 58

58 + 5 = 63

So, 48 + 15 = 63.

**We Do** • Work through 66 + 35 and 54 + 27 together. Ask:

- How can we split the second number?
- What jump do we make first?
- What is the total?

**You Do** • Students complete the jump strategy questions.

### 2. Use the Split and Compensation Strategies

**I Do** • Write 58 + 14.

Explain: Split both numbers into tens and ones.

Model recording: 58 + 14 = 50 + 10 + 8 + 4 = 72

Write 42 + 39.

Explain: Compensation means making one number easier, then adjusting.

Model recording: 42 + 39 = 42 + 40 − 1 = 81

**We Do** • Work through 75 + 45 and 63 + 32 together. Ask:

- Which number can we split?
- Can we make a tidy number?
- What do we need to add or subtract?

**You Do** • Students complete the split and compensation questions.

### 3. Use Doubles to Add

**I Do** • Write 14 + 15.

Explain: Doubles can help when numbers are close together.

Model: 14 + 14 = 28

So 14 + 15 = 29.

**We Do** • Work through 16 + 15, 11 + 12 and 57 + 58 together.

Ask:

- What double can help?
- Are the numbers the same or nearly the same?
- Do we need to add one more?

**You Do** • Students complete the doubles table and use doubles to solve the addition problems.

### Problem Solving & Reasoning

Discuss:

- Why is 39 easier to change to 40?
- How is the split strategy different from the jump strategy?
- Why are doubles useful for mental addition?
- Which strategy feels fastest for 53 + 59?
- Can more than one strategy work for the same question?

Encourage explanation using jump, split, compensation, double and near double, as well as partition strategies.

## Differentiation Tips

### Support

- Use place value blocks or open number lines
- Practise with two-digit numbers before three-digit numbers
- Model each strategy separately
- Highlight tens and ones in different colours
- Give students a strategy reminder card

### Extension

- Compare two different strategies for the same question
- Explain which strategy is most efficient and why
- Solve the Challenge mentally and justify the steps
- Create their own addition problems to match each strategy

### Teaching as Inquiry

Observe which students can use strategies flexibly and effectively.

## Hands-On Activity 1 (10 minutes)

**Strategy Sort**

Students receive addition cards and sort them under headings:

- jump
- split
- compensation
- doubles.

They explain why each problem fits that strategy best.

## Hands-On Activity 2 (10–15 minutes)

**Choose the Best Strategy**

Students solve a set of addition problems and write which strategy they used for each one. Partners compare answers and discuss whether a different strategy could also work.

## Student Book Practice

Students complete **page 13 of their workbooks: Addition strategies**

Focus: Using jump, split and compensation strategies, applying doubles and near doubles, partitioning numbers flexibly and explaining efficient addition methods.

## Mathletics Online Practice

**New Course Unit**: Operations: Addition

**Set**: Partition strategy +

Reinforce partitioning addends to make easier additions, including finding numbers that add to a 10, 100 or 1000.

Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How would you solve 42 + 39 using compensation?
- What is the split strategy for 75 + 45?
- What is double 18?
- How can doubles help with 19 + 17?
- Why might one strategy be better than another for some questions?

### Reflect and Share

Ask: How do you decide which addition strategy to use?

### Next Steps for Teacher (Teaching as Inquiry)

- Reinforce that different number combinations suit different strategies
- Continue building fluency with partitioning and compensation
- Support students who need help choosing between strategies
- Extend confident students with larger numbers and strategy comparison
- Build confidence in explaining mental addition clearly

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations: Addition**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.
- Standard written algorithms (e.g. column addition, column subtraction) rely on place value, regrouping and renaming.

**Practices**

- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 3 • Lesson 3

**Topic:** Addition using a number line

In this lesson, students use number lines and place value strategies to add by counting on in tens, ones and hundreds. They solve missing-addend problems to make 100 or $1, use jumps on a number line to add larger numbers, and apply vertical addition strategies to real-life word problems.

## Learning Intention

Students will understand that addition can be solved by counting on in tens, ones and hundreds and that number lines and place value help make larger additions easier.

## Success Criteria

- ✓ I can use a number line to count on and add numbers.
- ✓ I can work out what must be added to make 100 or $1.
- ✓ I can partition numbers into ones, tens and hundreds.
- ✓ I can add larger numbers using place value.
- ✓ I can explain how my jumps and addition strategy worked.

## Language Focus

**Key terms:** addition, number line, count on, jump, tens, ones, hundreds, total, place value, strategy, altogether

**Sentence stems:**

- I counted on by ___.
- I added ___ tens and ___ ones.
- The next jump was ___.
- The total is ___.
- I used a number line to ___.
- I know I need ___ more to make 100/$1.

## Launch Activity (5 minutes)

Write on the board:

63 + ___ = 100

39c + ___ = $1

143 + 28

Ask:

- What must be added to make 100?
- How many cents make $1?
- How could a number line help with 143 + 28?
- Why might we jump by tens first?

Quick warm-up—Ask students mentally:

- 63 + 10
- 63 + 20
- 90 + 10
- 80c + 20c

Discuss that counting on by tens first often makes addition quicker and clearer.

**Assessment for Learning**

Ask: 'Why do we count on by tens before ones? How does a number line help us show our thinking? How do you know how much more is needed to make 100? How is making $1 like making 100?'



## Explicit Instruction (10–12 minutes)

### 1. Counting On to a Tidy Number

**I Do** • Write 63 + ___ = 100. Model counting on in tens first, then ones.

63 ➜ 93 = 30

93 ➜ 100 = 7

30 + 7 = 37

Record: 63 + 37 = 100

**We Do** • Solve 2–3 examples together. Identify the start number, the target number and the tidy jumps.

**You Do** • Students find the missing amount needed to make 100 or $1.

### 2. Adding on a Number Line

**I Do** • Write 143 + 28. Model jumps on a number line by partitioning the second addend.

143 ➜ 153 = +10

153 ➜ 163 = +10

163 ➜ 171 = +8

Record: 143 + 28 = 171

**We Do** • Solve one 3-digit and one 4-digit addition example together using tens, hundreds and ones jumps.

**You Do** • Students use number lines to add by partitioning the second number into useful jumps.

### 3. Using Place Value and Written Addition

**I Do** • Write 231 + 356 vertically. Model adding ones, then tens, then hundreds.

1 + 6 = 7

3 tens + 5 tens = 8 tens

2 hundreds + 3 hundreds = 5 hundreds

Record: 231 + 356 = 587

**We Do** • Solve one example together, checking that ones, tens and hundreds are aligned correctly.

**You Do** • Students solve addition problems using place-value columns, then check one answer with a number line or mental strategy.

## Differentiation Tips

### Support

- Use open number lines with teacher guidance
- Work through one jump at a time

### Extension

- Create their own number line jumps for one question
- Compare number line and column strategies

### Teaching as Inquiry

Observe which students can count accurately on a number line.

## Hands-On Activity 1 (10 minutes)

**Jump the Number Line**

Students use open number lines to solve addition problems such as:

- 156 + 23
- 278 + 41
- 95 + 18

They show jumps in tens first, then ones.

## Hands-On Activity 2 (10–15 minutes)

**Make 100/Make $1**

Students receive cards with numbers or cent amounts and work out what must be added to make 100 or $1. They explain the counting-on strategy they used.

## Student Book Practice

Students complete **page 14 of their workbooks: Addition using a number line**

Focus: Counting on to make 100 and $, using jumps on a number line, partitioning numbers into tens, ones and hundreds, solving written addition and word problems

## Mathletics Online Practice

**New Course Unit**: Operations: Addition

**Set**: Bridging strategy +

These sets reinforce using number lines to add up to the nearest 10 or 100, then add the rest. Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What must be added to 63 to make 100?
- What must be added to 65c to make $1?
- How would you jump for 143 + 28?
- Why do we add tens first on a number line?

### Reflect and Share

Ask: 'How does a number line help you solve addition problems?'

### Next Steps for Teacher

- Reinforce counting on in tens and ones
- Continue linking number lines to place value thinking

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

#### Operations

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.
- Standard written algorithms (e.g. column addition, column subtraction) rely on place value, regrouping and renaming.

**Practices**

- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 3 • Lesson 4

**Topic:** Addition with trading

In this lesson, students explore addition with regrouping by trading 10 ones for 1 ten. They use base-ten diagrams to understand why trading works, then apply this understanding.

## Learning Intention

Students will understand that when adding ones, 10 ones can be traded for 1 ten and this helps solve addition problems with regrouping accurately.

## Success Criteria

- ✓ I can add numbers using tens and ones.
- ✓ I can trade 10 ones for 1 ten.

## Language Focus

**Key terms:** add, trading, regrouping, tens, ones, place value, total, partition, altogether

**Sentence stems:**

- I added the ones first and got ___.
- I traded ___ ones for ___ ten.
- Now I have ___ tens and ___ ones.
- The total is ___.
- Trading works because ___.

## Launch Activity (5 minutes)

Write on the board:

46 + 15

57 + 29

Ask:

- What happens when the ones add to more than 9?
- How many ones make one ten?
- Why can 10 ones be traded for 1 ten?

**Assessment for Learning**

Ask: 'Why do we trade 10 ones for 1 ten? What happens to the ones after trading? How does place value help with addition? Why do we add the ones first?'



## Explicit Instruction (10–12 minutes)

### 1. Trading Ones for a Ten

**I Do** • Show an addition model with more than 10 ones: 46 + 15

Cross off 10 ones and trade them for 1 ten.

Record:

6 ones + 5 ones = 11 ones

11 ones = 1 ten and 1 one

46 + 15 = 61

**We Do** • Build 2–3 two-digit additions together. Trade 10 ones for 1 ten when needed.

**You Do** • Students solve two-digit additions using base-10 drawings and show the trade clearly.

### 2. Recording Trading in Columns

**I Do** • Write a two-digit addition in tens and ones columns: 57 + 9

Record:

7 ones + 9 ones = 16 ones

Trade 10 ones for 1 ten.

Write 6 ones and add 1 ten to the tens column.

57 + 9 = 66

**We Do** • Solve 2–3 column additions together. Track the traded ten before adding the tens column.

**You Do** • Students complete two-digit column additions, showing the traded ten when ones total 10 or more.

### 3. Extending Trading to Three-Digit Addition

**I Do** • Write a three-digit addition in hundreds, tens and ones columns: 276 + 43

Add ones first, then tens, then hundreds.

6 ones + 3 ones = 9 ones

7 tens + 4 tens = 11 tens

Trade 10 tens for 1 hundred.

Record: 276 + 43 = 319

**We Do** • Solve one three-digit example together. Identify whether the trade happens in the ones column or tens column.

**You Do** • Students solve three-digit additions using HTO columns and show any trading needed.

## Differentiation Tips

### Support

- Use base-ten blocks or bundled sticks
- Highlight tens and ones in different colours
- Solve one column at a time with teacher support

### Extension

- Create their own addition with trading problems
- Solve larger three-digit additions with regrouping

### Teaching as Inquiry

Observe which students understand that 10 ones equals 1 ten and can use tens-and-ones columns accurately then apply regrouping in written addition.

## Hands-On Activity 1 (10 minutes)

**Trade the Ones**

Students use base-ten blocks or linking cubes to build two numbers, combine the ones and trade whenever they make 10 ones. They then record the matching addition sentence.

## Hands-On Activity 2 (10–15 minutes)

**Regrouping Race**

Students solve addition cards with tens and ones. They decide whether trading is needed and explain their steps to a partner before recording the answer.

## Student Book Practice

Students complete **page 15 in their workbooks: Addition with trading**

Focus: Trading 10 ones for 1 ten, using place value in addition, showing regrouping with diagrams, solving written addition problems with trading, applying addition thinking in a reasoning problem

## Mathletics Online Practice

**New Course Unit**: Operations: Addition

**Set**: Split strategy +

These sets reinforce using place value knowledge to partition numbers and add each place value part separately. Questions include an introduction to regrouping strategies. Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How many ones make 1 ten?
- Why do we trade 10 ones?
- What is 46 + 15?
- What happens to the extra ten after trading?
- How can you check if your answer is correct?

### Reflect and Share

Ask: 'Why does trading help when adding numbers with more than 9 ones?'

### Next Steps for Teacher

- Reinforce the link between concrete materials and written regrouping
- Continue practising trading with tens and ones layouts
- Support students who need help with carrying the extra ten
- Extend confident students with larger addition problems and multi-step reasoning
- Build confidence in explaining regrouping clearly

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number Structures, Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.
- Standard written algorithms (e.g. column addition, column subtraction) rely on place value, regrouping and renaming.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure
- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 3 • Lesson 5

**Topic:** Addition algorithms

In this lesson, students use the vertical addition algorithm to add 2-digit and 3-digit numbers. They apply place value knowledge to line up hundreds, tens and ones correctly, use regrouping when needed, and solve increasingly large addition problems efficiently and accurately.

## Learning Intention

Students will understand that the vertical addition algorithm uses place value to organise numbers and solve addition problems accurately.

## Success Criteria

- ✓ I can line up numbers correctly in hundreds, tens and ones columns.
- ✓ I can use the vertical algorithm to add 2-digit and 3-digit numbers.
- ✓ I can regroup when the ones or tens total more than 9.
- ✓ I can explain why place value helps in written addition.
- ✓ I can check whether my answer is reasonable.

## Language Focus

**Key terms:** addition, algorithm, vertical, place value, hundreds, tens, ones, regroup, trade, total, column

**Sentence stems:**

- I lined up the numbers by ___.
- I added the ones/tens/hundreds first.
- I regrouped because ___.
- The total is ___.
- Place value helps because ___.
- I checked my answer by ___.

## Launch Activity (5 minutes)

Write on the board:

26 + 43 + 17

167 + 314

305 + 577

Ask: 'Why is it important to line up the numbers carefully? Which digits belong in the ones column? What happens if the ones total more than 9? Why do we use columns for larger numbers?'

Discuss that the vertical algorithm helps organise numbers by place value.

**Assessment for Learning**

Ask: 'Why do we line up digits by place value? What happens when the ones add to more than 9? Why is regrouping needed? How can you check whether your answer is reasonable?'



## Explicit Instruction (10–12 minutes)

### 1. Build the Algorithm

**I Do** • Show 167 + 314 with place-value cards or base-10 blocks before writing the algorithm. Line up the model and written method:

100 + 60 + 7

300 + 10 + 4

Record vertically in HTO columns.

**We Do** • Build one addition together, then transfer it into columns. Check that each digit sits in the correct place before adding.

**You Do** • Students set out addition algorithms using place-value columns.

### 2. Make the Trade Visible

**I Do** • Show 338 + 459 with ones that total more than 10.

8 ones + 9 ones = 17 ones

Trade 10 ones for 1 ten.

Record the trade above the tens column before continuing: 338 + 459 = 797

**We Do** • Solve one regrouping example together. Physically show or draw the trade before recording it in the algorithm.

**You Do** • Students solve algorithms that require trading and mark where the trade happens.

### 3. Spot, Solve, Check

**I Do** • Write 1,470 + 7,239 and quickly estimate before solving.

1,500 + 7,200 ≈ 8,700

Solve using Th-HTO columns, then compare the exact answer with the estimate.

**We Do** • Solve one four-digit addition together using the routine: Set out ➜ Add ➜ Trade ➜ Check

**You Do** • Students solve 3- and 4-digit additions, then choose one answer to check with estimation.

## Differentiation Tips

### Support

- Use place value charts and base-ten blocks
- Start with 2-digit problems before 3-digit problems
- Practise regrouping one column at a time

### Extension

- Compare the vertical algorithm with split or jump strategies
- Solve larger 3-digit additions
- Explain why the algorithm works using place value language

### Teaching as Inquiry

Observe which students can line up numbers by place value correctly using the vertical algorithm accurately and understand when and why regrouping is needed.

## Hands-On Activity 1 (10 minutes)

**Place Value Setup**

Students use place value mats to build two numbers, then record them vertically in HTO columns before solving.

## Hands-On Activity 2 (10–15 minutes)

**Algorithm Match**

Students match addition problems to completed vertical algorithms, then solve a new one independently and explain each step to a partner.

## Student Book Practice

Students complete **page 16 of their workbooks: Addition Algorithms**

Focus: Using the vertical addition algorithm by lining up hundreds, tens and ones correctly and regrouping when needed.

## Mathletics Online Practice

**New Course Unit**: Operations: Addition

**Set**: Written methods +

These sets reinforce setting out addition correctly, using regrouping and solving larger addition problems with the standard written algorithm. Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Why do we line up the digits by place value?
- What do you do if the ones add to more than 9?
- Why do we start with the ones column?
- How can you check if your answer is reasonable?
- What does regrouping mean?

### Reflect and Share

How does place value help you use the vertical addition algorithm correctly?

### Next Steps for Teacher (Teaching as Inquiry)

- Reinforce careful column alignment
- Continue practising regrouping in ones and tens
- Support students who need help with carrying accurately
- Extend confident students with larger numbers and multiple addends
- Build confidence in explaining algorithm steps using place value language

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Number structures, Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.
- Standard written algorithms (e.g. column addition, column subtraction) rely on place value, regrouping and renaming.

**Practices**

- Reading, writing, comparing and ordering whole numbers up to 10,000 and representing them using base 10 structure
- Adding and subtracting up to four-digit numbers

## Unit: Number structures, Operations

**Focus:** Using flexible addition strategies, counting on with number lines, regrouping with tens and ones, and applying the vertical addition algorithm to solve 2-digit and 3-digit addition problems accurately and efficiently.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Known Facts and Mental Addition** | Students use known addition facts to support larger calculations. | Uses basic facts quickly and applies them to solve near doubles, compensation and missing-number problems. |
| **Addition Strategy Use** | Students understand that there are a range of strategies to make addition easier. | Solves problems using a range of strategies. |
| **Making 100 and $1** | Students can find how much more is needed to make a target whole amount. | Correctly works out what must be added to make 100 or $1 and explains the counting-on strategy. |
| **Trading/Regrouping** | Students understand that 10 ones can be traded for 1 ten. | Uses diagrams or materials to regroup correctly and explains why trading works. |
| **Vertical Addition Algorithm** | Students can set out and solve 2-digit and 3-digit addition problems using columns and place value. | Lines up digits correctly in HTO columns, regroups accurately and solves algorithms correctly. |
| **Explaining Strategy Choice** | Students can explain why a particular addition strategy is efficient for a given problem. | Gives a sensible reason for choosing jump, split, compensation, doubles or algorithm. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation (Formative)** | Watch students solve addition tasks using jump, split, compensation, regrouping diagrams and vertical algorithms. | Do students choose suitable strategies? Can they partition and regroup accurately? |
| **Oral Check** | Ask: 'Why is 39 easy to change to 40?' 'How many ones make one ten?' 'Why do we line up HTO columns?' 'How do doubles help?' | Listen for correct use of terms such as compensation, jump, split, doubles, regroup, hundreds, tens, ones, total. |
| **Written Work** | Review Student Book Pages 12–16. | Check missing-number solutions, partitioned addition, number-line jumps, regrouping diagrams and vertical algorithm accuracy. |
| **Practical Task** | Use base-ten blocks, open number lines, place value mats and addition cards. | Can students model addition concretely and connect materials to written methods? |
| **Exit Ticket/ Quick Quiz** | Provide 5 short questions covering addition strategies, regrouping and algorithms. | Identify students secure with flexible strategies and those needing more support with regrouping or column setup. |



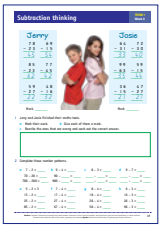
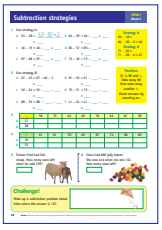
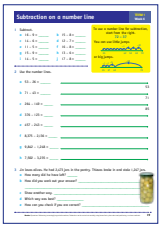
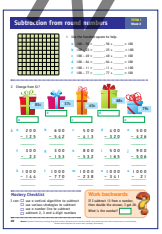
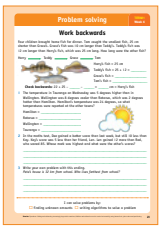
## Quick Quiz / Exit Ticket (5 Questions)

1. Use compensation to solve: 42 + 39
2. What do you add to 74 to make 83?
3. What must be added to 65c to make $1?
4. How many ones can be traded for 1 ten?
5. Solve using vertical addition: 167 + 314

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently using a range of strategies to solve addition problems: | |
| Students able to choose between jump, split, compensation and doubles strategies: | |
| Misconceptions noticed (e.g. adding without place value alignment, forgetting to compensate back, difficulty with regrouping, confusion between jump and split strategies): | |
| Adjustments for future lessons (e.g. more open number line work, more regrouping with materials, more algorithm setup practice, more strategy comparison discussions): | |

# Term 1 Week 4 Overview Operations: Subtraction

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1**<br>**Subtraction thinking** | Subtraction can be checked for accuracy using place value and known facts and subtraction patterns help build fluency with related number sentences. | ✓ Solve two-digit subtraction problems accurately<br>✓ Check whether a subtraction answer is correct<br>✓ Correct subtraction mistakes<br>✓ Use subtraction patterns to solve related facts<br>✓ Explain how place value helps with subtraction | – Mark worked subtraction examples<br>– Identify correct and incorrect answers<br>– Rewrite incorrect questions and solve them correctly<br>– Complete related subtraction patterns using ones, tens and hundreds<br>– Discuss what stays the same and what changes in the patterns | **Page 17**: Check subtraction work, correct errors and complete subtraction patterns.<br>  |
| **2**<br>**Subtraction strategies** | Subtraction can be solved efficiently by partitioning numbers and using compensation strategies. | ✓ Use partitioning to solve subtraction problems<br>✓ Use compensation to subtract friendly numbers and adjust the answer<br>✓ Explain the difference between two subtraction strategies<br>✓ Solve subtraction tables accurately<br>✓ Use subtraction strategies in word problems | – Use compensation<br>– Use partitioning<br>– Solve subtraction tables<br>– Apply subtraction in practical word problems<br>– Compare which strategy is more efficient | **Page 18:** Use compensation and partitioning strategies to solve subtraction problems and tables.<br>  |
| **3**<br>**Subtraction on a number line** | Subtraction can be solved on a number line by counting back in jumps and place value helps make subtraction more efficient. | ✓ Use a number line to subtract numbers<br>✓ Count back using small jumps or big jumps<br>✓ Partition a subtraction number into tens and ones<br>✓ Solve larger subtraction problems using place value<br>✓ Explain which subtraction method works best | – Use number lines for simple subtraction<br>– Count back with small jumps and larger place-value jumps<br>– Partition numbers into tens and ones<br>– Solve subtraction word problems<br>– Compare different subtraction methods | **Page 19**: Use number lines to subtract and explain strategies for subtraction problems.<br>  |
| **4**<br>**Subtraction from round numbers** | Three-digit subtraction can be solved using place value, complements and written algorithms and checking with inverse thinking helps confirm answers. | ✓ Find complements to 100<br>✓ Work out change from $1<br>✓ Subtract 2-digit and 3-digit numbers using a vertical algorithm<br>✓ Solve a working-backwards subtraction problem<br>✓ Check the answer using addition or inverse thinking | – Find complements to 100 using a hundred square<br>– Find change from $1<br>– Solve 2-digit and 3-digit subtraction algorithms<br>– Use inverse operations to check<br>– Solve a working-backwards problem | **Page 20**: Use complements, subtraction algorithms, change from $1 and inverse thinking in subtraction.<br>  |
| **5**<br>**Problem solving – Work backwards** | Some problems are easier to solve by starting with the known information and working backwards step by step. | ✓ Identify the known information in a problem<br>✓ Work backwards step by step to find unknown amounts<br>✓ Use addition and subtraction to solve linked problems<br>✓ Check answers by reversing the steps<br>✓ Explain why working backwards helps | – Solve linked clue problems<br>– Use more than, less than and half clues<br>– Check answers in reverse order<br>– Compare scores, temperatures and lengths<br>– Write a new work-backwards problem | **Page 21**: Solve multi-step word problems by working backwards and checking in reverse.<br>  |

# DAILY LESSON PLAN Week 4 • Lesson 1

**Topic:** Subtraction thinking

In this lesson, students review and strengthen two-digit subtraction by checking worked examples, identifying errors, correcting incorrect subtraction and completing subtraction patterns. They use place value and subtraction facts to explain their thinking and notice how subtraction patterns change across ones, tens and hundreds.

## Learning Intention

Students will understand that subtraction can be checked for accuracy using place value and known facts and that subtraction patterns help build fluency with related number sentences.

## Success Criteria

- ✓ I can solve two-digit subtraction problems accurately.
- ✓ I can check whether a subtraction answer is correct.
- ✓ I can correct subtraction mistakes.
- ✓ I can use subtraction patterns to solve related facts.
- ✓ I can explain how place value helps with subtraction.

## Language Focus

**Key terms:** subtract, subtraction, difference, tens, ones, place value, check, pattern, correct, related facts

**Sentence stems:**

- The answer is correct/incorrect because ___.
- I checked it by ___.
- The correct answer is ___.
- I used tens and ones to work it out.
- The pattern shows ___.
- If ___ − ___ = ___, then ___ − ___ = ___.

## Launch Activity (5 minutes)

Write on the board:

78 − 23

64 − 31

59 − 27

Ask: 'Which number is being taken away? What does the answer tell us? How can we check if the answer is correct?'

Quick warm-up—ask students mentally:

- 7 – 2
- 70 – 20
- 9 – 4
- 90 − 40

Discuss that related subtraction facts can help with bigger numbers.

**Assessment for Learning**

Ask: 'How can you tell if a subtraction answer is wrong? Why is it useful to check your work?'



## Explicit Instruction (10–12 minutes)

### 1. Marking and Correcting Subtraction

**I Do** • Write a completed subtraction problem and model checking it with addition.

78 − 23 = 45

Check: 45 + 23 = 68, so the answer is incorrect.

Correct: 78 − 23 = 55

**We Do** • Check 2–3 subtraction answers together. Use addition to confirm whether each answer is correct.

**You Do** • Students check subtraction answers, mark correct and incorrect work, then correct any errors.

### 2. Using Place Value Patterns in Subtraction

**I Do** • Write a related subtraction pattern.

7 − 2 = 5

70 − 20 = 50

700 − 200 = 500

Show that the basic fact stays the same while the place value changes.

We Do • Build related subtraction patterns together using known facts. Use:

- 9 − 4
- 8 − 3
- 9 − 7

**You Do** • Students complete subtraction patterns by applying the known basic fact to tens and hundreds.

### 3. Subtracting a Constant from Different Numbers

**I Do** • Write a pattern where the same number is subtracted each time.

15 − 2 = 13

25 − 2 = 23

85 − 2 = 83

Highlight that only the starting number changes; the amount subtracted stays the same.

