Mathletics

The Mathletics Programme 2025

Lesson Plans for Year 4

Term 1

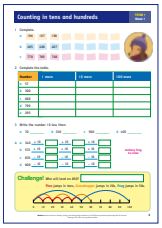
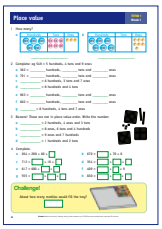
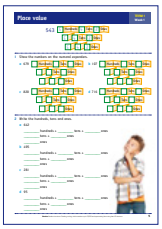
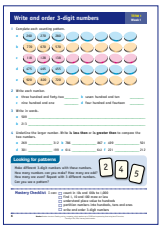
Everything you need to plan, teach and assess Year 4 mathematics, aligned to the curriculum and designed for effective, differentiated instruction.

- Weekly Overviews
- Daily Lesson Plans
- Explicit Instruction
- Differentiation
- Links to Student Workbook and Online lessons
- Curriculum and Planning Links (2025)

Term 1 Teaching Overview Weeks 1–9

Week & Unit	High-Level Curriculum Focus	Student Book and Online lessons	Resources
Week 1 **Numbers to 1,000**	**Number** Number structures Reading, writing, comparing, and ordering whole numbers up to 10,000 and representing them using base 10 structure; Counting in 10s and 100s from any whole number	**Pages 2–6** Mathletics Number Structure	Base 10 blocks Place value charts Number cards 0–1,000 Counters/cubes Mini whiteboards
Week 2 **Addition**	**Number** Operations: Adding and subtracting up to four-digit numbers **Number** Number structures Counting forwards and backwards in 5s; Counting in 10s from any whole number **Algebra** Equations and relationships Completing open number sentences involving addition and subtraction; Recognising, continuing and describing growing patterns (including numerical patterns) that change by adding, subtracting or multiplying by a constant whole number	**Pages 7–11** Mathletics Operations: Add and Subtract	Base 10 blocks Number lines Place value mats Counters/cubes Mini whiteboards
Week 3 **Subtraction**	**Number** Operations Adding and subtracting up to four-digit numbers **Number** Financial mathematics Calculating change; Representing amounts of currency using different combinations of denominations **Algebra** Equations and relationships Recognising and continuing growing patterns (including numerical patterns)	**Pages 12–16** Mathletics Operations: Add and Subtract	Number lines Counters/cubes Base 10 materials Mini whiteboards
Week 4 **Multiplication and sharing**	**Number** Operations Multiplication can be represented as repeated addition or arrays; Memorising multiplication and corresponding division facts for 2s to 10s; Using known and derived facts to divide mentally, including dividing by 1; Dividing up to a three-digit whole number by a one-digit divisor, with no remainder **Number** Rational numbers Finding a unit fraction of a whole number, using multiplication and division facts and where the answer is a whole number	**Pages 17–21** Mathletics Operations: Multiplication and Division Rational Numbers: Fractions	Counters/cubes Array mats Fraction circles Paper folding shapes Mini whiteboards
Checkpoint 1 **Mid-term review**	**Assessment and Review** Review numbers to 1,000, addition, subtraction, multiplication and sharing	**Pages 22–23**	
Week 5 **Patterns**	**Algebra** Equations and relationships 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 **Number** Number structures Counting forwards in 2s, 4s, 5s	**Pages 24–27** Mathletics Algebra	Pattern blocks Counters/cubes Number cards Grid paper Mini whiteboards
Week 6 **Time**	**Measurement** Measuring Telling the time on analogue and digital clocks to the nearest minute; Measuring duration in hours, minutes	**Pages 28–32** Mathletics Measuring Time	Teaching clocks Mini clocks Timetable examples Clock templates
Week 7 **3D shapes**	**Geometry** Spatial reasoning Visualising 3D shapes and connecting them with 2D diagrams, verbal descriptions, and the same shapes drawn from different perspectives	**Pages 33–37** Mathletics Geometry	3D shape models Building blocks Shape cards Mini whiteboards
Week 8 **Data**	**Statistics** Developing knowledge from data Collecting numerical data **Statistics** Visualisation of data Creating dot-plot or bar-graph data visualisations **Statistics** Interpretation of data Answering questions about the frequency of a particular value in dot plots; Answering questions about individual values in a dot plot, while referring to the context; Interpreting data visualisations; Distinguishing between when to use a particular value or the frequency for a given value when answering questions about dot plots	**Pages 38–42** Mathletics Statistics	Graph paper Counters/cubes Survey sheets Coloured pencils
Week 9 **Length** **Checkpoint 2**	**Measurement** Measuring: Estimating and measuring length (cm and m), using tools with labelled markings and whole-number metric units; Comparing and ordering objects using whole-number metric units of length; Using familiar objects (e.g. body parts) to create estimation benchmarks; Using the appropriate tool for measuring length	**Pages 43–47** Mathletics Measuring Length	Rulers Tape measures Metre sticks Classroom objects for measuring
Checkpoint 2 **End-of-term review**	**Assessment and Review** Review numbers to 1,000, addition, subtraction, multiplication and sharing, patterns, time, 3D shapes, data and length	**Pages 48-49**	

Term 1 Week 1 Overview Numbers to 1,000: Counting, Place Value and Patterns

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Numbers to 1,000: Counting by 10s**	Numbers to 1,000 follow a base 10 pattern that repeats in hundreds, tens, and ones.	✓ Count forwards and backwards by 10s and 100s ✓ Recognise repeating patterns on the hundreds chart ✓ Explain which digit changes when adding 10 or 100	- Use a 1–1,000 chart to fill missing numbers by 10s and 100s - Count forwards/backwards from any starting number - Identify and describe patterns on the chart - Mathletics Skill Quests: Counting in 10s and 100s	**Page 2:** Complete number chart to 1,000 by 10s and 100s; identify which digits change. 
2 **Counting in Tens and Hundreds**	Adding or subtracting 1, 10, or 100 changes only one place-value digit.	✓ Find 1, 10 and 100 more or less than a given number ✓ Describe which digit changes and why ✓ Count forwards/ backwards using place-value reasoning	- Complete 'more/less' tables (1, 10, 100) - Use MAB blocks or number charts - Problem: *Who will land on 850?* counting challenge	**Page 3:** Complete tables for 1, 10, 100 more/less; solve counting-on problem. 
3 **Place Value: Hundreds, Tens and Ones**	Each digit in a three-digit number has a value based on its position.	✓ Identify hundreds, tens, and ones ✓ Write numbers in expanded form ✓ Represent numbers with base 10 materials	- Build numbers with MAB or arrow cards - Write expanded and standard forms (e.g. 345 = 300 + 40 + 5) - Read and write numbers to 1,000 - Mathletics Skill Quests: Comparing Numbers and ordering numbers to at least 1,000	**Page 4:** Identify hundreds, tens and ones; match numerals, words, and expanded forms. 
4 **Place Value: Numeral Expanders**	Numbers can be expanded to show hundreds, tens, and ones and recombined to form the whole.	✓ Use numeral expanders to show hundreds, tens and ones ✓ Explain how many tens or hundreds are in a number ✓ Apply understanding without materials	- Use numeral expanders to open and close numbers - Show how many tens in 320, 456, etc. - Make and record expanded and standard forms - Mathletics Activities: Expanding numbers, Greater Than or Less than 1	**Page 5:** Use numeral expanders; write how many hundreds, tens and ones in each number. 
5 **Writing and Ordering 3-Digit Numbers**	Numbers can be read, written, compared, and sorted using patterns and place-value knowledge.	✓ Read and write 3-digit numbers in words and digits ✓ Compare numbers using <, >, = ✓ Identify and describe number patterns ✓ Sort numbers as odd or even	- Read/write 3-digit numbers in words and numerals - Compare using <, >, = - Create all 3-digit numbers from 3 digits; sort odd/ even - Identify increasing/ decreasing patterns	**Page 6:** Continue patterns; read/write and order 3-digit numbers; sort odd/even. 

DAILY LESSON PLAN Week 1 • Lesson 1

Topic: Numbers to 1,000 – Counting in 10s and 100s

In this lesson, students explore number sequences within 1,000 and practise counting forwards and backwards from any number in 1s, 10s and 100s. They use number charts and base 10 blocks to understand place value and patterns in the hundreds chart.

Learning Intention

Students will understand that numbers within 1,000 are structured in groups of hundreds, tens and ones, and that we can use this structure to count efficiently by 1s, 10s and 100s.

Success Criteria

- ✓ I can count forwards and backwards by 1s, 10s and 100s from any starting number.
- ✓ I can explain how digits change when adding 10 or 100 to a number.
- ✓ I can use place-value knowledge to find 10 more/less and 100 more/less.
- ✓ I can describe patterns on a number chart to 1,000.

Language Focus

Key terms: hundreds, tens, ones, digit, base 10, place value, number chart, pattern, sequence, consecutive, increase, decrease

Sentence stems:

- When I add 10 to _____, the tens digit changes to _____.
- When I add 100 to _____, the hundreds digit changes to _____.
- Counting by 10s from _____ gives the pattern _____.
- The ones digit stays the same when I add 10 or 100 because _____.

Launch Activity (5 minutes)

Warm-up: Display a 1–1,000 number chart with some numbers missing in a 10s sequence (e.g. 120, 130, _____, _____, 160).
Ask: What numbers are missing? (140, 150)
Then: 'Let's count together in 10s from 120 to 200.' Repeat backwards.

Assessment for Learning: Ask: What happens to the digits when we count by 10s? (Only the tens digit changes.)
What happens when we count by 100s? (Only the hundreds digit changes.)

Explicit Instruction (10–12 minutes)

1. Understanding Place Value to 1,000

I Do • Show 376 with base 10 blocks (3 hundreds, 7 tens, 6 ones).
Explain: The value of a digit depends on where it is placed.
Model adding 10: 376 + 10 = 386 — only the tens digit changes.
Model adding 100: 376 + 100 = 476 — only the hundreds digit changes.

We Do • Work through examples together (e.g. 245 + 10, 245 + 100, 983 – 10).
Ask: What digit changes each time? What pattern do you see?

You Do • Students use base 10 blocks or place-value charts to find 10 more/less and 100 more/less for given numbers.
Check for understanding: Ask students to explain *why* the ones digit stays the same.

2. Counting Patterns on the Number Chart

I Do • Show a hundreds chart (100–200). Model counting by 10s down a column (e.g. 102, 112, 122...).
Explain: Counting by 10s goes straight down the column because only the tens digit changes.

We Do • Highlight patterns on the chart together (e.g. every number in the 130 row ends with 3).
Ask: What happens if we start at 235 and count by 10s? (Student predicts 245, 255 ...).

You Do • Students complete missing-number charts to 1,000 (page 2 of Student Book).
Encourage students to circle the hundreds and tens digits that change.

3. Applying Patterns to Problems

I Do • Write examples: Find 10 more than 820. Find 100 less than 560.
Explain how to adjust digits without recounting each time.

We Do • Solve five examples together, recording answers on mini-whiteboards.
Emphasise talking through reasoning: I know because the hundreds digit increased by one.

You Do • Students solve similar problems from page 2 of the student book.
Check for understanding with quick oral questions:
What is 10 less than 389? 100 more than 470?

Differentiation Tips

Support:

- Use smaller ranges (0–200) and concrete materials (base 10 blocks, hundreds chart).
- Practise counting forwards and backwards in 10s only.

Extension:

- Skip-count by 25s and 50s to explore patterns in larger jumps.
- Challenge students to predict a number that is both 10 and 100 more than another.

Teaching as Inquiry:

Observe which students can articulate why digits change and who need more place-value practice.

Hands-On Activity 1 (10 minutes)

Mystery Chart Fill-In

Provide a blank 100s chart (0–1,000 range) with gaps.

Students fill missing numbers by counting in 10s or 100s.

Ask: What clues helped you find the missing numbers?

Hands-On Activity 2 (10–15 minutes)

Base 10 Bump

Students roll a die to add or subtract 10 or 100 from a starting number (e.g. 430 + 100 = 530).

They record each new number on their personal chart to see the pattern.

Ask partners to predict the next number before rolling.

Student Book Practice

Students complete **page 2** of their workbook: **Numbers to 1,000**
Focus: Count by 10s, 100s, identify patterns in a thousand chart, find 10 more than or less than.

Mathletics Online Practice

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

Activity: Are you ready?

Reinforces key lesson skills through adaptive, interactive activities. Completion scores track student progress and help teachers monitor growth and identify learning needs.

Reflect and Check (5 minutes)

Quick-fire questions:

- What changes when you add 10 to a number?
- What changes when you add 100?
- If you start at 756 and count by 10s, what pattern do you notice?
- Why does the ones digit stay the same?

Reflect and Share:

Ask: How does knowing place value help you count quickly?

Feedback:

Praise students for using reasoning words like because, pattern and digit. Encourage students to use number talk to explain their thinking.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who struggle to count across hundreds (e.g. 199 → 200).
- Plan extra practice on place-value transitions with visual supports.
- Extend confident students with patterns in multiples of 25 and 50.

Curriculum and 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
- Counting in 10s, 100s, and 1,000s from any whole number up to 10,000

DAILY LESSON PLAN Week 1 • Lesson 2

Topic: Counting in Tens and Hundreds – Forwards and Backwards to 1,000

In this lesson, students count forwards and backwards from any three-digit number by ones, tens and hundreds. They explore how digits change when increasing or decreasing by 1, 10, or 100 and use a table to record their findings. Students finish with a problem-solving challenge comparing skip-counting patterns.

Learning Intention

Students will understand that counting forwards and backwards by 1s, 10s and 100s changes the digits in predictable ways, following the structure of the base 10 system.

Success Criteria

- ✓ I can count forwards and backwards by 10s, and 100s from any three-digit number.
- ✓ I can find and explain 10 more/less, and 100 more/less than a given number.
- ✓ I can record number patterns in a table.
- ✓ I can solve problems using skip-counting patterns.

Language Focus

Key terms: more than, less than, ones, tens, hundreds, increase, decrease, forwards, backwards, skip-count, pattern, number sequence

Sentence stems:

- One more than ___ is ___ because the ones digit increases by one.
- Ten Less than ___ is ___ because the tens digit decreases by one.
- When I count in tens from _____, I get _____.
- The pattern I see when I count backwards by hundreds is _____.

Launch Activity (5 minutes)

Warm-up: Write 496 on the board.
Ask: What's one more? One less? (497, 495)
Then: What's ten more? Ten less? (506, 486)
What's one hundred more? One hundred less? (596, 396)

Discuss: What digits change each time? What stays the same?

Assessment for Learning: Ask: Who can tell me what happens when we go past a new hundred — like from 599 to 600?

Explicit Instruction (10–12 minutes)

1. Counting Forwards and Backwards by 1s, 10s and 100s

I Do • Write 205 on the board.
Model counting on and back:
205, 206, 207... then 205, 204, 203...
Add 10: 205 + 10 = 215.
Subtract 10: 205 – 10 = 195.
Add 100: 205 + 100 = 305.
Subtract 100: 205 – 100 = 105.
Explain: Each time, only one place value digit changes.

We Do • Together, complete a sample table for 57.

Number	1 more	10 more	100 more	1 less	10 less	100 less
57	58	67	157	56	47	—

Discuss why 100 less than 57 doesn't exist as a 3-digit number.

You Do • Students complete the table for:
300, 690, 799, 205 (Student Book page 5).
Encourage them to explain what changes and why.

2. Counting Patterns Forwards and Backwards

I Do • Model counting forwards and backwards in 10s and 100s from 450.
Forwards in 10s: 460, 470, 480...
Backwards in 100s: 450, 350, 250...
Explain: When we count forwards, digits increase; when we count backwards, they decrease.

We Do • Count together by 10s from 275 (275, 285, 295...) and backwards (295, 285, 275...).
Ask: How many jumps did we make? What pattern do we see?

You Do • Students choose a starting number and count three steps forwards and backwards by tens, then by hundreds.
E.g. Start at 640 → Forwards by tens: 650, 660, 670 → Backwards by hundreds: 570, 470, 370.
Check for understanding with quick questions:
What comes after 689 if we count by tens?
What comes before 600 if we count by hundreds?

Differentiation Tips

Support:

- Use place-value blocks or arrow cards to physically model +1, +10, +100.
- Keep starting numbers under 200.

Extension:

- Use starting numbers near transitions (e.g. 398, 699, 995) to challenge regrouping across hundreds.
- Have students predict and record sequences counting by 25s or 50s.

Teaching as Inquiry:

Observe which students rely on counting-on strategies rather than place-value reasoning.

Hands-On Activity 1 (10 minutes)

Table Challenge – 'How Much More or Less?'

Students work in pairs using dice:

- Roll a 3-digit number (e.g. 486).
- Partner finds 1 more, 10 more, 100 more, 1 less, 10 less, 100 less.
- Record results and compare explanations.

Ask: Which digit changed each time?

Hands-On Activity 2 (10–15 minutes)

Problem-Solving Game – Who Will Land on 850?

Starting at 700:

- Flea jumps in **10s** (710, 720, 730...)
- Grasshopper jumps in **20s** (720, 740, 760...)
- Frog jumps in **50s** (750, 800, 850...)

Ask: Which jumper will land on 850 exactly? (Frog)
Which numbers will each jumper land on?
What patterns do you see in their jumps?

Students record each sequence in their books, drawing number lines to show the jumps. Encourage mathematical talk: *Flea will pass 850 but not land on it because...*

Student Book Practice

Students complete **page 3: Counting in Tens and Hundreds**.

Focus: Find 1, 10 and 100 more/less than given numbers, record counting patterns, apply counting strategies to solve a skip-counting problem.

Mathletics Online Practice

Number structures: Numbers up to 10,000

Quest:

Adding & subtracting multiples of 10

Reflect and Check (5 minutes)

Quick-fire questions:

- What happens when you add 10 to 799?
- What is 100 less than 690?
- When you count backwards by 10s, which digit changes?
- Which jumper landed on 850, and why?

Reflect and Share:

Ask: 'How can knowing 10 more or less help when adding and subtracting larger numbers?'

Feedback:

Praise students for using reasoning vocabulary (e.g. *hundreds digit*, *tens digit*, *pattern*).

Encourage students to check their answers by counting mentally and visually.

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can confidently count across boundaries (e.g. 199 → 200, 999 → 1,000).
- Provide more pattern recognition and transition practice for students needing support.
- Extend fluent students to predict the 5th or 10th number in a counting sequence.

Curriculum and 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
- Counting in 10s, 100s, and 1,000s from any whole number up to 10,000

DAILY LESSON PLAN Week 1 • Lesson 3

Topic: Place Value – Hundreds, Tens and Ones

In this lesson, students deepen their understanding of the base 10 structure of numbers up to 1,000. They represent three-digit numbers using hundreds, tens and ones; identify the value of each digit; and build and read numbers using place-value models and charts.

Learning Intention

Students will understand that each digit in a three-digit number has a different value depending on its place — hundreds, tens, or ones.

Success Criteria

- ✓ I can identify the hundreds, tens and ones in a three-digit number.
- ✓ I can explain what each digit represents.
- ✓ I can build and write numbers up to 1,000 using place-value materials.
- ✓ I can read and write three-digit numbers correctly.

Language Focus

Key terms: place value, hundreds, tens, ones, digit, value, numeral, base ten, expanded form

Sentence stems:

- The number _____ has _____ hundreds, _____ tens and _____ ones.
- The digit _____ is in the tens place, so it means _____ .
- _____ hundreds + _____ tens + _____ ones = _____ .
- The value of _____ is _____ .

Launch Activity (5 minutes)

Warm-up: Display 364 using place-value blocks (3 hundreds, 6 tens, 4 ones).
Ask: How many hundreds? How many tens? How many ones?
Record: 364 = 300 + 60 + 4
Repeat with 508 and 270 to show how some digits can be zero.

Assessment for Learning:

Ask: What does the zero mean in 508? (There are no tens.)

Explicit Instruction (10–12 minutes)

1. Understanding the Value of Each Digit

I Do • Model several numbers using place-value blocks and write their expanded form:
425 = 400 + 20 + 5
790 = 700 + 90 + 0
Explain: The position of a digit tells us how many hundreds, tens, or ones it represents.'

We Do • Together, represent and write 638 on the board.
Ask: Which digit is in the hundreds place? Tens? Ones?
Record: 638 = 600 + 30 + 8

You Do • Students use base 10 blocks or arrow cards to build the numbers 312, 405, 999.
They complete a table in their books:

Number	Hundreds	Tens	Ones	Expanded Form
312	3	1	2	300 + 10 + 2
405	4	0	5	400 + 0 + 5
999	9	9	9	900 + 90 + 9

2. Reading and Writing Numbers

I Do • Show the number 728 and say: This is seven hundred and twenty-eight. Explain that we read numbers by grouping hundreds, tens and ones.

We Do • Read several examples together from the board: 310, 547, 902.
Ask: How many tens are in 547? How many ones?

You Do • Students practise matching written numbers and words: e.g. 804 = eight hundred and four.