**We Do** • Solve similar patterns together. Use:

- 17 − 4, 27 − 4, 67 − 4
- 18 − 4, 28 − 4, 58 − 4

**You Do** • Students complete subtraction patterns and identify what stays the same and what changes.

## Differentiation Tips

### Support

- Use place value blocks or tens-and-ones charts
- Work with smaller subtraction facts before larger numbers
- Use number lines to count back
- Highlight tens and ones in different colours

### Extension

- Explain the error in each incorrect answer
- Write a rule for each pattern
- Compare two different checking strategies, such as counting back and partitioning

### Teaching as Inquiry

Observe which students can solve two-digit subtraction accurately and can correct mistakes independently.

## Hands-On Activity 1 (10 minutes)

**Teacher or Student?**

Students are given worked subtraction examples, some correct and some incorrect. They decide whether each is correct, then explain how they know.

## Hands-On Activity 2 (10–15 minutes)

**Pattern Builder**

Students create subtraction pattern chains, such as:

- 6 − 3
- 16 − 3
- 26 − 3
- 96 − 3

They describe what changes and what stays the same.

## Student Book Practice

Students complete **page 17 of their workbooks: Subtraction thinking**

Focus: Completing related subtraction patterns and building subtraction fluency.

## Mathletics Online Practice

**New Course Unit:** Operations: Subtraction

**Set:** Are you ready?

Tests prior knowledge and provides data on potential areas of weakness to address.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How can you check if 78 − 23 is correct?
- What is 70 − 20?
- What is 700 − 200?
- What stays the same in a subtraction pattern?
- Why is place value important in subtraction?

### Reflect and Share

Ask: 'How do subtraction patterns help you solve bigger subtraction questions?'

### Next Steps for Teacher (Teaching as Inquiry)

- Reinforce careful checking of subtraction work
- Continue linking subtraction facts to tens and hundreds patterns
- Extend confident students with explaining and creating their own patterns
- Build confidence in spotting and correcting errors

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number, Algebra

**Operations, Equations and relationships**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.

**Practices**

- Adding and subtracting up to four-digit numbers
- Checking the truth of number sentences and completing open number sentences involving addition and subtraction

# DAILY LESSON PLAN Week 4 • Lesson 2

**Topic:** Subtraction strategies

In this lesson, students use partitioning and compensation strategies to solve subtraction problems mentally and in written form. They practise subtracting by friendly numbers such as 10, 20, 30 and 40, adjusting the answer when needed, and applying these strategies in tables and word problems.

## Learning Intention

Students will understand that subtraction can be solved efficiently by partitioning numbers and using compensation strategies.

## Success Criteria

- ✓ I can use partitioning to solve subtraction problems.
- ✓ I can use compensation to subtract friendly numbers and adjust the answer.
- ✓ I can explain the difference between two subtraction strategies.
- ✓ I can solve subtraction tables accurately.
- ✓ I can use subtraction strategies in word problems.

## Language Focus

**Key terms:** subtract, subtraction, difference, compensation, partition, tens, ones, strategy, adjust, count on

**Sentence stems:**

- I solved ___ by subtracting ___.
- I used compensation by changing ___ to ___.
- Then I adjusted by ___.
- The answer is ___.
- I checked my answer by ___.
- This strategy works because ___.

## Launch Activity (5 minutes)

Write on the board:

53 − 28

64 − 18

71 − 24

Ask: 'Which part of the number could be changed to make the subtraction easier?'

Then ask: 'Why might 28 be changed to 30? How can we check a subtraction answer?'

**Assessment for Learning**

Ask: 'What does partition mean in subtraction? How does compensation help with subtraction?'



## Explicit Instruction (10–12 minutes)

### 1. Partitioning to Subtract

**I Do** • Write 53 − 28. Model subtracting a tidy ten first, then adjusting.

53 − 30 = 23

23 + 2 = 25

Record: 53 − 28 = 25

**We Do** • Solve 2–3 examples together using subtract a tidy ten, then adjust.

**You Do** • Students solve subtraction problems using this strategy and record the adjustment.

### 2. Subtracting Tens, Then Ones

**I Do** • Write 67 − 43. Model partitioning the second number into tens and ones.

67 − 40 = 27

27 − 3 = 24

Record: 67 − 43 = 24

**We Do** • Solve 2–3 examples together by partitioning the number being subtracted.

**You Do** • **S**tudents solve subtraction problems by subtracting tens first, then ones.

### 3 Applying Strategies to Larger Numbers

**I Do** • Write 564 − 239. Model choosing an efficient strategy.

564 − 200 = 364

364 − 30 = 334

334 − 9 = 325

Record: 564 − 239 = 325

**We Do** • Solve one larger subtraction problem together. Identify whether to use tidy numbers or tens-and-ones partitioning.

**You Do** • Students solve word problems using a chosen subtraction strategy and check by counting on.

## Differentiation Tips

### Support

- Use number lines and place value blocks
- Practise subtracting tidy tens first
- Use colour to separate tens and ones
- Model the adjust step clearly in compensation
- Check answers by counting on together

### Extension

- Solve the same question using both strategies and compare
- Write their own subtraction questions to match each strategy
- Explain which strategy is most efficient and why
- Create a word problem with a given subtraction answer

### Teaching as Inquiry

Observe who can use partition and use compensation strategy correctly. See who understands when to adjust the answer and can apply strategies in word problems.

## Hands-On Activity 1 (10 minutes)

**Strategy Match**

Students sort subtraction problems into 'good for compensation' and 'good for partitioning'. They explain why each problem fits that strategy.

## Hands-On Activity 2 (10–15 minutes)

**Two Ways to Subtract**

Students solve the same subtraction problem in two ways using compensation and partitioning. They compare which method felt faster or easier.

## Student Book Practice

Students complete **page 18 in their workbooks: Subtraction strategies**

Focus: Using compensation in subtraction and partitioning tens and ones and applying subtraction to real-life word problems.

## Mathletics Online Practice

**Operations**: Subtraction

**Activity:** Partition strategy –

These sets reinforce partitioning numbers to make easier subtractions including finding numbers that subtract to a 10, 100 or 1000 first. Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How would you solve 53 − 28 using compensation?
- How would you solve 67 − 43 using partitioning?
- Why do we add back after subtracting 30 instead of 28?
- How can you check a subtraction answer?
- Which strategy did you like best today?

### Reflect and Share

Ask: 'How do compensation and partitioning make subtraction easier?'

### Next Steps for Teacher (Teaching as Inquiry)

- Reinforce that different subtraction questions suit different strategies
- Continue practising tidy-number compensation
- Support students who need help with the adjust step
- Extend confident students with larger subtraction problems and strategy comparison
- Build confidence in explaining subtraction strategies clearly

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.

**Practices**

- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 4 • Lesson 3

**Topic:** Subtraction on a number line

In this lesson, students use number lines to subtract by counting back in small jumps or larger place-value jumps. They solve subtraction problems by partitioning the number being subtracted, use number lines to support mental subtraction, and explain which method is most efficient.

## Learning Intention

Students will understand that subtraction can be solved on a number line by counting back in jumps and that place value helps make subtraction more efficient.

## Success Criteria

- ✓ I can use a number line to subtract numbers.
- ✓ I can count back using small jumps or big jumps.
- ✓ I can partition a subtraction number into tens and ones.
- ✓ I can solve larger subtraction problems using place value.
- ✓ I can explain which subtraction method works best for me.

## Language Focus

**Key terms:** subtract, subtraction, difference, number line, count back, jump, tens, ones, hundreds, partition, strategy

**Sentence stems:**

- I started at ___.
- I counted back by ___.
- I used ___ big jumps and ___ small jumps.
- The difference is ___.
- I partitioned ___ into ___ and ___.
- This strategy was best because ___.

## Launch Activity (5 minutes)

Write on the board: 16 – 9 on a number line.

Ask: 'Where do we start on a subtraction number line? Do we move left or right?'

Discuss that subtraction on a number line starts from the larger number and moves backwards.

**Assessment for Learning**

Ask: 'Why do we start from the larger number on a subtraction number line? What is the difference between small jumps and big jumps? How can you check your subtraction answer?'



## Explicit Instruction (10–12 minutes)

### 1. Subtracting with Small Jumps

**I Do** • Write 16 − 9. Model jumping back in ones on a number line.

16 ➔ 15 ➔ 14 ➔ 13 ➔ 12 ➔ 11 ➔ 10 ➔ 9 ➔ 8 ➔ 7

Record: 16 − 9 = 7

**We Do** • Solve 2–3 basic subtraction facts together using backward jumps.

**You Do** • Students solve subtraction facts using a number line or mental jumps.

### 2. Subtracting with Big Jumps

**I Do** • Write 53 − 26. Model partitioning the subtracted number into tens and ones.

53 ➔ 33 = −20

33 ➔ 27 = −6

Record: 53 − 26 = 27

**We Do** • Solve one 2-digit and one 3-digit example together using tens, hundreds and ones jumps.

**You Do** • Students subtract on number lines using efficient big jumps.

### 3. Choosing and Checking a Strategy

**I Do** • Write 2,473 − 1,247. Model choosing jumps that match place value.

2,473 ➔ 1,473 = −1,000

1,473 ➔ 1,273 = −200

1,273 ➔ 1,233 = −40

1,233 ➔ 1,226 = −7

Record: 2,473 − 1,247 = 1,226

**We Do** • Check the answer by adding the difference back to the subtracted number.

1,226 + 1,247 = 2,473

**You Do** • Students solve a subtraction word problem, show a second method, and check by addition.

## Differentiation Tips

### Support

- Use open number lines with marked tens
- Practise simple count-back subtraction first
- Partition only into tens and ones
- Use counters or a classroom floor number line
- Solve one jump at a time with teacher support

### Extension

- Solve each subtraction in two ways
- Compare counting back and counting on
- Use larger 3-digit subtraction problems on number lines
- Explain which method is more efficient and why

### Teaching as Inquiry

Observe who understands that you can partition numbers into tens and ones then use big and small jumps appropriately. Understand who can explain and check their subtraction strategy and need support with counting backwards or organising jumps.

## Hands-On Activity 1 (10 minutes)

**Jump Back Challenge**

Students use open number lines to solve subtraction problems such as:

- 62 – 27
- 94 – 38
- 156 – 42

They show big jumps for tens and small jumps for ones.

## Hands-On Activity 2 (10–15 minutes)

**Choose Your Method**

Students solve a subtraction problem using:

- counting back in small jumps
- big jumps using partitioning

They compare the two methods and explain which one they prefer.

## Student Book Practice

Students complete **page 19 in their workbooks: Subtraction on a number line.**

Focus: Counting back on number lines using big jumps and small jumps by partitioning subtraction numbers and checking subtraction methods

## Mathletics Online Practice

**New Course Unit:** Operations: Subtraction

**Set:** Bridging strategy –

These sets reinforce using number lines to subtract to the nearest 10 or 100, then subtract the rest. Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Where do you start on a subtraction number line?
- Why do we move left when subtracting?
- How would you solve 53 – 26 using big jumps?
- Why might big jumps be faster than small jumps?
- How can you check 73 – 47?

### Reflect and Share:

Ask: 'How does a number line help you solve subtraction problems?'

### Next Steps for Teacher (Teaching as Inquiry)

- Reinforce using big jumps for tens and small jumps for ones
- Continue linking number lines to place value strategies
- Support students who need help organising jumps clearly
- Extend confident students with larger subtraction and method comparison
- Build confidence in explaining subtraction thinking

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.

**Practices**

- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 4 • Lesson 4

**Topic:** Subtraction from round numbers

In this lesson, students strengthen three-digit subtraction using complements to 100, change from $1, and vertical subtraction algorithms. They also solve a working-backwards problem and use checking strategies to confirm their answers.

## Learning Intention

Students will understand that three-digit subtraction can be solved using place value, complements and written algorithms and that checking with inverse thinking helps confirm answers.

## Success Criteria

- ✓ I can find complements to 100.
- ✓ I can work out change from $1.
- ✓ I can subtract 2-digit and 3-digit numbers using a vertical algorithm.
- ✓ I can solve a working-backwards subtraction problem.
- ✓ I can check my answer using addition or inverse thinking.

## Language Focus

**Key terms:** subtract, subtraction, difference, complement, change, algorithm, hundreds, tens, ones, inverse, check

**Sentence stems:**

- I know ___ + ___ = 100, so ___.
- The change is ___ because ___.
- I subtracted the ones/tens/hundreds first.
- The difference is ___.
- I checked my answer by ___.
- The missing number is ___.

## Launch Activity (5 minutes)

Write on the board: 100 − 56

Ask: 'What must be added to 56 to make 100? How many cents are in $1?'

Then ask: 'How can we check if a subtraction answer is correct?'

Discuss that subtraction can often be checked by thinking about what adds back to the starting number.

**Assessment for Learning**

Ask: 'What is a complement to 100? Why is place value important in vertical subtraction? How can addition help check subtraction?'



## Explicit Instruction (10–12 minutes)

### 1. Subtracting from 100 by Counting On

**I Do** • Write 100 − 56. Model finding the difference by counting on from 56 to 100.

56 → 60 = 4

60 → 100 = 40

4 + 40 = 44

Record: 100 − 56 = 44 and 56 + 44 = 100

**We Do** • Solve 2–3 examples together. Count on to the next ten, then to 100.

**You Do** • Students subtract from 100 and write the matching addition fact.

### 2. Finding Change from $1

**I Do** • Write $1.00 − 83c. Model counting on from the price to 100c.

83c → 90c = 7c

90c → 100c = 10c

7c + 10c = 17c

Record: Change = 17c

**We Do** • Find change from $1 for 2–3 prices. Use 100c as the target.

**You Do** • Students calculate change from $1 by counting on to 100c.

### 3. Subtracting from Round Numbers

**I Do** • Write 600 − 542. Model counting on because the starting number is close to the round number.

542 → 600 = 58

Record: 600 − 542 = 58

**We Do** • Solve one 3-digit and one 4-digit example together. Choose counting on or vertical subtraction and check with addition.

**You Do** • Students subtract from round numbers and check one answer by adding the difference back.

## Differentiation Tips

### Support

- Use a 100 chart or number line for complements
- Use 100c coins or money strips for change from $1
- Practise subtraction with no regrouping first
- Use place value charts for H T O alignment

### Extension

- Create more complement-to-100 questions
- Solve additional change problems from $1 and $10
- Write their own working-backwards subtraction problem
- Check subtraction using both addition and estimation

### Teaching as Inquiry

Observe who understands that $1 = 100c, can use the vertical subtraction algorithm accurately and check subtraction using inverse thinking. Also check who needs support with place value alignment or inverse reasoning.

## Hands-On Activity 1 (10 minutes)

**Make 100/Make $1**

Students work with cards showing numbers or cent amounts and find the complement to 100 or to $1. They explain how they know the missing amount.

## Hands-On Activity 2 (10–15 minutes)

**Subtract and Check**

Students solve three-digit subtraction problems, then check each one by adding the answer and the amount subtracted to see if it returns to the starting number.

## Student Book Practice

Students complete **page 20 from their workbooks: Subtraction from round numbers.**

Focus: Finding complements to 100 and working out change from $1 using the vertical subtraction algorithm then applying inverse thinking to check answers.

## Mathletics Online Practice

**New Course Unit:** Operations: Subtraction

**Set:** Split strategy –

These sets reinforce using place value knowledge to partition numbers and subtract each place value part separately. Questions include an introduction to regrouping strategies.

**Set:** Written methods –

These sets reinforce setting out subtraction correctly, using regrouping and solving large subtraction problems with the standard written algorithm.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is 100 – 56?
- How much change from $1 is 83c?
- What is the difference in 346 – 125?
- How do you check a subtraction answer?
- Why do we work backwards from the last step?

### Reflect and Share

Ask: 'How do complements and inverse thinking help with subtraction?'

### Next Steps for Teacher (Teacher as Inquiry)

- Reinforce complements to 100 and $1
- Continue practising three-digit subtraction with clear place value alignment
- Support students who need help checking by addition
- Extend confident students with more working-backwards and larger subtraction problems
- Build confidence in explaining subtraction thinking clearly

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations, Financial mathematics**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.
- New Zealand currency is a decimal system of dollars made up of 100 cents.

**Practices**

- Adding and subtracting up to four-digit numbers

# DAILY LESSON PLAN Week 4 • Lesson 5

**Topic:** Problem solving: Work backwards

In this lesson, students solve multi-step problems by working backwards from known information. They use addition and subtraction to trace relationships between quantities, check their answers in reverse order, and explain why working backwards is an efficient strategy for solving unknown-value problems.

## Learning Intention

Students will understand that some problems are easier to solve by starting with the known information and working backwards step by step.

## Success Criteria

- ✓ I can identify the known information in a problem.
- ✓ I can work backwards step by step to find unknown amounts.
- ✓ I can use addition and subtraction to solve linked problems.
- ✓ I can check my answer by reversing the steps.
- ✓ I can explain why working backwards helps.

## Language Focus

**Key terms:** work backwards, difference, more than, less than, half, total, check, unknown, clue, relationship

**Sentence stems:**

- I started with ___.
- I worked backwards by ___.
- ___ is ___ more/less than ___.
- Half of ___ is ___.
- I checked my answer by ___.
- Working backwards helps because ___.

## Launch Activity (5 minutes)

Write on the board: A number is 5 more than 12. What is it?

Ask: 'What information do we already know? What operation would help us work backwards? Why might it be easier to start with the known number?'

Discuss that words like 'more than', 'less than' and 'half' give clues about which operations to use.

**Assessment for Learning**

Ask: 'What does "work backwards" mean? How do clue words help you choose an operation? Why do we start with the known amount? How can you check if your answer makes sense?'

## Explicit Instruction (10–12 minutes)

### 1. Make the Story Visible

**I Do** • Show a simple comparison story using a strip diagram.

Harry = 25

Teddy is 12 more than Harry

Draw Harry's strip first, then draw Teddy's strip longer.

Record: 25 + 12 = 37

**We Do** • Draw 2–3 comparison strips together. Use more than, less than, longer than, and shorter than.

**You Do** • Students represent a comparison statement with a strip diagram before calculating.

### 2. Build a Relationship Chain

**I Do** • Write a chain where each answer becomes the next starting point.

Harry = 25

Teddy = Harry + 12 = 37

Grace = Teddy + 10 = 47

Tam = Grace − 25 = 22

Number each step so students follow the order clearly.

**We Do** • Build one new chain together. Identify the known value, the operation, and the new value at each step.

**You Do** • Students solve a relationship chain by recording each step in order.

### 3. Prove It Works

**I Do** • Show how to check a completed chain by reversing each relationship.

Tam = 22

Grace = Tam + 25 = 47

Teddy = Grace − 10 = 37

Harry = Teddy − 12 = 25

Confirm that the check returns to the original known value.

**We Do** • Check one solved chain together by reversing the operations.

**You Do** • Students check their own chain by working backwards and correcting any mismatch.

## Differentiation Tips

### Support

- Highlight the known amount in each problem
- Underline clue words in different colours
- Use arrows or flow diagrams to show each step
- Solve one step at a time with teacher support
- Use simpler 'more than' and 'less than' problems first

### Extension

- Write their own multi-step work-backwards problems
- Solve the same problem using a table or diagram
- Include multiplication or division clues such as double or half
- Explain why one method is more efficient than another

### Teaching as Inquiry

Observe who can identify the starting known amount, use clue words to choose correct operations and then solve linked steps in the right order.

## Hands-On Activity 1 (10 minutes)

**Clue Chain**

Students are given linked clue cards, such as: Sam has 8 more than Mia. Mia has half of Tui's amount. Tui has 30. They work backwards to find each person's amount and explain the steps.

## Hands-On Activity 2 (10–15 minutes)

**Make Your Own Mystery**

Students write a short work-backwards problem using at least three linked clues. A partner solves it and checks the answer in reverse.

## Student Book Practice

Students complete **page 21 in their workbooks: Problem solving: Work backwards**

Focus: Identifying known and unknown amounts then using addition and subtraction to work backwards by following linked clues in order.

## Mathletics Online Practice

**New Course Unit:** Operations: Subtraction

**Set:** Use addition to subtract

These sets reinforce using inverse operations, specifically to practice using addition to solve subtraction problems. Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does 'work backwards' mean?
- Why do we start with the known amount?
- What does '10 more than' tell you to do?
- How can you check your answer?
- Why is order important in a multi-step problem?

### Reflect and Share

Ask: 'How does working backwards help you solve a problem with several clues?'

### Next Steps for Teacher (Teaching as Inquiry)

- Reinforce identifying the known starting amount
- Continue modelling how to underline and interpret clue words
- Support students who need help organising multi-step information
- Extend confident students with more complex linked problems
- Build confidence in checking by reversing the steps

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning or column methods.

**Practices**

- Adding and subtracting up to four-digit numbers

## Unit: Operations: Subtraction

**Focus:** Checking subtraction for accuracy, using place value and related facts, applying compensation and partitioning strategies, subtracting on number lines, solving 2-digit and 3-digit subtraction problems, and using working-backwards reasoning in multi-step contexts.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Choosing a Strategy** | Students can choose between compensation, partitioning or number-line methods depending on the numbers involved. | Selects a sensible strategy and explains why it is efficient. |
| **Three-Digit Subtraction** | Students can solve subtraction problems involving 2-digit and 3-digit numbers using place value and written methods. | Correctly lines up place values and subtracts accurately in written form. |
| **Complements and Change** | Students understand that subtraction can be used to find the complement to 100 or the change from $1. | Finds missing amounts to 100 or 100 cents accurately and explains the connection. |
| **Working Backwards** | Students can start with known information and work backwards step by step to solve unknown-value problems. | Correctly follows clue relationships, reverses steps in order and checks solutions logically. |
| **Explaining Subtraction Reasoning** | Students can describe how their subtraction strategy works. | Uses clear language such as difference, tens, ones, compensation, partition, check and working backwards. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation (Formative)** | Watch students check worked subtraction, solve subtraction tables, use number lines and complete work-backwards tasks. | Do students use place value accurately? Can they choose and explain a suitable subtraction strategy? |
| **Oral Check** | Ask: 'Why do we add back after subtracting 30 instead of 28?' 'How do big jumps help on a number line?' 'What must be added to 56 to make 100?' 'Why do we start with the known amount when working backwards?' | Listen for correct use of terms such as difference, partition, compensation, count back, complement, inverse, work backwards. |
| **Written Work** | Review Student Book Pages 12–16. | Check subtraction accuracy, corrected errors, completed patterns, number-line jumps, complements, written subtraction and logical work-backwards reasoning. |
| **Practical Task** | Use number lines, hundred charts, place value blocks and clue cards. | Can students model subtraction with materials and connect the model to written strategies? |
| **Exit Ticket/ Quick Quiz** | Provide 5 short questions covering subtraction facts, strategy use, complements and inverse checking. | Identify students secure with subtraction methods and those needing more support with place value, strategy choice or work-backwards reasoning. |



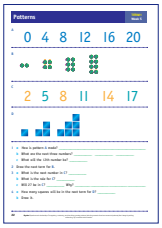
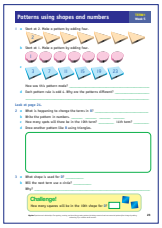
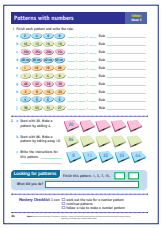
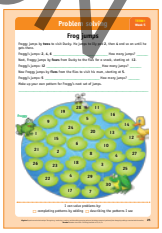
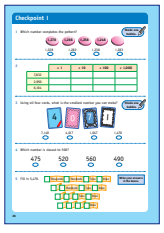
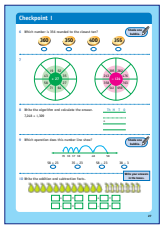
## Quick Quiz / Exit Ticket (5 Questions)

1. Solve: 78 − 23
2. Use compensation to solve: 53 − 28
3. What is 100 − 56?
4. How much change from $1 is 83c?
5. A number minus 13 equals 14. What is the number?

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students correctly solving 2-digit and 3-digit subtraction algorithms: | |
| Students understanding complements to 100 and change from $1: | |
| Students able to solve multi-step problems by working backwards: | |
| Students checking subtraction answers using inverse addition: | |
| Misconceptions noticed (e.g. subtracting digits without regard to place value, forgetting to adjust after compensation, miscounting jumps on a number line, difficulty reversing steps in work-backwards problems): | |
| Adjustments for future lessons (e.g. more place value materials, more number-line subtraction, more compensation practice, more inverse checking, more scaffolded multi-step problems): | |

# Term 1, Week 5 Overview Algebra: Equations and relationships: Patterns

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1**<br>**Patterns** | Patterns grow when numbers change by a constant amount, and the rule helps us continue the pattern. | ✓ Recognise growing patterns<br>✓ Identify the rule<br>✓ Continue patterns<br>✓ Predict next terms<br>✓ Describe how patterns grow | – Identify pattern rules<br>– Continue numerical patterns<br>– Predict future terms<br>– Use visual models<br>– Explain rule using numbers | **Page 22**: Identify rules, continue patterns and predict future numbers.<br>  |
| **2**<br>**Patterns using shapes and numbers** | A pattern rule describes how numbers change, and the rule can be used to continue or create patterns. | ✓ Identify pattern rule<br>✓ Continue patterns<br>✓ Create patterns<br>✓ Explain rule clearly<br>✓ Apply rule to new situations. | – Identify rule from patterns<br>– Continue number sequences<br>– Create own pattern<br>– Explain rule using words and numbers<br>– Apply rule in new examples | **Page 23**: Identify pattern rules, continue sequences and describe how patterns change.<br>  |
| **3**<br>**Patterns with numbers** | Patterns can be described by how numbers change, and understanding the change helps explain and predict patterns. | ✓ Continue number patterns<br>✓ Explain how patterns change<br>✓ Identify increasing/ decreasing patterns<br>✓ Predict future terms<br>✓ Use reasoning | – Continue pattern rows<br>– Identify change between terms<br>– Explain pattern growth<br>– Predict missing numbers<br>– Describe reasoning | **Page 24**: Continue number patterns, explain rules and describe how patterns change.<br>  |
| **4**<br>**Problem solving** | Patterns can be described and justified using mathematical reasoning and understanding of number relationships. | ✓ Identify missing terms<br>✓ Explain pattern rule<br>✓ Justify reasoning<br>✓ Compare patterns<br>✓ Recognise multiple pattern types | – Identify missing numbers<br>– Explain reasoning for pattern<br>– Compare patterns<br>– Solve reasoning questions<br>– Use pattern vocabulary | **Page 25**: Describe patterns, explain rules and justify reasoning using number relationships.<br>  |
| **5**<br>**Checkpoint 1** | Previously learned number and pattern skills can be reviewed and applied to show understanding and identify next learning steps. | ✓ Recall key number skills<br>✓ Recognise simple patterns<br>✓ Apply addition and subtraction<br>✓ Explain reasoning<br>✓ Show working clearly | – Complete Checkpoint assessment<br>– Review number and pattern questions<br>– Apply strategies to solve problems<br>– Explain thinking<br>– Identify strengths and areas for support | **Pages 26–27**: Review number skills and patterns, demonstrate understanding and apply strategies.<br>   |

# DAILY LESSON PLAN Week 5 • Lesson 1

**Topic:** Patterns

In this lesson, students explore growing patterns that increase by a constant amount. They identify rules, continue patterns, predict future terms, and describe how patterns grow using numbers and visual models.

## Learning Intention

Students will understand that growing patterns increase or decrease by adding, subtracting or multiplying by a constant amount and that we can identify and use the rule to continue and predict patterns.

## Success Criteria

- ✓ I can recognise and continue a growing pattern.
- ✓ I can identify the rule of a pattern.
- ✓ I can predict future terms using the rule.
- ✓ I can describe how a pattern grows using numbers or pictures.

## Language Focus

**Key terms:** pattern, rule, growing, increasing, decreasing, term, sequence, constant, add, subtract, multiply, predict

**Sentence stems:**

- The pattern is growing by ___ each time.
- The rule is add ___/subtract ___/multiply by ___.
- The next number will be ___ because ___.
- The pattern increases because ___.

## Launch Activity (5 minutes)

Warm-up: write on the board: 2, 4, 6, 8, ___, ___

Ask: 'What is happening in this pattern? What is the rule? (Add 2) What are the next two numbers?'

Repeat with a visual pattern using blocks increasing by one each time.

**Assessment for Learning**

Ask: 'How do you know the rule is correct? Can a pattern grow in different ways?'



## Explicit Instruction (10–12 minutes)

### 1. Identifying the Rule

**I Do** • Write a short growing pattern: 0, 4, 8, 12, 16, 20

Model finding the change between terms.

0 → 4 = +4

4 → 8 = +4

8 → 12 = +4

Record: Rule: add 4 each time

**We Do** • Identify the rule for 2–3 number or picture patterns together. Check that the same change happens each time.

**You Do** • Students identify the rule for a growing pattern and describe how it is changing.

### 2. Continuing a Pattern

**I Do** • Write a pattern and model using the rule to continue it: 2, 5, 8, 11, 14, 17

Rule: add 3

Continue: 20, 23, 26

**We Do** • Continue one number pattern and one picture pattern together. Use the rule each time before adding the next term.

**You Do** • Students continue growing patterns by applying the rule accurately.

### 3. Predicting Later Terms

**I Do** • Write a growing pattern and model how to find a later term without listing every number.

0, 4, 8, 12, 16, 20

Rule: add 4

Find the 12th term:

1st term = 0

12th term has 11 jumps

11 × 4 = 44

Record: 12th term = 44

**We Do** • Predict a later term together by counting the number of jumps, not just the number of terms.

**You Do** • Students predict a later term in a growing pattern and explain how they used the rule.

## Differentiation Tips

### Support

- Use concrete counters to build patterns physically
- Focus only on add patterns (e.g. +2, +3)
- Provide number lines

### Extension

- Introduce decreasing patterns (e.g. 50, 45, 40 ...)
- Introduce multiplicative patterns (×2)
- Ask students to create their own pattern and rule

### Teaching as Inquiry

Observe which students can identify the constant change and explain the rule clearly.

## Hands-On Activity 1 (10 minutes)

**Build a Growing Pattern**

Students use cubes to create a pattern that grows by a constant amount. They record: the first 5 terms, the rule and then the next term.

## Hands-On Activity 2 (10–15 minutes)

**Pattern Detective**

Students receive pattern cards and must identify the rule and continue the pattern.

## Student Book Practice

Students complete **page 22 in their workbooks: Patterns**

Focus: Continue numerical and visual patterns, identify pattern rules, predict future terms and justify reasoning.

## Mathletics Online Practice

**Activities (Courses) Topic**: Algebra: Equations & relationships

**Activity**: Increasing patterns

These sets reinforce key lesson skills through adaptive, interactive activities that require students to identify and complete increasing patterns. Completion scores track student progress and help teachers monitor growth and identify learning needs.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is the rule for Pattern A?
- How do you know a pattern is growing?
- Can a pattern grow by multiplying?

### Reflect and Share

Ask: 'How does knowing the rule help predict future numbers?'

### Next Steps for Teacher (Teaching as Inquiry)

- Provide extra support for students who cannot identify constant change
- Reinforce additive vs multiplicative growth
- Extend confident students with multi-step pattern rules

## Curriculum & Planning Links

### NZ Curriculum (2025) – Algebra

**Equations and relationships**

**Knowledge**

- Growing patterns can increase or decrease by adding or subtracting a constant amount (arithmetically) or multiplying or dividing by a constant (geometrically).

**Practices**

- Recognising, continuing, creating and describing growing patterns (numerical and non-numerical) that change by adding, subtracting or multiplying by a constant whole number.

# DAILY LESSON PLAN Week 5 • Lesson 2

**Topic:** Patterns using shapes and numbers

In this lesson, students explore growing patterns that increase by a constant amount. They compare patterns with the same rule but different starting points, represent patterns numerically and predict future terms using reasoning.

## Learning Intention

Students will understand that patterns can grow using the same rule but produce different sequences depending on the starting number, and that we can describe and predict patterns using numbers and shapes.

## Success Criteria

- ✓ I can recognise and continue a growing pattern.
- ✓ I can identify and describe the rule of a pattern.
- ✓ I can explain why patterns with the same rule can be different.
- ✓ I can predict future terms using the rule.

## Language Focus

**Key terms:** pattern, rule, term, growing, constant, sequence, start number, predict, increase, difference

**Sentence stems:**

- The pattern grows by adding ___ each time.
- The rule is add ___.
- This pattern is different because it starts at ___.
- The next term will be ___ because ___.

## Launch Activity (5 minutes)

Warm-up: Write two sequences on the board: 2, 6, 10, 14, ___; 1, 5, 9, 13, ___

Ask: 'What is the rule? (add 4) Why are the patterns different? (a different starting number) Predict the next number for each.'

**Assessment for Learning**

Ask: 'Can two patterns follow the same rule but look different? Why?'

## Explicit Instruction (10–12 minutes)

### 1. Growing Patterns Have a Start and a Rule

**I Do** • Create a simple pattern with counters or drawings. Start with 2 counters, then add 4 more each time.

Model recording: 2, 6, 10, 14, 18

Explain: A growing pattern has a starting number and a rule. This pattern starts at 2 and the rule is add 4.

**We Do** • Create another pattern together that also adds 4 but starts at 1.

Ask: 'What number did we start with? What is the rule? How is this pattern the same as the first one? How is it different?'

**You Do** • Students make their own pattern using the rule add 4, choosing a different starting number. Ask students to explain why two patterns can have the same rule but different numbers.

### 2. Connect Shapes to Number Patterns

**I Do** • Build a growing shape pattern using cubes, counters or drawings. Add the same number of objects each time.

Explain: Shape patterns can be written as number patterns by counting how many objects are in each term.

Model: Term 1 = 1, Term 2 = 5, Term 3 = 9, Term 4 = 13, Rule: add 4

**We Do** • Build the next two terms together.

Ask: 'How many objects are in each term? What changes each time? How many are added? What number pattern matches the shape pattern?'

**You Do** • Students build or draw a growing pattern and record the matching number pattern. Ask students to explain how a shape pattern can become a number pattern.

### 3. Predict Later Terms

**I Do** • Use the pattern 1, 5, 9, 13.

Explain: Once we know the rule, we can predict later terms without drawing every shape.

Model skip-counting by 4: 1, 5, 9, 13, 17, 21, 25, 29, 33, 37

So the 10th term is 37.

**We Do** • Predict a later term in another add-4 pattern together.

Ask: 'What term are we trying to find? What number do we start with? How many times do we add 4? How can we check our prediction?'

**You Do** • Students predict later terms in their own patterns. Ask students to explain how they found a later term without drawing every step.

## Differentiation Tips

### Support

- Use counters to physically build patterns
- Focus on simple +2 or +4 patterns
- Provide number line

### Extension

- Introduce decreasing patterns
- Introduce multiplicative patterns (×2)
- Ask students to write algebra-style rule: add 4 each time

### Teaching as Inquiry

Observe who understands constant change, can compare patterns logically and can predict future terms accurately.

## Hands-On Activity 1 (10 minutes)

**Build and Compare Patterns**

Students create two patterns with the same rule but different starting numbers. They draw first 5 terms, write rule and explain difference.

## Hands-On Activity 2 (10–15 minutes)

**Pattern Builder Challenge**

Students build a pattern using shapes and write starting number, rule, first 6 terms and 10th term prediction.

## Student Book Practice

Students complete **page 23 in their workbooks: Patterns using shapes and numbers.**

Focus: Identify rule (add constant), compare patterns with same rule, extend numerical patterns, predict future terms and create and explain patterns.

## Mathletics Online Practice

**Skill Quest Topic**: Relationships: Growing number patterns

**Quest**: Recognising & creating growing patterns

These sets reinforce key lesson skills by providing opportunities to complete a variety of growing patterns, and to identify/describe pattern rules. The use of number lines provides a visual representation of growing patterns. Completion data helps teachers monitor understanding and identify strengths and weaknesses.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Why can patterns with the same rule be different?
- What helps you predict the next term?
- How do you know the rule is correct?

### Reflect and share

Ask: 'How does knowing the starting number affect the pattern?'

### Next Steps for Teacher (Teaching as Inquiry)

- Reinforce constant difference concept.
- Provide extra practice predicting future terms.
- Extend confident students to multiplicative patterns.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Algebra

**Equations and relationships**

**Knowledge**

- Growing patterns can increase or decrease by adding or subtracting a constant amount (arithmetically) or multiplying or dividing by a constant (geometrically).

**Practices**

- Recognising, continuing, creating and describing growing patterns (numerical and non-numerical) that change by adding, subtracting or multiplying by a constant whole number.

# DAILY LESSON PLAN Week 5 • Lesson 3

**Topic:** Patterns with numbers

In this lesson, students identify pattern rules, extend sequences, create their own patterns, and apply reasoning to both increasing and decreasing number patterns. Students consolidate their understanding of constant change and use rules to predict future terms.

## Learning Intention

Students will understand that number patterns follow a rule and that the rule can be used to continue, create and describe patterns.

## Success Criteria

- ✓ I can identify the rule of a number pattern.
- ✓ I can continue a number pattern correctly.
- ✓ I can create a pattern using a rule.
- ✓ I can explain how a pattern changes.

## Language Focus

**Key terms:** pattern, rule, sequence, term, increase, decrease, constant, continue, subtract, add

**Sentence stems:**

- The rule is add ___.
- The rule is subtract ___.
- The pattern changes by ___.
- The next number will be ___ because ___.

## Launch Activity (5 minutes)

Write on board: 1, 3, 7, 15, ___, ___

Ask:

- What is happening each time? (add 2, add 4, add 8 ➜ doubling increase)
- Predict next numbers.

**Assessment for Learning**

Discuss how some patterns change by a constant and others change differently.



## Explicit Instruction (10–12 minutes)

### 1. Find the Rule for a Number Pattern

**I Do** • Write 2, 4, 6, 8.

Explain: To find the rule, look at what changes from one number to the next.

Model recording: 2, 4, 6, 8, 10, 12, 14

Rule: add 2

**We Do** • Work through patterns such as 10, 13, 16, 19 and 30, 25, 20, 15 together.

Ask: 'Is the pattern increasing or decreasing? How much does it change each time? What is the rule?'

**You Do** • Students finish number patterns and write the rule. Ask students to explain the rule for 48, 42, 36, 30.

### 2. Follow a Given Rule

**I Do** • Write Start with 20. Add 4 each time.

Explain: A rule tells us exactly what to do to make each next term.

Model recording: 20, 24, 28, 32, 36

**We Do** • Work through 'Start with 86'. Take away 10 each time together.

Ask: 'What number do we start with? What do we do each time? What are the next terms?'

**You Do** • Students make patterns from given starting numbers and rules. Ask students to explain how they know the pattern 86, 76, 66, 56 follows the rule.

### 3. Write Instructions for a Pattern

**I Do** • Write 0, 11, 22, 33, 44.

Explain: Instead of only writing the rule, we can write instructions for someone else to make the pattern.

Model instruction: Start at 0. Add 11 each time.

**We Do** • Create instructions for another pattern together.

Ask: 'What is the first number? What changes each time? How can we say the rule clearly?'

**You Do** • Students write instructions for a number pattern and complete the final pattern challenge. Ask students to explain how their instruction helps someone continue the pattern.

## Differentiation Tips

### Support

- Use number lines to visualise pattern change
- Focus on simple +2, +5, −5 patterns
- Provide pattern rule cards

### Extension

- Introduce non-constant growth (e.g. doubling)
- Ask students to write their own pattern challenges
- Explore algebra-style representation: +3 each time

## Hands-On Activity 1 (10 minutes)

**Pattern Detectives**

Students rotate through pattern cards to identify rule, continue pattern and explain reasoning.

## Hands-On Activity 2 (10–15 minutes)

**Create Your Own Pattern**

Students create one increasing pattern and one decreasing pattern. They must write rule, show first 5 terms and challenge a partner.

## Student Book Practice

Students complete **page 24 in their workbooks: Patterns with numbers**

Focus: Identify pattern rule, continue sequences, create patterns from rules and explain reasoning

## Mathletics Online Practice

**Skill Quest Topic**: Relationships: Growing number patterns

**Quest**: Record visual patterns in diagrams, lists, tables

These sets reinforce pattern recognition and rule-based thinking through adaptive questioning. Completion and scores provide teachers with clear evidence of student understanding and progress over time.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How do you find the rule of a pattern?
- How do you know if your rule is correct?
- Can patterns decrease? How?

### Next Steps for Teacher (Teaching as Inquiry)

- Provide extra practice for students struggling to identify rules
- Extend confident students to non-constant and multiplicative patterns
- Reinforce language of pattern rules and reasoning

## Curriculum & Planning Links

### NZ Curriculum (2025) – Algebra

**Equations and relationships**

**Knowledge**

- Growing patterns can increase or decrease by adding or subtracting a constant amount (arithmetically) or multiplying or dividing by a constant (geometrically).

**Practices**

- Recognising, continuing, creating and describing growing patterns (numerical and non-numerical) that change by adding, subtracting or multiplying by a constant whole number.

# DAILY LESSON PLAN Week 5 • Lesson 4

**Topic:** Problem solving: Frog jumps

In this lesson, students apply their understanding of growing patterns to solve real-world problems. They explore how numbers grow by a constant amount, identify the rule, continue the pattern, and describe their reasoning using mathematical language.

## Learning Intention

Students will understand that growing patterns can be used to solve problems and that numbers can increase by a constant amount using a rule.

## Success Criteria

- ✓ I can identify the rule in a growing pattern.
- ✓ I can continue a pattern using the rule.
- ✓ I can use patterns to solve problems.
- ✓ I can explain how a pattern grows using mathematical language.

## Language Focus

**Key terms:** pattern, rule, increase, decrease, constant, sequence, jump, term, continue, predict

**Sentence stems:**

- The pattern grows by ___ each time.
- The rule is add ___.
- The next number will be ___ because ___.
- I know this because the pattern is increasing by ___.

## Launch Activity (5 minutes)

Warm-up: write on the board: 2, 4, 6, __, __

Ask: 'What is the pattern? How do you know? What are the next two numbers?'

Then show: 5, 10, 15, __

Ask: 'What changed? What stayed the same?'

Explain: We will use patterns to solve a story problem about Frog jumping across lily pads.



## Explicit Instruction (10–12 minutes)

### 1. Complete Skip-Counting Patterns

**I Do** • Write 2, 4, 6.

Explain: A pattern can grow by adding the same number each time. Here, the rule is add 2.

Model recording: 2, 4, 6, 8, 10, 12

**We Do** • Start at 12 and count by 4s together.

Ask: 'What number do we start with? What is added each time? What number comes next? How do we know the pattern is correct?'

**You Do** • Students complete skip-counting patterns using rules such as add 2, add 4 and add 5. Ask students to explain the rule for one completed pattern.

### 2. Follow a Number Path Using a Rule

**I Do** • Use a delivery truck scenario.

Explain: The truck only stops at house numbers that follow the rule add 5.

Model recording: 5, 10, 15, 20, 25, 30

**We Do** • Use a bus stop scenario. The bus starts at stop 12 and follows the rule add 4.

Ask: 'Which number comes next? Can the bus stop there? What is the full route?'

**You Do** • Students create a number path using a different scenario, such as stepping stones, treasure stops or game levels. Ask students to explain why a number belongs in their path.

### 3. Describe and Create Patterns

**I Do** • Show a completed path, such as 5, 10, 15, 20, 25, 30

Explain: To describe a pattern, say the starting number and the rule.

Model statement: Start at 5. Add 5 each time.

**We Do** • Create a pattern for a rocket countdown trail or treasure map together.

Ask: 'What number will we start with? What will we add each time? How many numbers are in the pattern? How can we check it?'

**You Do** • Students write their own number pattern and describe the rule. Ask students to explain how adding the same number each time creates a pattern.

## Differentiation Tips

### Support

- Use number line or counters to show jumps.
- Work with smaller numbers (add 2 or 3).
- Provide partially completed sequences.

### Extension

- Students create their own Frog jump pattern.
- Predict the 10th term using reasoning.
- Compare two different jump patterns.

### Teaching as Inquiry

Observe who can identify the rule, apply it consistently and explain reasoning clearly.

## Hands-On Activity 1 (10 minutes)

**Human Frog Jumps**

Create a number line on the floor (1–30). Students 'jump' by 2s, 4s or 5s.

Ask: 'What pattern do you notice? What is the rule? Where will you land next?'

## Hands-On Activity 2 (10–15 minutes)

**Create Your Own Pattern**

Students design a jump pattern: choose starting number, choose rule (add 2, 3, 4, 5, etc.), draw the path, write the rule. Share and explain with partner.

## Student Book Practice

Students complete page **25 in their workbooks: Problem solving: Frog jumps**

Focus: Continue patterns using constant change, identify pattern rule, solve contextual pattern problems and create their own pattern

## Mathletics Online Practice

Challenge: Level 3-5

Number & Algebra: Patterns

Title: Jamie's patterns

Challenges students to identify addition number patterns with 3 missing numbers in different positions. Associated teacher notes provide a worked solution, strategic questions and teaching hints.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is the rule in Frog's first pattern?
- How did the numbers change each time?
- How do you know where Frog will land next?
- Why is the rule important?

### Reflect and Share

Ask: 'How do patterns help us solve problems?'

Encourage reasoning language: because, rule, pattern, increase

### Next Steps for Teacher (Teaching as Inquiry)

- Identify students who struggle to recognise constant change.
- Provide extra practice using number lines and visual jumps.
- Extend confident students with predicting later terms (e.g. 10th jump).

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number and Algebra

**Number structures, Equations and relationships**

**Knowledge**

- Growing patterns can increase or decrease by adding or subtracting a constant amount (arithmetically) or multiplying or dividing by a constant (geometrically).

**Practices**

- Counting forwards and backwards in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 25s and 50s from multiples of the counting unit
- Recognising, continuing, creating and describing growing patterns (numerical and non-numerical) that change by adding, subtracting or multiplying by a constant whole number.

# CHECKPOINT 1 Number and Operations

## Purpose

This Checkpoint assesses students' understanding of key mathematical concepts taught across the first two weeks of Year 4. It provides teachers with a clear snapshot of students' number knowledge, place value understanding, rounding, estimation, mental strategies, written addition and related addition/subtraction facts.

The Checkpoint should take approximately **30–40 minutes** and may be completed in **one or two sittings**.

## Assessment Overview

| Area | Focus | Curriculum Links | Key Skills Assessed |
|---|---|---|---|
| **Number & Place Value** | Patterns, sequencing, place value | Number Structures | Recognising patterns, identifying missing numbers, understanding place value |
| **Rounding & Estimation** | Closest numbers and rounding | Number Structures | Identifying nearest values, rounding to the nearest ten, using benchmark numbers |
| **Operations** | Addition and subtraction | Operations | Adding 1, 10, 100 and 1,000; using mental strategies; written addition |
| **Number Lines** | Addition and subtraction on a number line | Operations | Interpreting jumps, identifying the operation shown |
| **Number Relationships** | Addition and subtraction facts | Number Relationships | Connecting visual models to related addition and subtraction equations |



## Checkpoint 1 Structure

| Part | Focus | Questions | Skills Tested |
|---|---|---|---|
| 1 | Number Patterns | Identify missing number in pattern | Recognising patterns and sequencing |
| 2 | Place Value | Add 1, 10, 100 and 1,000 | Understanding base-10 place-value changes |
| 3 | Forming Numbers | Use four-digit cards to make the smallest number | Understanding place value and zero as a placeholder |
| 4 | Rounding/Closest Number | Identify number closest to 500 | Comparing numbers using benchmark reasoning |
| 5 | Numeral Expanders | Complete numeral expander for 5,479 | Representing thousands, hundreds, tens and ones |
| 6 | Rounding | Round 356 to the closest ten | Applying rounding rules |
| 7 | Mental Operations | Complete +27 and −124 operation wheels | Applying mental addition and subtraction strategies |
| 8 | Written Addition | Solve multi-digit addition | Applying written addition algorithm |
| 9 | Number Line Operations | Identify operation shown on number line | Connecting number-line jumps to subtraction |
| 10 | Addition and Subtraction Facts | Write related facts from visual model | Connecting part-part-whole model to equations |

# CHECKPOINT 1 Student Recording Sheet & Marking Rubric

**Unit:** Number, Place Value, Rounding and Operations • **Weeks:** 1–2 Year 4 Mathematics **Total Marks:** 30

**Student Name:** **Date:**

## Marking Sheet

| Part | Task | Max Marks | Student Score | Notes / Observations |
|---|---|---|---|---|
| 1 | Complete number pattern | 2 | / 2 | |
| 2 | Add 1, 10, 100 and 1,000 | 4 | / 4 | |
| 3 | Make smallest four-digit number | 2 | / 2 | |
| 4 | Identify number closest to 500 | 2 | / 2 | |
| 5 | Complete numeral expander | 4 | / 4 | |
| 6 | Round to closest ten | 2 | / 2 | |
| 7 | Complete operation wheels | 5 | / 5 | |
| 8 | Solve written addition | 4 | / 4 | |
| 9 | Identify number-line operation | 2 | / 2 | |
| 10 | Write addition and subtraction facts | 3 | / 3 | |
| | TOTAL: | 30 | / 30 | |

## Achievement Rubric

| Score Range | Level | Interpretation | Suggested Follow-Up |
|---|---|---|---|
| 26–30 | **Secure** | Strong understanding of number, place value, rounding and operations. | Ready to extend into multi-step problems, flexible strategies and larger numbers. |
| 18–25 | **Developing** | Core skills evident but some errors present. | Reinforce place value, rounding, numeral expanders and written addition. |
| 10–17 | **Emerging** | Partial understanding with gaps in key areas. | Provide small-group support in place value, rounding and operations. |
| Below 10 | **At Risk** | Significant foundational gaps. | Provide targeted intervention in number sense, base-10 structure and operations. |

## Diagnostic Notes (Teacher Use)

| Skill Area | Observations | Follow-Up Plan |
|---|---|---|
| Number Patterns | | |
| Place Value | | |
| Rounding and Closest Numbers | | |
| Numeral Expanders | | |
| Addition & Subtraction | | |
| Written Addition | | |
| Number Line Operations | | |
| Addition/Subtraction Facts | | |
| Problem Solving | | |

If students struggled with:

- **patterns →** Revisit skip counting forwards and backwards by 10.
- **place value →** Use base-10 materials, place-value charts and partitioning practice.
- **rounding →** Use number lines and midpoint language to show nearest ten.
- **numeral expanders →** Revisit thousands, hundreds, tens and ones using expanders and expanded form.
- **addition/subtraction →** Reinforce partitioning strategies such as +20 then +7, or −100, −20, −4.
- **written addition →** Practise aligning digits in Th, H, T, O columns.
- **number lines →** Revisit counting jumps, not landing points.
- **addition/subtraction facts →** Use part-part-whole diagrams and visual models.

## Unit: Algebra: Equations and relationships: Patterns

**Focus:** Recognising, continuing, creating and explaining growing patterns and understanding how patterns change using constant addition, subtraction or multiplication.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Growing Patterns** | Students understand that patterns can increase or decrease using a constant change. | Identifies whether a pattern grows or shrinks and continues it correctly. |
| **Arithmetic Pattern Rules** | Recognises patterns that change by adding or subtracting the same number each time. | States the rule (e.g. 'add 3 each time') and applies it correctly. |
| **Multiplicative Pattern Rules** | Understands that some patterns grow by multiplying by a constant. | Identifies multiplication patterns and predicts future terms accurately. |
| **Identifying Pattern Rules** | Can determine and explain the rule governing a pattern. | Explains rule clearly using correct mathematical language (add, subtract, multiply, constant). |
| **Continuing and Creating Patterns** | Can extend a pattern and create a new pattern using a rule. | Generates correct next terms and creates consistent pattern sequences. |
| **Describing Patterns** | Explains how and why a pattern changes. | Uses reasoning such as 'it increases by 5 each step' or 'it doubles each time'. |
| **Recognising Structure** | Recognises patterns in number sentences and operations. | Identifies repeating structure and explains relationships between numbers. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation (Formative)** | Watch students continue and create number patterns using manipulatives, number lines or written sequences. | Do they apply a consistent rule? Can they explain how the pattern changes? |
| **Oral Check** | Ask: 'What is the rule for this pattern?' 'How do you know?' 'Does it add, subtract or multiply?' | Listen for correct use of vocabulary such as rule, pattern, constant, increase, decrease. |
| **Written Work** | Review Student Book pp. 22–25. | Check accuracy of continued patterns, correct identification of rules and clear explanations. |
| **Practical Task** | Students create their own pattern and explain it to a partner or group. | Are rules consistent? Can students explain how the pattern grows or changes? |
| **Exit Ticket/Quick Quiz** | Provide 5 short pattern questions. | Identify students who understand pattern rules vs. those guessing without reasoning. |



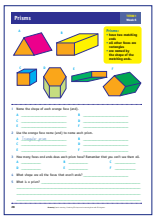
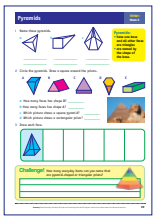
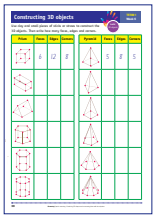
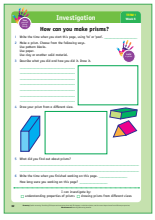
## Quick Quiz / Exit Ticket (5 Questions)

1. Continue the pattern:
   4, 7, 10, 13, ___, ___
2. What is the rule for the pattern:
   5, 10, 15, 20, 25?
3. Continue the pattern:
   3, 6, 12, 24, ___
4. Find the missing number:
   9, 14, 19, ___, 29
5. Create your own growing pattern and write the rule.