3. Using the Place Value Chart

I Do • Draw a place-value chart on the board:

Hundreds	Tens	Ones
4	3	6

Explain: This shows 436 – 4 hundreds, 3 tens, 6 ones.

We Do • Students help fill in the chart for 250 and 907.

You Do • Students complete their own charts for 134, 789, 920 and 645 (Student Book page 4).
Ask: What happens if we add one more ten to 920? (It becomes 930 – tens digit changes.)

Differentiation Tips

Support:

- Use physical base 10 materials for every example.
  Focus on two-digit numbers first, then move to three-digit.

Extension:

- Introduce 4-digit numbers (e.g. 1,203) and have students describe thousands, hundreds, tens and ones.
- Challenge: Write numbers in expanded and word form.

Teaching as Inquiry:

- Note which students can explain *why* digits change and who rely on rote counting.

Hands-On Activity 1 (10 minutes)

Build and Break It

Students use base 10 blocks to:

- Build a number the teacher calls (e.g. 743).
- Then break it into hundreds, tens and ones and record it (700 + 40 + 3).
- Swap with a partner to check each other's work.

Hands-On Activity 2 (10–15 minutes)

Number Match Relay

Lay cards on the floor:

- Number cards (e.g. 523, 406, 890)
- Word cards (five hundred and twenty-three, etc.)
- Expanded cards (500 + 20 + 3)

Students race to match all three representations.

Student Book Practice

Students complete **page 4: Place Value**.

Focus: Identify the place value of digits in 3-digit numbers, write numbers in expanded form, match numerals, words and base 10 models.

Mathletics Online Practice

Skill Quest Topic: Number structures: Numbers to 1,000

Quest:

Using place value with 3-digit numbers

Reflect and Check (5 minutes)

Quick-fire questions:

- What does the 7 mean in 672?
- How many hundreds are in 905?
- What is the value of the 3 in 431?
- How do we know that 507 means five hundreds and seven ones?

Reflect and Share:

Ask: How does place value help us read and write large numbers?

Feedback:

Praise students for clear explanations using hundreds, tens and ones.
Encourage full-sentence answers using the sentence stems.

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can explain digit value clearly and who confuses tens and hundreds.
- Provide more modelling practice for those unsure.
- Extend confident students to four-digit numbers or decimal tenths later in term.

Curriculum and 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 1 • Lesson 4

Topic: Place Value – Understanding Hundreds, Tens and Ones Using Numeral Expanders

In this lesson, students explore how numeral expanders help them visualise the parts of a number — hundreds, tens and ones. By opening and closing the expander, they see how a number is made up of smaller parts. They then apply this knowledge to work out place value without using the expander.

Learning Intention

Students will understand that a three-digit number can be 'expanded' to show its hundreds, tens and ones, and that this structure helps them to reason about numbers without concrete materials.

Success Criteria

- ✓ I can use a numeral expander to show the hundreds, tens and ones in a number.
- ✓ I can describe how many hundreds, tens and ones are in a three-digit number.
- ✓ I can explain how numbers are made by combining hundreds, tens and ones.
- ✓ I can work out how many hundreds, tens and ones are in a number without using the expander.

Language Focus

Key terms: numeral expander, place value, hundreds, tens, ones, expanded form, digits, partition, regroup, base ten

Sentence stems:

- When I open the expander, I can see _____.
- _____ has _____ hundreds, _____ tens and _____ ones.
- The tens are made from the hundreds being opened up.
- When I close the expander, I see the whole number _____.

Launch Activity (5 minutes)

Warm-up: Write 328 on the board.
Ask: How many hundreds? (3) How many tens? (2)
How many ones? (8)
Then show a numeral expander for 328.
Demonstrate: when closed → 328; when opened → 300 + 20 + 8.
Ask: What happens when we open it up? What do we see?

Assessment for Learning: Ask: What do the parts tell us about the number?

Explicit Instruction (10–12 minutes)

1. Exploring the Numeral Expander

I Do • Model using a numeral expander for 647.
Open it to show:
600 + 40 + 7
Explain: Each flap shows a new place value part — hundreds, tens and ones.
Close it again and say: When I close the hundreds, I can see there are 64 tens altogether in 647.

We Do • Together, explore several numbers (e.g. 320, 905, 781).
Ask: How many tens are there in 320? (32 tens)
How many hundreds are there? (3 hundreds)
What happens when we close the hundreds flap?

You Do • Students use numeral expanders to explore: 456, 230, 719 and 608.
They record what they see:

Number	Hundreds	Tens	Ones	Total Tens	Expanded Form
456	4	5	6	45 tens + 6 ones	400 + 50 + 6
230	2	3	0	23 tens	200 + 30 + 0
719	7	1	9	71 tens + 9 ones	700 + 10 + 9

2. Understanding Patterns

I Do • Explain: We don't need the expander. Once we know that 1 hundred = 10 tens, we can see how many tens or hundreds are in any number.
Write examples:
580 → 58 tens
340 → 3 hundreds and 4 tens
Ask: 'How do we know?'

We Do • Practise converting between hundreds and tens together.
Ask: How many tens are in 600? (60) How many ones are in 400? (400)

You Do • Students complete short exercises converting:
900 = _____ tens
540 = _____ hundreds and _____ tens
230 = _____ tens and _____ ones
Check answers together.

Differentiation Tips

Support:

- Use real numeral expanders or foldable paper templates.
- Use smaller numbers (to 200) to consolidate concept.

Extension:

- Explore numbers over 1,000 (e.g. 1,205 ➜ 12 hundreds + 0 tens + 5 ones).
- Challenge: How many tens in 1,000? (100 tens)

Teaching as Inquiry:

Note which students can explain the tens-in-hundreds relationship verbally.

Hands-On Activity 1 (10 minutes)

Make Your Own Numeral Expander

Students fold and cut paper to make a numeral expander for a chosen number (teacher provides templates).
They label the flaps 'Hundreds,' 'Tens,' and 'Ones,' and write each part inside.
Example:
Front: 853
Flaps: 800 | 50 | 3

Hands-On Activity 2 (10–15 minutes)

Numeral Expander Detective

Teacher shows an expanded form (e.g. 400 + 50 + 6).
Students 'close' it mentally and write the full number (456).
Then reverse: teacher shows 782 ➜ students write the expanded form.
Students work in pairs and check each other's answers.

Student Book Practice

Students complete **page 5: Place value**.

Focus: Identify hundreds, tens and ones using expanders. Convert between expanded and standard form. Determine total tens and hundreds in a number.

Mathletics Online Practice

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

Activity:

Partition and Rename 1

Reflect and Check (5 minutes)

Quick-fire questions:

- What does the numeral expander show us about a number?
- How many tens are in 540?
- What happens when you close the hundreds on an expander?
- How many ones are in 300?

Reflect and Share:

Ask: How does using the expander help you understand large numbers?

Feedback:

Praise reasoning and accurate vocabulary (hundreds, tens, ones). Encourage students to explain patterns in their own words.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who can visualise the structure without the expander.
- Provide additional hands-on practice for those who need concrete support.
- Extend confident students to apply the same reasoning to 4-digit numbers.

Curriculum and 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 1 • Lesson 5

Topic: Write and Order 3-Digit Numbers

In this lesson, students explore number patterns, practise reading and writing 3-digit numbers in words, and use the symbols <, >, and = to compare numbers. They then use number cards to create all possible 3-digit numbers and investigate which are odd or even.

Learning Intention

Students will understand that 3-digit numbers can be built, read and compared using their place-value structure, and that patterns help us describe and predict relationships between numbers.

Success Criteria

- ✓ I can read and write 3-digit numbers in words and digits.
- ✓ I can compare numbers using <, >, and = symbols.
- ✓ I can recognise and describe number patterns.
- ✓ I can make and sort 3-digit numbers as odd or even.

Language Focus

Key terms: hundreds, tens, ones, odd, even, pattern, greater than (>), less than (<), equal to (=), numeral, digits, number words

Sentence stems:

- _____ is greater than _____ because it has more hundreds/tens.
- _____ is less than ___ because _____.
- The pattern increases by _____.
- The number _____ is even/odd because _____.
- The digits _____, _____, and _____ can make _____ different 3-digit numbers.

Launch Activity (5 minutes)

Display a sequence: 203, 213, 223, 233, _____, _____
Ask: What pattern do you see? (Counting by 10s.)
What numbers come next? (243, 253.)
Then show another: 640, 630, 620, _____, _____
Ask: What's happening this time? (Decreasing by 10s.)

Assessment for Learning: Ask: What clues help you know if a pattern is increasing or decreasing?

Explicit Instruction (10–12 minutes)

1. Reading and Writing 3-Digit Numbers

I Do • Write several numbers on the board: 426, 509, 870.
Model how to read them aloud: Four hundred and twenty-six.
Explain: The hundreds digit tells us how many hundreds; the next digits tell us tens and ones.

We Do • Read examples together: 342, 605, 790.
Then write the words on the board together.

You Do • Students write the following in words:
128, 450, 999.
Then write these in digits:
seven hundred and four, eight hundred and sixty, three hundred and nineteen.

2. Comparing Numbers Using <, >, and =

I Do • Show 472 and 527.
Ask: Which number is greater?
Explain: 527 has more hundreds (5 vs 4), so it's greater.
Write: 472 < 527

We Do • Compare 608 and 605; 730 and 703.
Ask: What helps you decide which is greater?

You Do • Students complete quick comparisons on mini-whiteboards or in books:
315 _____ 351, 908 _____ 890, 440 _____ 404, 555 _____ 555.
Discuss reasoning.

3. Exploring Number Patterns

I Do • Write: 120, 130, 140, 150, _____, _____
Ask: What's the rule? (Add 10.)
Show a decreasing pattern next: 700, 600, 500, 400.
Explain: Patterns can increase or decrease by the same amount each time.

We Do • Continue with examples:
305, 310, 315, _____, _____
What's the rule? (Add 5.)

You Do • Students complete number pattern questions from Student Book page 6.

Differentiation Tips

Support:

- Provide number lines and 100s charts to help visualise patterns.
- Use concrete place-value blocks to compare numbers physically.

Extension:

- Create patterns that skip by mixed amounts (e.g. +10, +20, +30).
- Challenge: 'What happens if the pattern goes over 1,000?'

Teaching as Inquiry:

Observe who can explain their comparison reasoning clearly and who relies on counting.

Hands-On Activity 1 (10 minutes)

Make Them All! – Number Card Challenge

Provide students with 3 digit cards (e.g. 2, 5, 8).

Ask: How many different 3-digit numbers can you make?

Students arrange and record all possible combinations:
258, 285, 528, 582, 825, 852 (6 in total).

Then:

- Identify which are odd and which are even (based on the ones digit).
- Record totals in a table:

Odd Numbers	Even Numbers
285, 825	258, 528, 582, 852

Ask: What do you notice about the ones digits in even numbers? (They end in 0, 2, 4, 6, 8.)

Hands-On Activity 2 (10–15 minutes)

Number Match & Compare Game

Students draw two 3-digit number cards from a deck (0–9 digit cards).

They read both numbers aloud, write them in words, and then use <, >, or = to compare them.

Partners check and explain reasoning using place-value language.

Student Book Practice

Students complete **page 6: Write and Order 3-digit Numbers**.

Focus: Identify and continue increasing and decreasing patterns. Read and write 3-digit numbers in words and digits. Use <, >, and = to compare numbers. Create and sort 3-digit numbers into odd and even groups.

Mathletics Online Practice

Skill Quest Topic: Number structures: Numbers to 1,000

Quest: Reading & writing 3-digit numbers

Reflect and Check (5 minutes)

Quick-fire questions:

- What does the > symbol mean?
- How can you tell if a number is odd or even?
- How many 3-digit numbers can you make with the digits 1, 4 and 7?
- What pattern do you see in the numbers that are even?

Reflect and Share:

Ask: How do patterns help you understand and compare numbers?

Feedback:

Praise reasoning that uses *hundreds, tens, and ones* vocabulary.
Encourage explanation of rules in full sentences.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who confuse digit order (e.g. 530 vs 350).
- Provide additional matching and sorting games to reinforce reading and comparing.
- Extend confident students to 4-digit pattern recognition or odd/even reasoning.

Curriculum and Planning Links

NZ Curriculum (2025) – Number & Algebra

Number structures & Equations and relationships

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.
- Numbers can be compared using 'greater than' (>), 'less than' (<), and equals (=).

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

Unit: Numbers to 1,000

Focus: Counting, place value, and number patterns within 1,000

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Counting Sequences	Students can count forwards and backwards by 1s, 10s and 100s from any 3-digit number.	Accurately completes number sequences and explains which digit changes when adding or subtracting 10 or 100.
Place Value Knowledge	Understands that each digit in a 3-digit number represents hundreds, tens, or ones.	Identifies and explains digit values; writes numbers in expanded form (e.g. 345 = 300 + 40 + 5).
Base 10 Relationships	Recognises that 1 hundred = 10 tens and 1 ten = 10 ones.	Uses MAB or numeral expanders to show 100s, 10s and 1s and can explain how many tens are in a number.
Reading and Writing Numbers	Reads and writes 3-digit numbers in words and numerals.	Writes number words correctly; matches numerals and written forms; reads aloud accurately.
Comparing and Ordering Numbers	Compares and orders numbers using <, >, and =.	Correctly identifies which number is greater or less; uses place-value reasoning to justify comparisons.
Odd and Even Patterns	Recognises that even numbers end in 0, 2, 4, 6, or 8 and odd numbers in 1, 3, 5, 7, or 9.	Sorts and explains 3-digit numbers as odd or even based on ones digit.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students counting forwards and backwards in 10s and 100s using charts or MAB blocks.	Are they using efficient skip-counting strategies? Can they explain which digit changes and why?
Oral Check	Ask students to explain a number's structure (e.g. 'Tell me about 528').	Listen for accurate use of vocabulary: hundreds, tens, ones, digit, value.
Written Work	Review Student Book pp. 2–6.	Check accuracy of expanded forms, comparison symbols, and pattern completion.
Practical Task	Have students use numeral expanders or base 10 blocks to build and record numbers.	Do they show correct representation and verbalise reasoning clearly?
Exit Ticket / Quick Quiz	Provide short end-of-week questions to assess understanding.	Identify students who still confuse digit value or struggle to cross hundreds boundaries.

Quick Quiz / Exit Ticket (5 Questions)

1. Write the number that is **10 more** than 487.
2. What is **100 less** than 920?
3. Write **four hundred and sixty-three** in numerals.
4. Which is greater: 589 or 598? Explain why.
5. Circle the **odd** numbers: 342, 555, 708, 931.

Teaching as Inquiry: Reflection Notes

Reflection Prompts and Next Steps

Students confidently identifying place value and counting patterns:

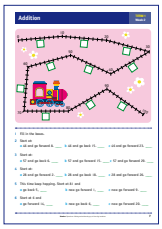
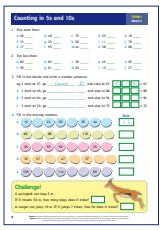
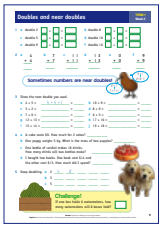
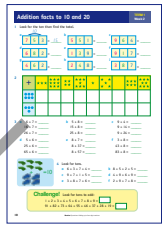
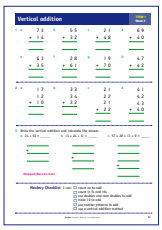
Students needing extra support with 10s and 100s transitions:

Misconceptions noticed (e.g. confusing digit position or regrouping across hundreds):

Language and vocabulary gaps to revisit (hundreds, tens, ones, greater than, less than):

Adjustments for future lessons (e.g. more hands-on practice or number pattern games):

Term 1 Week 2 Overview Addition: Mental and Written Strategies

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Jumping Forwards and Backwards by Two-Digit Numbers**	We can add and subtract by making jumps of tens and ones on a number line.	✓ Count forwards and backwards by tens and ones ✓ Use jumps of tens and ones to solve addition and subtraction ✓ Explain which digits change and why	– Use number lines to show jumps of 10s and 1s – Add and subtract two-digit numbers using jumps – Problem-solving: *Who will land on 100?*	**Page 7:** Count forwards and backwards by tens and ones; solve addition and subtraction using number lines. 
2 **Counting in 5s and 10s**	Counting in 5s and 10s creates predictable patterns that help with addition and subtraction.	✓ Count forwards and backwards in 5s and 10s from any number ✓ Recognise patterns in tens and ones digits ✓ Use skip-counting to solve problems	– Skip-count forwards and backwards in 5s and 10s – Identify multiples of 5 and 10 – Colour and describe number patterns on hundreds charts	**Page 8:** Count forwards and backwards in 5s and 10s; identify patterns; complete skip-counting sequences. 
3 **Doubles and Near Doubles to 20 + 20**	Doubles and near doubles can be used to solve addition problems efficiently.	✓ Recall doubles and near doubles to 20 + 20 ✓ Use doubles to solve near doubles ✓ Apply doubles strategies to real-world problems	– Quick-fire doubles and near doubles – Solve word problems using near doubles – Game: 'Double It, Then Add One'	**Page 9:** Recall doubles and near doubles; apply to solve addition and word problems. 
4 **Addition Facts to 10 and 20: Look for the Ten and the Associative Property**	Numbers can be grouped in different ways when adding and making ten helps to add efficiently.	✓ Recall addition facts to 10 and 20 ✓ Group numbers to make ten ✓ Use the associative property to regroup and add ✓ Explain that grouping does not change the total	– Look for the Ten strategy with 3 numbers – Explore and model the associative property – Create equations showing different groupings	**Page 10:** Use make-ten strategies and associative property to add three numbers. 
5 **Vertical Addition: 2- and 3-Number Algorithms**	Vertical algorithms help us add efficiently when digits are lined up by place value.	✓ Line up tens and ones correctly ✓ Add 2- and 3-number 2-digit problems using vertical addition ✓ Regroup when ones make more than ten ✓ Write algorithms for word problems	– Model vertical addition with and without regrouping – Add three 2-digit numbers – Write vertical algorithms for real-life addition problems	**Page 11:** Complete vertical addition with and without regrouping; write and solve addition word problems. 

DAILY LESSON PLAN Week 2 • Lesson 1

Topic: Jumping Forwards and Backwards on a Number Line

In this lesson, students use number lines to practise jumping forwards and backwards by two-digit numbers within 100. They explore how adding and subtracting tens and ones creates efficient strategies for working out addition and subtraction problems mentally.

Learning Intention

Students will understand that we can add and subtract numbers by making jumps of tens and ones on a number line.

Success Criteria

- ✓ I can use a number line to jump forwards or backwards by tens and ones.
- ✓ I can describe how far I move and what each jump represents.
- ✓ I can solve addition and subtraction problems using number-line jumps.
- ✓ I can explain my strategy using place-value language.

Language Focus

Key terms: number line, jump, forwards, backwards, add, subtract, tens, ones, difference, total

Sentence stems:

- I jumped forwards ___ tens and ___ ones to reach ___.
- To subtract, I jumped back ___ from ___.
- ___ + ___ = ___ because I made jumps of ___.
- The difference between ___ and ___ is ___.

Launch Activity (5 minutes)

Warm-up:

Show a number line from 0–100 on the board.

Ask: If I start at 35 and jump forwards 10, where do I land? (45)

- If I jump back 20, where will I land? (25)

Demonstrate with large jumps (10s) and smaller jumps (1s).

Explain: 'Each jump forwards means we are adding. Each jump back means we are subtracting'.

Assessment for Learning:

Ask: What happens to the tens digit when we jump by 10s? What happens to the ones digit when we jump by 1s?

Explicit Instruction (10–12 minutes)

1. Jumping Forwards and Backwards

I Do • Model on the board:

Start at 25.

+30 ➜ 55 ➜ +12 ➜ 67.

Explain: I first made a jump of 30 (three tens), then a smaller jump of 12 (ten and two ones). That's more efficient than counting by ones.

We Do • Together, solve:

Start at 42. Jump forwards 24.

Count tens: +20 = 62, +4 = 66.

Then backwards example: Start at 90. Jump back 36 ➜ 54.

Ask: What's the easiest way to break up the jumps? (By tens and ones.)

You Do • Students use mini whiteboards or number strips to practise:

Start at 38, jump forwards 26.

Start at 77, jump backwards 32.

They record jumps visually and numerically.

2. Linking to Place Value

I Do • Explain: When we add 23, that means add 20 and then 3.

Write: 45 + 23 = (45 + 20) + 3 = 68.

Show how this matches two jumps on the number line.

We Do • Together, solve:

62 + 35 = ?

Jump +30 = 92, +5 = 97.

Then: 92 – 40 = ? (Jump back 4 tens = 52).

You Do • Students solve similar problems:

– 46 + 28

– 75 – 32

– 53 + 15

Encourage use of tens and ones jumps rather than counting by ones.

Differentiation Tips

Support:

- Use 0–100 laminated number lines for physical jumping.
- Keep jumps to multiples of 10 and 5 first.