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently identifying and continuing growing patterns: | |
| Students correctly identifying and explaining pattern rules: | |
| Students recognising multiplication patterns vs addition patterns: | |
| Students able to describe how patterns change using reasoning: | |
| Students needing support to identify the rule consistently: | |
| Misconceptions noticed (e.g. inconsistent rule, counting instead of identifying change, confusion between add and multiply): | |
| Vocabulary to revisit (pattern, rule, constant, increase, decrease, multiply, sequence): | |

# Term 1, Week 6 Overview Geometry Spatial Reasoning – Visualising 3D Shapes and Connecting Them with 2D Diagrams

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1** **Prisms** | Prisms have two matching ends and all other faces are rectangles. | ✓ Identify the matching ends of a prism<br>✓ Name the shape of the orange face<br>✓ Use the orange face name to name the prism<br>✓ Count faces and ends<br>✓ Describe what a prism is | – Identify matching ends on prisms<br>– Name prisms using the shape of the end<br>– Count faces and ends<br>– Sort and name prism diagrams | **Page 28**: Name orange faces, name each prism, count faces and ends and describe what a prism is.<br>  |
| **2** **Pyramids** | Pyramids have one base and all other faces are triangles. | ✓ Identify the base of a pyramid<br>✓ Name a pyramid using the shape of its base<br>✓ Tell the difference between a pyramid and a prism<br>✓ Describe the faces of a pyramid | – Identify the base and triangle faces<br>– Name pyramids from the base<br>– Compare pyramids and prisms<br>– Sort pyramids and prisms | **Page 29**: Name pyramids, circle pyramids, draw around prisms, identify square pyramids and rectangular prisms and draw faces.<br>  |
| **3** **Constructing 3D objects** | 3D objects have faces, edges and corners. | ✓ Construct a prism or pyramid<br>✓ Identify faces, edges and corners<br>✓ Count faces, edges and corners<br>✓ Record the features of a 3D object | – Identify faces, edges and corners<br>– Construct 3D objects using clay and sticks or straws<br>– Count and record features<br>– Compare prisms and pyramids | **Page 30**: Construct 3D objects and record the number of faces, edges and corners.<br>  |
| **4** **Cones, cylinders and spheres** | Cones, cylinders and spheres have different surfaces and can be found in everyday objects. | ✓ Identify a cone, cylinder and sphere<br>✓ Name everyday objects that match these shapes<br>✓ Describe flat and curved surfaces<br>✓ Compare cones, cylinders and spheres | – Identify cones, cylinders and spheres<br>– Sort everyday objects<br>– Describe flat and curved surfaces<br>– Compare which objects roll or stack | **Page 31**: Name everyday cylinders, cones and spheres, describe surfaces, identify stackable objects and complete the mastery checklist.<br>  |
| **5** **Investigation: How can you make prisms?** | Prisms can be made, described and drawn from different views. | ✓ Make a prism<br>✓ Describe how the prism was made<br>✓ Draw the prism<br>✓ Draw the prism from a different view<br>✓ Record start and finish times | – Make a prism using pattern blocks, paper, clay or another material<br>– Describe what was made and how<br>– Draw the prism<br>– Draw it from a different view<br>– Record working time | **Page 32**: Make a prism, describe the process, draw the prism from different views and record time spent working.<br>  |

# DAILY LESSON PLAN Week 6 • Lesson 1

**Topic:** Prisms

In this lesson, students develop understanding of prisms by looking at 3D shapes and identifying their matching ends and faces. Students learn that prisms have two matching ends, all other faces are rectangles and prisms are named by the shape of their matching ends.

## Learning Intention

Students will understand that a prism has two matching ends and all other faces are rectangles.

## Success Criteria

- ✓ I can identify the matching ends of a prism.
- ✓ I can count the faces and ends of a prism.
- ✓ I can explain that all faces that are not ends are rectangles.
- ✓ I can describe what a prism is.

## Language Focus

**Key terms:** prism, face, end, matching ends, rectangle, triangular prism, rectangular prism, square prism, pentagonal prism, hexagonal prism, shape, name

**Sentence stems:**

- I can see two matching ends.
- This is a ___ prism because the matching ends are ___.
- The faces that are not ends are rectangles.
- This prism has ___ faces and ___ ends.
- A prism has two matching ends and all other faces are rectangles.

## Launch Activity (5 minutes)

Show students a box, a triangular prism or a set of 3D shapes. Ask:

- What faces can you see?
- Are any faces the same shape?
- Can you find two matching ends?
- What shape are the other faces?

Explain: A prism has two matching ends. All the other faces are rectangles. We name a prism by the shape of its matching ends.'

**Assessment for Learning**

Ask:

- How do you know this shape is a prism?
- Where are the two matching ends?
- Why is this called a triangular prism?
- Why is this not named by a rectangle face?

Listen for students who understand that the matching ends name the prism, not the side faces.



## Explicit Instruction (10–12 minutes)

### 1. Identifying a Prism

**I Do** • Show a 3D shape and model checking for prism features. Check:

- two matching ends
- all other faces are rectangles
- the shape can be named by its matching ends

Record: This is a prism because it has two matching ends and rectangular side faces.

**We Do** • Sort 2–3 shapes together into prism and not a prism. Justify each decision using the prism features.

**You Do** • Students identify whether given 3D shapes are prisms and explain one reason.

### 2. Naming Prisms by Their Ends

**I Do** • Show a prism and point to the two matching end faces. Identify the end shape: triangle ➜ triangular prism

Record: The end face names the prism.

**We Do** • Name several prisms together by first identifying the matching end shape. Use:

- rectangle
- triangle
- pentagon
- hexagon

**You Do** • Students name prisms by identifying the shape of the matching ends.

### 3. Counting Faces and Recognising Side Faces

**I Do** • Show a prism and model counting all faces, including the hidden end. For a triangular prism:

- 2 triangular ends
- 3 rectangular side faces
- 5 faces altogether

Record: Side faces of prisms are rectangles.

**We Do** • Count faces on 2–3 prisms together. Track visible and hidden faces separately.

**You Do** • Students count the faces and ends on prisms and identify the shape of the faces that are not ends.

## Differentiation Tips

### Support

Provide:

- real 3D shapes to hold and turn
- diagrams with the two matching ends coloured
- word cards: triangle, rectangle, square, pentagon, hexagon
- sentence stems
- teacher-guided counting of faces and ends

Focus on:

- finding the two matching ends
- naming the orange face
- saying the prism name from the end shape
- recognising that the other faces are rectangles

### Extension

Provide:

- prisms shown in different positions
- diagrams where not all faces can be seen
- mixed 3D shapes, including some that are not prisms
- 'convince me' reasoning tasks, e.g. 'Convince me that this shape is a prism.' Students explain: 'It has two matching ends. The other faces are rectangles. The ends are pentagons, so it is a pentagonal prism.'

### Teaching as Inquiry

Observe which students:

- can find the two matching ends
- use the shape of the end to name the prism
- understand that the rectangle faces do not name the prism unless they are the matching ends
- count faces that can and cannot be seen
- know that all prisms have two matching ends
- know that the other faces are rectangles
- confuse face and end
- name a prism from a visible side face instead of the matching end.

## Hands-On Activity 1 (10 minutes)

**Prism Sort**

Students work with 3D shapes or picture cards. They sort the shapes into prisms and not prisms. For each prism, students point to:

- one end
- the matching end
- the rectangle faces.

Ask:

- How do you know this is a prism?
- Where are the matching ends?
- What shape are the other faces?

Students record one example: 'This is a ___ prism because the matching ends are ___.'

## Hands-On Activity 2 (10 minutes)

**Name the Prism**

Give students prism cards or display diagrams A–F. Students name the orange face first, then use that name to name the prism.

| Diagram | Orange Face | Prism Name |
|---|---|---|
| A | triangle | triangular prism |
| B | rectangle | rectangular prism |
| C | square | square prism |
| D | hexagon | hexagonal prism |
| E | rectangle | rectangular prism |
| F | pentagon | pentagonal prism |

Ask:

- Which prisms have rectangle ends?
- Which prism has triangle ends?
- Which prism has pentagon ends?
- Which prism has hexagon ends?
- How do you know?

## Student Book Practice

Students complete **Student Book page 28 – Prisms**.

Focus: Naming prisms

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does every prism have?
- What shape are the faces that are not ends?
- What do we use to name a prism?
- Why do we count faces we cannot see?

### Reflect and Share

Ask: 'How can looking at the matching ends help us name a prism?'

### Next Steps for Teacher (Teaching as Inquiry)

Extend confident students by asking them to explain why a shape is or is not a prism, using the words matching ends, faces and rectangles.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Geometry

**Spatial Reasoning**

**Practices**

- Visualising 3D shapes and connecting them with 2D diagrams.

# DAILY LESSON PLAN Week 6 • Lesson 2

**Topic:** Pyramids

In this lesson, students identify and name pyramids by looking at the shape of the base. They compare pyramids and prisms by describing their key features.

## Learning Intention

Students will understand that a pyramid has one base and all other faces are triangles.

## Success Criteria

- ✓ I can identify the base of a pyramid.
- ✓ I can name a pyramid using the shape of its base.
- ✓ I can tell the difference between a pyramid and a prism.
- ✓ I can describe the faces of a pyramid.

## Language Focus

**Key terms:** pyramid, base, face, triangle, prism, square pyramid, rectangular pyramid, triangular pyramid

**Sentence stems:**

- This is a ___ pyramid because the base is a ___.
- The other faces are triangles.
- This shape is a prism because it has two matching ends.

## Launch Activity (5 minutes)

Show a pyramid and a prism. Ask:

- What faces can you see?
- Which shape has one base?
- Which shape has two matching ends?

Say: 'Today we are learning that pyramids have one base. All other faces are triangles. Pyramids are named by the shape of the base.'

**Assessment for Learning**

Ask:

- Where is the base?
- What shape is the base?
- What shape are the other faces?
- How do you know it is a pyramid?
- How is it different from a prism?



## Explicit Instruction (10–12 minutes)

### 1. Identifying the Base and Triangle Faces

**I Do** • Display a square pyramid. Point to the base.

Explain: 'This pyramid has one base. The base is a square. The other faces are triangles.'

Model: 'This is a square pyramid because the base is a square.'

**We Do** • Show another pyramid. Ask:

- What shape is the base?
- What shape are the other faces?
- What should we call this pyramid?

**You Do** • Students point to the base and triangle faces on a diagram or 3D shape.

Check for understanding: 'How do you know which face is the base?'

### 2. Naming Pyramids from the Base

**I Do** • Display the pyramids from question 1. Model naming:

- triangle base ➜ triangular pyramid
- rectangle base ➜ rectangular pyramid
- pentagon base ➜ pentagonal pyramid

Explain: 'We name a pyramid by the shape of its base.'

**We Do** • Name examples together. Students first name the base, then the pyramid. Ask:

- What shape is the base?
- What is the pyramid called?
- Why?

**You Do** • Students name pyramid cards using the sentence stem: 'This is a ___ pyramid because the base is a ___.'

Check for understanding: 'Why do we not name a pyramid by the triangle faces?'

### 3. Comparing Pyramids and Prisms

**I Do** • Display a pyramid and a prism.

Explain: 'A pyramid has one base and triangle faces. A prism has two matching ends and rectangle faces.'

**We Do** • Sort shapes A–E together. Guide students to identify:

- pyramids: A, C, D
- prisms: B, E

Ask:

- Which shapes are pyramids?
- Which shapes are prisms?
- How do you know?

**You Do** • Students sort shape cards into pyramids and prisms with a partner. Check for understanding: 'What is the difference between a pyramid and a prism?'

## Problem Solving & Reasoning

Discuss:

- Why is shape C a square pyramid?
- Why is shape E a rectangular prism?
- How do you know shape B is not a pyramid?
- If the base is a rectangle, what is the pyramid called?

Encourage students to use: base, face, triangle, pyramid, prism

## Differentiation Tips

### Support

Provide:

- real 3D shapes
- diagrams with the base coloured
- word cards and sentence stems.

Focus on finding the base and naming the pyramid.

### Extension

Provide:

- pyramids shown in different positions
- mixed pyramid and prism cards
- 'Convince me' explanations, e.g. 'Convince me that this is a square pyramid.'

### Teaching as Inquiry

Observe which students:

- identify the base
- name the pyramid from the base
- describe the other faces as triangles
- compare pyramids and prisms
- confuse pyramids and prisms.

## Hands-On Activity 1 (10 minutes)

**Pyramid or Prism Sort**

Students sort 3D shapes or picture cards into pyramids and prisms.
For each shape, students explain: 'This is a ___ because ___.'

## Hands-On Activity 2 (10 minutes)

**Name the Pyramid**

Students name the base first, then name the pyramid.

| Base Shape | Pyramid Name |
|---|---|
| triangle | triangular pyramid |
| rectangle | rectangular pyramid |
| square | square pyramid |
| pentagon | pentagonal pyramid |

Then students identify shapes from the page:

| Shape | Type |
|---|---|
| A | pyramid |
| B | prism |
| C | square pyramid |
| D | pyramid |
| E | rectangular prism |

## Student Book Practice

Students complete **Student Book page 29 – Pyramids**.

Focus: Naming pyramids from the base, Identifying pyramids and prisms, Drawing the faces of a pyramid.

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does every pyramid have?
- What shape are the other faces?
- What do we use to name a pyramid?
- How is a pyramid different from a prism?

### Reflect and Share

'How can looking at the base help us name a pyramid?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- identifying the base
- naming pyramids from the base
- comparing pyramids and prisms.

Extend confident students by asking them to explain why a shape is or is not a pyramid.

## Curriculum & Planning Links

**NZ Curriculum (2025) – Geometry**

**Spatial Reasoning**

**Knowledge**

- Shapes may appear different when viewed from a different perspective

**Practices**

- Visualising 3D shapes and connecting them with 2D diagrams.

# DAILY LESSON PLAN Week 6 • Lesson 3

**Topic:** Constructing 3D objects

In this lesson, students construct prisms and pyramids using clay and sticks or straws. They identify and count faces, edges and corners, and connect 3D objects with diagrams and descriptions.

## Learning Intention

Students will understand that 3D objects have faces, edges and corners.

## Success Criteria

- ✓ I can construct a prism or pyramid.
- ✓ I can identify faces, edges and corners.
- ✓ I can count faces, edges and corners.
- ✓ I can record the features of a 3D object.

## Language Focus

**Key terms:** prism, pyramid, face, edge, corner, construct, 3D object

**Sentence stems:**

- This object has ___ faces.
- This object has ___ edges.
- This object has ___ corners.
- I know it is a ___ because ___.

## Launch Activity (5 minutes)

Show a cube or rectangular prism. Ask:

- What faces can you see?
- Where are the edges?
- Where are the corners?

Say: 'Today we are constructing 3D objects and counting their faces, edges and corners.'

**Assessment for Learning**

Ask:

- How do you know this is a face?
- How do you know this is an edge?
- How do you know this is a corner?
- How can constructing the object help us count carefully?



# Explicit Instruction (10–12 minutes)

## 1. Identifying Faces, Edges and Corners

**I Do** • Display a rectangular prism. Point to and name:

- a face
- an edge
- a corner.

Explain: 'A face is a flat surface. An edge is where two faces meet. A corner is where edges meet.'

**We Do** • Count some faces, edges and corners together. Ask:

- Which part is a face?
- Which part is an edge?
- Which part is a corner?

**You Do** • Students point to a face, edge and corner on a 3D object with a partner.

Check for understanding: 'What is the difference between an edge and a corner?'

## 2. Constructing a 3D Object

**I Do** • Model constructing a simple pyramid or prism using clay and sticks.

Explain: 'The sticks show the edges. The clay joins show the corners. We can imagine or trace the faces between the edges.'

**We Do** • Build one simple object together. Ask:

- How many sticks do we need?
- How many clay corners do we need?
- What faces can we see?

**You Do** • Students begin constructing one prism or pyramid.

Check for understanding: 'How does your model show the edges and corners?'

## 3. Counting and Recording Features

**I Do** • Model counting one completed object carefully. Example: 'This rectangular prism has 6 faces, 12 edges and 8 corners.' Record in a table.

**We Do** • Count another object together. Ask:

- Have we counted every face?
- Have we counted every edge?
- Have we counted every corner?

**You Do** • Students count and record the faces, edges and corners of their constructed object. Check for understanding: 'How can you check that you have not missed any edges or corners?'

## Problem Solving & Reasoning

Discuss:

- Why do we need to count carefully?
- What is the same about prisms and pyramids?
- What is different?
- Which object has more corners?
- Which object has more edges?

Encourage students to use: faces, edges, corners, prism, pyramid

## Differentiation Tips

### Support

Provide:

- completed 3D objects to handle
- teacher-guided counting
- diagrams with faces, edges and corners labelled
- simpler objects first, such as a cube or square pyramid.

### Extension

Provide:

- larger prisms and pyramids
- mixed diagrams to complete
- comparison questions, e.g. 'Compare a rectangular prism and a square pyramid. Which has more edges?'

### Teaching as Inquiry

Observe which students:

- identify faces, edges and corners
- construct a model accurately
- count all visible and hidden edges or corners
- record numbers correctly
- confuse faces with edges.

## Hands-On Activity 1 (10 minutes)

**Build the Object**

Students use clay and sticks or straws to construct one prism or pyramid. They identify:

- faces
- edges
- corners.

Students explain: 'This object is a ___ because ___.'

## Hands-On Activity 2 (10 minutes)

**Count and Record**

Students use their constructed object or a diagram from the page to complete a table.

| Object | Faces | Edges | Corners |
|---|---|---|---|
| Prism or pyramid | ___ | ___ | ___ |

Ask:

- How many faces?
- How many edges?
- How many corners?
- How did you check?

## Student Book Practice

Students complete **Student Book page 30 – Constructing 3D Objects**.

Focus: Constructing 3D objects, Counting faces, edges and corners, Recording information in a table

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is a face?
- What is an edge?
- What is a corner?
- How many edges does a rectangular prism have?
- How can a model help us count?

### Reflect and Share

'How does constructing a 3D object help us understand its features?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- identifying faces, edges and corners
- counting edges and corners carefully
- connecting constructed objects with diagrams.

Extend confident students by asking them to compare the number of faces, edges and corners in different prisms and pyramids.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Geometry

**Spatial Reasoning**

**Knowledge**

- Shapes may appear different when viewed from a different perspective

**Practices**

- Visualising 3D shapes and connecting them with 2D diagrams.

# DAILY LESSON PLAN Week 6 • Lesson 4

**Topic:** Cones, cylinders and spheres

In this lesson, students identify and describe cones, cylinders and spheres. They connect 3D objects with everyday items and describe objects using flat surfaces and curved surfaces.

## Learning Intention

Students will understand that cones, cylinders and spheres have different surfaces and can be found in everyday objects.

## Success Criteria

- ✓ I can identify a cone, cylinder and sphere.
- ✓ I can name everyday objects that are cones, cylinders or spheres.
- ✓ I can describe flat and curved surfaces.
- ✓ I can compare cones, cylinders and spheres.

## Language Focus

**Key terms:** cone, cylinder, sphere, surface, flat surface, curved surface, stack, roll

**Sentence stems:**

- This object is a ___ because ___.
- A ___ has ___ flat surface/s and ___ curved surface/s.
- A ___ can roll because ___.
- A ___ can stack because ___.

## Launch Activity (5 minutes)

Show a can, ball and party hat or cone. Ask:

- What shape is each object?
- Which object can roll?
- Which object can stack?
- Which object has a flat surface?

Say: 'Today we are learning to describe cones, cylinders and spheres by looking at their flat and curved surfaces.'

**Assessment for Learning**

Ask:

- How do you know this is a cylinder?
- How do you know this is a cone?
- How do you know this is a sphere?
- Which surfaces are flat?
- Which surfaces are curved?



# Explicit Instruction (10–12 minutes)

## 1. Identifying Cones, Cylinders and Spheres

**I Do** • Display a cylinder, cone and sphere.

Explain: Point to each object and name it clearly. 'This is a cylinder. This is a cone. This is a sphere. We can describe them by looking at their surfaces.'

**We Do** • Hold up everyday objects. Ask:

- Is this a cone, cylinder or sphere?
- How do you know?
- What object does it look like?

**You Do** • Students sort object cards or real objects into three groups:

- cones
- cylinders
- spheres.

Check for understanding: 'What feature helped you name the object?'

## 2. Describing Flat and Curved Surfaces

**I Do** • Model describing each object.

Explain: 'A sphere has one curved surface and no flat surfaces. A cone has one flat surface and one curved surface. A cylinder has two flat surfaces and one curved surface.'

**We Do** • Describe diagrams A, B and C together. Ask:

- Which object has only one surface?
- Which object has one flat surface and one curved surface?
- Which object has two flat surfaces and one curved surface?

**You Do** • Students choose one object and describe its surfaces using a sentence stem. Check for understanding: 'How many surfaces does the cylinder have?'

## 3. Comparing How Objects Move or Stack

**I Do** • Demonstrate a cylinder, cone and sphere.

Explain: 'A cylinder can stack because it has flat surfaces. A sphere rolls easily because it has a curved surface and no flat surface.'

**We Do** • Test or discuss which object can be stacked most easily. Ask:

- Which object stacks best?
- Why?
- Which object rolls best?
- Why?

**You Do** • Students compare two objects with a partner. Sentence stem: 'The ___ can ___ because ___.'

Check for understanding: 'Why is a cylinder easier to stack than a sphere?'

## Problem Solving & Reasoning

Discuss:

- Why can a cylinder stack easily?
- Why can a sphere roll easily?
- Why is a ball a sphere?
- Why is a can a cylinder?

Encourage students to use: cone, cylinder, sphere, flat surface, curved surface

## Differentiation Tips

### Support

Provide:

- real objects to hold and turn
- labelled pictures
- sentence stems
- sorting mats for cone, cylinder and sphere.

Focus on naming the object and identifying flat or curved surfaces.

### Extension

Provide:

- mixed everyday objects
- 'convince me' explanations
- stack and roll challenges, e.g. 'Convince me that a can is a cylinder.'

### Teaching as Inquiry

Observe which students:

- identify cones, cylinders and spheres
- describe flat and curved surfaces
- connect 3D objects with everyday items
- explain why objects stack or roll
- confuse cone and cylinder.

## Hands-On Activity 1 (10 minutes)

**Everyday Object Sort**

Students sort real objects or picture cards into:

- cylinders
- cones
- spheres.

Students explain one choice: 'This is a ___ because ___.'

## Hands-On Activity 2 (10 minutes)

**Surface Detective**

Students choose a cone, cylinder and sphere. They count or describe the surfaces.

| Object | Flat Surfaces | Curved Surfaces |
|---|---|---|
| Cone | 1 | 1 |
| Cylinder | 2 | 1 |
| Sphere | 0 | 1 |

Ask:

- Which object has only one surface?
- Which object has two flat surfaces?
- Which object has one flat surface?

## Student Book Practice

Students complete **Student Book, page 31 – Cones, Cylinders and Spheres**.

Focus: Naming everyday cylinders, cones and spheres; Describing flat and curved surfaces; Identifying which object can stack; Completing the mastery checklist

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is a sphere?
- What shape is a can?
- What shape is a ball?
- Which object has two flat surfaces?
- Which object has only one curved surface?

### Reflect and Share

'How can looking at surfaces help us name 3D objects?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- naming cones, cylinders and spheres
- identifying flat and curved surfaces
- connecting 3D objects with everyday items.

Extend confident students by asking them to compare objects and explain why they roll or stack.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Geometry

**Spatial Reasoning**

**Knowledge**

- Shapes may appear different when viewed from a different perspective

**Practices**

- Visualising 3D shapes and connecting them with 2D diagrams.

# DAILY LESSON PLAN Week 6 • Lesson 5

**Topic:** Investigation – How can you make prisms?

In this lesson, students investigate prisms by making them in different ways. They describe what they did, draw their prism, draw it from a different view and record how long they worked.

## Learning Intention

Students will understand that prisms can be made, described and drawn from different views.

## Success Criteria

- ✓ I can make a prism.
- ✓ I can describe how I made my prism.
- ✓ I can draw my prism.
- ✓ I can draw my prism from a different view.
- ✓ I can record the time I started and finished.

## Language Focus

**Key terms:** prism, face, end, matching ends, rectangle, view, different view, make, draw, describe, time

**Sentence stems:**

- I made a prism using ___.
- My prism has two matching ends.
- The other faces are rectangles.
- I drew my prism from a different view.
- I started at ___ and finished at ___.

## Launch Activity (5 minutes)

Show students a made prism or a picture of a prism. Ask:

- How do you know this is a prism?
- What are the matching ends?
- What are the other faces?
- What could we use to make a prism?

Say: 'Today we are investigating how to make prisms. We will make a prism, describe what we did, draw it and draw it again from a different view.'

**Assessment for Learning**

Ask:

- Does your object have two matching ends?
- Are the other faces rectangles?
- How did you make your prism?
- What is different about your second drawing?
- How long did you work for?



## Explicit Instruction (10–12 minutes)

### 1. Revisiting the Properties of Prisms

**I Do** • Display a prism and point to the two matching ends.
Explain: 'A prism has two matching ends. The other faces are rectangles.'
Model checking: 'I know this is a prism because I can see two matching ends and rectangle faces.'

**We Do** • Look at another prism together. Ask:

- Where are the matching ends?
- What shape are the other faces?
- How do we know it is a prism?

**You Do** • Students point to the matching ends and rectangle faces on a prism or diagram.
Check for understanding: 'What must a prism have?'

### 2. Making and Describing a Prism

**I Do** • Model making a simple prism using paper, pattern blocks, clay or another solid material.
Think aloud: 'I am checking that my prism has two matching ends. I am checking that the other faces are rectangles.'
Model a description: 'I made a prism using paper. I folded and joined the faces. My prism has two matching ends.'

**We Do** • Discuss possible ways to make a prism. Ask:

- What material could you use?
- How will you make the matching ends?
- How will you make the rectangle faces?

**You Do** • Students choose a material and make a prism. Check for understanding: 'How can you prove that your object is a prism?'

### 3. Drawing a Prism from a Different View

**I Do** • Show a prism and draw it from one view. Turn the prism and draw it again from a different view.
Explain: 'The prism is the same object, but the view has changed.'

**We Do** • Look at a prism together from the front and side. Ask:

- What can you see from this view?
- What changes when we turn the prism?
- What stays the same?

**You Do** • Students draw their prism, then draw it from a different view. Check for understanding: 'What is different about your two drawings?'

## Problem Solving & Reasoning

Discuss:

- How do you know your object is a prism?
- What did you do when your prism did not work the first time?
- What changes when you draw a prism from a different view?
- What stays the same?

Encourage students to use: prism, matching ends, faces, rectangles, view

## Differentiation Tips

### Support

Provide:

- ready-made prisms to copy
- paper templates or pattern blocks
- teacher-guided making
- sentence stems for describing.

Focus on checking for two matching ends and rectangle faces.