Extension:

- Introduce jumps across hundreds (e.g. 95 + 20 = 115).
- Challenge students to explain two different ways to solve the same problem.

Teaching as Inquiry:

Observe which students use structured tens-and-ones jumps versus those who count on by ones.

Hands-On Activity 1 (10 minutes)

Jump Track Race

Students work in pairs with a 0–100 number line.

- Player 1 rolls two dice to make a 2-digit number (e.g. 43).
- They 'jump forwards' that many spaces from a starting number.
- Player 2 rolls and jumps backwards the rolled amount.
- First to land exactly on 0 or 100 wins.

Ask: 'How did you work out your jumps?'

Hands-On Activity 2 (10–15 minutes)

Target Jumps Challenge

Write target numbers on the board (e.g. 50, 75, 100).

Give each pair a starting number (e.g. 24) and a list of possible jumps (10, 15, 20, 25, 30).

They plan and record how to reach the target using the fewest jumps possible.

Discuss which combinations worked best and why.

Student Book Practice

Students complete **page 7 – Addition**

Focus: Use number lines to show tens and ones jumps. Solve addition and subtraction using forwards/backwards movement. Record total jumps in tens and ones.

Mathletics Online Practice

Activities (Courses) Topic: Operations: Addition & subtraction

Activity: Are you ready?

Reflect and Check (5 minutes)

Quick-fire questions:

- What happens when you jump forwards by 10?
- What happens when you jump backwards by 20?
- How can you break 37 into tens and ones to make your jumps easier?
- How does a number line help you add or subtract?

Reflect and Share:

Ask: What strategy helped you add and subtract quickly today?

Feedback:

Praise students who break numbers into tens and ones.

Encourage clear explanation of jump sizes and directions.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who still count by ones instead of using place-value jumps.
- Provide extra modelling and manipulatives for these students.
- Extend fluent students to cross 100 (e.g. 78 + 25).

Curriculum and 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 2 • Lesson 2

Topic: Counting in 5s and 10s – Forwards and Backwards to 100

In this lesson, students practise counting forwards and backwards in 5s and 10s from any starting number within 100. They explore patterns in the ones and tens digits, identify multiples of 5 and 10, and use these patterns to add and subtract efficiently.

Learning Intention

Students will understand that counting in 5s and 10s creates predictable number patterns that help with addition, subtraction and recognising multiples.

Success Criteria

- ✓ I can count forwards and backwards in 5s and 10s from any number.
- ✓ I can recognise the patterns made when I count in 5s and 10s.
- ✓ I can explain how the digits change when adding or subtracting 5 or 10.
- ✓ I can use skip-counting to solve addition and subtraction problems.

Language Focus

Key terms: skip-counting, multiples, pattern, sequence, forwards, backwards, add, subtract, tens, ones

Sentence stems:

- When I count in 5s, the ones digits are ___.
- When I count in 10s, the tens digit changes by ___.
- Counting back by 5s means I subtract ___.
- I noticed the pattern ___.

Launch Activity (5 minutes)

Write on the board: 5, 10, 15, 20, __, __, __.

Ask: 'What pattern do you see?' (Add 5 each time.)

Then: 100, 90, 80, __, __, __. (Add? No – we subtract 10 each time.)

Ask: 'What happens to the digits when we go up by 10?' (Only the tens digit changes.)

Assessment for Learning:

Ask: 'Can you start at 13 and count forwards in 5s?' 'Start at 72 and count back in 10s'.

Listen for accurate skip-counting and pattern language.

Explicit Instruction (10–12 minutes)

1. Counting in 5s

I Do • Model counting on the board from 0 in 5s to 100 (0, 5, 10, 15 ...).

Circle the ones digits (5, 0, 5, 0 ...).

Explain: The pattern in the ones digit repeats 5, 0, 5, 0 – multiples of 5 always end in 5 or 0.

We Do • Count together starting at 20: 25, 30, 35, 40 ...

Then start at 83 and count backwards in 5s.

Ask: What do you notice about the ones digits?

You Do • Students choose their own starting number and count in 5s forwards and backwards, recording each sequence.

2. Counting in 10s

I Do • Write the sequence 17, 27, 37, 47, 57 ...

Explain: When we count in 10s, the tens digit increases by one each time and the ones digit stays the same.

We Do • Start at 34 and count forwards by 10s (34, 44, 54 ...).

Then start at 92 and count backwards by 10s.

Ask: What pattern do you see in the tens column?

You Do • Students complete number-line jumps of +10 and –10 from random starting numbers (using mini whiteboards or book examples).

3. Applying Patterns to Addition and Subtraction

I Do • Show examples:

48 + 5 = 53 70 – 10 = 60 86 + 10 = 96

Explain: 'We can use skip-counting to work out these problems mentally'.

We Do • Together, solve: 65 + 5, 42 + 10, 78 – 5, and 93 – 10.

You Do • Students write and solve five skip-counting addition and subtraction sentences using 5s and 10s.

Differentiation Tips

Support:

- Use number lines and hundreds charts with highlighted multiples of 5 and 10.
- Practise starting from multiples of 5 before non-multiples.

Extension:

- Skip-count by 25s or 50s.
- Explore patterns in larger numbers (e.g. 115, 125, 135 ...).

Teaching as Inquiry:

Observe whether students can articulate the patterns in ones and tens digits when skip-counting.

Hands-On Activity 1 (10 minutes)

Count and Colour Pattern Race

Provide a hundreds chart.

Students colour multiples of 5 in one colour and multiples of 10 in another.

Ask: 'What pattern do you see in the columns and rows?'

Hands-On Activity 2 (10–15 minutes)

Skip-Counting Ladders

Students create number ladders starting from a chosen number (e.g. 13, 27, 42).

They write and extend the pattern by +5 or +10, then reverse the pattern to count backwards.

Compare ladders and discuss how the digits change.

Student Book Practice

Students complete **page 8 – Counting in 5s and 10s**

Focus: Count forwards and backwards in 5s and 10s from any starting number to 100. Identify and describe patterns in tens and ones digits. Use skip-counting to solve simple addition and subtraction problems.

Mathletics Online Practice

Skill Quest Topic: Number structures: Count multiples

Quest: Counting in 5s

Reflect and Check (5 minutes)

Quick-fire questions:

- What do you notice about the ones digits when you count in 5s?
- What changes when you add 10 to a number?
- How is counting back in 5s different from counting back in 10s?
- How can skip-counting help you solve addition problems?

Reflect and Share:

Ask: Which skip-counting pattern was easier for you and why?

Feedback:

Praise students who can describe digit patterns and use skip-counting language accurately.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who struggle to count from non-multiples of 5 or 10.
- Provide targeted practice starting from odd numbers (e.g. 7, 18, 23).
- Extend confident students to count by larger multiples and across hundreds.

Curriculum & Planning Links

NZ Curriculum (2025) – Number & Algebra

Number Structures, Operations & Equations and relationships

Knowledge

- Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods.
- Growing patterns can increase or decrease by the addition or subtraction of a constant (arithmetically) or multiplication or division by a constant (geometrically).

Practices

- Adding and subtracting up to four-digit numbers.
- Counting forwards and backwards in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 25s and 50s from multiples of the counting unit.
- Counting in 10s, 100s and 1,000s from any whole number up to 10,000.
- Recognising, continuing, creating and describing growing patterns that change by adding, subtracting or multiplying by a constant whole number.

DAILY LESSON PLAN Week 2 • Lesson 3

Topic: Doubles and Near Doubles to 20 + 20

In this lesson, students practise doubling and near-doubling strategies to improve addition fluency. They learn how to use doubles facts to solve near-doubles problems efficiently and apply these strategies to real-world word problems.

Learning Intention

Students will understand that doubles and near doubles can be used to solve addition problems quickly and accurately.

Success Criteria

- ✓ I can recall doubles and near doubles to 20 + 20.
- ✓ I can use a doubles fact to help solve a near doubles problem.
- ✓ I can apply doubles and near doubles to solve addition word problems.
- ✓ I can explain my reasoning using number facts.

Language Focus

Key terms: double, near double, total, add, plus, strategy, pattern, difference, equation

Sentence stems:

- Double ___ is ___.
- ___ + ___ is one more than ___ + ___.
- I knew ___ + ___ = ___ because I used the double ___.
- My strategy was ___.

Launch Activity (5 minutes)

Quick-fire doubles quiz:

2 + 2, 5 + 5, 8 + 8, 10 + 10, 12 + 12, 15 + 15, 20 + 20

Then near doubles:

5 + 6, 8 + 9, 14 + 15

Ask:

'What do you notice about near doubles?' (They are just one more or one less than a double.)

Assessment for Learning:

Ask: 'How can knowing a double help you work out a near double quickly?'

Explicit Instruction (10–12 minutes)

1. Reviewing Doubles

I Do • Show examples on the board:

6 + 6 = 12 9 + 9 = 18 15 + 15 = 30

Explain: 'Doubling means adding the same number to itself. It helps us solve other problems faster'.

We Do • Choral practice – class says the doubles aloud together. Write them in two columns: doubles under 10, doubles over 10.

You Do • Students record their own 'Doubles Ladder' to 20 + 20.

2. Introducing Near Doubles

I Do • Write: 6 + 7 = ?

Explain: 'I know 6 + 6 = 12, so 6 + 7 must be one more, which is 13'.

We Do • Together, solve:

8 + 9 = ? → 8 + 8 + 1 = 17

14 + 15 = ? → 14 + 14 + 1 = 29

You Do • Students practise near doubles with small and large numbers.

E.g. 9 + 10, 12 + 13, 19 + 20

3. Applying to Word Problems

I Do • Model: I bought 2 books. One cost $14 and the other cost $13. I know 14 + 14 = 28, so the total is $27.

We Do • Together, solve:

A cat has 7 kittens and the dog has 6 puppies. How many babies altogether?

(7 + 7 = 14, so 7 + 6 = 13.)

You Do • Students complete 3 word problems using the near doubles strategy.

Differentiation Tips

Support:

- Provide visual aids such as double ten frames or counters.
- Focus on doubles within 10 before extending to 20 + 20.

Extension:

- Explore triples (e.g. 6 + 6 + 6).
- Use doubles to estimate larger addition sums.

Teaching as Inquiry:

Observe who can transfer the doubles pattern to near doubles independently.

Hands-On Activity 1 (10 minutes)

Double It, Then Add One Game

Students roll a die, double the number, then add 1.

They record both the double and near double answers.

Example: roll 7 → double = 14, near double = 15.

Hands-On Activity 2 (10–15 minutes)

Double Dash Race

Students complete doubles and near doubles equations on cards as fast as possible.

Check accuracy and discuss which strategy was easiest and why.

Student Book Practice

Students complete **page 9 – Doubles and Near Doubles.**

Focus: Recall doubles and near doubles facts to 20 + 20. Use doubles to solve near doubles.

Solve real-world addition problems using these strategies.

Mathletics Online Practice

Activities (Courses) Topic: Operations: Addition & subtraction

Activity: Doubles and near doubles

Reflect and Check (5 minutes)

Quick-fire questions:

- What's double 8?
- How can you find 8 + 9 quickly?
- How is a near double different from a double?
- How could you use a doubles fact to solve 13 + 14?

Reflect and Share:

Ask: Which strategy helped you solve problems faster today?

Feedback:

Praise students for explaining how they used doubles reasoning.

Encourage use of full sentences when describing strategies.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who rely on counting rather than doubles recall.
- Provide flashcard practice for doubles within 20.
- Extend fluent students to larger near doubles and contextual problems.

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.
- Growing patterns can increase or decrease by the addition or subtraction of a constant (arithmetically) or multiplication or division by a constant (geometrically).

Practices

- Adding and subtracting up to four-digit numbers.
- Recognising, continuing, creating and describing growing patterns that change by adding, subtracting or multiplying by a constant whole number.

DAILY LESSON PLAN Week 2 • Lesson 4

Topic: Addition Facts to 10 and 20 – Looking for the Ten and Exploring the Associative Property

In this lesson, students practise addition facts to 10 and 20 and use the strategy of making ten when adding three numbers. They explore how numbers can be grouped in different ways when adding (the associative property) and still produce the same total.

Learning Intention

Students will understand that we can group numbers in different ways when adding, and use strategies like making ten to solve addition problems efficiently.

Success Criteria

- ✓ I can recall addition facts to 10 and 20.
- ✓ I can group numbers to make ten when adding three numbers.
- ✓ I can explain that changing the order or grouping of numbers does not change the total.
- ✓ I can use the associative property to solve addition problems more efficiently.

Language Focus

Key terms: addition, make ten, total, grouping, order, associative property, sum, strategy

Sentence stems:

- I can make ten by adding ___ and ___.
- I grouped ___ and ___ first because they make ten.
- It doesn't matter which two numbers I add first, the total stays the same.
- I used the associative property when I added ___.

Launch Activity (5 minutes)

Write on the board: 7 + 3 + 2

Ask: 'What would you add first? Why?'

Guide students to see that 7 + 3 makes 10, and then adding 2 makes 12.

Record: (7 + 3) + 2 = 10 + 2 = 12

Repeat with 6 + 4 + 5 and 8 + 2 + 1.

Assessment for Learning:

Ask: Does it matter which two numbers we add first? Why or why not?

Explicit Instruction (10–12 minutes)

1. Reviewing Addition Facts to 10 and 20

I Do • Model basic facts: 5 + 5, 8 + 2, 9 + 1, 14 + 6, 17 + 3.

Explain: Knowing these facts helps you add quickly in your head.

We Do • Play 'Quick Add' – teacher calls out pairs of numbers to 20, students respond with the total.

You Do • Students fill in missing addends on the board:

___ + 7 = 10, ___ + 8 = 20, ___ + 15 = 20.

2. Strategy – Look for the Ten

I Do • Write: 5 + 6 + 9 = ?

Explain: I look for two numbers that make ten first. 5 + 6 = 11, but 6 + 9 = 15, so I add the larger pair first.

Model both ways and discuss which is easier.

We Do • Together, solve:

4 + 8 + 2 = (8 + 2) + 4 = 10 + 4 = 14

7 + 5 + 3 = (7 + 3) + 5 = 10 + 5 = 15

You Do • Students work in pairs to find number pairs that make ten in sets of three numbers.

3. Generalising Number Properties – Associative Property

I Do • Explain: The associative property means that we can change how we group numbers when adding, and the total stays the same.

Write: (6 + 4) + 5 = 6 + (4 + 5)

Both equal 15.

Show using counters or number blocks to visualise regrouping.

We Do • Together, test with:

(2 + 8) + 3 and 2 + (8 + 3)

(5 + 5) + 10 and 5 + (5 + 10)

Ask: What do you notice? (The total doesn't change.)

You Do • Students write and test their own examples of the associative property using numbers to 20.

Differentiation Tips

Support:

- Use number lines or ten frames to identify pairs that make ten.
- Practise smaller numbers before extending to 20.

Extension:

- Apply associative property to larger sums (e.g. 25 + 6 + 9).
- Explore connections with mental addition strategies and parentheses.

Teaching as Inquiry:

Observe which students identify ten automatically and who need visual aids.

Hands-On Activity 1 (10 minutes)

Make Ten Match

Students receive cards with numbers 1–10.

They work in pairs to find combinations that make ten, then combine with another number to find totals to 20.

E.g. 7 + 3 + 4 = 10 + 4 = 14.

Hands-On Activity 2 (10–15 minutes)

Associative Chain Challenge

Students write a chain of three-number equations showing the associative property.

E.g. (3 + 7) + 5 = 15 and 3 + (7 + 5) = 15.

They decorate and share their chain equations to display around the classroom.

Student Book Practice

Students complete **page 10 – Addition Facts to 10 and 20.**

Focus: Recall addition facts to 10 and 20. Group numbers to make ten when adding three numbers. Explore and record examples of the associative property of addition.

Mathletics Online Practice

Activities (Courses) Topic: Operations: Addition & subtraction

Activity: Add 3 Numbers: Bonds to 100

Reflect and Check (5 minutes)

Quick-fire questions:

- What two numbers make ten?
- How can making ten help you add faster?
- What happens if you change the order of the numbers when adding?
- What does the associative property tell us?

Reflect and Share:

Ask: Which strategy helped you most today — making ten or changing the order?

Feedback:

Praise students who notice and use efficient grouping strategies.

Encourage use of mathematical language when describing the associative property.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who struggle to identify number pairs that make ten.
- Provide additional ten-frame practice for fluency.
- Extend confident students with regrouping in larger 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.

Practices

- Adding subtracting up to four-digit numbers.

DAILY LESSON PLAN Week 2 • Lesson 5

Topic: Vertical Addition – 2- and 3-Number Algorithms

In this lesson, students learn to set out and solve vertical addition problems with 2-digit numbers. They practise lining up tens and ones correctly, explore addition with and without regrouping, and write their own vertical algorithms for word problems.

Learning Intention

Students will understand that vertical algorithms help us add numbers efficiently when we line up the place values correctly.

Success Criteria

- ✓ I can set out vertical addition problems correctly with tens and ones in the right place.
- ✓ I can add two or three 2-digit numbers using a vertical algorithm.
- ✓ I can regroup when the ones add up to more than ten.
- ✓ I can write my own vertical algorithms to solve word problems.

Language Focus

Key terms: vertical, algorithm, regroup, carry, column, tens, ones, total, sum, addition

Sentence stems:

- I lined up the ___ under the ___ because they are the same place value.
- I regrouped ___ ones into ___ tens.
- My total is ___ because ___.
- To solve the problem, I wrote it as a vertical addition.

Launch Activity (5 minutes)

Warm-up:

Write on the board:

26 + 43 = ?

Ask: 'How could we set this out so it's easy to see tens and ones?'

Demonstrate:

```
  26
+ 43
```

Underline the ones column and tens column.

Ask: Which column do we add first? (Ones first, then tens.)

Assessment for Learning:

Ask: What happens when the ones add up to more than ten?

Explicit Instruction (10–12 minutes)

1. Vertical Addition – Two Numbers

I Do • Model:

```
  47
+ 36
```

Step 1: Add ones ➜ 7 + 6 = 13 (write 3, carry 1)

Step 2: Add tens ➜ 4 + 3 + 1 = 8

Answer: 83

Explain: 'We regroup the 10 ones into 1 ten'.

We Do • Solve together:

```
  58
+ 27
```

Ones: 8 + 7 = 15 ➜ write 5, carry 1

Tens: 5 + 2 + 1 = 8 ➜ total 85

You Do • Students solve independently:

64 + 25

38 + 43

72 + 19

2. Vertical Addition – Three Numbers

I Do • Show:

```
  23
+ 45
+ 31
```

Add ones ➜ 3 + 5 + 1 = 9

Add tens ➜ 2 + 4 + 3 = 9

Answer: 99

We Do • Solve together:

```
  56
+ 22
+ 13
```

Ones: 6 + 2 + 3 = 11 (write 1, carry 1)

Tens: 5 + 2 + 1 + 1 = 9

Answer: 91

You Do • Students complete several 3-number vertical additions, with and without regrouping.

3. Writing Their Own Algorithms (Word Problems)

I Do • Model: I bought three items: $24, $16 and $35. How much did I spend?

Show how to write the algorithm:

```
  24
+ 16
+ 35
```

Add ones ➜ 4 + 6 + 5 = 15 (write 5, carry 1)

Add tens ➜ 2 + 1 + 3 + 1 = 7

Answer: $75

We Do • Together, turn this word problem into a vertical algorithm:

Jamal rode 42 km on Monday and 35 km on Tuesday. How far altogether?

You Do • Students write and solve two of their own word problems, setting them out vertically and solving step-by-step.

Differentiation Tips

Support:

- Use base 10 blocks to model regrouping physically.
- Provide place-value grids to help line up digits.

Extension:

- Introduce 3-digit + 2-digit problems (e.g. 245 + 36).
- Challenge students to explain regrouping in words or draw models.

Teaching as Inquiry:

Observe students' accuracy in aligning digits and carrying correctly.

Hands-On Activity 1 (10 minutes)

Carry It Over Game

Students roll two dice to create a 2-digit number for each turn.

They set up and solve each as a vertical addition, circling any problems that require regrouping.

First to correctly solve five regrouping problems wins.

Hands-On Activity 2 (10–15 minutes)

Write It Yourself Problem Challenge

Students create their own addition word problem with two or three 2-digit numbers, then swap with a partner to solve.

Encourage:

- writing the vertical algorithm clearly
- checking with mental addition or number line strategies

Student Book Practice

Students complete **page 11 – Vertical Addition.**

Focus: Add 2-digit numbers using vertical algorithms. Solve problems with and without regrouping. Set out their own word problems as vertical addition

Mathletics Online Practice

Activities (Courses) Topic: Operations: Addition & subtraction
Activity: Add 3-digit Numbers

Activities (Courses) Topic: Operations: Addition & subtraction
Activity: 3-Digit Differences

Reflect and Check (5 minutes)

Quick-fire questions:

- Why do we add the ones first?
- What do we do if the ones make more than ten?
- How can you check your answer?
- How is vertical addition different from jumping on a number line?