### Extension

Provide:

- different prism types to make
- challenge to make a prism using more than one material
- drawing from two or more different views

Example: 'Make a prism and explain how you know it is not a pyramid.'

### Teaching as Inquiry

Observe which students:

- make a prism with two matching ends
- describe the rectangle faces
- explain how they made their prism
- draw the same prism from a different view
- record start and finish times
- need support to describe what they found out.

## Hands-On Activity 1 (10 minutes)

**Make a Prism**

Students choose one way to make a prism:

- pattern blocks
- paper
- clay or another solid material.

Students check: two matching ends and rectangular faces.

Students explain: 'I know this is a prism because ___.'

## Hands-On Activity 2 (10 minutes)

**Draw and Describe**

Students draw their prism, then draw it from a different view. They describe:

- what they made
- how they made it
- what they found out about prisms.

## Student Book Practice

Students complete **Student Book, page 32 – Investigation: How Can You Make Prisms?**

Focus: Making a prism, Describing how the prism was made, Drawing the prism, Drawing the prism from a different view, Recording start and finish times

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does a prism have?
- What shape are the other faces?
- How did you make your prism?
- What changed in your different view drawing?
- How long did you work for?

### Reflect and Share

'What did you find out about prisms?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- identifying matching ends
- checking that other faces are rectangles
- drawing prisms from different views.

Extend confident students by asking them to make, draw and compare different prisms.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Geometry

**Spatial Reasoning**

**Knowledge**

- Shapes may appear different when viewed from a different perspective

**Practices**

- Visualising 3D shapes and connecting them with 2D diagrams.

# Unit: Geometry Spatial Reasoning – Visualising 3D Shapes and Connecting Them with 2D Diagrams

**Focus:** Identifying, naming, constructing and describing 3D shapes using their features, including faces, edges, corners, bases, matching ends, flat surfaces and curved surfaces.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Prisms** | Students understand that prisms have two matching ends and all other faces are rectangles. | Correctly identifies matching ends and names prisms using the shape of the end. |
| **Pyramids** | Students understand that pyramids have one base and all other faces are triangles. | Correctly identifies the base and names pyramids using the shape of the base. |
| **Faces, Edges and Corners** | Students can identify and count faces, edges and corners on 3D objects. | Accurately counts and records faces, edges and corners, including parts not easily seen in diagrams. |
| **Cones, Cylinders and Spheres** | Students can identify and describe cones, cylinders and spheres using surfaces. | Describes flat and curved surfaces and connects shapes with everyday objects. |
| **Comparing 3D Objects** | Students can compare prisms, pyramids, cones, cylinders and spheres by their features. | Explains similarities and differences using correct shape language. |
| **Drawing and Constructing** | Students can construct 3D objects and draw them from different views. | Builds a prism or pyramid and draws the same object from more than one view. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation Formative** | Watch students sort prisms, pyramids, cones, cylinders and spheres. | Can they name each shape and explain using features? |
| **Oral Check** | Ask: 'How do you know this is a prism?' or 'How do you know this is a pyramid?' | Listen for use of terms such as matching ends, base, faces, rectangles and triangles. |
| **Written Work** | Review Student Book Pages 28–32. | Check accurate naming, counting of features, descriptions and drawings from different views. |
| **Practical Task** | Have students construct a prism or pyramid using clay and sticks or straws. | Can they build the object and identify faces, edges and corners? |
| **Exit Ticket/Quick Quiz** | Provide 5 short questions about 3D shapes. | Identify students confident with shape features and those needing further modelling. |



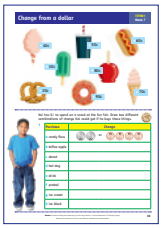
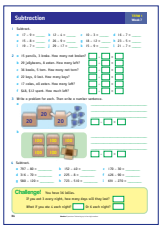
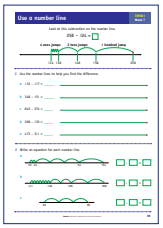
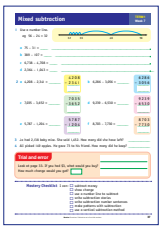
## Quick Quiz / Exit Ticket (5 Questions)

1. What does every prism have?
2. What does every pyramid have?
3. What shape are the other faces of a pyramid?
4. Which shape has two flat surfaces and one curved surface?
5. How do you know a sphere is different from a cone?

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently identifying prisms: | |
| Students able to name pyramids from the base: | |
| Students accurately counting faces, edges and corners: | |
| Students describing cones, cylinders and spheres using surfaces: | |
| Students connecting 3D objects with 2D diagrams: | |
| Students drawing prisms from different views: | |
| Misconceptions noticed, such as confusing prisms and pyramids: | |
| Vocabulary to revisit: prism, pyramid, base, face, edge, corner, surface, flat, curved: | |
| Adjustments for future lessons, such as more hands-on construction or sorting: | |

# Term 1, Week 7 Overview Number: Operations, Financial mathematics – Subtracting up to Four-Digit Numbers and Calculating Change

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1**<br>**Change from a dollar** | Change is the amount of money left after something is bought. | ✓ Identify the price of an item<br>✓ Subtract from $1 to find change<br>✓ Show change using coins<br>✓ Make the same amount of change in different ways | – Identify snack prices<br>– Subtract prices from 100 cents<br>– Represent change using coins<br>– Show change in two different ways<br>– Check by adding price and change to $1 | **Page 33**: Find change from $1 and show two different coin combinations for each purchase.<br>  |
| **2**<br>**Subtraction** | Subtraction can be used to find how many are left or how many are not included. | ✓ Subtract numbers accurately<br>✓ Write a subtraction number sentence<br>✓ Solve 'how many left?' problems<br>✓ Subtract up to four-digit numbers | – Practise subtraction facts<br>– Write number sentences from word problems<br>– Solve 'how many left?' questions<br>– Subtract larger numbers<br>– Solve a challenge problem | **Page 34**: Complete subtraction facts, write number sentences, solve word problems and subtract up to four-digit numbers.<br>  |
| **3**<br>**Use a number line** | A number line can be used to subtract by making jumps back in hundreds, tens and ones. | ✓ Use a number line to subtract<br>✓ Make jumps back in hundreds, tens and ones<br>✓ Find the difference<br>✓ Write an equation to match a number line | – Model jumps on a number line<br>– Subtract using hundreds, tens and ones jumps<br>– Find the difference<br>– Write equations from number line diagrams | **Page 35**: Use number lines to subtract and write equations to match number line representations.<br>  |
| **4**<br>**Subtraction facts** | Subtraction facts can help solve related subtraction problems with larger numbers. | ✓ Use a subtraction fact to solve related facts<br>✓ See patterns in ones, tens, hundreds and thousands<br>✓ Use one addition fact to write related equations<br>✓ Write a subtraction story problem | – Explore related subtraction facts<br>– Identify patterns in tens, hundreds and thousands<br>– Write four related facts from one addition fact<br>– Write and check subtraction stories | **Page 36**: Complete subtraction fact patterns, write related equations, write story problems and solve a reasoning challenge.<br>  |
| **5**<br>**Mixed subtraction** | Different subtraction strategies can be used to solve subtraction problems. | ✓ Use a number line to subtract<br>✓ Use a vertical method<br>✓ Solve subtraction stories<br>✓ Find change<br>✓ Choose a suitable strategy | – Use number lines for subtraction<br>– Solve vertical subtraction problems<br>– Solve subtraction stories<br>– Calculate change from $3<br>– Complete mastery checklist | **Page 37**: Use number lines, vertical subtraction, subtraction stories and money change problems.<br>  |

# DAILY LESSON PLAN Week 7 • Lesson 1

**Topic:** Change from a dollar

In this lesson, students calculate change from $1 after buying a snack. They represent the change using different combinations of coins and explain how they know the amount is correct.

## Learning Intention

Students will understand that change is the amount of money left after something is bought.

## Success Criteria

- ✓ I can identify the price of an item.
- ✓ I can subtract from $1 to find change.
- ✓ I can show change using coins.
- ✓ I can make the same amount of change in different ways.
- ✓ I can explain how I know my change is correct.

## Language Focus

**Key terms:** dollar, cents, price, cost, spend, change, coins, amount, subtract, left over

**Sentence stems:**

- The item costs ___ cents.
- I start with $1.
- The change is ___ cents.
- I can make ___ cents using ___.
- I know this is correct because ___.

## Launch Activity (5 minutes)

Show a $1 coin and a snack price, such as 40c. Ask:

- How much money do we start with?
- How much does the snack cost?
- Will there be money left over?
- How could we find the change?

Say: 'Today we are learning to find change from $1. We will subtract the price from $1 and show the change using coins.'

**Assessment for Learning**

Ask:

- What does change mean?
- How much is $1 in cents?
- What operation helps us find change?
- How can coins help us show the change?
- Can the same amount be made in more than one way?



## Explicit Instruction 10–12 minutes

### 1. Finding Change from $1

**I Do** • Display the candy floss price: 40c.

Explain: 'Kai has $1. $1 is 100 cents. The candy floss costs 40 cents. I subtract 40 from 100.'

Model: 100c − 40c = 60c. 'The change is 60c.'

**We Do** • Work through another snack together, such as the drink for 50c. Ask:

- What do we start with?
- What does the drink cost?
- What is 100c − 50c?
- How much change?

**You Do** • Students choose one snack and find the change from $1. Check for understanding: 'How do you know how much change is left?'

### 2. Representing Change with Coins

**I Do** • Model showing 60c using coins, e.g. 50c + 10c = 60c

Then show another way: 20c + 20c + 20c = 60c

Explain: 'The change is the same, but the coins can be different.'

**We Do** • Represent 70c together. Ask:

- What coins could make 70c?
- Can we show it another way?
- How do we check the total?

**You Do** • Students represent the change for one snack in two different ways. Check for understanding: 'Do both coin combinations make the same amount?'

### 3. Checking Change

**I Do** • Model checking a purchase and change, e.g. 'An ice block costs 30c. The change is 70c. I check by adding: 30c + 70c = 100c.'

**We Do** • Check another example together. Ask:

- What was the price?
- What was the change?
- Do they add to 100c?
- Is the change correct?

**You Do** • Students check one answer by adding the price and change back to $1. Check for understanding: 'What should the price and change add to?'

## Problem Solving & Reasoning

Discuss:

- Why is the change from 40c equal to 60c?
- How can 60c be shown in two different ways?
- Which snack gives the most change?
- Which snack gives the least change?
- How do you know your change is correct?

Encourage students to use: dollar, cents, price, change, coins, subtract

## Differentiation Tips

### Support

Provide:

- play money
- 100 chart
- number line from 0 to 100
- teacher-guided subtraction from 100.

Focus on finding change from prices such as 20c, 30c, 40c and 50c.

### Extension

Provide:

- two different coin combinations for each change amount
- challenge questions using two snacks
- reasoning prompts, e.g. 'Kai buys a 30c ice block. Show the change in three different ways.'

### Teaching as Inquiry

Observe which students:

- know that $1 is 100 cents
- subtract the price from 100 cents
- represent change using coins
- make the same amount in different ways
- check change by adding price and change to 100 cents
- confuse price and change.

## Hands-On Activity 1 (10 minutes)

**Snack Shop Change**

Students choose snack cards with prices. They find the change from $1.

| Snack | Price | Change from $1 |
|---|---|---|
| Candy floss | 40c | 60c |
| Ice block | 30c | 70c |
| Drink | 50c | 50c |

Students say: 'The snack costs ___ cents. The change is ___ cents.'

## Hands-On Activity 2 (10 minutes)

**Show the Change Two Ways**

Students use play coins to show each change amount in two different ways, e.g.:

- 60c = 50c + 10c
- 60c = 20c + 20c + 20c

Ask:

- Do both ways make the same amount?
- How can you check?
- Which way uses fewer coins?

## Student Book Practice

Students complete **Student Book page 33 – Change from a Dollar**.

Focus:

- Finding change from $1
- Representing change using coins
- Showing two different coin combinations
- Checking that price and change make $1

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How many cents are in $1?
- If something costs 40c, what is the change from $1?
- If something costs 80c, what is the change from $1?
- How can you show 50c using coins?
- How can you check your change?

### Reflect and Share

'How can coins help us show change from $1?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- $1 equals 100 cents
- subtracting prices from 100 cents
- representing change with coins
- checking change by adding back to $1

Extend confident students by asking them to buy two items and find the change from $1.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations, Financial mathematics**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known factor, place value and partitioning, or column methods

**Practices**

- Adding and subtracting up to four-digit numbers.
- Calculating change.
- Representing amounts of currency using different combinations of denominations.

# DAILY LESSON PLAN Week 7 • Lesson 2

**Topic:** Subtraction

In this lesson, students practise subtraction facts and solve subtraction problems. They write number sentences, subtract up to four-digit numbers, and use subtraction to answer 'How many left?' questions.

## Learning Intention

Students will understand that subtraction can be used to find how many are left or how many are not included.

## Success Criteria

- ✓ I can subtract numbers accurately.
- ✓ I can write a subtraction number sentence.
- ✓ I can solve 'how many left?' problems.
- ✓ I can subtract up to four-digit numbers.
- ✓ I can check that my answer makes sense.

## Language Focus

**Key terms:** subtract, subtraction, minus, left, spent, eaten, broken, torn, lost, number sentence, answer

**Sentence stems:**

- I started with ___.
- ___ were taken away.
- ___ − ___ = ___.
- There are ___ left.
- I know my answer makes sense because ___.

## Launch Activity (5 minutes)

Display a simple subtraction problem: 17 − 9 = ___

Ask:

- What number do we start with?
- What number are we taking away?
- How could we work it out?
- Does the answer need to be smaller or larger than 17?

Say: 'Today we are using subtraction to find how many are left. We will write number sentences and solve subtraction problems.'

**Assessment for Learning**

Ask:

- What does subtract mean?
- How do you know which number comes first?
- What words in a problem tell us to subtract?
- How can you check your answer?



## Explicit Instruction (10–12 minutes)

### 1. Subtracting and Explaining the Strategy

**I Do** • Model a subtraction fact such as: 16 − 7 = 9

Explain: 'I start at 16 and take away 7. I can count back, use known facts or think 7 and what makes 16?'

**We Do** • Solve two examples together:

12 − 4 = ___

18 − 12 = ___

Ask:

- What number do we start with?
- What are we subtracting?
- What strategy could we use?

**You Do** • Students solve two subtraction facts on whiteboards. Check for understanding: 'How did you work it out?'

### 2. Writing Number Sentences from Problems

**I Do** • Model a word problem: '15 pencils, 3 broke. How many are not broken?'

Record: 15 − 3 = 12

Explain: 'The number sentence matches the story. We started with 15 and took away 3.'

**We Do** • Work through another problem together: '29 jellybeans, 8 eaten. How many left?'

Ask:

- What number do we start with?
- What number is taken away?
- What number sentence should we write?

**You Do** • Students write a number sentence for one problem with a partner. Check for understanding: 'What words helped you know this was subtraction?'

### 3. Subtracting Larger Numbers

**I Do** • Model a larger subtraction problem: 379 − 80 = 299

Explain: 'I subtract 8 tens from 37 tens. The ones stay the same.'

**We Do** • Solve one together: 316 − 70 = ___

Ask:

- Which place is changing?
- Are we subtracting tens, hundreds or ones?
- Does the answer make sense?

**You Do** • Students solve one larger subtraction problem independently. Check for understanding: 'What part of the number changed when you subtracted?'

## Problem Solving & Reasoning

Discuss:

- Why does subtraction make the number smaller?
- How do you know whether to subtract?
- What words tell us something has been taken away?
- How can addition help check subtraction?

Encourage students to use: subtract, minus, left, number sentence, answer

## Differentiation Tips

### Support

Provide:

- counters or cubes
- number lines
- 100 charts
- teacher-guided word problem reading.

Focus on subtracting within 30 and writing matching number sentences.

### Extension

Provide:

- larger subtraction problems
- missing-number subtraction problems
- challenge questions involving equal groups, e.g. 'You have 36 lollies. If you eat 3 each night, how many days will they last?'

### Teaching as Inquiry

Observe which students:

- subtract accurately
- choose the correct starting number
- write matching number sentences
- understand 'left' as subtraction
- subtract tens and hundreds from larger numbers
- need support with regrouping or place value.

## Hands-On Activity 1 (10 minutes)

**Subtraction Stories**

Students use counters to model simple subtraction stories, e.g. '22 keys, 7 lost.'

Students show the starting amount, remove the lost amount and record: 22 − 7 = 15

## Hands-On Activity 2 (10 minutes)

Write the Number Sentence

Students match word problems to subtraction number sentences, e.g. '48 dollars, 12 dollars spent.'

48 − 12 = 36

Ask:

- What did you start with?
- What was taken away?
- How many are left?

## Student Book Practice

Students complete **Student Book page 34 – Subtraction**.

Focus:

- Subtracting facts
- Solving 'how many left?' problems
- Writing number sentences
- Subtracting up to four-digit numbers
- Solving the challenge question

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does subtract mean?
- What is 17 − 9?
- What is 29 − 17?
- If you have 48 dollars and spend 12 dollars, how much is left?
- How can you check a subtraction answer?

### Reflect and Share

'How can a number sentence help us solve a subtraction problem?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- subtraction facts
- identifying the starting number
- writing subtraction number sentences
- subtracting tens and hundreds from larger numbers

Extend confident students by asking them to write their own subtraction word problems and solve multi-step problems.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known factor, place value and partitioning, or column methods

**Practices**

- Adding and subtracting up to 4 digits

# DAILY LESSON PLAN Week 7 • Lesson 3

**Topic:** Use a number line

In this lesson, students use a number line to solve subtraction problems. They subtract by making jumps in hundreds, tens and ones and write equations to match number line representations.

## Learning Intention

Students will understand that a number line can be used to subtract by making jumps back in hundreds, tens and ones.

## Success Criteria

- ✓ I can use a number line to subtract.
- ✓ I can make jumps back in hundreds, tens and ones.
- ✓ I can find the difference between two numbers.
- ✓ I can write an equation to match a number line.
- ✓ I can check that my answer makes sense.

## Language Focus

**Key terms:** number line, subtract, subtraction, difference, jump, ones, tens, hundreds, equation

**Sentence stems:**

- I start at ___.
- I jump back ___ hundreds, ___ tens and ___ ones.
- The difference is ___.
- The equation is ___ − ___ = ___.

## Launch Activity (5 minutes)

Display: 258 − 124 = ___

Ask:

- What number do we start at?
- What number are we subtracting?
- How could we show this on a number line?

Say: 'Today we are using number lines to subtract. We can jump back in hundreds, tens and ones to find the difference.'

**Assessment for Learning**

Ask:

- Where do we start on the number line?
- Why do we jump backwards?
- How many hundreds, tens and ones are we subtracting?
- How do the jumps help us find the difference?



## Explicit Instruction (10–12 minutes)

### 1. Modelling Subtraction Jumps

**I Do** • Display the example: 258 − 124 = ___

Explain: 'I start at 258. I subtract 124 by jumping back 1 hundred, 2 tens and 4 ones.'

Model the jumps: 258 → 158 → 148 → 138 → 134

Record: 258 − 124 = 134

**We Do** • Work through another example together: 132 − 117 = ___

Ask:

- Where do we start?
- How many hundreds, tens and ones do we subtract?
- What number do we land on?

**You Do** • Students practise one subtraction problem on a blank number line. Check for understanding: 'Why did you jump backwards?'

### 2. Finding the Difference on a Number Line

**I Do** • Model using a number line for: 348 − 151 = ___

Explain: 'I start at 348 and subtract 151. I can jump back 1 hundred, 5 tens and 1 one.'

Record each landing point clearly.

**We Do** • Solve one together from the page. Ask:

- What is the starting number?
- What amount is being subtracted?
- What jumps will we make?
- What is the difference?

**You Do** • Students use the number lines to solve one or two problems. Check for understanding: 'How did you know what jumps to make?'

### 3. Writing Equations from Number Lines

**I Do** • Display a completed number line.

Explain: 'The red dot shows the starting number. The jumps show how much was subtracted. The number we land on is the answer.'

Model writing: 154 − 132 = 22

**We Do** • Look at another number line together. Ask:

- What number did we start at?
- How much was subtracted?
- What number did we land on?
- What equation matches the number line?

**You Do** • Students write an equation to match a number line. Check for understanding: 'How does the number line show the equation?'

## Problem Solving & Reasoning

Discuss:

- Why is the first jump often a hundred jump?
- How do tens jumps help?
- How do ones jumps help?
- How can you tell if the answer is reasonable?
- What equation matches the number line?

Encourage students to use: number line, jump, subtract, hundreds, tens, ones, difference

## Differentiation Tips

### Support

Provide:

- labelled number lines
- place value charts
- base-10 materials
- teacher-guided jumps

Focus on subtracting tens and ones before moving to hundreds.

### Extension

Provide:

- larger numbers
- missing-number number lines
- challenge students to choose efficient jumps, e.g. 'Show 842 − 374 using fewer jumps.'

### Teaching as Inquiry

Observe which students:

- start at the correct number
- jump backwards to subtract
- separate numbers into hundreds, tens and ones
- record landing points accurately
- write equations from number lines
- confuse the starting number and the answer.

## Hands-On Activity 1 (10 minutes)

**Jump Back**

Students use a floor number line, whiteboards or blank number lines. They solve subtraction problems by making jumps back, e.g. 268 − 132

Students show:

- 1 hundred jump
- 3 tens jumps
- 2 ones jumps

## Hands-On Activity 2 (10 minutes)

**Match the Equation**

Students match completed number lines to equations. They identify:

- starting number
- amount subtracted
- answer.

Students say: 'The equation is ___ − ___ = ___.'

## Student Book Practice

Students complete **Student Book page 35 – Use a Number Line**.

Focus:

- Subtracting using number lines
- Making jumps in hundreds, tens and ones
- Finding the difference
- Writing equations to match number lines

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Where do we start on a subtraction number line?
- Which way do we jump when subtracting?
- What is the difference in 258 − 124?
- What does a hundred jump show?
- How can a number line help us check subtraction?

### Reflect and Share

'How do number line jumps help us subtract?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- starting at the correct number
- jumping backwards
- using hundreds, tens and ones jumps
- writing equations from number lines

Extend confident students by asking them to choose efficient jumps and explain their strategy.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known factor, place value and partitioning, or column methods

**Practices**

- Adding and subtracting up to 4 digits

# DAILY LESSON PLAN Week 7 • Lesson 4

**Topic:** Subtraction facts

In this lesson, students use known subtraction facts to solve related facts with tens, hundreds and thousands. They also use addition and subtraction fact families to write related equations.

## Learning Intention

Students will understand that subtraction facts can help solve related subtraction problems with larger numbers.

## Success Criteria

- ✓ I can use a subtraction fact to solve related facts.
- ✓ I can see patterns in ones, tens, hundreds and thousands.
- ✓ I can use one addition fact to write related equations.
- ✓ I can write a subtraction story problem.
- ✓ I can check if a subtraction story makes sense.

## Language Focus

**Key terms:** subtraction fact, addition fact, related facts, pattern, equation, number sentence, subtract, minus

**Sentence stems:**

- If I know ___ − ___ = ___, then I know ___ − ___ = ___.
- I can see the pattern because ___.
- One addition fact tells us ___.
- This story does not make sense because ___.

## Launch Activity (5 minutes)

Display:

9 − 4 = 5

90 − 40 = 50

Ask:

- What stayed the same?
- What changed?
- How does knowing 9 − 4 help us solve 90 − 40?

Say: 'Today we are using subtraction facts to help us solve larger subtraction problems.'

**Assessment for Learning**

Ask:

- What pattern can you see?
- How can a basic fact help with larger numbers?
- What related facts can we write from one addition fact?
- How can we check if a subtraction story makes sense?



# Explicit Instruction (10–12 minutes)

## 1. Using Related Subtraction Facts

**I Do** • Model:

7 − 3 = 4

70 − 30 = 40

700 − 300 = 400

Explain: 'The digits follow the same pattern. The numbers are ten times or one hundred times larger.'

**We Do** • Work through:

8 − 6 = ___

80 − 60 = ___

800 − 600 = ___

Ask:

- What is the basic fact?
- What pattern do you see?
- What changes in each line?

**You Do** • Students complete one related-fact set on whiteboards. Check for understanding: 'How did the basic fact help you?'

## 2. Using One Addition Fact to Write Four Facts

**I Do** • Display: 5 + 3 = 8

Model the four related facts:

5 + 3 = 8

3 + 5 = 8

8 − 5 = 3

8 − 3 = 5

Explain: 'One addition fact tells us four things.'

**We Do** • Use: 7 + 2 = 9

Ask:

- What is the turn-around addition fact?
- What subtraction facts can we write?
- What is the whole?
- What are the parts?

**You Do** • Students write four facts for one addition equation. Check for understanding: 'Which number is the whole?'

## 3. Writing and Checking Subtraction Stories

**I Do** • Model writing a story for 845 − 373 = ___. E.g. 'There were 845 tickets. 373 tickets were sold. How many tickets were left?' Explain: 'The story matches the equation because we start with 845 and take away 373.'

**We Do** • Discuss the challenge story: 'Ari had 14 marbles. He gave 2 away and had 16 left.' Ask:

- Does this make sense?
- Can you give away marbles and have more left?
- What should happen when we subtract?

**You Do** • Students write a short subtraction story for one equation. Check for understanding: 'How do you know your story matches the equation?'

## Problem Solving & Reasoning

Discuss:

- How does 9 − 4 help with 900 − 400?
- Why does subtraction usually make a number smaller?
- How can addition help check subtraction?
- What is wrong with Ari's story?

Encourage students to use: subtraction fact, related facts, pattern, equation, whole, parts

## Differentiation Tips

### Support

Provide:

- fact family triangles
- place value charts
- worked examples
- teacher-guided story writing

Focus on related facts with ones, tens and hundreds.

### Extension

Provide:

- thousands examples
- larger addition facts
- missing-number fact families
- story problems that need checking, e.g. 'Write four related facts for 7,853 + 1,126.'

### Teaching as Inquiry

Observe which students:

- use basic facts to solve larger related facts
- identify the pattern across ones, tens, hundreds and thousands
- write four related facts from one addition fact
- know the whole and parts in a fact family
- write a subtraction story that matches an equation
- notice when a subtraction story does not make sense.

## Hands-On Activity 1 (10 minutes)

**Related Fact Ladder**

Students choose a basic subtraction fact and build a related fact ladder, e.g.

6 − 1 = 5

60 − 10 = 50

600 − 100 = 500

6000 − 1000 = 5000

Students explain the pattern.

## Hands-On Activity 2 (10 minutes)

**Four Facts**

Students use number cards to make an addition fact, then write the four related facts, e.g.:

54 + 61 = 115

61 + 54 = 115

115 − 54 = 61

115 − 61 = 54

Ask:

- Which number is the whole?
- Which numbers are the parts?
- How do the facts connect?