Reflect and Share:

Ask: When might you use a vertical algorithm instead of mental addition?

Feedback:

Praise careful alignment of digits and correct regrouping.

Encourage students to explain each step in their working.

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can set up vertical problems independently.
- Provide scaffolds for those needing place-value alignment support.
- Extend confident students with 3-digit addition or missing addend 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: Addition

Focus: Mental and written addition strategies using number patterns, doubles, make-ten strategies and vertical algorithms

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Counting Strategies	Students can add and subtract by jumping forwards and backwards on a number line using tens and ones.	Demonstrates structured jumps (e.g. +20 then +5) and explains which digits change.
Skip-Counting Patterns	Students recognise and use skip-counting patterns in 5s and 10s to support addition and subtraction.	Accurately skip-counts forwards and backwards from any number within 100; identifies patterns in tens and ones digits.
Doubles and Near Doubles	Students recall doubles and near doubles to 20 + 20 and use these to solve related problems.	Uses known doubles to solve near doubles efficiently (e.g. 8 + 9 → 8 + 8 + 1).
Make-Ten and Associative Property	Students group numbers to make ten and understand that numbers can be added in any order or grouping.	Finds and groups pairs that make ten; demonstrates associative property (e.g. (6 + 4) + 5 = 6 + (4 + 5)).
Vertical Algorithms	Students add two or three 2-digit numbers using vertical addition, correctly aligning tens and ones and regrouping when necessary.	Sets out problems accurately, adds columns correctly and writes vertical algorithms for word problems.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students during number line and skip-counting tasks.	Are they breaking numbers into tens and ones? Do they use consistent patterns when jumping?
Oral Check	Ask students to explain a strategy: 'How did you work out 8 + 9?' or 'Why did you add those numbers first?'	Listen for reasoning that includes doubles, near doubles or make-ten strategies.
Written Work	Review Student Book pp. 7–11.	Check accuracy of number sequences, correct regrouping in vertical addition and evidence of associative reasoning.
Practical Task	Have students solve a short word problem using a vertical algorithm.	Do they identify the relevant numbers, line up place values and explain regrouping clearly?
Exit Ticket / Quick Quiz	Provide five mixed questions covering addition strategies.	Identify which strategies students can recall automatically and which require reinforcement.

Quick Quiz / Exit Ticket (5 Questions)

1. What is 47 + 36? Show your working.
2. Count forwards by 10s from 43 five times.
3. What is double 14? What is one more than double 14?
4. Add 7 + 3 + 5. Show how you can make ten first.
5. Write and solve a vertical addition problem for this story: *Ella buys one book for $25 and another for $18. How much does she spend in total?*

Teaching as Inquiry: Reflection Notes

Reflection Prompts and Next Steps

Students confidently applying mental strategies (doubles, near doubles, make-ten):

Students confidently solving vertical addition problems:

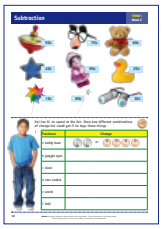
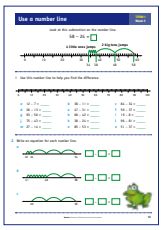
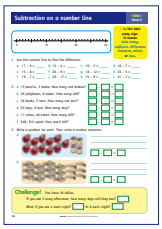
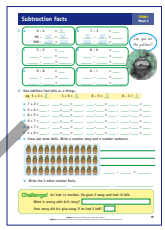
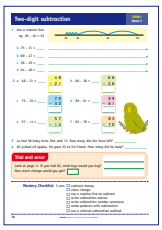
Students needing extra support (e.g. aligning digits, regrouping, skip-counting):

Misconceptions noticed (e.g. adding tens before ones, losing a carry):

Language and reasoning to reinforce (e.g. grouping, associative property, total):

Adjustments for future lessons (e.g. more vertical addition practice or regrouping visuals):

Term 1 Week 3 Overview Subtraction within 100

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Subtraction with Money: Working Out Change**	We can use subtraction to find how much money is left after spending.	✓ Use subtraction to find change from $1 ✓ Write subtraction equations for money problems ✓ Model subtraction using coins and drawings	– Subtract cents from $1 – Use coins to model spending and change – Write and solve money word problems	**Page 12:** Subtract money amounts from $1; model change; write subtraction equations. 
2 **Subtracting Two-Digit Numbers on a Number Line**	Subtraction can be shown by jumping backwards or finding the difference between two numbers.	✓ Subtract two-digit numbers using jumps of tens and ones ✓ Find the difference between two numbers ✓ Write equations to match number-line diagrams	– Use big-ten and little-one jumps on a number line – Label jumps and record matching equations – Explore subtraction as difference	**Page 13:** Use number lines to subtract two-digit numbers; label jumps; write matching equations. 
3 **Subtraction on a Number Line: Word Problems**	Subtraction can show how many are left or how much is spent in real-world problems.	✓ Use number lines to show subtraction ✓ Write equations to match word problems and pictures ✓ Create subtraction stories from visual prompts	– Solve picture and story-based subtraction problems – Draw number lines and label differences – Create and solve their own subtraction word problems	**Page 14:** Use number lines to solve subtraction stories; write equations; create own word problems. 
4 **Subtraction Patterns: Fact Families and Growing & Reducing Patterns**	Addition and subtraction are related and patterns repeat when numbers grow or reduce by tens or hundreds.	✓ Identify addition and subtraction fact families ✓ Use patterns to solve subtraction with tens and hundreds ✓ Explain how adding zeros changes place value	– Build fact families using related facts – Explore 9–4, 90–40, 900–400 patterns – Describe how the place-value pattern repeats	**Page 15:** Build fact families; complete subtraction pattern tables; describe rules in words. 
5 **Two-Digit Subtraction: Number Lines, Vertical Algorithms and Word Problems**	Subtraction can be solved in different ways that all show the same relationship between numbers.	✓ Subtract using number lines and vertical algorithms ✓ Regroup tens and ones where needed ✓ Write and solve subtraction word problems	– Subtract using both number lines and vertical methods – Practise regrouping – Write and solve two-digit subtraction stories	**Page 16:** Subtract using number lines and algorithms; regroup; solve real-world word problems. 

DAILY LESSON PLAN Week 3 • Lesson 1

Topic: Subtraction with Money – Working Out Change

In this lesson, students explore subtraction through money problems. They use coins and notes to model spending and change within $1. They practise writing subtraction equations to show how much money is left after spending.

Learning Intention

Students will understand that subtraction can be used to find how much money is left or how much change to give after spending.

Success Criteria

- ✓ I can use subtraction to find how much change is left from $1.
- ✓ I can write subtraction equations for money problems.
- ✓ I can use coins and number lines to model subtraction.
- ✓ I can explain my thinking using money values and symbols.

Language Focus

Key terms: spend, change, subtraction, difference, total, cents, dollars, cost, remaining, amount left

Sentence stems:

- I had $1. I spent ___, so I have ___ left.
- The difference between ___ and ___ is ___.
- I worked out my change by ___.
- My equation is $1 – ___ = ___.

Launch Activity (5 minutes)

Warm-up:

Show a $1 coin and several smaller coins (10c–70c).

Ask: If John has $1 and spends 40c, how much change will he get?

Record: $1 – 40c = 60c

Demonstrate with physical coins.

Then ask: If he spends 70c? 25c?

Students predict and check using real or paper coins.

Assessment for Learning:

Ask: What operation do we use to find how much is left? (Subtraction)

Explicit Instruction (10–12 minutes)

1. Subtracting from $1

I Do • Write: $1 – 30c = ?

Explain: One dollar is 100 cents, so we can think of it as 100 – 30 = 70.

Show on a number line from 0–100.

We Do • Together, solve:

$1 – 50c $1 – 60c $1 – 75c

Discuss patterns (the tens digit increases as the cost goes up).

You Do • Students complete a quick table:

Cost	Equation	Change
10c	$1 – 10c	90c
20c	$1 – 20c	80c
45c	$1 – 45c	55c
70c	$1 – 70c	30c

2. Representing with Coins and Diagrams

I Do • Show $1 made with coins (e.g. 50c + 20c + 20c + 10c).

Spend 40c ➜ remove coins totalling 40c ➜ show remaining coins = 60c.

We Do • Students use coin manipulatives or cut-outs to model spending and change from $1.

Ask: Which combinations make $1?' 'How can we show the change visually?

You Do • Students draw their own coin models for three spending examples.

3. Writing Word Problems

I Do • Model: John has $1. He buys popcorn for 35c. How much change does he get?

Write: $1 – 35c = 65c.

We Do • Together, create a new problem: John has $1. He buys a drink for 60c. How much left?

You Do • Students write two money word problems of their own using values between 10c and 70c. They swap with a partner to solve and check using subtraction.

Differentiation Tips

Support:

- Use only multiples of 10 first (10c, 20c, 30c) before introducing mixed amounts.
- Provide visual aids or coin templates.

Extension:

- Use $2 or $5 amounts instead of $1.
- Create multi-step spending problems.

Teaching as Inquiry:

Observe who understands that $1 = 100c and can convert accurately for subtraction.

Hands-On Activity 1 (10 minutes)

Fairground Change Game

Students are given a '1 note' and a price list of items (e.g. balloon 30c, popcorn 45c, ride 70c).

They 'buy' items, subtract the amount and record change.

Goal: Spend as close to $1 as possible without going over.

Hands-On Activity 2 (10–15 minutes)

Shop Subtraction Match

Students match price tags to the correct change cards.

Example: Price 60c → Change 40c.

They then write each as an equation ($1 – 60c = 40c).

Student Book Practice

Students complete **page 12 – Subtraction with Money.**

Focus: Subtract money amounts from $1. Model spending and change using coins or drawings.

Write subtraction equations for money problems.

Mathletics Online Practice

Skill Quest Topic:

Financial maths: Calculate change

Quest: Calculating change

Reflect and Check (5 minutes)

Quick-fire questions:

- How many cents are in $1?
- What operation do we use to find change?
- If you spend 70c, how much change do you get?
- Can you write an equation for that?

Reflect and Share:

Ask: How does thinking of $1 as 100 cents make subtraction easier?

Feedback:

Praise clear explanation of subtraction strategies and correct use of symbols ($, c).

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who need reinforcement on place value within 100.
- Provide targeted practice converting between dollars and cents.
- Extend fluent students with real-world problems using totals over $1.

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
- Calculating the total cost of several items costing whole-dollar amounts and with difference prices, or of multiples of the same item, including giving change

DAILY LESSON PLAN Week 3 • Lesson 2

Topic: Subtracting Two-Digit Numbers on a Number Line

In this lesson, students use number lines to subtract two-digit numbers and find differences. They explore how subtraction can be shown as jumps backwards or as finding the space between two numbers.

Learning Intention

Students will understand that subtraction can be represented on a number line by jumping backwards or by finding the difference between two numbers.

Success Criteria

- ✓ I can subtract two-digit numbers by jumping backwards on a number line.
- ✓ I can show the difference between two numbers using jumps of tens and ones.
- ✓ I can write an equation to match a number-line diagram.
- ✓ I can explain my jumps and how they show subtraction.

Language Focus

Key terms: subtraction, difference, number line, jumps, tens, ones, count back, start, end, equation

Sentence stems:

- I started at ___ and jumped back ___ tens and ___ ones to reach ___.
- The difference between ___ and ___ is ___.
- My number line shows the equation ___.

Launch Activity (5 minutes)

Warm-up:

Show a number line from 0 to 100.

Ask: 'If we start at 64 and take away 20, where do we land?'

Show jumps of 10 → 54 → 44.

Then ask: 'What if we subtract 36?' (three tens and six ones).

Assessment for Learning:

Ask: How do the tens and ones change when we jump backwards?

Explicit Instruction (10–12 minutes)

1. Using Jumps to Subtract

I Do • Model: 78 − 32.

Show on a blank number line.

Start at 78, jump back 30 (three tens) → 48, then 2 → 46.

Write equation: 78 − 32 = 46.

Explain: We can use big ten jumps and little one jumps to work out subtraction.

We Do • Together: 64 − 25 = ?

Jump −20 = 44, −5 = 39.

Students record their jumps and total movement.

You Do • Students solve:

– 52 − 18

– 90 − 47

– 63 − 24

2. Finding the Difference

I Do • Model: What is the difference between 58 and 71?

Start at 58, jump +10 to 68, +3 to 71 → difference 13.

Explain: Subtraction can also mean finding how far apart two numbers are.

We Do • Together: Find the difference between 42 and 65.

Students mark jumps on number lines.

You Do • Students create their own 'start and end' examples and label jumps to show the difference.

3. Writing Equations from Number Lines

I Do • Show a number line with start = 95, end = 63.

Ask: What subtraction equation matches this?

Students respond: 95 − 32 = 63.

We Do • Draw number lines with missing equations; students write matching subtraction sentences.

You Do • Students draw a blank number line with a starting point only, add big ten and little one jumps, then write their own matching equation.

Differentiation Tips

Support:

- Provide partially labelled number lines (e.g. only tens marked).
- Limit numbers to under 50 first.

Extension:

- Subtract across hundreds (e.g. 105 − 78).
- Challenge students to solve using both backwards jumps and 'count-on' difference.

Teaching as Inquiry:

Observe who uses structured tens and ones jumps confidently and who counts by ones.

Hands-On Activity 1 (10 minutes)

Jump Race

Students roll dice to create a starting number and a subtraction number.

They draw their own number line, show jumps of tens and ones, and record the equation.

Example: Start = 84, subtract 27 → 84 − 27 = 57.

Hands-On Activity 2 (10–15 minutes)

Mystery Start

Provide end numbers and jumps.

E.g. End = 45, jumps = −30 and −4.

Students work backwards to find the start (79).

They write the full equation: 79 − 34 = 45.

Student Book Practice

Students complete **page 13 – Use a Number Line.**

Focus: Use big ten and little one jumps to subtract two-digit numbers. Label and describe jumps. Write matching subtraction equations.

Mathletics Online Practice

Skill Quest Topic:

Operations: Add & subtract

Quest: Adding & subtracting with models

Reflect and Check (5 minutes)

Quick-fire questions:

- What do the big ten and little one jumps show?
- How can we use a number line to find the difference between two numbers?
- Why is it important to label your jumps?

Reflect and Share:

Ask: Which strategy helps you the most – jumping back or finding the difference?

Feedback:

Praise students who record equations accurately and use structured jumps.

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can write correct subtraction equations independently.
- Provide scaffolds for students who still rely on counting by ones.
- Extend fluent students to solve unlabelled or cross-hundreds 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 3 • Lesson 3

Topic: Subtraction on a Number Line – Word Problems and Finding the Difference

In this lesson, students use number lines to solve real-world subtraction problems and write matching equations. They explore how subtraction shows how many are left or how much remains and learn to create their own problems using visual prompts.

Learning Intention

Students will understand that subtraction can show how many are left, how much is spent, or the difference between two amounts.

Success Criteria

- ✓ I can use a number line to show subtraction and find the difference.
- ✓ I can write equations to match word problems and pictures.
- ✓ I can explain what subtraction means in different situations.
- ✓ I can create my own subtraction word problems.

Language Focus

Key terms: subtraction, difference, take away, remaining, left, total, spent, broke, equation, number line

Sentence stems:

- I started with ___ and took away ___ , so I had ___ left.
- The difference between ___ and ___ is ___.
- My number line shows that ___ − ___ = ___.
- My word problem is about ___.

Launch Activity (5 minutes)

Warm-up:

Write: 15 − 3 = ?

Ask: What could this story be about? (e.g. 15 pencils, 3 broke).

Encourage multiple contexts: money, objects or scores.

Draw 15 on a number line and jump back 3 ➜ 12.

Say: The difference between 15 and 12 is 3.

Assessment for Learning:

Ask: What are some words we can use instead of subtract? (take away, minus, find the difference, left).

Explicit Instruction (10–12 minutes)

1. Solving Subtraction with Number Lines

I Do • Model: 48 − 12 = ?

Draw a number line with start 48.

Jump back one big ten (−10 = 38) and two ones (−2 = 36).

Write equation: 48 − 12 = 36.

Explain: Subtraction shows what's left or how much has been taken away.

We Do • Together, solve:

63 − 24 ➜ jumps of −20, −4 ➜ 63 ➜ 43 ➜ 39.

Record: 63 − 24 = 39.

You Do • Students solve independently:

52 − 15 71 − 23 84 − 46

2. Word Problems with Subtraction

I Do • Model: There were 17 pencils. Three broke. How many are not broken?

Write and solve: 17 − 3 = 14.

Show on number line.

We Do • Together, solve:

$47 was in a wallet. $12 was spent. How much is left?

Show jumps on number line, write 47 − 12 = 35.

You Do • Students solve similar word problems:

– 25 apples, 9 eaten.

– 62 fish, 18 swam away.

Write both equation and number line.

3. Creating Their Own Subtraction Problems

I Do • Show image: 11 apples and 4 apple cores.

Ask: What subtraction story could this picture tell?

Write: 11 − 4 = 7.

We Do • Together, describe: 12 whole fish and 6 skeletons ➜ 12 − 6 = 6.

You Do • Students draw or choose their own examples (e.g. balloons popped, pencils broken, coins spent).

They write:

1. A short story problem
2. A subtraction equation
3. A number-line diagram

Differentiation Tips

Support:

- Provide sentence starters for word problems (e.g. 'There were ___ , ___ went away'.).
- Allow use of concrete materials or visual prompts.

Extension:

- Create two-step problems (e.g. start with 30, lose 5, then lose 7 more).
- Encourage students to write problems where the difference must be found between two unrelated quantities.

Teaching as Inquiry:

Observe who can translate between stories, equations and number lines fluently.

Hands-On Activity 1 (10 minutes)

Picture Subtraction Stories

Students receive picture cards (e.g. groups of animals, fruit or coins). They create a matching subtraction word problem and draw the number line to solve it.

Hands-On Activity 2 (10–15 minutes)

Subtraction Detectives

Give subtraction equations without contexts (e.g. 25 − 9 = 16). Students invent a story to match each one, then draw or act it out.

Student Book Practice

Students complete **page 14 – Subtraction on a Number Line.**

Focus: Use number lines to show subtraction and find the difference. Write equations for simple word problems. Create their own subtraction stories using pictures or objects.

Mathletics Online Practice

Activities (Courses) Topic:

Algebra: Equations & relationships

Activity: Bar Model Problems 2

Reflect and Check (5 minutes)

Quick-fire questions:

- What does subtraction mean?
- How can you show subtraction on a number line?
- Can you write a story for 48 − 12?
- How do you check if your subtraction makes sense?

Reflect and Share:

Ask: Which strategy helped you understand subtraction best today?

Feedback:

Praise students who connect pictures, equations and number lines clearly.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who can move from concrete (pictures) to abstract (equations).
- Provide extra modelling for students who confuse difference with total.
- Extend fluent students to create multi-step word 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 3 • Lesson 4

Topic: Subtraction Patterns – Number Families and Growing & Reducing Patterns

In this lesson, students explore how addition and subtraction are related and how patterns repeat when zeros are added to numbers. They use number fact families to see how basic facts can help solve larger problems.

Learning Intention

Students will understand that addition and subtraction are related operations and that patterns repeat when numbers grow or reduce by tens and hundreds.

Success Criteria

- ✓ I can identify and describe addition and subtraction fact families.
- ✓ I can use patterns to solve subtraction problems with larger numbers.
- ✓ I can explain how adding zeros makes numbers ten or one hundred times greater.
- ✓ I can use known facts to solve new subtraction problems.

Language Focus

Key terms: pattern, fact family, related facts, tens, hundreds, increase, decrease, grow, reduce, place value

Sentence stems:

- I know that if 9 − 4 = 5, then 90 − 40 = ___ and 900 − 400 = ___.
- The subtraction pattern repeats because ___.
- Addition and subtraction are related because ___.
- I used the fact ___ to help me solve ___.

Launch Activity (5 minutes)

Warm-up:

Write on the board:

9 − 4 = 5

Ask: What happens if I add a zero to each number? ➜ 90 − 40 = 50

Ask again: And if I add another zero? ➜ 900 − 400 = 500

Discuss: What do you notice about the pattern?

Students should notice the same digits appear, and the answer grows tenfold each time.

Assessment for Learning:

Ask: How could this help you solve bigger subtraction problems?

Explicit Instruction (10–12 minutes)

1. Understanding Fact Families

I Do • Write: 7 + 5 = 12

Explain: These three numbers belong to the same family because they can make two addition and two subtraction facts.

Show:

7 + 5 = 12 5 + 7 = 12

12 − 5 = 7 12 − 7 = 5

We Do • Together, build the fact family for 9, 6 and 15.

Students record all four related facts.

You Do • Students choose number sets (e.g. 8, 4, 12) and write the four related facts.

2. Exploring Growing and Reducing Patterns

I Do • Write on the board:

9 − 4 = 5

90 − 40 = 50

900 − 400 = 500

Explain: Each time, the digits stay the same, but the place value grows by one zero. The pattern repeats in tens and hundreds.

We Do • Together, solve and describe patterns:

6 − 2 = 4 ➜ 60 − 20 = 40 ➜ 600 − 200 = 400

Students verbalise the pattern: The digits stay the same; the answer grows by ten or one hundred.

You Do • Students complete their own pattern tables:

Ones	Tens	Hundreds
8 − 3 = 5	80 − 30 = 50	800 − 300 = 500
7 − 5 = 2	70 − 50 = 20	700 − 500 = 200
4 − 1 = 3	40 − 10 = 30	400 − 100 = 300

3. Linking Addition and Subtraction

I Do • Explain: We can use what we know about addition to solve subtraction.

If 6 + 4 = 10, then 10 − 4 = 6 and 10 − 6 = 4.

Show how this works across tens: 60 + 40 = 100 ➜ 100 − 40 = 60.

We Do • Together, test with 3 + 5 = 8 ➜ 8 − 3 = 5 and 8 − 5 = 3.

You Do • Students complete a set of related facts showing the link between addition and subtraction for each number family.

Differentiation Tips

Support:

- Use number cards to build and rearrange fact families.
- Focus on one zero increase before moving to hundreds.

Extension:

- Extend patterns beyond hundreds (e.g. 9000 – 4000).
- Write word problems showing the pattern in real contexts.

Teaching as Inquiry:

Observe who can describe the connection between addition and subtraction, and who can generalise the place-value pattern.

Hands-On Activity 1 (10 minutes)

Build the Family

Students are given a set of three numbers (e.g. 8, 5, 13).

They create all four related facts using movable number cards or digit tiles and record them in their books.

Hands-On Activity 2 (10–15 minutes)

Growing Patterns Challenge

Students complete a table showing how subtraction patterns change when zeros are added.

Then they write one sentence describing the rule:

'When we add a zero to both numbers, the answer is ten times greater'.

Student Book Practice

Students complete **page 15 – Subtraction Patterns.**

Focus: Build addition and subtraction fact families. Explore growing and reducing subtraction patterns (ones, tens, hundreds). Describe and generalise the place-value rule

Mathletics Online Practice

Skill Quest Topic:

Operations: Add & subtract

Quest: Adding & subtracting multiples of 100

Reflect and Check (5 minutes)

Quick-fire questions:

- How are addition and subtraction connected?
- What happens when you add a zero to both numbers in subtraction?
- What stays the same in a subtraction pattern?
- Can you make a fact family for 9, 5 and 14?

Reflect and Share:

Ask: Which subtraction pattern was easiest to spot? Why?

Feedback:

Praise students who explain the pattern using place-value language (ones, tens, hundreds).

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can confidently use related facts and describe patterns.
- Provide extra practice for those who confuse tens and hundreds patterns.
- Extend fluent students with 4-digit pattern exploration or real-life contexts.

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.
- Growing patterns can increase or decrease by the addition or subtraction of a constant (arithmetically) or multiplication or division by a constant (geometrically).

Practices

- Adding and subtracting up to four-digit numbers
- 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

DAILY LESSON PLAN Week 3 • Lesson 5

Topic: Two-Digit Subtraction – Number Lines, Vertical Algorithms and Word Problems

In this lesson, students review subtraction strategies learned across the week. They use number lines, vertical algorithms and mental strategies to solve subtraction problems with two-digit numbers and apply their understanding in practical contexts.

Learning Intention

Students will understand that subtraction can be solved using different strategies, including number lines and vertical algorithms, and that these strategies all show the same relationship between numbers.

Success Criteria

- ✓ I can subtract two-digit numbers using a number line.
- ✓ I can use a vertical algorithm to subtract accurately.
- ✓ I can regroup when needed.
- ✓ I can write and solve subtraction word problems.

Language Focus

Key terms: subtraction, difference, regroup, tens, ones, vertical, algorithm, number line, equation, total, change

Sentence stems:

- I used a number line to jump back by ___ tens and ___ ones.
- I regrouped ___ ten as ___ ones.
- My algorithm shows that ___ − ___ = ___.
- The word problem is solved by ___.

Launch Activity (5 minutes)

Warm-up:

Quick review:

– 43 − 20 = ?

– 76 − 5 = ?

– 80 − 34 = ?

Ask: 'What strategies could we use to solve these?'

List on board: *number line, mental jumps, vertical subtraction.*

Assessment for Learning:

Ask: When is a number line helpful? When is a vertical algorithm better?

Explicit Instruction (10–12 minutes)

1. Subtracting Using Number Lines

I Do • Model: 85 − 27 = ?

Start at 85, jump back 20 (➜ 65), then 7 (➜ 58).

Record equation: 85 − 27 = 58.

Explain: We can break the subtraction into tens and ones to make it easier.

We Do • Together, solve: 63 − 19 ➜ jump back 10 = 53, jump 9 = 44.

Students record both jumps on their own number lines.

You Do • Students solve independently:

– 52 − 18 – 74 − 36 – 95 − 47

2. Subtracting Using Vertical Algorithms

I Do • Model:

64

− 27

Step 1: Subtract ones ➜ 4 − 7 (need to regroup).

Regroup one ten ➜ 14 − 7 = 7.

Step 2: Subtract tens ➜ 5 − 2 = 3.

Answer: 37.

We Do • Together:

83

− 46

Students work step-by-step:

Regroup ➜ 13 − 6 = 7, then 7 − 4 = 3 ➜ answer 37.

You Do • Students solve:

75 − 28 92 − 47 68 − 39

3. Subtraction in Word Problems

I Do • Model: Liam had 68 stickers. He gave 24 away. How many does he have left?

Write: 68 − 24 = 44.

Show on number line and with algorithm to compare.

We Do • Together: A train had 85 passengers. 39 got off. How many remain?

Students solve both ways (number line and algorithm).

You Do • Students write and solve two of their own subtraction word problems using two-digit numbers.

Differentiation Tips

Support:

- Provide place-value grids and counters for regrouping.
- Use only non-regrouping problems initially (e.g. 74 − 32).

Extension:

- Introduce 3-digit numbers (e.g. 145 − 68).
- Encourage students to explain how the number line and vertical methods show the same process.

Teaching as Inquiry:

Observe who can correctly regroup in vertical subtraction and who uses counting-back instead of structured jumps.

Hands-On Activity 1 (10 minutes)

Strategy Match

Provide a set of subtraction problems and mixed strategy cards (number line, algorithm, mental jumps).

Students match each problem to the best strategy and explain why.

Hands-On Activity 2 (10–15 minutes)

Subtraction Story Problems

Students select two 2-digit numbers to create a word problem.

Example: A shop had 84 apples and sold 46. How many are left?

They solve using both a number line and a vertical algorithm, showing both methods in their books.

Student Book Practice

Students complete **page 16 – Two-Digit Subtraction.**

Focus: Subtract using number lines and vertical algorithms. Regroup where needed.

Write and solve subtraction word problems.

Mathletics Online Practice

Activities (Courses) Topic:

Operations: Addition & subtraction

Activity: Subtract Numbers: Regroup

Reflect and Check (5 minutes)

Quick-fire questions:

- What does regrouping mean?
- When might you use a vertical algorithm instead of a number line?
- How can you check your subtraction?
- Can you explain your favourite subtraction strategy?

Reflect and Share:

Ask: Which subtraction strategy helped you most this week?

Feedback:

Praise correct regrouping and clear working.

Encourage explanation of choice of method.

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can subtract accurately using both strategies.
- Provide targeted regrouping practice for those who need it.
- Extend fluent students to three-digit subtraction and mixed-operation 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: Subtraction within 100

Focus: Subtraction as taking away, finding the difference, and exploring patterns using number lines, money, and vertical algorithms

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Subtraction as Take Away	Students understand that subtraction shows how much is left after spending or removing an amount.	Uses subtraction correctly in money or real-life contexts; explains subtraction as 'what's left'.
Subtraction as Difference	Recognises subtraction as finding the difference between two numbers.	Shows the space between two numbers on a number line and labels jumps accurately.
Number Line Strategies	Uses big-ten and little-one jumps to subtract efficiently.	Draws structured jumps rather than counting back by ones; records matching equations.
Fact Families and Patterns	Identifies related addition and subtraction facts; recognises how patterns repeat in tens and hundreds.	Writes all four related facts correctly; extends patterns such as 9–4, 90–40, 900–400.
Vertical Algorithms	Sets out and solves two-digit subtraction problems with or without regrouping.	Aligns tens and ones correctly; shows regrouping; checks results using inverse addition.
Problem Solving	Applies subtraction to practical situations and explains reasoning.	Writes appropriate equations for story problems; interprets remainders correctly.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students as they jump along number lines to subtract two-digit numbers.	Are jumps structured by tens and ones? Can students label and explain their jumps?
Oral Check	Ask: 'How would you show 75 − 28 on a number line?' or 'What does subtraction mean in this problem?'	Look for use of correct language: difference, tens, ones, regroup, remaining.
Written Work	Review Student Book pp. 12–16.	Check accurate subtraction, correct regrouping and understanding of patterns and relationships.
Practical Task	Money challenge: Give each student $1 and several price cards (10c–70c). Ask them to calculate change and write matching equations.	Can students model subtraction using coins or diagrams? Do they write accurate subtraction sentences?
Exit Ticket / Quick Quiz	Provide 5 short mixed subtraction questions.	Identify students needing reinforcement of regrouping, pattern recognition, or difference models.

Quick Quiz / Exit Ticket (5 Questions)

1. John has $1. He spends 65c. How much change does he get?
2. Solve on a number line: 72 − 38 = ?
3. Complete the pattern:
   8 − 3 = 5, 80 − 30 = ___, 800 − 300 = ___.
4. Write a subtraction equation for this problem: There were 24 apples, 9 were eaten.
5. Solve using a vertical algorithm:
   94
   − 57

Teaching as Inquiry: Reflection Notes

Reflection Prompts and Next Steps

Students confidently subtracting using number lines and vertical algorithms:

Students confidently identifying subtraction patterns and fact families:

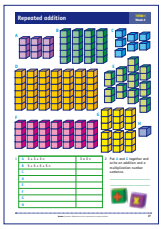
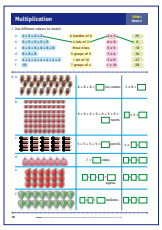
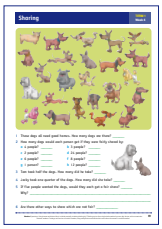
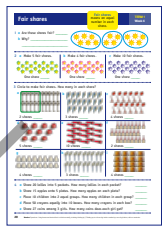
Students needing support (e.g. regrouping, linking subtraction and addition):

Misconceptions noticed (e.g. subtracting the smaller number first, counting incorrectly on number lines):

Vocabulary and reasoning to reinforce (difference, regroup, remaining):

Adjustments for future lessons (e.g. more visual practice, focus on regrouping or difference):

Term 1 Week 4 Overview Multiplication and Fractions

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Repeated Addition and Visual Models for Multiplication**	Multiplication is a quick way to add equal groups.	✓ Represent equal groups using drawings or objects ✓ Write repeated addition sentences ✓ Write matching multiplication sentences	– Build or draw block towers to show equal groups – Complete table showing repeated addition and multiplication – Discuss the meaning of each number in a multiplication sentence	**Page 17:** Draw and label block towers, write repeated addition and matching multiplication sentences. 
2 **Matching Repeated Addition and Multiplication**	Multiplication represents equal groups and can be written as repeated addition or 'lots of'.	✓ Match repeated addition and multiplication ✓ Describe 'groups of' using pictures and equations ✓ Check totals using skip counting	– Match pictures to repeated addition and multiplication – Draw and label groups of items – Explore 'lots of' and 'groups of' language	**Page 18:** Match repeated addition, 'groups of,' and multiplication; find totals using pictures and equations. 
3 **Multiplication Problem Solving: The Vegetable Garden**	Multiplication can solve real-world problems involving equal rows and groups.	✓ Use multiplication to plan equal rows ✓ Represent items using colour-coded symbols ✓ Write repeated addition and multiplication sentences	– Draw a garden with equal rows of lettuce, tomato and radish plants – Record repeated addition and multiplication – Describe totals using sentences	**Page 19:** Draw vegetable rows using symbols, record repeated addition and multiplication for each type of plant. 
4 **Fractions on a Line: Halves, Quarters, Thirds, Fifths and Tenths**	Fractions show equal parts of a whole and can be represented on number lines or fraction bars.	✓ Identify and label halves, quarters, thirds, fifths and tenths ✓ Order fractions from smallest to largest ✓ Recognise that more equal parts mean smaller fractions	– Shade and label fractions on bars – Place fractions on number lines – Order and colour matching fractions	**Page 20:** Shade fraction bars, mark fractions on number lines, and order from smallest to largest. 
5 **Fractions of a Group: Halves, Quarters, Thirds, Sixths and Twelfths**	Fractions can represent equal parts of a group or set.	✓ Divide groups into equal parts ✓ Find $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{6}$ and $\frac{1}{12}$ of numbers ✓ Explain how division and multiplication link to fractions	– Use counters or drawings to divide groups equally – Find fractions of 8 and 12 – Record results using division and multiplication equations	**Page 21:** Find fractions of groups using counters, drawings and division; write matching equations. 

DAILY LESSON PLAN Week 4 • Lesson 1

Topic: Repeated Addition and Visual Models for Multiplication

In this lesson, students explore multiplication as repeated addition. They use visual models such as block towers to show equal groups and record matching addition and multiplication equations.

Learning Intention

Students will understand that multiplication is a quick way to add equal groups and that we can use repeated addition to find totals.

Success Criteria

- ✓ I can represent equal groups using drawings or objects.
- ✓ I can write repeated addition sentences to match equal groups.
- ✓ I can write matching multiplication sentences.
- ✓ I can explain what the numbers in a multiplication sentence mean.

Language Focus

Key terms: equal groups, repeated addition, multiplication, lots of, groups of, total, rows, columns, blocks

Sentence stems:

- I see ___ groups of ___, so I can write ___ + ___ + ___ = ___.
- This is the same as ___ × ___ = ___.
- The first number tells me how many groups, the second tells me how many in each group.
- My total is ___.

Launch Activity (5 minutes)

Warm-up:

Show 3 towers of 4 blocks each (or draw on the board).

Ask: How many blocks altogether? (4 + 4 + 4 = 12)

What multiplication could match this? (3 × 4 = 12)

Explain: Each tower has 4 blocks. Multiplication shows repeated addition quickly.

Assessment for Learning:

Ask: What do the numbers in 3 × 4 represent?

(3 = number of groups, 4 = how many in each group.)

Explicit Instruction (10–12 minutes)

1. Repeated Addition

I Do • Model using blocks: 6 towers of 3.

Write repeated addition: 3 + 3 + 3 + 3 + 3 + 3 = 18.

Then write multiplication: 6 × 3 = 18.

Explain: 'Instead of adding the same number again and again, multiplication helps us find the total faster'.

We Do • Together, build or draw 5 towers of 4.

Repeated addition: 4 + 4 + 4 + 4 + 4 = 20

Multiplication: 5 × 4 = 20

You Do • Students draw 4 towers of 2, 3 towers of 6 and 7 towers of 4.

They complete a table with the repeated addition and matching multiplication.

Towers	Repeated Addition	Multiplication	Total
6 towers of 3	3 + 3 + 3 + 3 + 3 + 3	6 × 3	18
7 towers of 4	4 + 4 + 4 + 4 + 4 + 4 + 4	7 × 4	28
7 towers of 6	6 + 6 + 6 + 6 + 6 + 6 + 6	7 × 6	42

2. Understanding Multiplication Sentences

I Do • Explain: The multiplication sentence tells the same story as the repeated addition.

Example: 6 × 3 = 18 ➜ '6 groups of 3 make 18'.

We Do • Together, read multiplication sentences aloud as stories:

– 5 × 2 = 10 ➜ 'Five groups of two'.

– 4 × 5 = 20 ➜ 'Four groups of five'.

You Do • Students write and read their own multiplication sentences aloud using equal group drawings.

3. Connecting to Visual Models

I Do • Draw arrays to match the towers.

For 3 × 4, draw 3 rows of 4 squares.

Explain: 'Each row is a group. The rows show repeated addition clearly'.

We Do • Together, draw 4 × 5 as 4 rows of 5 blocks.

Ask: 'How many in each row? How many rows altogether?'

You Do • Students draw and label their own arrays for 7 × 4 and 5 × 6.

Differentiation Tips

Support:

- Use counters or blocks to make equal groups physically.
- Keep numbers small (up to 5 × 5).

Extension:

- Explore arrays with higher numbers (e.g. 8 × 7).
- Ask students to describe their arrays using both 'rows of' and 'groups of'.

Teaching as Inquiry:

Observe who understands that multiplication means equal groups and can link repeated addition to multiplication.

Hands-On Activity 1 (10 minutes)

Tower Builders

Students build block towers to represent multiplication sentences (e.g. 4 towers of 3).

They record the repeated addition and total for each tower set.

Compare results across the class.

Hands-On Activity 2 (10–15 minutes)

Array Match

Give students cards showing different arrays (rows of stars, circles, squares).

They match each array to the correct repeated addition and multiplication sentence.

Student Book Practice

Students complete **page 17 – Repeated addition.**

Focus: Represent equal groups using block towers or drawings. Write repeated addition and matching multiplication sentences. Complete a table to record groups, addition and totals.

Mathletics Online Practice

Activities (Courses) Topic:

Operations: Multiplication & division

Activity: Are you ready?

Activities (Courses) Topic:

Rational numbers: Fractions

Activity: Are you ready?

Reflect and Check (5 minutes)

Quick-fire questions:

- What does 5 × 3 mean?
- How is multiplication like repeated addition?
- How can arrays help you see the total?

Reflect and Share:

Ask: Which way helps you find the total faster — adding or multiplying? Why?

Feedback:

Praise students who use clear visuals and explain group and total relationships accurately.

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can explain the meaning of multiplication in words.
- Support students who still count by ones instead of using repeated addition.
- Extend fluent students by introducing commutative examples (e.g. 3 × 4 vs 4 × 3).

Curriculum & Planning Links

NZ Curriculum (2025) – Number

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

- Memorising multiplication and corresponding division facts for 2s to 10s

DAILY LESSON PLAN Week 4 • Lesson 2

Topic: Matching Repeated Addition and Multiplication

In this lesson, students strengthen their understanding of multiplication as repeated addition by matching visual models, number sentences and totals. They work with 'groups of' and 'lots of' to link visuals to equations and learn to express multiplication fluently in different forms.

Learning Intention

Students will understand that multiplication shows equal groups and can be represented as repeated addition, 'groups of' or 'lots of'.

Success Criteria

- ✓ I can recognise and describe equal groups in pictures
- ✓ I can write repeated addition sentences to match 'groups of' models
- ✓ I can write the matching multiplication sentence and find the total
- ✓ I can explain what each number means in a multiplication sentence

Language Focus

Key terms: repeated addition, groups of, lots of, total, rows, columns, equal, multiplication

Sentence stems:

- I see ___ groups of ___, so I can write ___ + ___ + ___ = ___.
- This means ___ × ___ = ___.
- The first number tells how many groups, the second tells how many in each group.
- Altogether there are ___.

Launch Activity (5 minutes)

Warm-up:

Show an image of 4 groups of 2 hearts.

Ask: How many hearts altogether? (2 + 2 + 2 + 2 = 8)

What multiplication matches this? (4 × 2 = 8)

Write both sentences on the board.

Assessment for Learning:

Ask: What does 4 × 2 mean? (4 groups of 2)

Explicit Instruction (10–12 minutes)

1. Matching Repeated Addition and Multiplication

I Do • Model: Draw 3 rows of 5 stars.

Write: 5 + 5 + 5 = 15 ➜ 3 × 5 = 15.

Explain: Each row has 5. The multiplication sentence tells how many rows and how many in each row.

We Do • Together, match pictures to equations:

– 4 lots of 3 ➜ 3 + 3 + 3 + 3 = 12 ➜ 4 × 3 = 12

– 2 groups of 6 ➜ 6 + 6 = 12 ➜ 2 × 6 = 12

You Do • Students match visual groups to both addition and multiplication sentences.

Picture	Repeated Addition	Multiplication	Total
4 groups of 2	2 + 2 + 2 + 2	4 × 2	8
5 groups of 3	3 + 3 + 3 + 3 + 3	5 × 3	15
7 rows of 9 hearts	9 + 9 + 9 + 9 + 9 + 9 + 9	7 × 9	63

2. Interpreting 'Groups of' and 'Lots of'

I Do • Write: '4 lots of 2'.

Ask: What does 'lots of' mean?' ➜ equal groups.

Model: draw 4 groups, each with 2 circles.

Write: 2 + 2 + 2 + 2 = 8 ➜ 4 × 2 = 8.