## Student Book Practice

Students complete **Student Book page 36 – Subtraction Facts**.

Focus:

- Using subtraction fact patterns
- Completing related subtraction facts
- Writing four related facts from one addition fact
- Writing subtraction problems
- Checking whether a subtraction story makes sense

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- If 9 − 4 = 5, what is 90 − 40?
- If 7 − 3 = 4, what is 700 − 300?
- What four facts can we write from 5 + 3 = 8?
- Why does Ari's story not make sense?
- How can addition help check subtraction?

### Reflect and Share

'How can knowing basic facts help us solve larger subtraction problems?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- using known facts to solve related facts
- recognising patterns in tens, hundreds and thousands
- writing four related equations
- checking whether subtraction stories make sense

Extend confident students by asking them to write related facts using four-digit numbers.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations, Equations and relationships**

**Practices**

- Adding and subtracting up to 4-digit numbers
- Recognising, continuing, creating and describing patterns

# DAILY LESSON PLAN Week 7 • Lesson 5

**Topic:** Mixed subtraction

In this lesson, students use a range of subtraction strategies. They subtract using a number line, solve vertical subtraction problems, answer subtraction stories, and connect subtraction to money and change.

## Learning Intention

Students will understand that different subtraction strategies can be used to solve subtraction problems.

## Success Criteria

- ✓ I can use a number line to subtract.
- ✓ I can subtract using a vertical method.
- ✓ I can solve subtraction stories.
- ✓ I can find change.
- ✓ I can choose a strategy that helps me solve the problem.

## Language Focus

**Key terms:** subtract, subtraction, number line, vertical method, difference, change, number sentence, story problem

**Sentence stems:**

- I used a number line because ___.
- I started at ___ and jumped back ___.
- The difference is ___.
- I used the vertical method by ___.
- I know my answer makes sense because ___.

## Launch Activity (5 minutes)

Display the example from the page: 56 − 24 = 32

Show the number line jumps. Ask:

- What number do we start at?
- Which way do we jump?
- What number do we land on?
- How does the number line show subtraction?

Say: 'Today we are using different subtraction strategies. We can use a number line, a vertical method or a number sentence to solve subtraction problems.'

**Assessment for Learning**

Ask:

- Which strategy would help with this problem?
- How do you know where to start?
- What does the difference mean?
- How can you check your answer?



# Explicit Instruction 10–12 minutes

## 1. Using a Number Line to Subtract

**I Do** • Model: 75 − 31 = ___

Explain: 'I start at 75. I jump back 3 tens and 1 one.'

Show: 75 → 45 → 44

Record: 75 − 31 = 44

**We Do** • Solve: 389 − 107 = ___. Ask:

- Where do we start?
- How many hundreds, tens and ones do we subtract?
- What number do we land on?

**You Do** • Students solve one problem using a number line. Check for understanding: 'Why do we jump backwards when subtracting?'

## 2. Using the Vertical Method

**I Do** • Model: 4,208 − 2,341 = ___

Explain: 'Line up the ones, tens, hundreds and thousands. Subtract each place.'

Model carefully, including regrouping if needed.

**We Do** • Solve one vertical subtraction together, e.g. 6,286 − 3,056 = ___

Ask:

- Are the digits lined up by place?
- Which place do we start with?
- Do we need to regroup?

**You Do** • Students solve one vertical subtraction problem. Check for understanding: 'How does place value help with the vertical method?'

## 3. Solving Subtraction Stories and Money Change

**I Do** • Model a story problem: 'Jo had 2,138 baby mice. She sold 1,452. How many did she have left?'

Record: 2,138 − 1,452 = ___

Explain: 'The words "sold" and "left" tell me this is subtraction.'

**We Do** • Discuss the money question: 'If you had $3, what could you buy from page 33? How much change would you get?'

Ask:

- What did you buy?
- What was the total cost?
- What subtraction will help find the change?

**You Do** • Students solve one subtraction story or money change problem. Check for understanding: 'What words helped you know to subtract?'

## Problem Solving & Reasoning

Discuss:

- When is a number line helpful?
- When is the vertical method helpful?
- Why must digits be lined up by place?
- How do you know a subtraction answer is reasonable?
- How is finding change the same as subtraction?

Encourage students to use: subtract, difference, number line, vertical method, change

## Differentiation Tips

### Support

Provide:

- number lines
- place value charts
- base-10 materials
- teacher-guided vertical subtraction

Focus on using one clear strategy and explaining each step.

### Extension

Provide:

- larger mixed subtraction problems
- multi-step money problems
- choice of strategy with written explanation, e.g. 'Choose two items from page 33 with $3. Find the change and explain your strategy.'

### Teaching as Inquiry

Observe which students:

- choose a suitable subtraction strategy
- use number line jumps accurately
- line up digits correctly in vertical subtraction
- regroup when needed
- identify subtraction in story problems
- calculate change accurately
- check if answers are reasonable.

## Hands-On Activity 1 (10 minutes)

**Strategy Match**

Students match subtraction problems to a helpful strategy:

- number line
- vertical method
- mental subtraction
- money/change

Students explain: 'I chose ___ because ___.'

## Hands-On Activity 2 (10 minutes)

**Solve and Check**

Students solve a mixed set of subtraction problems, then check using addition.

Example: 149 − 73 = 76

Check: 76 + 73 = 149

Ask:

- What strategy did you use?
- How did you check?
- Does your answer make sense?

## Student Book Practice

Students complete **Student Book page 37 – Mixed Subtraction**.

Focus:

- Using a number line
- Using a vertical subtraction method
- Solving subtraction stories
- Finding change
- Completing the mastery checklist

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is 75 − 31?
- Which way do we jump when subtracting?
- Why do we line up digits in vertical subtraction?
- What words tell us to subtract in a story problem?
- How do we find change?

### Reflect and Share

'How do you choose the best subtraction strategy?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- number line subtraction
- vertical subtraction
- lining up digits by place value
- solving subtraction stories
- finding change

Extend confident students by asking them to solve mixed subtraction problems using more than one strategy.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations, Financial mathematics**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known factor, place value and partitioning, or column methods

**Practices**

- Adding and subtracting up to four-digit numbers.
- Calculating change.
- Representing amounts of currency using different combinations of denominations.

## Unit: Number Operations/Financial Mathematics – Subtracting up to Four-Digit Numbers and Calculating Change

**Focus:** Using subtraction strategies to solve number and money problems, including calculating change, using number lines, applying related facts, writing subtraction number sentences and solving subtraction stories.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Change from Money** | Students understand that change is the amount left after a purchase. | Subtracts the cost from $1 or $3 and represents change accurately using coins. |
| **Subtraction Facts** | Students can recall and apply basic subtraction facts. | Solves subtraction facts accurately and uses known facts to solve related facts. |
| **Subtraction Stories** | Students understand subtraction as taking away or finding how many are left. | Identifies the starting amount, amount taken away and amount left. |
| **Number Lines** | Students can use a number line to subtract by jumping back. | Starts at the correct number, makes accurate jumps and records the difference. |
| **Vertical Subtraction** | Students can line up numbers by place value and subtract accurately. | Aligns digits correctly and regroups when needed. |
| **Related Facts and Patterns** | Students can use number patterns and fact families to connect addition and subtraction. | Writes related addition and subtraction equations and explains the pattern. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation Formative** | Watch students solve subtraction using number lines or vertical methods. | Do they choose a suitable strategy and follow the steps accurately? |
| **Oral Check** | Ask: 'How do you know this is subtraction?' or 'How can you check your answer?' | Listen for language such as subtract, difference, left, change, number line and equation. |
| **Written Work** | Review Student Book pp.33–37. | Check accuracy with change, subtraction facts, number lines, vertical subtraction and story problems. |
| **Practical Task** | Give students a small money problem using $1 or $3. | Can they calculate change and show it using coins? |
| **Exit Ticket/Quick Quiz** | Provide 5 short subtraction questions. | Identify students confident with subtraction strategies and those needing support. |



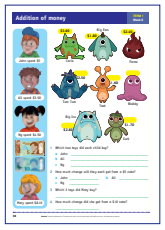
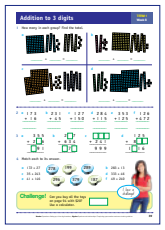
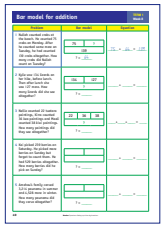
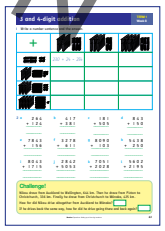
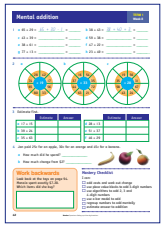
## Quick Quiz / Exit Ticket (5 Questions)

1. You have $1. You spend 40c. How much change do you get?
2. What is 75 − 31?
3. Use a related fact: if 9 − 4 = 5, what is 900 − 400?
4. Write a number sentence: 'Jo had 149 apples. She gave away 73. How many did she keep?'
5. What strategy would you use to solve 4,208 − 2,341?

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently calculating change from $1 or $3: | |
| Students accurately solving subtraction facts: | |
| Students using number lines to subtract: | |
| Students lining up digits correctly in vertical subtraction: | |
| Students using related facts and patterns: | |
| Students solving subtraction stories: | |
| Students checking answers using addition or estimation: | |
| Misconceptions noticed, such as subtracting from the wrong number or misaligning digits: | |
| Vocabulary to revisit: subtract, difference, change, left, number line, equation, vertical method: | |
| Adjustments for future lessons, such as more number line modelling or regrouping practice: | |

# Term 1, Week 8 Overview Number: Operations, Financial mathematics – Adding up to Four-Digit Numbers and Calculating Total Cost

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1**<br>**Addition of money** | Money amounts can be added to find a total cost and subtracted to find change. | ✓ Identify toy prices<br>✓ Add two or more money amounts<br>✓ Find toys that match a total amount<br>✓ Calculate change from $5 or $10 | – Add toy prices<br>– Match toy combinations to amounts spent<br>– Calculate change from a note<br>– Check totals and change | **Page 38**: Add toy prices, identify what each child bought and calculate change from $5 or $10.<br>  |
| **2**<br>**Addition to 3 digits** | Two- and three-digit numbers can be added by using place value. | ✓ Add two- and three-digit numbers<br>✓ Use hundreds, tens and ones<br>✓ Use vertical addition<br>✓ Complete missing-number equations<br>✓ Match equations to answers | – Add base-10 representations<br>– Use vertical addition<br>– Complete missing-number equations<br>– Match addition equations to totals | **Page 39**: Add base-10 representations, solve vertical addition, complete missing numbers and match answers.<br>  |
| **3**<br>**Bar model for addition** | A bar model can show the parts and total in an addition problem. | ✓ Identify the parts<br>✓ Identify the total<br>✓ Use a bar model<br>✓ Write an equation<br>✓ Find the missing number | – Read addition story problems<br>– Identify parts and totals<br>– Complete bar models<br>– Write matching equations<br>– Solve missing-number problems | **Page 40**: Complete bar models, write equations and solve addition problems in context.<br>  |
| **4**<br>**3- and 4-digit addition** | Three- and four-digit numbers can be added using place value. | ✓ Add three- and four-digit numbers<br>✓ Write a number sentence<br>✓ Use place value<br>✓ Use vertical addition<br>✓ Solve an addition word problem | – Write number sentences from base-10 pictures<br>– Add using vertical method<br>– Line up digits by place value<br>– Solve a distance word problem | **Page 41**: Write number sentences, add three- and four-digit numbers and solve the journey challenge.<br>  |
| **5**<br>**Mental addition** | Mental strategies can be used to add numbers efficiently. | ✓ Use mental strategies<br>✓ Regroup numbers<br>✓ Use place value<br>✓ Estimate first<br>✓ Solve money addition problems | – Use tidy-number strategies<br>– Split numbers into tens and ones<br>– Add with target circles<br>– Estimate before solving<br>– Solve money total and change problems | **Page 42**: Use mental strategies, estimate answers, solve money problems and complete the mastery checklist.<br>  |

# DAILY LESSON PLAN Week 8 • Lesson 1

**Topic:** Addition of money

In this lesson, students add money amounts to find the total cost of toys. They use the total spent to work out which two toys each child bought and calculate change from a $5 note or $10 note.

## Learning Intention

Students will understand that money amounts can be added to find a total cost and subtracted to find change.

## Success Criteria

- ✓ I can identify toy prices.
- ✓ I can add two or more money amounts.
- ✓ I can find which toys match a total amount.
- ✓ I can calculate change from $5 or $10.
- ✓ I can explain how I checked my answer.

## Language Focus

**Key terms:** money, dollars, cents, price, cost, total, spent, change, note, add, subtract

**Sentence stems:**

- The two toys cost ___ altogether.
- I know ___ bought ___ and ___ because ___.
- The total is ___.
- The change from $5 is ___.
- I checked by ___.

## Launch Activity (5 minutes)

Display two toy prices, such as Cario $3.60 and Big Ears $1.80

Ask:

- How much does each toy cost?
- How could we find the total cost?
- Will the total be more or less than $5?
- How could we find the change?

Say: 'Today we are adding money amounts to find totals. We will also subtract from a note to find change.'

**Assessment for Learning**

Ask:

- What does total mean?
- How do we add dollars and cents carefully?
- How do we know which toys match the amount spent?
- How can we check the change?



## Explicit Instruction (10–12 minutes)

### 1. Adding Two Money Amounts

**I Do** • Model adding two toy prices, e.g. Cario $3.60 + Big Ears $1.80

Record: $3.60 + $1.80 = $5.40

Explain: 'I add the dollars and cents. I line up the decimal points so the dollars and cents stay in the correct place.'

**We Do** • Add another pair together. Ask:

- What are the two prices?
- How many dollars?
- How many cents?
- What is the total?

**You Do** • Students choose two toy prices and find the total. Check for understanding: 'How did you keep the dollars and cents in the correct place?'

### 2. Matching Totals to Toys

**I Do** • Use John's amount: John spent $5.

Think aloud: 'I need two toys that add to $5. I can try $2.40 and $2.60 or $3.20 and $1.80.'

Model checking: $3.20 + $1.80 = $5.00

Say: 'So John could have bought Big Ears and another toy priced $3.20.'

**We Do** • Use Ali's amount: Ali spent $3.50.

Ask:

- Which two toy prices could add to $3.50?
- How can we check?
- Do we need to try more than one pair?

**You Do** • Students find one pair of toys for Ng or Mary. Check for understanding: 'How do you know the two toys match the amount spent?'

### 3. Calculating Change from a Note

**I Do** • Model: Ali spent $3.50. If Ali paid with a $5 note, the change is:

$5.00 − $3.50 = $1.50

Explain: 'Change is the money left after paying.'

**We Do** • Work through Ng's change from a $5 note. Ask:

- How much did Ng spend?
- What note did Ng use?
- What subtraction will help us find the change?
- What is the change?

**You Do** • Students calculate change for one child. Check for understanding: 'What should the total spent and the change add to?'

## Problem Solving & Reasoning

Discuss:

- How can you find two toys that match a total?
- Why is it important to line up dollars and cents?
- How can you check the total?
- How can you check the change?
- Could there be more than one answer?

Encourage students to use: price, total, spent, change, dollars, cents

## Differentiation Tips

### Support

Provide:

- play money
- price cards
- place value charts for dollars and cents
- teacher-guided pair matching

Focus on adding two prices with dollars and cents.

### Extension

Provide:

- three-toy challenges
- multiple possible combinations
- change from $10 or $20, e.g. 'Mary spent $8.10. Find three toys she could have bought and calculate her change from $10.'

### Teaching as Inquiry

Observe which students:

- read money amounts correctly
- add dollars and cents accurately
- find toy combinations that match a total
- calculate change from a note
- check by adding total and change
- confuse dollars and cents when adding.

## Hands-On Activity 1 (10 minutes)

**Toy Total Match**

Students use toy price cards. They choose two toys and add the prices.

| Toy 1 | Toy 2 | Total |
|---|---|---|
| ___ | ___ | $___ |

Students explain: 'The two toys cost ___ altogether.'

## Hands-On Activity 2 (10 minutes)

**Find the Change**

Students choose a child's total spent and calculate the change from a $5 or $10 note.

| Child | Spent | Note | Change |
|---|---|---|---|
| John | $5.00 | $5.00 | $0.00 |
| Ali | $3.50 | $5.00 | $1.50 |
| Ng | $4.50 | $5.00 | $0.50 |
| Mary | $8.10 | $10.00 | $1.90 |

Ask:

- What was spent?
- What note was used?
- How much change?
- How can you check?

## Student Book Practice

Students complete **Student Book page 38 – Addition of Money**.

Focus:

- Adding toy prices
- Finding two toys that match a total spent
- Calculating change from a $5 note
- Finding three toys that match a total spent
- Calculating change from a $10 note

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does total mean?
- What does change mean?
- How much change from $5 if you spend $3.50?
- How do you check two prices add to the right amount?
- Why do we keep dollars and cents lined up?

### Reflect and Share

'How can adding and subtracting help us solve money problems?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- reading money amounts
- adding dollars and cents
- matching prices to totals
- subtracting to find change

Extend confident students by asking them to find all possible toy combinations for a given total.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Financial Mathematics**

**Practices**

- Calculating the total cost of several items costing whole-dollar amounts and with different prices, or of multiples of the same item, including giving change.

# DAILY LESSON PLAN Week 8 • Lesson 2

**Topic:** Addition to 3 digits

In this lesson, students add two- and three-digit numbers. They use base-10 representations, vertical addition, missing-number equations and matching activities to find totals.

## Learning Intention

Students will understand that two- and three-digit numbers can be added by using place value.

## Success Criteria

- ✓ I can add two- and three-digit numbers.
- ✓ I can use hundreds, tens and ones to find a total.
- ✓ I can use a vertical addition method.
- ✓ I can complete missing-number equations.
- ✓ I can match addition equations to their answers.

## Language Focus

**Key terms:** add, addition, total, hundreds, tens, ones, place value, vertical method, equation

**Sentence stems:**

- I can see ___ hundreds, ___ tens and ___ ones.
- The total is ___.
- I added the ones first, then the tens, then the hundreds.
- The missing number is ___ because ___.
- I checked my answer by ___.

## Launch Activity (5 minutes)

Display a base-10 picture showing hundreds, tens and ones. Ask:

- How many hundreds can you see?
- How many tens can you see?
- How many ones can you see?
- What number is shown?
- How could we add this to another number?

Say: 'Today we are adding two- and three-digit numbers. We will use hundreds, tens and ones to help us find the total.'

**Assessment for Learning**

Ask:

- How does place value help us add?
- Why do we line up the ones, tens and hundreds?
- What happens if there are more than 10 ones or 10 tens?
- How can you check that your total makes sense?



## Explicit Instruction (10–12 minutes)

### 1. Adding with Hundreds, Tens and Ones

**I Do** • Display a base-10 representation.

Explain: 'I count the hundreds, tens and ones in each group. Then I combine them to find the total.'

Model: 123 + 145 = 268

Say: 'I add the ones, then the tens, then the hundreds.'

**We Do** • Work through another base-10 picture together. Ask:

- What is the first number?
- What is the second number?
- How many hundreds, tens and ones altogether?
- What is the total?

**You Do** • Students use a base-10 picture or materials to add two numbers. Check for understanding: 'How did you use hundreds, tens and ones to find the total?'

### 2. Using the Vertical Addition Method

**I Do** • Model: 173 + 16 = ___. Write vertically and line up the ones and tens.

Explain: 'I line up the digits by place value. I add the ones first, then the tens, then the hundreds.'

Record the total.

**We Do** • Solve: 231 + 45 = ___

Ask:

- Where should the 45 go?
- Which digits are in the ones place?
- Which digits are in the tens place?
- What is the total?

**You Do** • Students solve one vertical addition equation independently. Check for understanding: 'Why is it important to line up the digits correctly?'

### 3. Completing Missing-Number Equations

**I Do** • Display a missing-number equation from the page.

Example: 355 + 2☐6 = ☐91

Explain: 'I use place value to work out the missing digits. I check each place: ones, tens and hundreds.'

**We Do** • Complete one missing-number equation together.

Ask: What digit is missing?

- Which place is it in?
- How can we check the total?

**You Do** • Students complete one missing-number equation or match an equation to its answer. Check for understanding: 'How did you know which digit was missing?'

## Problem Solving & Reasoning

Discuss:

- Why do we add ones, tens and hundreds separately?
- Why do digits need to be lined up by place value?
- How can a base-10 picture help us add?
- How can we check a missing-number equation?
- Which equations have totals close to 300?

Encourage students to use: add, total, hundreds, tens, ones, place value, equation

## Differentiation Tips

### Support

Provide:

- base-10 materials
- place value charts
- worked examples
- teacher-guided vertical addition

Focus on adding without regrouping before moving to regrouping.

### Extension

Provide:

- missing-number equations
- larger three-digit addition
- challenge using money from the previous lesson, e.g. 'Use the toy prices from Lesson 1. Can you buy all the toys on page 38 with $20?'

### Teaching as Inquiry

Observe which students:

- identify hundreds, tens and ones
- add base-10 representations accurately
- line up digits by place value
- use the vertical method correctly
- complete missing-number equations
- need support with regrouping.

## Hands-On Activity 1 (10 minutes)

**Build and Add**

Students use base-10 materials to build two numbers. They record:

| First Number | Second Number | Total |
|---|---|---|
| ___ | ___ | ___ |

Students explain: 'I added the hundreds, tens and ones to find the total.'

## Hands-On Activity 2 (10 minutes)

**Match the Total**

Students match addition equations to answer cards. Examples:

- 172 + 27
- 283 + 13
- 35 + 243
- 333 + 46

Students check by solving the equation.

## Student Book Practice

Students complete **Student Book page 39 – Addition to 3 Digits**.

Focus:

- Adding base-10 representations
- Using vertical addition
- Completing missing-number equations
- Matching equations to answers
- Solving the calculator challenge

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is the total of 173 + 16?
- Why do we line up digits in vertical addition?
- What do we add first?
- How can base-10 blocks help us add?
- How can we check a missing-number equation?

### Reflect and Share

'How does place value help us add two- and three-digit numbers?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- identifying hundreds, tens and ones
- lining up digits by place value
- adding ones, tens and hundreds carefully
- checking totals

Extend confident students by asking them to solve missing-number equations and explain their reasoning.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number, Algebra

**Operations, Equations and relationships**

**Practices**

- Adding and subtracting up to four-digit numbers
- Completing open number sentences involving addition and subtraction

# DAILY LESSON PLAN Week 8 • Lesson 3

**Topic:** Bar model for addition

In this lesson, students use bar models to represent addition problems. They identify the known parts and unknown total or missing part, then write an equation to match the story.

## Learning Intention

Students will understand that a bar model can show the parts and total in an addition problem.

## Success Criteria

- ✓ I can identify the parts in an addition problem.
- ✓ I can identify the total.
- ✓ I can use a bar model to show the problem.
- ✓ I can write an equation to match a bar model.
- ✓ I can find the missing number.

## Language Focus

**Key terms:** bar model, part, total, altogether, equation, missing number, add

**Sentence stems:**

- The parts are ___ and ___.
- The total is ___.
- The missing part is ___.
- The equation is ___ + ___ = ___.
- I know this because ___.

## Launch Activity (5 minutes)

Display the first problem: 'Nullah counted 75 crabs on Monday. After Tuesday, he had counted 139 crabs altogether.'

Ask:

- What do we know?
- What is missing?
- Does 139 show a part or the total?
- How can the bar model help us?

Say: 'Today we are using bar models to show addition problems. A bar model helps us see the parts and the total.'

**Assessment for Learning**

Ask:

- Which numbers are parts?
- Which number is the total?
- What does the question ask us to find?
- What equation matches the bar model?



## Explicit Instruction (10–12 minutes)

### 1. Identifying Parts and Total

**I Do** • Model the first problem.

Explain: '75 is one part. The missing number is the other part. 139 is the total.'

Record: 75 + ? = 139

Explain: 'To find the missing part, I can think: 75 and what makes 139?'

**We Do** • Read the second problem together. Ask:

- What is the first part?
- What is the second part?
- What are we finding?
- Is the answer a part or the total?

**You Do** • Students underline the numbers in one problem and label them as part or total. Check for understanding: 'How do you know which number is the total?'

### 2. Drawing and Reading Bar Models

**I Do** • Draw a bar model with two parts and one total.

Use: 134 + 127 = ?

Explain: 'The top parts show 134 and 127. The whole bar shows the total.'

**We Do** • Complete a bar model together for: 22 + 36 + 38 = ?

Ask:

- How many parts are there?
- Where do the parts go?
- Where does the total go?

**You Do** • Students complete one bar model from the page. Check for understanding: 'What does the long bar show?'

### 3. Writing Equations from Bar Models

**I Do** • Use a completed bar model and write the matching equation, e.g. 134 + 127 = 261

Explain: 'The equation matches the parts and total in the bar model.'

**We Do** • Write an equation for a three-part bar model. Ask:

- What are the parts?
- What operation do we use?
- What is the total?
- How should we write the equation?

**You Do** • Students write an equation to match one bar model. Check for understanding: 'How does your equation match the bar model?'

## Problem Solving & Reasoning

Discuss:

- How does a bar model help us understand a story problem?
- How do we know if we are finding a total or a missing part?
- Why is 'altogether' important?
- How can we check the missing number?

Encourage students to use: part, total, altogether, equation, missing number

## Differentiation Tips

### Support

Provide:

- pre-drawn bar models
- highlighted story problems
- number cards for parts and total
- teacher-guided reading of problems

Focus on identifying the parts and total before solving.

### Extension

Provide:

- three-part bar models
- missing-part problems
- four-digit addition problems, e.g. 'Write your own addition story and draw a bar model to match it.'

### Teaching as Inquiry

Observe which students:

- identify parts and total
- use a bar model to show the problem
- write an equation that matches the model
- solve missing-number problems
- confuse a part with the total.

## Hands-On Activity 1 (10 minutes)

**Build the Bar Model**

Students use strips of paper or drawn boxes to make a bar model. They label:

- part
- part
- total.

Students explain: 'The parts are ___ and ___. The total is ___.'

## Hands-On Activity 2 (10 minutes)

**Match Story, Bar Model and Equation**

Students match cards:

- story problem
- bar model
- equation.

Ask:

- What are the parts?
- What is the total?
- How do you know they match?

## Student Book Practice

Students complete **Student Book page 40 – Bar Model for Addition**.

Focus:

- Reading addition story problems
- Completing bar models
- Identifying parts and totals
- Writing matching equations
- Finding missing numbers

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does a bar model show?
- What does the long bar show?
- What does 'altogether' mean?
- What equation matches 134 and 127 altogether?
- How can you find a missing part?

### Reflect and Share

'How can a bar model help us solve an addition problem?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- identifying parts and totals
- reading addition story problems carefully
- writing equations from bar models
- finding missing parts

Extend confident students by asking them to create their own bar model problems using three or more parts.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number, Algebra

**Operations, Equations and relationships**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods.

**Practices**

- Adding and subtracting up to four-digit numbers.