We Do • Together, complete:

– 6 groups of 4 = 4 + 4 + 4 + 4 + 4 + 4 = 24 = 6 × 4

– 3 groups of 8 = 8 + 8 + 8 = 24 = 3 × 8

You Do • Students draw and label their own 'groups of' diagrams for:

– 2 × 5

– 5 × 6

– 4 × 7

3. Visual Arrays and Total Checking

I Do • Show: 7 rows of 9 hearts.

Model repeated addition (9 + 9 + ...) and multiplication (7 × 9).

Ask: How can we check? ➜ Use skip counting or a calculator.

We Do • Together, check totals for 6 × 5 and 8 × 4.

Ask: What patterns do we notice?

You Do • Students use skip counting to verify their own totals.

Differentiation Tips

Support:

- Focus on simple arrays (up to 5 × 5).
- Use physical counters or grouping mats.

Extension:

- Introduce commutativity (e.g. 4 × 6 = 6 × 4).
- Challenge students to describe patterns between addition and multiplication.

Teaching as Inquiry:

Observe which students can move from pictures to equations and who still need concrete models.

Hands-On Activity 1 (10 minutes)

Group Match Game

Students receive cards showing pictures, repeated addition and multiplication sentences.

They match all three correctly and explain how they know.

Hands-On Activity 2 (10–15 minutes)

Draw and Describe

Students draw 3–4 examples of 'lots of' pictures (e.g. apples, stars, fish).

They write both repeated addition and multiplication sentences to describe each.

Student Book Practice

Students complete **page 18 – Multiplication.**

Focus: Identify and match pictures, addition and multiplication sentences. Write repeated addition and multiplication for equal groups. Check totals using skip counting or mental strategies.

Mathletics Online Practice

Activities (Courses) Topic:

Operations: Multiplication & division

Activity: Grouping in Sixes

Reflect and Check (5 minutes)

Quick-fire questions:

- What does 6 × 4 mean?
- How is '6 lots of 4' the same as repeated addition?
- Why is multiplication faster than adding each group?

Reflect and Share:

Ask: Which method helps you see the total best — drawing, adding or multiplying?

Feedback:

Praise students who clearly link addition and multiplication sentences.

Next Steps for Teacher (Teaching as Inquiry)

- Identify who can interpret multiplication models confidently.
- Provide extra modelling for students who confuse 'groups of' and 'in each group'.
- Extend fluent students to recognise commutative pairs (e.g. 7 × 9 = 9 × 7).

Curriculum & Planning Links

NZ Curriculum (2025) – Number

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

- Memorising multiplication and corresponding division facts for 2s to 10s

DAILY LESSON PLAN Week 4 • Lesson 3

Topic: Multiplication Problem Solving – The Vegetable Garden

In this lesson, students apply their understanding of equal groups and repeated addition to a practical situation. They plan and draw a vegetable garden with equal rows of lettuce, tomato and radish plants. They record their results using colour-coded symbols, repeated addition and multiplication sentences.

Learning Intention

Students will understand that multiplication can be used to solve real-world problems where items are arranged in equal rows or groups.

Success Criteria

- ✓ I can use multiplication to represent equal rows in a garden plan.
- ✓ I can use symbols to show different plant types and record totals.
- ✓ I can write repeated addition and multiplication sentences to match my diagram.
- ✓ I can explain how multiplication helps solve real-world problems.

Language Focus

Key terms: multiplication, rows, columns, equal, repeated addition, total, groups, plan, symbol, represent

Sentence stems:

- I planted ___ rows with ___ in each row.
- I can write ___ + ___ + ___ = ___ or ___ × ___ = ___.
- My drawing shows equal rows of ___.
- Multiplication helps me find the total quickly.

Launch Activity (5 minutes)

Warm-up:

Display three short multiplication problems with pictures:

- 3 rows of 5 trees
- 4 rows of 6 flowers
- 2 rows of 8 vegetables

Ask: What do you notice about these pictures?

What number sentence could match each one?

Write one together: 3 rows of 5 → 5 + 5 + 5 = 15 → 3 × 5 = 15

Assessment for Learning:

Ask: What does the first number in a multiplication sentence tell us? What does the second number tell us?

Explicit Instruction (10–12 minutes)

1. Representing Equal Rows in a Garden

I Do • Show the example: Victor has 30 lettuce, 32 tomato and 36 radish plants.

Explain: 'Each type will be planted in equal rows. We can use multiplication to plan his garden'.

Use the board to model:

- Lettuce: 5 rows of 6 → 5 × 6 = 30
- Tomato: 4 rows of 8 → 4 × 8 = 32
- Radish: 6 rows of 6 → 6 × 6 = 36

Draw each using symbols:

● green circles for lettuce

▲ red triangles for tomatoes

◆ blue diamonds for radishes

We Do • Together, sketch one type (e.g. tomatoes).

Ask: How can we check the total?
(Add or skip count 8 + 8 + 8 + 8 = 32).

You Do • Students draw rows of each vegetable using the given colours and record the repeated addition and multiplication sentences.

Vegetable	Symbol	Rows	In Each Row	Repeated Addition	Multiplication	Total
Lettuce	●	5	6	6 + 6 + 6 + 6 + 6	5 × 6	30
Tomato	▲	4	8	8 + 8 + 8 + 8	4 × 8	32
Radish	◆	6	6	6 + 6 + 6 + 6 + 6 + 6	6 × 6	36

2. Drawing and Interpreting Multiplication Diagrams

I Do • Model how to keep rows neat and evenly spaced.

Explain: 'Each row must have the same number of plants — that's what makes it multiplication'.

We Do • Together, label the diagram:

- Rows numbered on the left
- Number in each row written above

You Do • Students complete their own garden drawings with key:

● Lettuce ▲ Tomato ◆ Radish

Encourage neat, labelled drawings showing equal groups.

3. Explaining Reasoning

I Do • Model how to describe one row arrangement aloud:
I planted 5 rows of 6 lettuce plants. That's 5 × 6 = 30.

We Do • Students practise describing their diagrams in pairs using sentence stems.

You Do • Students write 2–3 sentences explaining their garden layout and totals in their books.

Differentiation Tips

Support:

- Provide base drawings with rows outlined for students to fill in.
- Use smaller numbers (e.g. 3 rows of 4).

Extension:

- Add one more vegetable type with their own arrangement.
- Ask: If each plant needs 2L of water, how much water will you need in total?' (Apply multiplication to a second context.)

Teaching as Inquiry:

Observe who understands the meaning of equal rows and can link their drawings to correct multiplication sentences.

Hands-On Activity 1 (10 minutes)

Garden Planner

Students plan a garden using grid paper or templates.

They choose the number of rows and plants per row for each vegetable, draw the layout using colour-coded symbols, and label their repeated addition and multiplication sentences.

Hands-On Activity 2 (10–15 minutes)

Solve and Swap

Pairs swap garden plans and solve each other's totals using multiplication.

They check if the totals and equations match the diagram.

Student Book Practice

Students complete **page 21 – Vegetable Garden.**

Focus: Use symbols to represent lettuce, tomato and radish plants in equal rows. Record repeated addition and multiplication for each. Explain how multiplication helps solve the problem

Mathletics Online Practice

Challenge: Level 3-5

Number & Algebra: Multiplication & Division

Title: How many stickers?

Reflect and Check (5 minutes)

Quick-fire questions:

- What does each number in a multiplication sentence represent?
- How does your drawing show equal groups?
- Why is multiplication useful in this garden problem?

Reflect and Share:

Ask: Which part of your garden had the most rows? Which had the most in each row?

Feedback:

Praise students who clearly connect their diagrams, equations and explanations.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who can move between diagrams and equations fluently.
- Support those who need help aligning groups and totals visually.
- Extend confident students with new, real-world multiplication contexts (e.g. planting patterns, seating rows).

Curriculum & Planning Links

NZ Curriculum (2025) – Number

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

- Memorising multiplication and corresponding division facts for 2s to 10s

DAILY LESSON PLAN Week 4 • Lesson 4

Topic: Fractions on a Line – Halves, Quarters, Thirds, Fifths and Tenths

In this lesson, students explore fractions as equal parts of a whole shown on number lines and fraction bars. They learn to recognise, name and order fractions from smallest to largest and identify fractions that are equivalent or close in size.

Learning Intention

Students will understand that fractions show equal parts of a whole and can be represented on a number line or with fraction bars.

Success Criteria

- ✓ I can show fractions on a number line and fraction bar.
- ✓ I can recognise halves, quarters, thirds, fifths and tenths.
- ✓ I can order fractions from smallest to largest.
- ✓ I can match and colour fractions that show the same part.

Language Focus

Key terms: fraction, equal parts, numerator, denominator, whole, half, quarter, third, fifth, tenth, number line, fraction bar

Sentence stems:

- A fraction shows ___ parts of a whole.
- The top number (numerator) shows ___, and the bottom number (denominator) shows ___.
- On a number line, $\frac{1}{2}$ is halfway between ___ and ___.
- ___ is smaller/larger than ___ because it has ___ parts.

Launch Activity (5 minutes)

Draw a long rectangle on the board.

Shade half and label it $\frac{1}{2}$.

Ask: What fraction is shaded? How many equal parts make one whole?

If I divide it into four equal parts, what fraction is each? ($\frac{1}{4}$)

Assessment for Learning:

Ask: What happens to the size of each part when we divide the whole into more pieces?

(Expected answer: Each part gets smaller.)

Explicit Instruction (10–12 minutes)

1. Fractions on Fraction Bars

I Do • Show a full rectangle divided into halves, quarters, thirds, fifths and tenths.

Explain: Each bar is one whole divided into equal parts.

Label and discuss:

- $\frac{1}{2}$ = one of two equal parts
- $\frac{1}{4}$ = one of four equal parts
- $\frac{1}{5}$ = one of five equal parts

Ask: Which part looks the biggest? Which looks the smallest?

We Do • Together, order the fractions visually from largest to smallest using fraction bars.

Write: $\frac{1}{2} > \frac{1}{3} > \frac{1}{4} > \frac{1}{5} > \frac{1}{10}$

You Do • Students colour each fraction on their own fraction bars in the Student Book.

They label and order them from smallest to largest.

2. Fractions on Number Lines

I Do • Draw a number line from 0 to 1 divided into equal parts.

Show halves ($\frac{1}{2}$), then thirds ($\frac{1}{3}$, $\frac{2}{3}$), quarters ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$).

Explain: Each mark shows a fraction of the whole.

We Do • Together, locate:

– $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{3}$, $\frac{2}{5}$, $\frac{1}{10}$ on number lines.

Ask: Which is closer to zero? Which is closest to one?

You Do • Students complete number lines in their Student Books, labelling halves, quarters, thirds, fifths and tenths.

3. Comparing and Ordering Fractions

I Do • Model ordering fractions by size using visuals:

$\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$ → order smallest to largest.

Explain: The more equal parts the whole is cut into, the smaller each part becomes.

We Do • Together, arrange fraction cards in order.

Discuss: Why is $\frac{1}{5}$ smaller than $\frac{1}{4}$?

You Do • Students complete an ordering activity:

Cut and paste or draw fractions in order from smallest to largest.

Then colour fractions that are close in size the same colour (e.g. $\frac{1}{2}$ and $\frac{2}{4}$).

Differentiation Tips

Support:

- Use physical fraction strips to compare parts.
- Focus on halves, thirds and quarters only.

Extension:

- Introduce equivalent fractions (e.g. $\frac{1}{2} = \frac{2}{4}$).
- Ask students to create their own number lines with fractions between 0 and 1.

Teaching as Inquiry:

Observe who understands that increasing the denominator makes each part smaller.

Hands-On Activity 1 (10 minutes)

Fraction Bar Match-Up

Provide mixed fraction bars ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$).

Students match labels, shade them, and place in order from largest to smallest.

Hands-On Activity 2 (10–15 minutes)

Fraction Line Challenge

Students use rulers to draw a 0–1 number line and mark different fractions evenly.

They label and colour the marks for $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$.

Extension: mark equivalent fractions ($\frac{1}{2} = \frac{2}{4}$).

Student Book Practice

Students complete **page 20 – Fractions in a Line.**

Focus: Shade and label halves, thirds, quarters, fifths and tenths. Place fractions on number lines. Order fractions from smallest to largest. Colour matching fractions that show the same amount.

Mathletics Online Practice

Activities (Courses) Topic:

Rational numbers: Fractions

Activity: Identifying Fractions on a Number Line

Reflect and Check (5 minutes)

Quick-fire questions:

- What happens to the parts when we divide a whole into more pieces?
- Which is bigger, $\frac{1}{4}$ or $\frac{1}{5}$? Why?
- Where would $\frac{1}{2}$ go on a number line?

Reflect and Share:

Ask: Which model helped you understand fractions best — bars or number lines?

Feedback:

Praise students who can explain the size of fractions clearly using denominators.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who can confidently locate fractions on number lines.
- Provide extra modelling for students who confuse denominator and numerator.
- Extend fluent students to explore equivalent fractions and mixed numbers.

Curriculum & Planning Links

NZ Curriculum (2025) – Number

Rational numbers

Knowledge

- Fractions can represent parts of sets, regions, measurements and points on a number line.
- A unit fraction represents one part of an equally divided whole. Its numerator is 1.
- For unit fractions, the larger the denominator, the smaller the fraction.

Practices

- Comparing and ordering fractions with the same numerator or same denominator

DAILY LESSON PLAN Week 4 • Lesson 5

Topic: Fractions of a Group – Finding Halves, Quarters, Thirds, Sixths and Twelfths

In this lesson, students explore how to find a fraction of a set by dividing a group into equal parts. They use counters and drawings to find halves, quarters, thirds, sixths and twelfths of different numbers.

Learning Intention

Students will understand that fractions can represent equal parts of a group, and we can find a fraction of a number by dividing it equally.

Success Criteria

- ✓ I can divide a group or number into equal parts.
- ✓ I can find halves, quarters and thirds of a group.
- ✓ I can find a fraction of a number by dividing it by the denominator.
- ✓ I can explain how to find a fraction of 12 using multiplication or division.

Language Focus

Key terms: fraction, group, set, equal parts, half, quarter, third, sixth, twelfth, divide, share equally

Sentence stems:

- A fraction of a group means sharing items into equal parts.
- To find one ___ of ___, I divide by ___.
- $\frac{1}{2}$ of 8 = ___ because ___ ÷ 2 = ___.
- $\frac{1}{4}$ of 12 = ___ because ___ ÷ 4 = ___.

Launch Activity (5 minutes)

Warm-up:

Use 8 counters.

Ask: If I share these 8 counters equally between 2 people, how many does each get?

(Answer: 4)

Explain: That means $\frac{1}{2}$ of 8 = 4.

Now ask: If I share the 8 counters between 4 people? ($\frac{1}{4}$ of 8 = 2)

Assessment for Learning:

Ask: What does the denominator tell us when finding a fraction of a group?

(Expected: how many equal parts to divide into.)

Explicit Instruction (10–12 minutes)

1. Finding Fractions of a Group with Counters

I Do • Model: Let's find $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$ of 12.

Write:

- $\frac{1}{2}$ of 12 = 12 ÷ 2 = 6
- $\frac{1}{4}$ of 12 = 12 ÷ 4 = 3
- $\frac{1}{3}$ of 12 = 12 ÷ 3 = 4

Use counters to group into 2s, 3s and 4s to show equal parts.

We Do • Together, find:

- $\frac{1}{6}$ of 12 → 12 ÷ 6 = 2
- $\frac{1}{12}$ of 12 → 12 ÷ 12 = 1

You Do • Students work in pairs using counters to find:
$\frac{1}{2}$ of 8 $\frac{1}{4}$ of 8 $\frac{1}{3}$ of 9 $\frac{1}{6}$ of 12 $\frac{1}{12}$ of 12

They record results in a table:

Fraction	Group	Operation	Answer
$\frac{1}{2}$	8	8 ÷ 2	4
$\frac{1}{4}$	8	8 ÷ 4	2
$\frac{1}{3}$	9	9 ÷ 3	3
$\frac{1}{6}$	12	12 ÷ 6	2
$\frac{1}{12}$	12	12 ÷ 12	1

2. Understanding 'of' as Division

I Do • Explain: When we see a question like $\frac{1}{3}$ of 9, it means we divide 9 into 3 equal groups.

Show both with counters and an equation: 9 ÷ 3 = 3.

We Do • Together, solve:
– $\frac{1}{2}$ of 10 $\frac{1}{4}$ of 12 $\frac{1}{3}$ of 15

Write both the division and the multiplication that checks it:
e.g. $\frac{1}{4}$ of 12 = 3 → 4 × 3 = 12.

You Do • Students complete fraction-of-a-number questions independently using division and multiplication checks.

3. Visual Representations of Groups

I Do • Draw 12 dots. Circle groups of 4.

Explain: Each circle is one quarter of the group.

We Do • Together, draw 8 shapes and show $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ by grouping.

You Do • Students complete visual fraction groupings in their books (matching Student Book illustrations).

Differentiation Tips

Support:

- Use physical counters or connecting cubes.
- Focus only on halves and quarters of even numbers.

Extension:

- Explore fractions of larger numbers (e.g. $\frac{1}{5}$ of 20, $\frac{1}{6}$ of 30).
- Ask: If $\frac{1}{3}$ of a number is 5, what is the whole? (Multiply by 3.)

Teaching as Inquiry:

Observe who connects division with fractions and who still relies on concrete grouping.

Hands-On Activity 1 (10 minutes)

Fraction Detective

Students use sets of counters or picture cards.

They choose a group, then find and record fractions of that group ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{12}$)

They explain each step to a partner.

Hands-On Activity 2 (10–15 minutes)

Fraction Challenge Cards

Provide cards with questions such as:

- Find $\frac{1}{4}$ of 12.
- Find $\frac{1}{3}$ of 9.
- Find $\frac{1}{6}$ of 18.

Students solve each on whiteboards using division and arrays, then check using multiplication.

Student Book Practice

Students complete **page 21 – Fractions of a Group.**

Focus: Divide groups of objects equally. Find and record $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ and $\frac{1}{12}$ of given numbers.

Write matching division and multiplication equations.

Mathletics Online Practice

Activities (Courses) Topic:

Rational numbers: Fractions

Activity: Unit fractions

Skill Quest Topic:

Rational numbers: Unit fractions of sets

Quest: Finding unit fractions of sets

Reflect and Check (5 minutes)

Quick-fire questions:

- What does '$\frac{1}{2}$ of 8' mean?
- How do we find $\frac{1}{4}$ of 12?
- What happens to the answer when the denominator gets bigger?

Reflect and Share:

Ask: Which fractions were easiest to find? Why?

Feedback:

Praise students who explain clearly how to divide groups equally and check using multiplication.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who can use division to find fractions confidently.
- Support those who still need concrete materials to visualise groups.
- Extend advanced students to non-unit fractions (e.g. $\frac{3}{4}$ of 12).

Curriculum & Planning Links

NZ Curriculum (2025) – Number

Rational numbers

Knowledge

- Scaling changes quantities proportionally, using multiplication division

Practices

- Finding a unit fraction of a whole number, using multiplication and division facts and where the answer is a whole number
- Finding the whole set or amount when given a unit fraction, using multiplication and division facts

Unit: Multiplication and Fractions

Focus: Understanding multiplication as repeated addition and applying it to real-world contexts, and recognising fractions as equal parts of a whole and a group.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Multiplication as Repeated Addition	Students understand that multiplication represents equal groups and is a more efficient way to add repeated amounts.	Explains multiplication as 'groups of' or 'lots of'. Matches repeated addition to multiplication sentences.
Visual Models of Multiplication	Can represent multiplication using arrays, block towers or rows of items.	Draws accurate models with equal groups. Labels correctly with repeated addition and multiplication sentences.
Real-World Application of Multiplication	Uses multiplication to solve practical problems such as arranging items in rows.	Records clear equations for visual models (e.g. 4 rows of 6 = 24). Describes meaning of each number in a multiplication sentence.
Fractions as Parts of a Whole	Recognises that fractions represent equal parts of a whole or number line.	Labels and orders halves, quarters, thirds, fifths and tenths on fraction bars and number lines.
Fractions of a Group	Understands that finding a fraction of a group involves dividing into equal parts.	Finds $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ and $\frac{1}{12}$ of a group or number. Records division and multiplication equations correctly.
Comparing and Ordering Fractions	Can compare fractions and explain size relationships.	Orders fractions from smallest to largest and explains reasoning using denominators.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students using counters or drawing arrays to show multiplication and fractions of groups.	Do they create equal groups accurately? Can they describe what each group represents?
Oral Check	Ask: 'What does 4 × 6 mean?' and 'How would you find ¼ of 12?'	Listen for correct use of language such as 'groups of', 'equal parts' and 'divide by the denominator'.
Written Work	Review Student Book pp. 17–21.	Check for correct matching of repeated addition and multiplication, accurate use of division for fractions of groups, and clear fraction ordering.
Practical Task	Students draw or build their own garden layout showing equal rows of items and label multiplication equations.	Can students explain their reasoning and identify totals correctly?
Exit Ticket / Quick Quiz	Provide 5 short problems combining multiplication and fractions.	Identify who can move fluently between models, equations and reasoning.