# DAILY LESSON PLAN Week 8 • Lesson 4

**Topic:** 3- and 4-digit addition

In this lesson, students add three- and four-digit numbers using base-10 representations and vertical addition. They write number sentences, find totals and solve an addition word problem.

## Learning Intention

Students will understand that three- and four-digit numbers can be added using place value.

## Success Criteria

- ✓ I can add three- and four-digit numbers.
- ✓ I can write a number sentence.
- ✓ I can use place value to add accurately.
- ✓ I can use a vertical addition method.
- ✓ I can solve an addition word problem.

## Language Focus

**Key terms:** add, addition, total, number sentence, hundreds, tens, ones, thousands, place value, vertical method

**Sentence stems:**

- The number sentence is ___ + ___ = ___.
- I added the ones, tens, hundreds and thousands.
- I lined up the digits by place value.
- The total is ___.
- I checked my answer by ___.

## Launch Activity (5 minutes)

Display the example from the page: 230 + 24 = 254

Ask:

- What number is shown by the base-10 blocks?
- What number is being added?
- How do the blocks help us find the total?
- What number sentence matches the picture?

Say: 'Today we are adding three- and four-digit numbers. We will use place value to help us write number sentences and find totals.'

**Assessment for Learning**

Ask:

- What number is represented?
- How do you know which digits to add?
- Why do we line up digits by place value?
- How can we check that the total makes sense?



## Explicit Instruction (10–12 minutes)

### 1. Writing Number Sentences from Base-10 Pictures

**I Do** • Model reading a base-10 picture.

Explain: 'The first picture shows 230. The second picture shows 24. I write the number sentence 230 + 24 = 254.'

Point to the hundreds, tens and ones.

**We Do** • Work through another base-10 picture together. Ask:

- How many hundreds or thousands can you see?
- How many tens can you see?
- How many ones can you see?
- What number sentence matches the picture?

**You Do** • Students write one number sentence from a base-10 picture. Check for understanding: 'How did you know what number the blocks showed?'

### 2. Using the Vertical Addition Method

**I Do** • Model: 264 + 124 = ___

Write the numbers vertically and line up the ones, tens and hundreds.

Explain: 'I start with the ones, then add the tens, then the hundreds.'

**We Do** • Solve: 417 + 381 = ___. Ask:

- Are the digits lined up by place value?
- Which place do we add first?
- Do we need to regroup?

**You Do** • Students solve one vertical addition equation. Check for understanding: 'Why is it important to line up the digits?'

### 3. Solving Addition Word Problems

**I Do** • Read the challenge problem: 'Nikau drove from Auckland to Wellington, then to Christchurch, then to Wanaka.'

Explain: 'To find how far Nikau drove altogether, I add the distances.'

Model setting up: 644 + 336 + 425 = ___

**We Do** • Discuss the second part: 'If he drives back the same way, what do we need to do?' Ask:

- What is the total distance one way?
- What does going there and back mean?
- What equation could we write?

**You Do** • Students solve a shorter addition word problem or complete one part of the challenge. Check for understanding: 'What words helped you know to add?'

## Problem Solving & Reasoning

Discuss:

- How do base-10 pictures show addition?
- Why do we line up ones, tens, hundreds and thousands?
- When do we need to regroup?
- How do we know a total is reasonable?

Encourage students to use: add, total, number sentence, place value, vertical method

## Differentiation Tips

### Support

Provide:

- base-10 materials
- place value charts
- lined-up vertical addition templates
- teacher-guided addition

Focus on adding three-digit numbers before moving to four-digit numbers.

### Extension

Provide:

- three-addend problems
- four-digit word problems
- there-and-back journey problems, e.g. 'Create your own journey with three distances and find the total distance.'

### Teaching as Inquiry

Observe which students:

- read base-10 representations accurately
- write matching number sentences
- line up digits by place value
- add three- and four-digit numbers accurately
- regroup when needed
- solve addition word problems.

## Hands-On Activity 1 (10 minutes)

**Build and Write**

Students use base-10 blocks or place value cards to build two numbers. They write:

___ + ___ = ___

Students explain: 'I used hundreds, tens and ones to find the total.'

## Hands-On Activity 2 (10 minutes)

**Vertical Addition Check**

Students solve vertical addition equations and check with a partner. Ask:

- Are the digits lined up correctly?
- Did you start with the ones?
- Does the total make sense?

## Student Book Practice

Students complete **Student Book page 41 – 3- and 4-Digit Addition**.

Focus:

- Writing number sentences from base-10 pictures
- Adding three- and four-digit numbers
- Using vertical addition
- Solving a journey word problem

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is 264 + 124?
- Why do we line up digits by place value?
- What do we add first in vertical addition?
- What does altogether mean?
- How can we check a total?

### Reflect and Share

'How does place value help us add larger numbers?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- writing number sentences from base-10 pictures
- lining up digits by place value
- adding ones, tens, hundreds and thousands
- solving addition word problems

Extend confident students by asking them to solve three-addend and four-digit addition problems.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods.
- Standard written algorithms rely on place value, regrouping, and renaming.

**Practices**

- Adding and subtracting up to four-digit numbers.

# DAILY LESSON PLAN Week 8 • Lesson 5

**Topic:** Mental addition

In this lesson, students use mental strategies to add two- and three-digit numbers. They estimate first, use place value and regrouping, and solve money problems involving total cost and change.

## Learning Intention

Students will understand that mental strategies can be used to add numbers efficiently.

## Success Criteria

- ✓ I can use mental strategies to add.
- ✓ I can regroup numbers to make addition easier.
- ✓ I can use place value to add to three-digit numbers.
- ✓ I can estimate before finding an answer.
- ✓ I can solve money addition problems.

## Language Focus

**Key terms:** mental addition, add, total, estimate, answer, regroup, place value, cost, change

**Sentence stems:**

- I changed ___ to ___ to make it easier.
- I added ___ first, then ___.
- My estimate is ___.
- The total cost is ___.
- The change from $2 is ___.

## Launch Activity (5 minutes)

Display: 65 + 29 = ___

Ask:

- What could we change 29 to that is easier to add?
- If we add 30, what do we need to do after?
- How can this help us add mentally?

Say: 'Today we are using mental addition strategies. We can regroup numbers, use place value and estimate before finding the answer.'

**Assessment for Learning**

Ask:

- What mental strategy did you use?
- How did you regroup the number?
- Why is estimating useful?
- How can you check if your answer is reasonable?



## Explicit Instruction (10–12 minutes)

### 1. Regrouping to Make a Tidy Number

**I Do** • Model: 65 + 29
Explain: 'I can change 29 to 30 because 30 is easier to add.'
Record: 65 + 30 − 1 = 94

**We Do** • Solve: 38 + 43
Ask:

- What part could we add first?
- Could we split 43 into 40 and 3?
- What is 38 + 40?
- What do we add next?

**You Do** • Students solve one addition using a mental strategy. Check for understanding: 'How did regrouping make the addition easier?'

### 2. Using Place Value to Add Mentally

**I Do** • Use a target-circle example.
Model: 28 + 19
Explain: 'I add tens first, then ones. 28 + 10 = 38 and 38 + 9 = 47.'

**We Do** • Use another number from the circle. Ask:

- What number do we start with?
- What number are we adding?
- How can we split the number into tens and ones?
- What is the total?

**You Do** • Students choose numbers from a circle and add the centre number mentally. Check for understanding: 'What tens and ones did you add?'

### 3. Estimating and Solving Money Problems

**I Do** • Model an estimate first, e.g. 39 + 24
Explain: 'I estimate 40 + 20 = 60. Then I find the exact answer: 39 + 24 = 63. My answer is close to my estimate.'
Then model the money problem: 25c + 30c + 45c = $1.00

**We Do** • Estimate and solve one problem together. Ask:

- What is a good estimate?
- What is the exact answer?
- Is the answer reasonable?
- How much change from $2?

**You Do** • Students estimate, solve and check one addition problem. Check for understanding: 'How did your estimate help you check your answer?'

## Problem Solving & Reasoning

Discuss:

- Why is 65 + 30 − 1 the same as 65 + 29?
- When is it helpful to split a number into tens and ones?
- Why do we estimate before solving?
- How can addition help us find total cost?

Encourage students to use: mental addition, estimate, total, regroup, place value

## Differentiation Tips

### Support

Provide:

- number lines
- tens frames or place value charts
- teacher-guided mental strategies
- simpler two-digit additions

Focus on adding tens first, then ones.

### Extension

Provide:

- three-digit mental addition
- money totals and change
- 'working backwards' problems, e.g. 'Manaia spent exactly $7.20. Which items could she have bought?'

### Teaching as Inquiry

Observe which students:

- use mental strategies rather than counting by ones
- regroup to make tidy numbers
- split numbers into tens and ones
- estimate before solving
- solve money addition problems
- explain their strategy clearly.

## Hands-On Activity 1 (10 minutes)

**Mental Strategy Share**

Students solve a set of two-digit additions mentally. They explain one strategy to a partner: 'I solved ___ by ___.'

Examples:

- make a tidy number
- split into tens and ones
- add in parts.

## Hands-On Activity 2 (10 minutes)

**Estimate, Add, Check**

Students complete addition problems by estimating first, then finding the exact answer.

| Problem | Estimate | Answer |
|---|---|---|
| 17 + 15 | | |
| 39 + 24 | | |
| 35 + 63 | | |

Ask:

- Is your answer close to your estimate?
- Does your answer make sense?

## Student Book Practice

Students complete **Student Book page 42 – Mental Addition**.

Focus:

- Using mental addition strategies
- Adding with circle targets
- Estimating before finding the answer
- Solving money total and change problems
- Completing the mastery checklist

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How can you solve 65 + 29 mentally?
- What is 38 + 43?
- Why do we estimate first?
- What is 25c + 30c + 45c?
- How much change from $2 if you spend $1?

### Reflect and Share

'Which mental addition strategy helped you today?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- making tidy numbers
- splitting numbers into tens and ones
- estimating before solving
- explaining mental strategies

Extend confident students by asking them to solve and explain three-digit mental addition and work-backwards money problems.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Number

**Operations**

**Knowledge**

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods.
- Standard written algorithms rely on place value, regrouping, and renaming.

**Practices**

- Adding and subtracting up to four-digit numbers.

## Unit: Number: Operations, Financial mathematics; Algebra: Equations and relationships – Adding up to Four-Digit Numbers and Calculating Total Cost

**Focus:** Using addition strategies to solve number and money problems, including adding money amounts, using place value, completing bar models, writing equations, estimating and solving problems involving totals and change.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Addition of Money** | Students understand that money amounts can be added to find a total cost. | Adds prices accurately and calculates change from $5 or $10. |
| **Place Value Addition** | Students use hundreds, tens, ones and thousands to add numbers. | Correctly adds two-, three- and four-digit numbers using place value. |
| **Vertical Addition** | Students can line up digits by place value and add accurately. | Aligns ones, tens, hundreds and thousands correctly and regroups when needed. |
| **Bar Models** | Students understand that a bar model shows parts and total. | Labels parts and total correctly and writes a matching equation. |
| **Mental Addition** | Students use mental strategies to add efficiently. | Uses strategies such as making tidy numbers, splitting into tens and ones and regrouping. |
| **Estimation** | Students estimate before solving to check if an answer is reasonable. | Gives a sensible estimate and compares it with the exact answer. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation Formative** | Watch students solve addition problems using materials, bar models or vertical method. | Do they choose a suitable strategy and explain their thinking? |
| **Oral Check** | Ask: 'What are the parts and total?' or 'How did you add this mentally?' | Listen for language such as add, total, parts, equation, estimate, dollars and cents. |
| **Written Work** | Review Student Book pp.38–42. | Check accuracy with money totals, bar models, vertical addition, mental strategies and estimation. |
| **Practical Task** | Give students toy prices and ask them to find a total and change. | Can they add prices accurately and subtract from a note to find change? |
| **Exit Ticket/ Quick Quiz** | Provide 5 short addition questions. | Identify students confident with addition strategies and those needing support. |



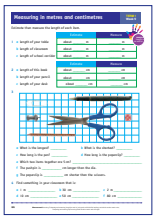
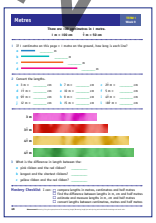
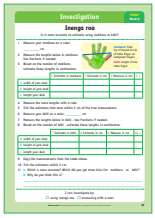
## Quick Quiz / Exit Ticket (5 Questions)

1. What is $3.50 + $1.20?
2. What is 173 + 16?
3. In a bar model, what does the long bar show?
4. What is 644 + 336 + 425?
5. Estimate first, then solve: 39 + 24.

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently adding money amounts: | |
| Students calculating change from $5 or $10: | |
| Students using place value to add two-, three- and four-digit numbers: | |
| Students lining up digits correctly in vertical addition: | |
| Students identifying parts and totals in bar models: | |
| Students writing equations to match problems or models: | |
| Students using mental addition strategies: | |
| Students estimating before solving: | |
| Misconceptions noticed, such as misaligning digits or confusing parts and totals: | |
| Vocabulary to revisit: add, total, part, equation, estimate, regroup, dollars, cents, change: | |
| Adjustments for future lessons, such as more place value modelling or mental strategy sharing: | |

# Term 1, Week 9 Overview
## Measurement – Estimating, Measuring and Comparing Length

| Lesson & Topic | Learning Intention | Success Criteria | Main Activities | Student Book Practice |
|---|---|---|---|---|
| **1**<br>**Metres** | Metres can be used to measure and compare height. | ✓ Read heights in metres<br>✓ Compare heights using taller and shorter<br>✓ Find the difference between heights<br>✓ Order objects from shortest to tallest | – Read a metre scale<br>– Compare animal heights<br>– Find height differences<br>– Solve combined height problems<br>– Order animals by height | **Page 43**: Read heights in metres, compare animals, find differences and order from shortest to tallest.<br>  |
| **2**<br>**Measuring in metres and centimetres** | Metres and centimetres can be used to estimate, measure and compare length. | ✓ Estimate length in metres and centimetres<br>✓ Measure length using metres and centimetres<br>✓ Compare lengths<br>✓ Identify longest and shortest objects | – Choose metres or centimetres<br>– Estimate then measure classroom objects<br>– Compare object lengths on a grid<br>– Find classroom objects that match given lengths | **Page 44**: Estimate and measure in metres and centimetres, compare object lengths and complete a measurement hunt.<br>  |
| **3**<br>**Measuring and estimating length** | Metres and centimetres are used to estimate and measure length. | ✓ Choose metres or centimetres<br>✓ Estimate a sensible length<br>✓ Measure to the nearest centimetre<br>✓ Compare lengths using metres and centimetres | – Use a number bank to choose sensible measurements<br>– Estimate using known measurements<br>– Measure lines to the nearest centimetre<br>– Compare lengths and units | **Page 45**: Complete measurement sentences, estimate bus length and height and measure lines to the nearest centimetre.<br>  |
| **4**<br>**Metres** | Metres can be converted into centimetres. | ✓ Explain that 1 m = 100 cm<br>✓ Explain that ½ m = 50 cm<br>✓ Convert metres to centimetres<br>✓ Compare lengths<br>✓ Find the difference between lengths | – Convert metres to centimetres<br>– Convert half metres<br>– Compare ribbon lengths<br>– Find differences between lengths<br>– Complete mastery checklist | **Page 46**: Convert metres and half metres to centimetres, compare ribbon lengths and find differences.<br>  |
| **5**<br>**Investigation: Inenga roa** | Familiar objects or body parts can be used as benchmarks to estimate length. | ✓ Measure matikara and kōiti<br>✓ Use matikara and kōiti to estimate length<br>✓ Estimate in centimetres<br>✓ Measure with a ruler<br>✓ Compare estimate with actual measurement | – Measure matikara and kōiti<br>– Estimate desk measurements using body-part benchmarks<br>– Measure with a ruler<br>– Tick estimates within 2 cm<br>– Decide which benchmark was more accurate | **Page 47**: Investigate estimating length using matikara and kōiti, measure with a ruler and compare accuracy.<br>  |

# DAILY LESSON PLAN Week 9 • Lesson 1

**Topic:** Metres

In this lesson, students compare and order heights using metres. They read a height scale, identify taller and shorter objects, and solve simple difference problems using whole-number metre measurements.

## Learning Intention

Students will understand that metres can be used to measure and compare height.

## Success Criteria

- ✓ I can read heights in metres.
- ✓ I can compare heights using taller and shorter.
- ✓ I can find the difference between two heights.
- ✓ I can order objects from shortest to tallest.
- ✓ I can explain my thinking using metres.

## Language Focus

**Key terms:** metre, height, taller, tallest, shorter, shortest, compare, order, difference

**Sentence stems:**

- The ___ is ___ metres tall.
- The ___ is taller than the ___.
- The ___ is shorter than the ___.
- The difference is ___ metres.
- From shortest to tallest, the order is ___.

## Launch Activity (5 minutes)

Display the height picture and scale. Ask:

- What unit is being used?
- What numbers can you see on the scale?
- Which animal looks tallest?
- Which animal looks shortest?

Say: 'Today we are using metres to compare height. We will read the scale, compare animals and order them from shortest to tallest.'

**Assessment for Learning**

Ask:

- How do you know how tall the animal is?
- Which is taller?
- Which is shorter?
- How can you find how much taller one object is than another?



## Explicit Instruction (10–12 minutes)

### 1. Reading Heights in Metres

**I Do** • Point to the metre scale on the right side of the page. Explain: 'The scale shows height in metres. I look across from the top of the animal to the scale to estimate its height.'
Model reading one height: 'The giraffe is about 5 metres tall.'

**We Do** • Read the height of the elephant together. Ask:

- Where does the elephant reach on the scale?
- Is it closer to 3 metres or 4 metres?
- What height should we record?

**You Do** • Students choose one animal and record its height in metres. Check for understanding: 'How did you use the scale to read the height?'

### 2. Comparing Heights

**I Do** • Compare two animals, e.g. 'The giraffe is taller than the elephant. The elephant is shorter than the giraffe.'
Model finding a difference: 'If the giraffe is 5 metres and the elephant is 3 metres, the difference is 2 metres.'

**We Do** • Compare the polar bear and Tom. Ask:

- How tall is the polar bear?
- How tall is Tom?
- Which is taller?
- How much taller?

**You Do** • Students compare two animals using taller, shorter and metres.Check for understanding: 'What operation helped you find the difference?'

### 3. Ordering from Shortest to Tallest

**I Do** • Model ordering three items, e.g. 'Dog, Tom, polar bear. I start with the shortest and end with the tallest.'
Explain: 'To order heights, I compare the metre measurements.'

**We Do** • Order four animals together. Ask:
Which is shortest?

- Which comes next?
- Which is tallest?
- How do you know?

**You Do** • Students order all animals from shortest to tallest. Check for understanding: 'How did the metre measurements help you order the animals?'

## Problem Solving & Reasoning

Discuss:

- Why is the brachiosaurus the tallest?
- How can we find how much taller one animal is?
- If Tom stood on the elephant's back, how high would he be?
- Are all dogs the same height? How do you know?

Encourage students to use: metres, taller, shorter, tallest, shortest, difference

## Differentiation Tips

### Support

Provide:

- number lines from 0 to 12
- metre rulers or tape measures
- teacher-guided reading of the scale
- sentence stems for comparison

Focus on reading whole-number heights and comparing two objects.

### Extension

Provide:

- 'How much taller?' problems
- combined height problems
- ordering challenge with estimated heights, e.g. 'If Tom stood on the elephant's back, what height would they reach together?'

### Teaching as Inquiry

Observe which students:

- read the metre scale accurately
- compare heights using taller and shorter
- find the difference between two heights
- order heights from shortest to tallest
- confuse tallest with shortest
- need support estimating from a scale.

## Hands-On Activity 1 (10 minutes)

**Height Compare**

Students use the picture to choose two animals and compare them. They record:

| Animal 1 | Animal 2 | Comparison |
|---|---|---|
| ___ | ___ | ___ is taller than ___ |

Students explain: 'I know because ___ is ___ metres and ___ is ___ metres.'

## Hands-On Activity 2 (10 minutes)

**Order the Animals**

Students write the animals in order from shortest to tallest. They use the scale to check each height before recording the order. Ask:

- Which is shortest?
- Which is tallest?
- Which animals are between them?

## Student Book Practice

Students complete **Student Book page 43 – Metres**.

Focus:

- Reading heights in metres
- Comparing taller and shorter
- Finding differences in height
- Solving combined height problems
- Ordering animals from shortest to tallest

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What unit did we use to measure height?
- Which animal is tallest?
- Which animal is shortest?
- How do we find how much taller one animal is?
- What does shortest to tallest mean?

### Reflect and Share

'How can a metre scale help us compare height?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- reading heights from a metre scale
- using taller and shorter correctly
- finding the difference between two heights
- ordering objects by height

Extend confident students by asking them to create their own height comparison questions.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Measurement

**Measuring**

**Knowledge**

- Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount.

# DAILY LESSON PLAN Week 9 • Lesson 2

**Topic:** Measuring in metres and centimetres

In this lesson, students estimate and measure length using metres and centimetres. They compare object lengths, find classroom items that match given measurements, and use labelled markings on a grid to answer measurement questions.

## Learning Intention

Students will understand that metres and centimetres can be used to estimate, measure and compare length.

## Success Criteria

- ✓ I can estimate length in metres and centimetres.
- ✓ I can measure length using metres and centimetres.
- ✓ I can compare lengths.
- ✓ I can identify the longest and shortest object.
- ✓ I can find classroom objects that match a given length.

## Language Focus

**Key terms:** metre, centimetre, length, estimate, measure, longest, shortest, longer, shorter, compare

**Sentence stems:**

- I estimate the length is about ___.
- I measured the length as ___.
- The ___ is longer than the ___.
- The ___ is shorter than the ___.
- I know because ___.

## Launch Activity (5 minutes)

Show a metre ruler and a 30 cm ruler. Ask:

- Which tool would we use to measure a table?
- Which tool would we use to measure a pencil?
- When would metres be useful?
- When would centimetres be useful?

Say: 'Today we are estimating first, then measuring. We use metres for longer lengths and centimetres for shorter lengths.'

**Assessment for Learning**

Ask:

- Is metres or centimetres the best unit to use?
- What is your estimate?
- How close was your estimate to the measurement?
- Which object is longest?
- Which object is shortest?



# Explicit Instruction (10–12 minutes)

## 1. Choosing Metres or Centimetres

**I Do** • Model choosing a unit.
Explain: 'I would measure the classroom in metres because it is long. I would measure a pencil in centimetres because it is short.'

**We Do** • Discuss items from the page. Ask:

- Should we measure a school corridor in metres or centimetres?
- Should we measure a book in metres or centimetres?
- Why?

**You Do** • Students sort items into two groups: measure in metres and measure in centimetres. Check for understanding: 'How did you choose the unit?'

## 2. Estimating Then Measuring

**I Do** • Model estimating and measuring a desk.
Say: 'My estimate is about 80 cm. Now I measure carefully from one end to the other.'
Record both estimate and measurement.

**We Do** • Estimate and measure one classroom object together. Ask:

- What is a sensible estimate?
- Where should the measuring tool start?
- What is the measurement?

**You Do** • Students estimate and measure one object in metres or centimetres. Check for understanding: 'Was your estimate close to your measurement?'

## 3. Comparing and Finding Lengths

**I Do** • Use the grid picture.
Explain: 'I compare the objects by looking at their lengths on the grid. I can find the longest and shortest.'
Model answering: 'The scissors are longer than the paperclip.'

**We Do** • Answer one comparison together. Ask:

- Which object is longest?
- Which object is shortest?
- How many centimetres longer or shorter?

**You Do** • Students compare two objects and complete a sentence. Check for understanding: 'How did the grid help you compare?'

## Problem Solving & Reasoning

Discuss:

- Why do we estimate before measuring?
- Why is a metre useful for long objects?
- Why is a centimetre useful for short objects?
- How can we find the difference between two lengths?

Encourage students to use: metres, centimetres, estimate, measure, longer, shorter

## Differentiation Tips

### Support

Provide:

- metre rulers and 30 cm rulers
- partner measuring
- teacher-guided measuring
- labelled start and end points

Focus on choosing the correct unit and measuring from the starting point.

### Extension

Provide:

- objects to measure and compare independently
- difference questions
- measurement hunt challenges, e.g. 'Find three objects between 30 cm and 80 cm. Order them from shortest to longest.'

### Teaching as Inquiry

Observe which students:

- choose metres or centimetres appropriately
- make sensible estimates
- measure accurately from end to end
- compare lengths using longer and shorter
- identify longest and shortest objects
- need support reading a ruler or grid.

## Hands-On Activity 1 (10 minutes)

**Estimate and Measure**

Students estimate and measure classroom objects.

| Object | Estimate | Measure |
|---|---|---|
| Table | about ___ m | ___ m |
| Pencil | about ___ cm | ___ cm |

Students compare how close their estimate was.

## Hands-On Activity 2 (10 minutes)

**Measurement Hunt**

Students find something in the classroom that is close to:

- 1 m
- 30 cm
- 2 m
- 10 cm
- 50 cm
- 80 cm

Students record the object beside the matching measurement.

## Student Book Practice

Students complete **Student Book page 44 – Measuring in Metres and Centimetres**.

Focus:

- Estimating and measuring in metres
- Estimating and measuring in centimetres
- Comparing object lengths on a grid
- Finding classroom objects that match given lengths

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- Which unit would you use to measure a classroom?
- Which unit would you use to measure a pencil?
- Why do we estimate first?
- What does longest mean?
- How do we find how much longer one object is?

### Reflect and Share

'How does choosing the right unit help us measure accurately?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- choosing metres or centimetres
- estimating before measuring
- measuring from end to end
- comparing lengths

Extend confident students by asking them to find differences between measured lengths and explain their strategy.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Measurement

**Measuring**

**Knowledge**

- Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount.

**Practices**

- Using familiar objects and experiences to create estimation benchmarks.

# DAILY LESSON PLAN Week 9 • Lesson 3

**Topic:** Measuring and estimating length

In this lesson, students choose sensible measurements using metres and centimetres. They estimate length, measure lines to the nearest centimetre, and compare lengths using whole-number metric units.

## Learning Intention

Students will understand that metres and centimetres are used to estimate and measure length.

## Success Criteria

- ✓ I can choose metres or centimetres for a measurement.
- ✓ I can estimate a sensible length.
- ✓ I can measure to the nearest centimetre.
- ✓ I can compare lengths using metres and centimetres.
- ✓ I can use a number bank to complete measurement sentences.

## Language Focus

**Key terms:** metre, centimetre, length, height, long, tall, wide, estimate, measure, nearest centimetre

**Sentence stems:**

- The ___ is about ___ m high.
- The ___ is about ___ cm tall.
- I used metres because ___.
- I used centimetres because ___.
- I measured the line to the nearest centimetre.