Quick Quiz / Exit Ticket (5 Questions)

1. Write the repeated addition and multiplication sentence for 5 groups of 3.
2. Draw an array that shows 4 × 6 and write the total.
3. Which is larger: $\frac{1}{4}$ or $\frac{1}{5}$? Explain why.
4. What is $\frac{1}{2}$ of 8? What is $\frac{1}{4}$ of 8?
5. Write a word problem that can be solved using multiplication or fractions.

Teaching as Inquiry: Reflection Notes

Reflection Prompts and Next Steps

Students confidently matching repeated addition and multiplication:

Students using visual models effectively to represent equal groups:

Students confidently identifying and ordering fractions on number lines:

Students needing support with division to find fractions of a group:

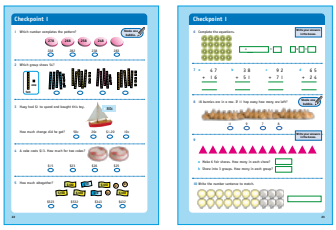
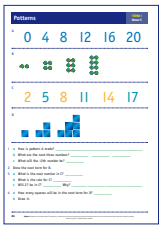
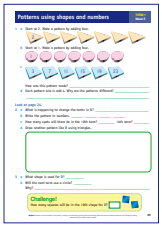
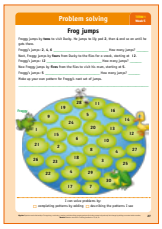
Misconceptions noticed (e.g. uneven grouping, confusing numerator and denominator):

Vocabulary to revisit (groups of, equal parts, denominator, numerator):

Adjustments for future lessons (e.g. add more practice with arrays or fraction lines):

Term 1 Week 5 Overview

Patterns and Algebra – Recognising, Creating and Explaining Patterns

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Checkpoint 1 (Review and Apply Learning)**	Previously learned number and pattern skills can be reviewed and applied to show understanding and identify next learning steps.	✓ Recall key number skills ✓ Recognise simple patterns ✓ Apply addition and subtraction ✓ Explain reasoning ✓ Show working clearly	– Complete Checkpoint assessment – Review number and pattern questions – Apply strategies to solve problems – Explain thinking – Identify strengths and areas for support	**Pages 22–23:** Review number skills and patterns, demonstrate understanding and apply strategies. 
2 **Growing Patterns (Identifying Rules)**	Patterns grow when numbers change by a constant amount, and the rule helps us continue the pattern.	✓ Recognise growing patterns ✓ Identify the rule ✓ Continue patterns ✓ Predict next terms ✓ Describe how patterns grow	– Identify pattern rules – Continue numerical patterns – Predict future terms – Use visual models – Explain rule using numbers	**Page 24:** Identify rules, continue patterns and predict future numbers. 
3 **Pattern Rules (Applying Rules)**	A pattern rule describes how numbers change, and the rule can be used to continue or create patterns.	✓ Identify pattern rule ✓ Continue patterns ✓ Create patterns ✓ Explain rule clearly ✓ Apply rule to new situations	– Identify rule from patterns – Continue number sequences – Create own pattern – Explain rule using words and numbers – Apply rule in new examples	**Page 25:** Identify pattern rules, continue sequences and describe how patterns change. 
4 **Number Patterns (Explaining Patterns)**	Patterns can be described by how numbers change, and understanding the change helps explain and predict patterns.	✓ Continue number patterns ✓ Explain how patterns change ✓ Identify increasing/ decreasing patterns ✓ Predict future terms ✓ Use reasoning	– Continue pattern rows – Identify change between terms – Explain pattern growth – Predict missing numbers – Describe reasoning	**Page 26:** Continue number patterns, explain rules and describe how patterns change. 
5 **Describing Patterns (Reasoning and Justifying)**	Patterns can be described and justified using mathematical reasoning and understanding of number relationships.	✓ Identify missing terms ✓ Explain pattern rule ✓ Justify reasoning ✓ Compare patterns ✓ Recognise multiple pattern types	– Identify missing numbers – Explain reasoning for pattern – Compare patterns – Solve reasoning questions – Use pattern vocabulary	**Page 27:** Describe patterns, explain rules and justify reasoning using number relationships. 

CHECKPOINT 1 Week 5 • Term 1

Topic: Number, Place Value, Money and Operations

Purpose

This Checkpoint assesses students' understanding of key mathematical concepts taught across the first five weeks of Year 4. It provides teachers with a clear snapshot of students' number knowledge, place value understanding, money calculations and basic operations.

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
Money	Calculating totals and change	Calculating totals and change	Adding money, calculating change, understanding value
Operations	Addition and subtraction	Addition and subtraction	Using number strategies, solving equations, applying number facts
Multiplication & Sharing	Equal groups and sharing	Equal groups and sharing	Understanding grouping, multiplication and division concepts

Checkpoint 1 Structure

Part	Focus	Questions	Skills Tested
1	Number Patterns	Identify missing number in pattern	Recognising patterns and sequencing
2	Place Value	Identify value using tens and ones	Understanding base 10 representation
3	Money	Calculate change from $1	Applying subtraction in money context
4	Multiplication	Solve real-world multiplication problem	Using multiplication facts
5	Money Totals	Add values of notes and coins	Combining money correctly
6	Number Sentences	Complete addition and multiplication equation	Understanding number relationships
7	Written Addition	Solve multi-digit addition	Applying addition strategies
8	Problem Solving	Subtraction in context	Applying operations in real-life situations
9	Equal Sharing	Divide into equal groups	Understanding grouping and division
10	Representing Groups	Write matching number sentence	Connecting visual model to equation

CHECKPOINT 1 Week 5 • Term 1

Topic: Number, Place Value, Money and Operations **Total Marks:** 30

Student Name:

Marking Sheet

Part	Task	Max Marks	Student Score	Notes / Observations
1	Complete number pattern	2	/ 2	
2	Place value using tens/ones	3	/ 3	
3	Calculate money change	3	/ 3	
4	Solve multiplication problem	3	/ 3	
5	Add money amounts	3	/ 3	
6	Complete number sentence	3	/ 3	
7	Solve written addition	4	/ 4	
8	Solve subtraction problem	4	/ 4	
9	Equal sharing	4	/ 4	
10	Write matching number sentence	1	/ 1	
			TOTAL: / 30	

Achievement Rubric

Score Range	Level	Interpretation	Suggested Follow-Up
26–30	**Secure**	Strong understanding of number, money and operations.	Ready to extend into multi-step problems and larger numbers.
18–25	**Developing**	Core skills evident but some errors present.	Reinforce place value, money calculations and operations.
10–17	**Emerging**	Partial understanding with gaps in key areas.	Provide small-group support in number operations and money.
Below 10	**At Risk**	Significant foundational gaps.	Provide targeted intervention in number sense and operations.

Diagnostic Notes (Teacher Use)

Skill Area	Observations	Follow-Up Plan
Number Patterns		
Place Value		
Money Calculations		
Addition & Subtraction		
Multiplication & Sharing		
Problem Solving		

If students struggled with:

- **Patterns →** Revisit skip counting and place-value sequences
- **Place value →** Use base 10 materials and partitioning practice
- **Addition/Subtraction →** Reinforce number line and place-value strategies
- **Multiplication →** Revisit equal groups and repeated addition models
- **Fractions/Sharing →** Use concrete grouping and visual fraction models

DAILY LESSON PLAN Week 5 • Lesson 2

Topic: Patterns – Numerical and Visual 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)

Write on 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 of a Pattern

I Do • Display Pattern A (0, 4, 8, 12, 16, 20).
Model finding the rule: each number increases by 4.
Write: **Rule = Add 4**
Predict next terms: 24, 28, 32.

We Do • Together analyse Pattern C (2, 5, 8, 11, 14, 17).
Ask: What changes each time? (Add 3)
Predict future numbers using the rule.

You Do • Students complete rule questions from p.24:

- How is pattern A made?
- What are the next numbers?
- What will the 12th number be?

2. Visual Growing Patterns

I Do • Show Pattern B (dots growing in equal groups).
Explain: Patterns can grow visually, not just with numbers.
Count how many dots are added each time.

We Do • Together identify the rule for Pattern D (growing squares).
Ask: How many more squares are added each time?

You Do • Students draw the next term for Pattern B and Pattern D.

3. Predicting and Justifying

I Do • Model explaining:
'The rule is add 3, so the next term must be 20'.

We Do • Discuss: Will 27 appear in Pattern C? Why or why not?

You Do • Students answer reasoning questions from p.24.

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.
- can explain the rule clearly.
- confuse additive vs multiplicative growth.

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:

- first 5 terms
- the rule
- the next term

Hands-On Activity 2 (10–15 minutes)

Pattern Detective

Students receive pattern cards and must:

- identify the rule
- continue the pattern
- explain the growth

Student Book Practice

Students complete **page 24 – Growing Patterns**

Focus:

- Continue numerical and visual patterns
- Identify pattern rules
- Predict future terms
- Justify reasoning

Mathletics Online Practice

Activities (Courses) Topic:

Algebra: Equations & relationships

Activity: Increasing patterns

Activities (Courses) Topic:

Algebra: Equations & relationships

Activity: Decreasing pattern

Reinforces key lesson skills through adaptive, interactive activities. 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

Ask: How does knowing the rule help predict future numbers?

Next Steps for Teacher

- 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 3

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)

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? (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 minutes)

1. Patterns with the Same Rule but Different Starts

I Do • Show pattern A (start at 2, add 4).

Write: 2, 6, 10, 14, 18, 22

Explain: Rule = add 4.

We Do • Show pattern B (start at 1, add 4).

Compare both patterns:

- Same rule
- Different numbers because starting point is different

You Do • Students complete page 25 questions:

- Write pattern rule
- Explain why patterns are different

2. Representing Patterns Numerically

I Do • Show pattern C: 3, 7, 11, 15, 19, 23

Model identifying rule: add 4.

We Do • Students write the pattern using numbers and extend it.

You Do • Students:

- Write pattern terms
- Find 10th and 14th term using repeated addition
- Record reasoning

3. Linking Visual and Numerical Patterns

I Do • Refer back to page 24 Pattern B (growing spots).

Discuss: What is happening each time?

We Do • Together determine rule and write pattern in numbers.

You Do • Students:

- Draw another pattern like B using triangles
- Predict future terms

4. Reasoning About Pattern Growth

I Do • Show Pattern D (growing squares).

Explain how shape remains constant but number increases.

We Do • Ask: Will the next term use a circle? Why or why not?

You Do • Students answer reasoning questions and challenge problem:

How many squares in the 10th term?

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
- 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
- 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
- 10th term prediction.

Student Book Practice

Students complete **page 25 – Patterns using shapes and numbers**

Focus:

- Identify rule (add constant)
- Compare patterns with same rule
- Extend numerical patterns
- Predict future terms
- Create and explain patterns

Mathletics Online Practice

Skill Quest Topic:

Relationships: Growing number patterns

Quest: Recognising & creating growing patterns

Reinforces key lesson skills through adaptive, interactive activities. Completion scores track student progress and help teachers monitor growth and identify learning needs.

Reflect and Check (5 minutes)

Ask:

- 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

How does knowing the starting number affect the pattern?

Next Steps for Teacher

- 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 4

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.

Discuss how some patterns change by a constant and others change differently.

Explicit Instruction (12–15 minutes)

1. Identify and Continue Patterns

I Do • Model Pattern A: 2, 4, 6, 8 ➜ rule = add 2
Extend together.

We Do • Model Pattern B: 10, 13, 16, 19 ➜ rule = add 3
Students predict next numbers.

You Do • Students complete part 1 (a–j) identifying rules and extending patterns:

- Increasing
- Decreasing
- Patterns using money and measurement

Teacher checks understanding of constant change.

2. Creating Patterns Using Rules

I Do • Start at 20, add 4 ➜ model sequence

We Do • Start at 86, subtract 10 ➜ build together

You Do • Students complete:

- Write pattern starting from 20
- Write pattern starting from 86
- Write instructions for given pattern

3. Reasoning About Patterns

I Do • Discuss pattern: 0, 11, 22, 33, 44
Ask: What is the rule?

We Do • Students explain rule using words and numbers.

You Do • Students complete 'Looking for Patterns':
1, 3, 7, 15, ___ , ___
Explain reasoning in writing.

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:

- Identify rule
- Continue pattern
- Explain reasoning

Hands-On Activity 2 (10–15 minutes)

Create Your Own Pattern

Students create:

- One increasing pattern
- One decreasing pattern

They must:

- write rule
- show first 5 terms
- challenge a partner.

Student Book Practice

Students complete **page 26 – Patterns with numbers**

Focus:

- Identify pattern rule
- Continue sequences
- Create patterns from rules
- Explain reasoning

Mathletics Online Practice

Skill Quest Topic:

Relationships: Growing number patterns

Quest: Recognising & creating growing patterns

Mathletics reinforces 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)

Ask:

- How do you find the rule of a pattern?
- How do you know if your rule is correct?
- Can patterns decrease? How?

Students complete **Mastery Checklist**:

- ✓ Work out the rule
- ✓ Continue patterns
- ✓ Follow a rule to make a pattern

Next Steps for Teacher

- 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 5

Topic: Problem Solving – Frog Jumps (Growing Patterns in Context)

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 Pattern Talk

Write on 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:

Today we will use patterns to solve a story problem about Frog jumping across lily pads.

Explicit Instruction (10–12 minutes)

1. Understanding Pattern Rules in Context

I Do • Show first problem: Frog jumps **by 2s** starting at 2 → 2, 4, 6...

Model continuing pattern.

Explain: The rule is **add 2 each time**.

Ask: How many jumps to reach 12?

We Do • Work through second example together:

Frog jumps **by 4s starting at 12** → 12, 16, 20...

Ask:

- What is the rule?
- How do we continue the pattern?

You Do • Students continue a simple jump pattern on mini-whiteboards.

Check: Can students identify and apply the rule?

2. Applying Pattern Rules to Solve Problems

I Do • Model third scenario:

Frog jumps **by 5s starting at 5** → 5, 10, 15...

Explain how to use the rule to predict future terms without counting each time.

We Do • Solve together:

- How many jumps to reach 25?
- What number will Frog land on after 6 jumps?

You Do • Students solve a similar pattern problem independently.

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
- 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 Frog Pattern

Students design a Frog jump pattern:

- Choose starting number
- Choose rule (add 2, 3, 4, 5, etc.)
- Draw frog path
- Write the rule

Share and explain with partner.

Student Book Practice

Students complete **page 27 – Frog Jumps Problem Solving**

Focus:

- Continue patterns using constant change
- Identify pattern rule
- Solve contextual pattern problems
- Create their own pattern

Mathletics Online Practice

Challenge: Level 3-5

Number & Algebra:

Patterns

Title:

Jamie's patterns

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 & 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.

Unit: Number 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

Assessment 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. 70–73.	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 and 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:

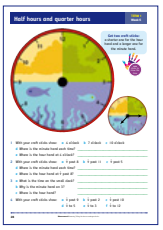
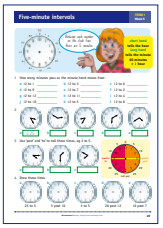
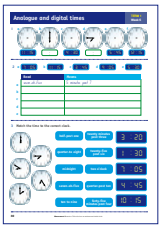
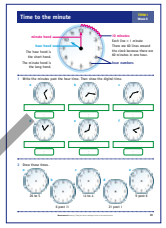
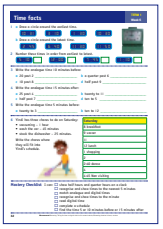
Students needing support to identify the rule consistently:

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

Time – Reading, Measuring and Calculating Time

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Half Hours and Quarter Hours**	Time can be read on an analogue clock using hour and minute hands.	✓ Read o'clock, half past, quarter past and quarter to ✓ Identify hour and minute hands ✓ Describe time using past and to language	– Use craft sticks to model clock hands – Read half and quarter hours – Describe minute and hour hand positions	**Page 28:** Show o'clock, half and quarter hours on clocks and describe hand positions. 
2 **Five-Minute Intervals**	Clocks measure time in 5-minute intervals around the clock face.	✓ Count in 5-minute intervals ✓ Read time to nearest 5 minutes ✓ Describe time using past and to	– Count minutes around clock – Read clocks in 5-minute steps – Match analogue times and write in words	**Page 29:** Read clocks to nearest 5 minutes and use past/to language. 
3 **Analogue and Digital Time**	The same time can be shown using analogue or digital clocks.	✓ Read analogue time ✓ Read digital time ✓ Match analogue and digital times ✓ Write time in words	– Match analogue and digital clocks – Read and write digital times – Translate between clock formats	**Page 30:** Match analogue and digital times and describe in words. 
4 **Time to the Minute**	Each small mark on a clock represents one minute.	✓ Read time to nearest minute ✓ Write digital time ✓ Draw time accurately ✓ Count minutes precisely	– Count individual minutes on clock – Convert analogue to digital – Draw clocks showing given times	**Page 31:** Read and write time to nearest minute and draw clocks accurately. 
5 **Time Facts and Duration**	Time can be measured, compared and calculated using hours and minutes.	✓ Order times ✓ Find time before and after ✓ Measure duration ✓ Apply time to schedules	– Compare and order times – Find time before and after – Solve duration problems – Use time in schedules	**Page 32:** Order times, calculate before/after and apply time to a schedule. 

DAILY LESSON PLAN Week 6 • Lesson 1

Topic: Time – Half Hours and Quarter Hours (Analogue Clocks)

In this lesson, students learn how time is measured in hours and minutes and how analogue clocks represent time. They explore how the minute and hour hands move, and practise telling time to the half hour and quarter hour.

Learning Intention

Students will understand that time is measured in hours and minutes and that analogue clocks use a system based on 60 to show time.

Success Criteria

- ✓ I can identify the hour and minute hands on a clock.
- ✓ I can tell the time to the hour, half hour and quarter hour.
- ✓ I can explain where the minute hand points for half past and quarter past/to.
- ✓ I can describe how the hour hand moves as time passes.

Language Focus

Key terms: hour, minute, clock, analogue, digital, half past, quarter past, quarter to, o'clock, minute hand, hour hand, minutes, time

Sentence stems:

- The minute hand points to ___ when it is half past.
- The minute hand points to ___ when it is quarter past.
- The hour hand is between ___ and ___ because ___.
- Half past means ___ minutes past the hour.

Launch Activity (5 minutes)

Clock Talk Warm-up

Show a large analogue clock.

Ask:

- Which hand shows hours? Which shows minutes?
- What time is this? (Show 3:00)
- What happens when the minute hand moves once around the clock?

Explain:

One full turn of the minute hand = **60 minutes** = **1 hour**

Explicit Instruction (10–12 minutes)

1. Understanding the Clock Structure

I Do • Show analogue clock.

Explain:

- Clock has **12 numbers**
- Each number = **5 minutes**
- One full turn = **60 minutes**

Model:

- 4:00 ➜ minute hand on 12
- 4:30 ➜ minute hand on 6

Explain: Half past = **30 minutes**

2. Quarter Hours

I Do • Show:

- Quarter past ➜ minute hand on 3 ➜ **15 minutes**
- Quarter to ➜ minute hand on 9 ➜ **45 minutes**

Explain meaning of *quarter* (one fourth of an hour).

3. Hour Hand Movement

I Do • Show 4:00 ➜ 4:30

Explain:

The hour hand moves slowly between numbers.

We Do • Where is hour hand at 7:30?

- Between which numbers?

You Do • Students show time using craft stick clocks.

Differentiation Tips

Support:

- Use colour-coded hands.
- Focus on o'clock and half past only.
- Use guided clock matching cards.

Extension:

- Tell time using quarter to.
- Estimate time between two hours.
- Convert analogue to digital.

Teaching as Inquiry:

Observe who:

- Confuses hour/minute hands.
- Understands minute increments.
- Can explain clock movement.

Hands-On Activity 1 (10 minutes)

Build-a-Clock

Students use:

- Short stick = hour hand
- Long stick = minute hand

Teacher calls:

- 4 o'clock
- 7 o'clock
- 10 o'clock

Students show using craft clocks.

Hands-On Activity 2 (10–15 minutes)

Half & Quarter Time Challenge

Teacher calls:

- Half past 8
- Half past 5
- Quarter past 9
- Quarter to 3

Students:

- Show time
- Say minute hand position
- Explain hour hand position

Student Book Practice

Students complete **page 28 – Half Hours and Quarter Hours**

Focus:

- Reading analogue clocks
- Showing time with hands
- Understanding half past and quarter past/to
- Identifying hour and minute hand movement

Mathletics Online Practice

Activities (Courses) Topic:

Measuring, perimeter, area, volume & time

Activity:

Are you ready?

Reflect and Check (5 minutes)

Ask:

- Where does the minute hand point at half past?
- What does quarter past mean?
- Why does the hour hand move slowly?
- How many minutes are in one hour?

Reflection

How does the clock show time passing?