## Launch Activity (5 minutes)

Display the number bank: 1, 2, 4, 10, 30, 180

Ask:

- Which numbers might match metres?
- Which numbers might match centimetres?
- Would a door be 2 m high or 2 cm high?
- Would a can be 10 m high or 10 cm high?

Say: 'Today we are choosing sensible measurements. We will estimate lengths and heights, then measure lines to the nearest centimetre.'

**Assessment for Learning**

Ask:

- Does the measurement make sense?
- Should the unit be metres or centimetres?
- How do you know?
- Where do you start measuring with a ruler?



## Explicit Instruction (10–12 minutes)

### 1. Choosing Sensible Measurements

**I Do** • Model using the number bank, e.g. 'The door is ___ m high. A door is taller than a person but not 10 m high. A sensible answer is 2 m.'

Explain: 'I choose the number and unit that make sense for the object.'

**We Do** • Work through the can together. Ask:

- Should the can be measured in metres or centimetres?
- Which number from the bank makes sense?
- Why is 10 cm sensible?

**You Do** • Students complete one sentence using the number bank. Check for understanding: 'Why does your measurement make sense?'

### 2. Estimating Length and Height

**I Do** • Use the bus picture.

Explain: 'The bus stop sign is 1 m high. I can use that to estimate the height and length of the bus.'

Model: 'The bus is much taller than 1 m, so I estimate it is about ___ m high.'

**We Do** • Estimate the bus length together. Ask:

- How many bus stop signs might fit along the bus?
- Is the bus length more than 1 m?
- What estimate makes sense?

**You Do** • Students estimate one object using a known measurement as a guide. Check for understanding: 'What did you use to help make your estimate?'

### 3. Measuring Lines to the Nearest Centimetre

**I Do** • Model measuring a line with a ruler.

Explain: 'I line up the start of the line with zero. I read the number nearest to the end of the line.'

**We Do** • Measure one line together. Ask:

- Where should the ruler start?
- Which mark is closest to the end?
- What is the length to the nearest centimetre?

**You Do** • Students measure one line to the nearest centimetre. Check for understanding: 'How did you make sure your measurement was accurate?'

## Problem Solving & Reasoning

Discuss:

- Why is 2 m sensible for a door height?
- Why is 10 cm sensible for a can height?
- Why is 180 cm sensible for a person's height?
- How can a known measurement help us estimate?
- Why do we measure from zero on a ruler?

Encourage students to use: metres, centimetres, estimate, measure, height, length

## Differentiation Tips

### Support

Provide:

- metre ruler and centimetre ruler
- number bank with units added
- teacher-guided measuring
- examples of sensible and not sensible measurements

Focus on choosing the correct unit and measuring from zero.

### Extension

Provide:

- additional estimation challenges
- classroom items to estimate and measure
- comparison questions, e.g. 'Find something that is about 30 cm long and something that is about 1 m long.'

### Teaching as Inquiry

Observe which students:

- choose sensible measurements
- match metres and centimetres to objects
- use a known measurement to estimate
- measure from zero on the ruler
- measure to the nearest centimetre
- confuse metres and centimetres.

## Hands-On Activity 1 (10 minutes)

**Sensible or Not?**

Students sort measurement cards into 'sensible' and 'not sensible', e.g.:

- door is 2 m high
- can is 10 cm high
- hen is 30 cm tall
- car is 4 m long

Students explain: 'This is sensible because ___.'

## Hands-On Activity 2 (10 minutes)

**Measure the Line**

Students use rulers to measure lines to the nearest centimetre. They record:

| Line | Measurement |
|---|---|
| a | ____ cm |
| b | ____ cm |
| c | ____ cm |
| d | ____ cm |

Ask:

- Did you start at zero?
- Which centimetre mark was nearest?

## Student Book Practice

Students complete **Student Book page 45 – Measuring and Estimating Length**.

Focus:

- Completing measurement sentences using a number bank
- Choosing metres or centimetres
- Estimating bus height and length
- Measuring lines to the nearest centimetre

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What does m stand for?
- What does cm stand for?
- Would you measure a door in metres or centimetres?
- Where should you start measuring on a ruler?
- What does nearest centimetre mean?

### Reflect and Share

'How can you decide whether a measurement is sensible?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- choosing metres or centimetres
- using sensible estimates
- measuring from zero
- reading to the nearest centimetre

Extend confident students by asking them to estimate, measure and compare classroom items.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Measurement

**Measuring**

**Knowledge**

- Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount.

**Practices**

- Using the appropriate tool for measuring length, mass (weight), and capacity in mixed units.

# DAILY LESSON PLAN Week 9 • Lesson 4

**Topic:** Metres

In this lesson, students explore the relationship between metres and centimetres. They convert lengths from metres and half metres into centimetres, compare ribbon lengths, and find the difference between lengths.

## Learning Intention

Students will understand that metres can be converted into centimetres.

## Success Criteria

- ✓ I can explain that 1 metre is 100 centimetres.
- ✓ I can explain that half a metre is 50 centimetres.
- ✓ I can convert metres to centimetres.
- ✓ I can compare lengths in metres and half metres.
- ✓ I can find the difference between two lengths.

## Language Focus

**Key terms:** metre, centimetre, length, convert, half metre, compare, difference, longer, shorter

**Sentence stems:**

- 1 metre is 100 centimetres.
- Half a metre is 50 centimetres.
- ___ metres is ___ centimetres.
- The ___ ribbon is longer than the ___ ribbon.
- The difference is ___ metres.

## Launch Activity (5 minutes)

Display: 1 m = 100 cm, ½ m = 50 cm

Ask:

- How many centimetres are in 1 metre?
- How many centimetres are in half a metre?
- How could we work out 2 metres in centimetres?
- How could we work out 3½ metres in centimetres?

Say: 'Today we are converting metres into centimetres and comparing lengths in metres and half metres.'

**Assessment for Learning**

Ask:

- What does 1 m equal in centimetres?
- What does ½ m equal in centimetres?
- How do we convert metres to centimetres?
- How can we find the difference between two lengths?



## Explicit Instruction (10–12 minutes)

### 1. Converting Metres to Centimetres

**I Do** • Model converting: 3 m = 300 cm

Explain: 'Each metre is 100 centimetres. So 3 metres is 100 + 100 + 100, which is 300 centimetres.'

**We Do** • Convert together: 7 m = ___ cm

Ask:

- How many centimetres are in 1 metre?
- How many groups of 100 do we need?
- What is 7 m in centimetres?

**You Do** • Students convert one whole-number metre measurement to centimetres. Check for understanding: 'How did you know how many centimetres?'

### 2. Converting Half Metres

**I Do** • Model converting: 2½ m = 250 cm

Explain: '2 metres is 200 centimetres. Half a metre is 50 centimetres. 200 cm + 50 cm = 250 cm.'

**We Do** • Convert together: 4½ m = ___ cm

Ask:

- How many centimetres are in 4 metres?
- How many centimetres are in half a metre?
- What is the total?

**You Do** • Students convert one measurement with a half metre. Check for understanding: 'Why do we add 50 centimetres for half a metre?'

### 3. Comparing Lengths and Finding Differences

**I Do** • Use the ribbon lengths, e.g. pink ribbon = 3 m, red ribbon = 3½ m

Explain: 'The red ribbon is half a metre longer than the pink ribbon. The difference is ½ m.'

**We Do** • Compare the longest and shortest ribbons. Ask:

- Which ribbon is longest?
- Which ribbon is shortest?
- What is the difference?
- How do you know?

**You Do** • Students compare two ribbon lengths and find the difference. Check for understanding: 'What subtraction helped you find the difference?'

## Problem Solving & Reasoning

Discuss:

- Why is 1 m the same as 100 cm?
- Why is ½ m the same as 50 cm?
- How can converting help us compare lengths?
- Which is longer: 300 cm or 3½ m? How do you know?

Encourage students to use: metres, centimetres, half metre, convert, compare, difference

## Differentiation Tips

### Support

Provide:

- metre rulers or tape measures
- conversion chart: 1 m = 100 cm, ½ m = 50 cm
- teacher-guided skip counting in 100s
- ribbon diagrams

Focus on whole metres before half metres.

### Extension

Provide:

- mixed metre and centimetre comparison tasks
- missing conversion problems
- difference questions involving half metres, e.g. 'Which is longer: 450 cm or 4½ m? Explain.'

### Teaching as Inquiry

Observe which students:

- know that 1 m = 100 cm
- know that ½ m = 50 cm
- convert whole metres to centimetres
- convert half metres to centimetres
- compare ribbon lengths
- find the difference between lengths
- confuse metres and centimetres.

## Hands-On Activity 1 (10 minutes)

**Conversion Match**

Students match metre cards to centimetre cards. Examples:

| Metres | Centimetres |
|---|---|
| 1 m | 100 cm |
| 3 m | 300 cm |
| ½ m | 50 cm |
| 4½ m | 450 cm |

Students explain: '___ metres is ___ centimetres.'

## Hands-On Activity 2 (10 minutes)

**Ribbon Compare**

Students use the ribbon lengths from the page. They compare:

| Ribbons | Difference |
|---|---|
| Pink and red | ½ m |
| Longest and shortest | 1½ m |
| Yellow and red | 1 m |

Ask:

- Which is longer?
- Which is shorter?
- What is the difference?

## Student Book Practice

Students complete **Student Book page 46 – Metres**.

Focus:

- Converting metres and half metres to centimetres
- Comparing lengths in metres
- Finding the difference between ribbon lengths
- Completing the mastery checklist

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- How many centimetres are in 1 metre?
- How many centimetres are in half a metre?
- What is 5 m in centimetres?
- What is 2½ m in centimetres?
- What is the difference between 3 m and 4½ m?

### Reflect and Share

'How can knowing 1 m = 100 cm help us convert lengths?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- 1 m = 100 cm
- ½ m = 50 cm
- converting metres to centimetres
- comparing lengths and finding differences

Extend confident students by asking them to compare mixed measurements in metres and centimetres.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Measurement

**Measuring**

**Knowledge**

- Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount.

**Practices**

- Using the appropriate tool for measuring length, mass (weight), and capacity in mixed units.

# DAILY LESSON PLAN Week 9 • Lesson 5

**Topic:** Investigation – Inenga roa

In this lesson, students investigate whether it is more accurate to estimate length using matikara or kōiti. They use body-part benchmarks, estimate in centimetres, measure with a ruler, and compare estimates with actual measurements.

## Learning Intention

Students will understand that familiar objects or body parts can be used as benchmarks to estimate length.

## Success Criteria

- ✓ I can measure my matikara and kōiti.
- ✓ I can use matikara and kōiti to estimate length.
- ✓ I can estimate in centimetres.
- ✓ I can measure with a ruler.
- ✓ I can compare my estimate with the actual measurement.

## Language Focus

**Key terms:** length, estimate, measure, ruler, centimetre, matikara, kōiti, accurate, benchmark

**Sentence stems:**

- My matikara is ___ cm.
- My kōiti is ___ cm.
- I estimate the length is ___ cm.
- I measured the length as ___ cm.
- My estimate was accurate because ___.

## Launch Activity (5 minutes)

Show the image of matikara and kōiti. Explain:

- matikara: from tip of thumb to tip of little finger on outspread fingers
- kōiti: length of the little finger

Ask:

- Which would help estimate a longer length?
- Which would help estimate a shorter length?
- Why might body parts help us estimate?

Say: 'Today we are investigating whether matikara or kōiti helps us estimate more accurately.'

**Assessment for Learning**

Ask:

- What is your matikara measurement?
- What is your kōiti measurement?
- How did you use it to estimate?
- Was your estimate within 2 cm of the true measurement?
- Which method was more accurate?



# Explicit Instruction (10–12 minutes)

## 1. Measuring Matikara and Kōiti

**I Do** • Model measuring matikara with a ruler.

Explain: 'I measure from the tip of my thumb to the tip of my little finger. I record the length in centimetres.'

Then model measuring kōiti.

**We Do** • Students help identify the start and end points for each measurement. Ask:

- Where should the ruler start?
- Where should the measurement end?
- What unit are we using?

**You Do** • Students measure their own matikara and kōiti with a partner. Check for understanding: 'Why do we need to measure carefully before using these as benchmarks?'

## 2. Estimating with Body-Part Benchmarks

**I Do** • Model estimating the width of a desk using matikara.

Explain: 'I count how many matikara fit across the desk. Then I use my matikara length to estimate in centimetres. For example, if my matikara is 15 cm and the desk is about 4 matikara wide, I estimate 60 cm.'

**We Do** • Estimate one classroom object together. Ask:

- How many matikara or kōiti fit along the object?
- What is your estimate in centimetres?
- Does the estimate make sense?

**You Do** • Students estimate the width, height and length of their desk using matikara or kōiti. Check for understanding: 'How did you change the number of matikara or kōiti into centimetres?'

## 3. Measuring and Comparing Accuracy

**I Do** • Model measuring the same object with a ruler.

Explain: 'Now I measure the true length. I compare my estimate with the measurement. If it is within 2 cm, I tick it.'

**We Do** • Compare one estimate and actual measurement together. Ask:

- What was the estimate?
- What was the actual measurement?
- What is the difference?
- Is it within 2 cm?

**You Do** • Students measure with a ruler and tick estimates within 2 cm. Check for understanding: 'Which was more accurate: matikara or kōiti? How do you know?'

## Problem Solving & Reasoning

Discuss:

- Why can body parts help us estimate length?
- Why might matikara be better for longer lengths?
- Why might kōiti be better for shorter lengths?
- Why do we compare estimates with ruler measurements?

Encourage students to use: estimate, measure, centimetres, accurate, matikara, kōiti

## Differentiation Tips

### Support

Provide:

- partner measuring
- teacher-guided measuring with a ruler
- clear start and end points
- calculator support for repeated benchmarks

Focus on measuring accurately and comparing estimate with measurement.

### Extension

Provide:

- other classroom objects to investigate
- comparison between different students' matikara and kōiti
- reasoning prompts, e.g. 'Why might two students get different estimates using matikara?'

### Teaching as Inquiry

Observe which students:

- measure matikara and kōiti accurately
- use body-part benchmarks to estimate
- convert repeated benchmarks into centimetres
- measure with a ruler accurately
- compare estimate and actual measurement
- explain which method was more accurate.

## Hands-On Activity 1 (10 minutes)

**Body Benchmark Measure**

Students measure and record:

| Benchmark | Measurement |
|---|---|
| Matikara | ___ cm |
| Kōiti | ___ cm |

Students practise using each benchmark to estimate a short classroom length.

## Hands-On Activity 2 (10 minutes)

**Estimate, Measure, Compare**

Students estimate and measure:

- width of desk
- height of desk
- length of desk

They record:

| Object | Estimate | Measure | Within 2 cm? |
|---|---|---|---|
| Width of desk | ___ cm | ___ cm | ✓/✗ |

## Student Book Practice

Students complete **Student Book page 47 – Investigation: Inenga Roa**.

Focus:

- Measuring matikara and kōiti
- Estimating lengths using body-part benchmarks
- Measuring with a ruler
- Comparing estimates with actual measurements
- Deciding which method was more accurate

This page is used as independent consolidation after explicit teaching.

## Reflect and Check (5 minutes)

Quick-fire questions:

- What is matikara?
- What is kōiti?
- What unit did we measure in?
- What does accurate mean?
- How do we know if an estimate is within 2 cm?

### Reflect and Share

'Which was more accurate for you: matikara or kōiti? Why?'

### Next Steps for Teacher (Teaching as Inquiry)

Reinforce:

- measuring from clear start and end points
- estimating in centimetres
- using familiar benchmarks
- comparing estimates with measurements

Extend confident students by asking them to choose the best benchmark for different classroom objects and justify their choice.

## Curriculum & Planning Links

### NZ Curriculum (2025) – Measurement

**Measuring**

**Knowledge**

- Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount.

**Practices**

- Using familiar objects and experiences to create estimation benchmarks.
- Using the appropriate tool for measuring length, mass (weight), and capacity in mixed units.

# CHECKPOINT 2 Place Value, Addition, Subtraction, 3D Shapes, Money and Measurement

## Purpose

This Checkpoint assesses students' understanding of the key mathematical concepts taught across the second block of learning. It gives teachers a clear snapshot of students' knowledge, skills and fluency in place value, number operations, equations and relationships, 3D shapes, money and measurement.

The Checkpoint should take approximately **30–40 minutes** and can be completed in **two sittings**.

## Assessment Overview

| Area | Focus | Curriculum Links | Key Skills Assessed |
|---|---|---|---|
| **Place Value** | Reading, writing, ordering and comparing numbers | Number Structures | Ordering numbers, identifying place value, writing numbers in words, rounding |
| **Addition** | Addition facts, vertical addition, missing numbers and bar models | Number Operations/Equations and Relationships | Doubling, making 100, completing equations, adding 3- and 4-digit numbers |
| **Subtraction** | Subtraction facts, number lines, vertical subtraction and word problems | Number Operations | Using number lines, related facts, vertical subtraction, finding difference |
| **Geometry** | Prisms, pyramids, faces, surfaces and 3D objects | Geometry/Spatial Reasoning | Naming 3D objects, describing faces, identifying curved and flat surfaces |
| **Money** | Coins, totals and change | Financial Mathematics | Representing money, calculating totals, finding change |
| **Measurement** | Metres, centimetres and sensible estimates | Measurement/Measuring | Choosing sensible units, estimating and comparing lengths |



## Checkpoint 2 Structure

| Part | Focus | Questions | Skills Tested |
|---|---|---|---|
| 1 | Ordering numbers | Q1 | Order 4-digit numbers from smallest to largest |
| 2 | Place value | Q2–3, Q8 | Identify digit values and write numbers with specified digits |
| 3 | Number words and rounding | Q4–6 | Write numbers in words; round to nearest hundred and thousand |
| 4 | Comparing numbers | Q7 | Use 'less than' and 'more than' correctly |
| 5 | Addition facts and equations | Q9–13, Q29 | Doubles, make 100, missing numbers, vertical addition and bar model |
| 6 | Subtraction patterns and number lines | Q14–16, Q23–26 | Complete subtraction patterns, subtract using number lines, write facts, solve vertical subtraction |
| 7 | Growing and shrinking patterns | Q17 | Continue patterns and state rules |
| 8 | 3D shapes | Q18–20 | Name prisms and pyramids, count faces, identify curved surface and triangular faces |
| 9 | Money | Q21–22, Q27 | Make amounts with coins, add/subtract money, calculate spending and change |
| 10 | Measurement | Q30 | Choose sensible measurements in metres and centimetres |

# CHECKPOINT 2 Student Recording Sheet & Marking Rubric

**Unit:** Place Value, Addition, Subtraction, 3D Shapes, Money and Measurement
**Weeks:** 6–9 Year 4 Mathematics **Total Marks:** 60

**Student Name:** **Date:**

## Marking Sheet

| Part | Task | Max Marks | Student Score | Notes / Observations |
|---|---|---|---|---|
| **1.** Ordering numbers | Order six 4-digit numbers from smallest to largest | 1 | / 1 | |
| **2.** Place value | Identify values of underlined digits; create numbers using given digits; rename 7,426 | 8 | / 8 | |
| **3.** Number words and rounding | Write 3 numbers in words; round to nearest hundred and thousand | 5 | / 5 | |
| **4.** Comparing numbers | Write 'less than' or 'more than' | 4 | / 4 | |
| **5.** Addition facts and equations | Doubles, make 100, missing boxes, vertical addition and bar model | 12 | / 12 | |
| **6.** Subtraction | Number lines, related facts, word problems and vertical subtraction | 10 | / 10 | |
| **7.** Patterns | Complete shrinking/growing patterns and state the rule | 3 | / 3 | |
| **8.** 3D shapes | Name 3D objects, count faces, identify surfaces and features | 6 | / 6 | |
| **9.** Money | Make coin amounts, complete money tables, calculate spend and change | 8 | / 8 | |
| **10.** Measurement | Choose sensible measurements in metres or centimetres | 3 | / 3 | |
| | TOTAL: | 60 | / 60 | |

## Achievement Rubric

| Score Range | Level | Interpretation | Suggested Follow-Up |
|---|---|---|---|
| 52–60 | **Secure** | Strong understanding across place value, operations, geometry, money and measurement. | Extend with multi-step problems, mixed strategies, larger numbers and reasoning tasks. |
| 40–51 | **Developing** | Most skills are developing well, with some gaps or inconsistent accuracy. | Target specific gaps such as regrouping, number lines, place value or measurement conversions. |
| 25–39 | **Emerging** | Partial understanding; student needs support across several areas. | Provide small-group teaching with materials, number lines, place value charts and guided practice. |
| Below 25 | **At Risk** | Significant gaps in core number, operation and measurement knowledge. | Prioritise intervention on place value, basic facts, addition/subtraction strategies and key vocabulary. |

## Diagnostic Notes (Teacher Use)

| Skill Area | Observations | Follow-Up Plan |
|---|---|---|
| Place value and number structure | | |
| Reading, writing and ordering numbers | | |
| Rounding and comparing numbers | | |
| Addition facts and vertical addition | | |
| Bar models and missing-number equations | | |
| Subtraction using number lines | | |
| Vertical subtraction and regrouping | | |
| Patterns and related facts | | |
| 3D shapes and features | | |
| Money totals and change | | |
| Measurement in metres and centimetres | | |

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Place Value** | Students understand the value of digits in numbers up to four digits. | Correctly identifies thousands, hundreds, tens and ones; writes and orders numbers accurately. |
| **Number Operations** | Students use addition and subtraction strategies to solve problems. | Uses vertical methods, number lines, facts and equations accurately. |
| **Equations and Relationships** | Students can complete missing-number equations and use patterns. | Identifies the missing value and explains the pattern or relationship. |
| **Geometry Spatial Reasoning** | Students can name and describe 3D objects by their features. | Names prisms and pyramids, counts faces and identifies curved or triangular surfaces. |
| **Financial Mathematics** | Students can represent amounts of money and calculate change. | Shows coin combinations, completes money tables and finds spending and change. |
| **Measurement** | Students can choose sensible measurements in metres and centimetres. | Selects appropriate units and explains why a measurement is sensible. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation** | Watch students complete number line and vertical subtraction questions. | Do they choose correct starting numbers, line up digits and regroup when needed? |
| **Oral Check** | Ask students to explain one place value, money or measurement answer. | Listen for accurate use of mathematical language. |
| **Written Work** | Review Checkpoint 2 pages 48–49. | Check accuracy, strategy use and any repeated misconceptions. |
| **Practical Follow-Up** | Use base-10 blocks, coins, 3D shapes and rulers with students who need support. | Can students show the concept with materials before recording? |
| **Quick Conference** | Ask: 'Which question was easiest? Which was hardest? Why?' | Identify confidence, strategy choice and areas needing reteaching. |



## Quick Follow-Up Questions

1. How do you know the value of a digit in a number?
2. How can you check an addition or subtraction answer?
3. What is the difference between a prism and a pyramid?
4. How do you calculate change?
5. When would you use metres instead of centimetres?

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently using place value: | |
| Students accurately ordering and comparing numbers: | |
| Students rounding to the nearest hundred and thousand: | |
| Students solving addition problems accurately: | |
| Students solving subtraction problems using number lines and vertical methods: | |
| Students completing equations and patterns: | |
| Students identifying and describing 3D shapes: | |
| Students representing money and calculating change: | |
| Students choosing sensible metric measurements: | |
| Misconceptions noticed: | |
| Vocabulary to revisit: place value, total, difference, equation, prism, pyramid, face, surface, metre, centimetre, change: | |
| Adjustments for future lessons: | |

## Unit: Measurement – Estimating, Measuring and Comparing Length

**Focus:** Estimating, measuring, comparing and converting length using metres, centimetres and familiar benchmarks, including measuring to the nearest centimetre and finding differences between lengths.

## Key Understandings to Assess

| Area | Expected Understanding | Evidence to Look For |
|---|---|---|
| **Metres** | Students understand that metres are used to measure longer lengths and heights. | Reads heights from a metre scale and compares objects using taller and shorter. |
| **Centimetres** | Students understand that centimetres are used to measure shorter lengths. | Measures lines and classroom objects accurately to the nearest centimetre. |
| **Choosing Units** | Students can choose metres or centimetres for a measurement. | Selects sensible units for objects such as a door, pencil, classroom or desk. |
| **Estimating and Measuring** | Students estimate before measuring and compare estimates with actual measurements. | Gives a sensible estimate, measures carefully and identifies whether the estimate was close. |
| **Comparing Lengths** | Students compare and order lengths using whole-number metric units. | Identifies longest, shortest, taller and shorter and finds differences between lengths. |
| **Converting Lengths** | Students understand that 1 m = 100 cm and ½ m = 50 cm. | Converts whole metres and half metres into centimetres accurately. |
| **Using Benchmarks** | Students use familiar body-part benchmarks to estimate length. | Uses matikara or kōiti, estimates in centimetres, then checks with a ruler. |

## Assessment Opportunities

| Type | Suggested Activity | What to Observe |
|---|---|---|
| **Observation Formative** | Watch students estimate and measure classroom objects. | Do they choose metres or centimetres appropriately and measure from the correct starting point? |
| **Oral Check** | Ask: 'Why did you use metres?' or 'How do you know this estimate is sensible?' | Listen for language such as metre, centimetre, estimate, measure, longer, shorter and accurate. |
| **Written Work** | Review Student Book pp.43–47. | Check scale reading, sensible measurements, measuring lines, conversions and comparison answers. |
| **Practical Task** | Ask students to find something about 1 m, 30 cm or 80 cm in the classroom. | Can they use estimation and measurement to justify their choice? |
| **Exit Ticket/Quick Quiz** | Provide 5 short measurement questions. | Identify students confident with units, conversions and comparisons and those needing support. |



## Quick Quiz / Exit Ticket (5 Questions)

1. How many centimetres are in 1 metre?
2. How many centimetres are in ½ metre?
3. Would you measure a classroom in metres or centimetres?
4. What is 4 m in centimetres?
5. Which is longer: 80 cm or 1 m?

## Teaching as Inquiry: Reflection Notes

| Reflection Prompts | Notes/Next Steps |
|---|---|
| Students confidently reading heights in metres: | |
| Students choosing metres or centimetres appropriately: | |
| Students making sensible estimates: | |
| Students measuring accurately from the zero mark: | |
| Students measuring to the nearest centimetre: | |
| Students comparing and ordering lengths: | |
| Students converting metres and half metres to centimetres: | |
| Students using matikara and kōiti as benchmarks: | |
| Students comparing estimates with actual measurements: | |
| Misconceptions noticed, such as confusing metres and centimetres: | |
| Vocabulary to revisit: metre, centimetre, length, height, estimate, measure, longer, shorter, difference, accurate: | |
| Adjustments for future lessons, such as more ruler practice or unit-choice modelling: | |