Encourage vocabulary: hour, minute, quarter, half, between

Next Steps for Teacher (Teaching as Inquiry)

- Provide extra practice for students confusing hour/minute hands.
- Reinforce minute counting in 5s.
- Extend confident students to nearest minute in next lesson.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- A point in time is typically measured in hours and minutes past midnight.
- Clocks relate seconds to minutes and minutes to hours according to a system based on 60.

Practices

- Telling the time on analogue and digital clocks to the nearest minute

DAILY LESSON PLAN Week 6 • Lesson 2

Topic: Time – Five-Minute Intervals on Analogue Clocks

In this lesson, students deepen their understanding of time by learning how the minute hand moves in five-minute intervals. They practise reading analogue clocks to the nearest five minutes and describing time using 'past' and 'to'.

Learning Intention

Students will understand that the minute hand moves in five-minute intervals around the clock and that time can be read and described using minutes past and minutes to the hour.

Success Criteria

- ✓ I can count minutes around a clock in fives.
- ✓ I can tell the time to the nearest five minutes.
- ✓ I can describe time using 'past' and 'to'.
- ✓ I can explain how the minute hand shows the passing of time.

Language Focus

Key terms: minute, hour, five-minute intervals, minute hand, hour hand, past, to, quarter past, half past, quarter to, analogue clock, minutes

Sentence stems:

- Each number on the clock equals ___ minutes.
- The minute hand shows ___ minutes past the hour.
- The time is ___ past ___ because ___.
- The time is ___ to ___ because ___.

Launch Activity (5 minutes)

Counting Around the Clock

Display a large clock.

Count together:

0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60

Ask:

- How many minutes between each number? (5)
- How many minutes in one full turn? (60)
- What time is shown when the minute hand points to 3? (15 past)

Explicit Instruction (10–12 minutes)

1. Understanding Five-Minute Intervals

I Do • Show clock.

Explain:

Each number = **5 minutes**

Model:

- Minute hand at 1 ➜ 5 past
- Minute hand at 2 ➜ 10 past
- Minute hand at 6 ➜ 30 past

2. Reading Time to the Nearest Five Minutes

I Do • Show:

3:25 ➜ minute hand on 5

Explain counting in fives to find minutes.

We Do • Read times together:

- 4:10
- 6:35
- 7:45

Ask:

How many minutes past/to?

3. Using 'Past' and 'To'

Explain:

- Past ➜ after the hour
- To ➜ before the next hour

Model:

- 3:20 ➜ 20 past 3
- 4:50 ➜ 10 to 5

You Do • Students read times from clocks and say using 'past' or 'to'.

Differentiation Tips

Support:

- Use colour-coded clock faces.
- Focus only on 'past' times first.
- Count minutes aloud using skip counting.

Extension:

- Convert analogue to digital time.
- Tell time to nearest minute.
- Explain why 40 past = 20 to.

Teaching as Inquiry:

Observe:

- Can students count in fives reliably?
- Do they understand 'to' concept?
- Are they tracking hour hand correctly?

Hands-On Activity 1 (10 minutes)

Minute Walk

Students use mini clocks.

Teacher calls:

- 5 past 2
- 20 past 4
- 35 past 7

Students move minute hand step by step counting in fives.

Hands-On Activity 2 (10–15 minutes)

Past or To Sorting

Give time cards:

3:10, 4:25, 5:50, 6:40, 7:15

Students:

- Sort into 'past' and 'to'
- Explain reasoning
- Show on clock

Student Book Practice

Students complete **page 29 – Five-Minute Intervals**

Focus:

- Counting minutes in fives
- Reading analogue clocks to nearest five minutes
- Using 'past' and 'to' language
- Drawing clock hands

Mathletics Online Practice

Activities (Courses) Topic:

Measuring, perimeter, area, volume & time

Activity:

Something Easier - Five Minute Times

Reflect and Check (5 minutes)

Ask:

- How many minutes between each number on a clock?
- How do you know when to use 'past' or 'to'?
- What does the minute hand show?
- Why does the hour hand move slowly?

Reflection

How does counting in fives help tell time faster?

Encourage vocabulary:

minute, past, to, interval, hour

Next Steps for Teacher (Teaching as Inquiry)

- Provide extra practice for students confusing 'past' and 'to'.
- Reinforce counting in fives using number lines and clocks.
- Prepare students for telling time to the nearest minute.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- A point in time is typically measured in hours and minutes past midnight.
- Clocks relate seconds to minutes and minutes to hours according to a system based on 60.

Practices

- Telling the time on analogue and digital clocks to the nearest minute

DAILY LESSON PLAN Week 6 • Lesson 3

Topic: Time – Analogue and Digital Time

In this lesson, students connect analogue and digital clocks. They learn how the same time can be shown in different formats and practise reading, writing and matching times to the nearest minute.

Learning Intention

Students will understand that time can be represented in both analogue and digital forms and that both show the same number of hours and minutes.

Success Criteria

- ✓ I can read time on an analogue clock to the nearest minute.
- ✓ I can read and write digital time correctly.
- ✓ I can match analogue and digital times.
- ✓ I can describe time using past and to language.

Language Focus

Key terms: analogue, digital, hour, minute, midnight, minutes past, minutes to, half past, quarter past, quarter to, o'clock, time

Sentence stems:

- The time is ___ because the minute hand shows ___ minutes.
- The digital time is ___ hours and ___ minutes.
- This clock matches ___ because ___.
- ___ means ___ minutes past/to the hour.

Launch Activity (5 minutes)

Two Clocks, Same Time

Show an analogue clock and digital clock.

Ask:

- What time is this on the analogue clock?
- How would we write it in digital form?

Explain:

Analogue = hands

Digital = numbers

Show example:

7:15 = quarter past seven

Explicit Instruction (10–12 minutes)

1. Reading Digital Time

I Do • Show digital time: 11:15

Explain:

First number = hour

Second number = minutes

Model:

- 4:30 ➜ half past four
- 5:45 ➜ quarter to six

2. Matching Analogue and Digital

I Do • Show analogue clock ➜ read time ➜ match digital.

Example:

Minute hand on 9 ➜ 45 minutes ➜ quarter to

We Do • Match together:

- 3:20
- 1:30
- 7:05

3. Reading Time in Words

Explain:

7:05 ➜ seven-oh-five ➜ 5 minutes past 7

Model writing:

Digital ➜ Words ➜ Meaning

You Do • Students complete matching table.

Differentiation Tips

Support:

- Use clocks showing only 5-minute intervals.
- Provide matching cards.
- Focus on o'clock, half past, quarter past.

Extension:

- Read time to nearest minute.
- Convert between past/to and digital.
- Explain midnight and noon.

Teaching as Inquiry:

Observe:

- Can students read both clock types?
- Do they understand digital structure?
- Can they translate between formats?

Hands-On Activity 1 (10 minutes)

Clock Match

Students receive:

- Analogue clock cards
- Digital time cards

Task:

Match correct pairs and explain reasoning.

Hands-On Activity 2 (10–15 minutes)

Time Translator

Teacher shows digital times:

7:05, 3:45, 9:20, 1:30

Students:

- say in words
- show on analogue clock
- say using past/to.

Student Book Practice

Students complete **page 30 – Analogue and Digital Times**

Focus:

- Reading analogue clocks
- Writing digital times
- Matching time formats
- Reading time in words and meaning

Mathletics Online Practice

Activities (Courses) Topic:

Measuring: Tell the time

Activity:

Telling time to 5 minutes

Reflect and Check (5 minutes)

Ask:

- What does the first number in digital time show?
- What does the second number show?
- How do analogue and digital clocks show the same time?
- What is midnight?

Reflection

Which clock is easier to read? Why?

Encourage vocabulary:

analogue, digital, minutes, hour, match

Next Steps for Teacher (Teaching as Inquiry)

- Provide extra practice for students confusing minute reading.
- Reinforce digital time structure.
- Prepare students for elapsed time and problem solving with time.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- A point in time is measured in hours and minutes past midnight.
- Clocks relate seconds to minutes and minutes to hours according to a system based on 60.

Practices

- Telling the time on analogue and digital clocks to the nearest minute.

DAILY LESSON PLAN Week 6 • Lesson 4

Topic: Time to the Minute

In this lesson, students learn to read analogue clocks to the nearest minute. They understand that each small mark represents one minute and practise converting analogue time to digital time and drawing times accurately.

Learning Intention

Students will understand that clocks measure time in minutes and hours and that each small mark on the clock represents one minute.

Success Criteria

- ✓ I can read analogue time to the nearest minute.
- ✓ I can write digital time that matches analogue time.
- ✓ I can count minutes accurately around the clock.
- ✓ I can draw a clock to show a given time.

Language Focus

Key terms: minute, hour, minute hand, hour hand, nearest minute, past, to, digital time, analogue clock, clockwise

Sentence stems:

- The minute hand shows ___ minutes past the hour.
- The time is ___ because the minute hand is on ___.
- The digital time is ___ : ___.
- I counted the minutes by ___.

Launch Activity (5 minutes)

Minute Counting Warm-Up

Display a clock face.

Ask:

- How many minutes in one hour? (60)
- How many minutes between each number? (5)
- What does each small line represent? (1 minute)

Count together:

1–60 around the clock.

Ask:

If the minute hand moves from 12 to 3, how many minutes passed? (15)

Explicit Instruction (10–12 minutes)

1. Reading Time to the Minute

I Do • Show clock with minute hand between numbers.

Model:

Minute hand at 2 small lines past 5 ➜ count minutes:

5 × 5 = 25 ➜ +2 = 27 minutes

Time = 27 past the hour

Explain:

Each small line = 1 minute

2. Writing Digital Time

I Do • Example:

Minute hand = 14 minutes

Hour hand just past 3 ➜ time = 3:14

Model writing digital time clearly.

3. Drawing Time

I Do • Model drawing:

- Hour hand first (short hand)
- Minute hand second (long hand)

Explain:

Minute hand must point exactly to correct minute mark.

We Do • Read clocks together:

- 18 past 4
- 26 to 5
- 14 to 4

Count minutes aloud.

You Do • Students:

- Read clocks to nearest minute
- Write matching digital time
- Draw clocks showing given times

Differentiation Tips

Support:

- Focus on 5-minute intervals first.
- Use counting by 5 then adding extra minutes.
- Provide marked clock faces.

Extension:

- Read time to the exact minute without counting aloud.
- Convert between past/to and digital time.
- Solve time comparison questions.

Teaching as Inquiry:

Observe:

- Can students count individual minutes accurately?
- Do they confuse hour and minute hand?
- Can they convert to digital time correctly?

Hands-On Activity 1 (10 minutes)

Minute Tracker

Students use mini clocks.

Teacher calls times:

- 3:18
- 6:27
- 4:41

Students show time and explain:

'I counted ___ minutes past ___'.

Hands-On Activity 2 (10–15 minutes)

Draw the Time Challenge

Students draw clocks for:

- 26 to 5
- 6 past 11
- 21 past 1
- 9 past 6

Partners check for:

- correct minute placement
- correct hour hand position.

Student Book Practice

Students complete **page 31 – Time to the Minute**

Focus:

- Reading analogue clocks to nearest minute
- Writing matching digital times
- Drawing clocks accurately

Mathletics Online Practice

Activities (Courses) Topic:

Measuring, perimeter, area, volume & time

Activity:

What is the time?

Reflect and Check (5 minutes)

Ask:

- How many minutes are in one hour?
- How do you count minutes on a clock?
- Which hand shows minutes?
- Why must the hour hand move slightly as minutes pass?

Reflection

What helps you read time accurately?

Encourage vocabulary:

minute, hour, digital, nearest minute, count

Next Steps for Teacher (Teaching as Inquiry)

- Provide extra practice for students miscounting minutes.
- Reinforce relationship between hour movement and minutes.
- Prepare students for elapsed time and time problem solving.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- A point in time is measured in hours and minutes past midnight.
- Clocks relate seconds to minutes and minutes to hours according to a system based on 60.

Practices

- Telling the time on analogue and digital clocks to the nearest minute.

DAILY LESSON PLAN Week 6 • Lesson 5

Topic: Time Facts – Duration and Equivalent Time

In this lesson, students apply their understanding of time to compare, order and calculate durations. They work with minutes and hours, find times before and after and interpret simple schedules.

Learning Intention

Students will understand that time can be measured, compared and calculated using hours and minutes and that durations can be expressed in different but equivalent ways.

Success Criteria

- ✓ I can read and compare times on analogue and digital clocks.
- ✓ I can find times before and after a given time.
- ✓ I can measure and calculate durations in hours and minutes.
- ✓ I can order times from earliest to latest.
- ✓ I can use time to complete a simple schedule.

Language Focus

Key terms: duration, earlier, later, before, after, minutes, hours, schedule, elapsed time, equivalent time, half hour, quarter hour

Sentence stems:

- The earliest time is ___ because ___.
- The time ___ minutes before ___ is ___.
- The time ___ minutes after ___ is ___.
- The duration is ___ minutes / ___ hours.
- ___ hours equals ___ minutes.

Launch Activity (5 minutes)

Which Comes First?

Display times:

10:30, 1:30, 3:10

Ask:

- Which is earliest?
- Which is latest?
- How do you know?

Discuss:

Time moves forwards during the day.

Explicit Instruction (10–12 minutes)

1. Comparing and Ordering Time

I Do • Show:

5:10, 7:45, 1:10, 12:00

Explain:

Compare hours first, then minutes.

Model ordering earliest ➔ latest.

2. Finding Time Before and After

I Do • Example:

10 minutes before 2:20 ➔ 2:10

15 minutes after 4:25 ➔ 4:40

Explain:

Move minute hand backward or forwards.

3. Understanding Duration

I Do • Example:

Vacuuming = 1 hour

Dishwasher = 25 minutes

Explain:

1 hour = 60 minutes

Discuss:

Duration = how long something takes.

4. Applying Time to a Schedule

I Do • Look at sample timetable.

Model:

Fit a 1-hour task between two events.

Explain:

Check start and finish times.

We Do • Solve together:

- 10 minutes before 10:20
- 15 minutes after 7:45
- Order: 2:45, 11:50, 6:40

You Do • Students:

- circle earliest and latest times
- order times correctly
- find time before/after
- fit tasks into schedule.

Differentiation Tips

Support:

- Use clock models for before/after.
- Focus on 5 and 10-minute changes.
- Use timeline visual.

Extension:

- Solve multi-step duration problems.
- Convert hours to minutes.
- Explore equivalent durations (90 min = 1h 30m).

Teaching as Inquiry:

Observe:

- Can students compare time correctly?
- Do they understand duration vs clock time?
- Can they use time in real-life context?

Hands-On Activity 1 (10 minutes)

Human Timeline

Students stand holding time cards.

Class arranges from earliest ➡ latest.

Discuss reasoning.

Hands-On Activity 2 (10–15 minutes)

Schedule Builder

Students create mini timetable:

Given:

- Breakfast 8:00
- Lunch 12:00
- Sport 9:00

Fit tasks:

- 1 hour chore
- 25 minute chore

Explain choices.

Student Book Practice

Students complete **page 32 – Time Facts**

Focus:

- Earliest and latest time
- Ordering time
- Time before and after
- Duration and scheduling

Mathletics Online Practice

Skill Quest Topic:

Measuring: Equivalent durations of time

Quest:

Finding equivalent durations of time

Reflect and Check (5 minutes)

Ask:

- How do you know which time is earliest?
- How do you find time before or after?
- What does duration mean?
- How many minutes in 1 hour?

Reflection

When do we use time calculations in real life?

Encourage vocabulary: before, after, duration, schedule, minutes, hours

Next Steps for Teacher (Teaching as Inquiry)

- Provide extra support for students confusing hour/minute comparisons.
- Reinforce elapsed time using visual timelines.
- Extend confident students with mixed unit conversions and real-world problems.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- A point in time is measured in hours and minutes past midnight.
- Clocks relate seconds to minutes and minutes to hours according to a system based on 60.

Practices

- Telling the time on analogue and digital clocks to the nearest minute.
- Measuring duration in hours, minutes and seconds, including mixed time units

Unit: Time – Reading, Measuring and Calculating Time

Focus: Reading time accurately, calculating duration and applying time in real-world contexts

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Reading Analogue Time	Students can read time to the nearest minute using hour and minute hands.	Correctly reads and explains time from analogue clock.
Reading Digital Time	Students understand digital time format (hours and minutes).	Writes correct digital time matching analogue clock.
Past and To Language	Students describe time using correct vocabulary.	Uses terms such as past, to, half past, quarter past correctly.
Ordering Time	Students can compare and sequence times.	Correctly orders earliest to latest.
Calculating Before and After	Students can find time before and after given times.	Accurately calculates using minutes.
Duration	Students understand duration as how long something takes.	Measures or calculates duration in hours and minutes.
Applying Time	Students use time in real-world contexts such as schedules.	Correctly places tasks within a timetable.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students reading clocks and calculating time.	Are students counting minutes correctly? Do they understand before/after?
Oral Check	Ask students to explain how they know the time.	Listen for correct reasoning and vocabulary.
Written Work	Review Student Book pp.28–32.	Look for correct reading of time, ordering, duration and scheduling.
Exit Ticket / Quick Quiz	Provide short time questions.	Identify students needing further support.

Quick Quiz / Exit Ticket (5 Questions)

1. What time is shown if the minute hand is on 6 and hour hand between 4 and 5?
2. Write the digital time for quarter past 7.
3. What time is 10 minutes before 3:40?
4. Order these times from earliest to latest: 2:45, 6:10, 1:30.
5. How many minutes are in 1 hour?

Teaching as Inquiry: Reflection Notes

Reflection Prompts and Next Steps

Students confidently reading time to the minute:

Students needing extra support:

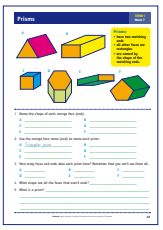
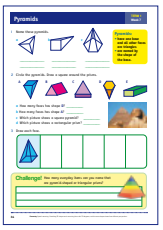
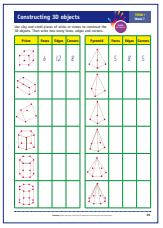
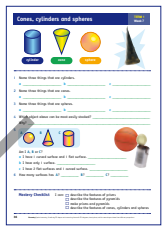
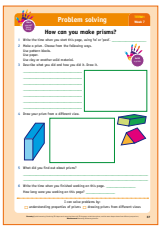
Misconceptions noticed (e.g. confusing hour and minute hand):

Language and vocabulary gaps to revisit:

Adjustments for future lessons:

Term 1 Week 7 Overview

3D Shapes: Prisms, Pyramids and Spatial Reasoning

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Prisms**	Prisms have two matching ends and rectangular faces, and shapes can look different from different perspectives.	✓ Identify prisms by their matching ends ✓ Name prisms using the shape of the base ✓ Recognise rectangular faces and ends ✓ Describe how a prism looks from different views	– Observe and discuss different prisms – Identify and name prisms from diagrams – Count faces and ends – Compare prisms from different perspectives	**Page 33:** Name the shape of each prism end; name each prism; identify faces and ends; describe what makes a prism. 
2 **Pyramids**	Pyramids have one base and triangular faces, and are named by the shape of the base.	✓ Identify pyramids and prisms ✓ Name pyramids using the base shape ✓ Count faces on pyramids ✓ Compare pyramids and prisms	– Identify pyramids vs prisms – Count faces and base – Draw pyramid faces – Discuss real-world pyramid examples	**Page 34:** Name pyramids; identify pyramids and prisms; count faces; draw faces; describe real-life pyramid shapes. 
3 **Constructing 3D Objects**	3D objects have faces, edges and vertices that can be counted and described.	✓ Build prisms and pyramids ✓ Count faces, edges and corners ✓ Describe properties of 3D shapes ✓ Compare different 3D shapes	– Construct prisms and pyramids using sticks/clay – Count faces, edges, vertices – Compare shapes – Record findings in table	**Page 35:** Construct prisms and pyramids; record number of faces, edges and corners. 
4 **Cones, Cylinders and Spheres**	Some 3D shapes have curved surfaces and different numbers of flat faces.	✓ Identify cones, cylinders and spheres ✓ Describe curved and flat surfaces ✓ Compare stacking ability ✓ Match shapes to real-world objects	– Identify curved vs flat surfaces – Match shapes to objects – Compare properties – Count surfaces	**Page 36:** Name real-life objects; identify surfaces; compare shapes; count surfaces; describe properties. 
5 **Problem Solving – Making Prisms**	3D shapes can be constructed, described and drawn from different perspectives.	✓ Construct a prism ✓ Describe how it was made ✓ Draw a prism from another view ✓ Explain properties of prisms	– Build prism using materials – Describe construction steps – Draw prism from different perspective – Reflect on properties	**Page 37:** Build a prism; describe and draw; explain properties; record start/finish time and learning. 

DAILY LESSON PLAN Week 7 • Lesson 1

Topic: Prisms – Identifying and Naming 3D Shapes

In this lesson, students explore prisms and learn how to identify their faces and ends. They understand that 3D shapes can look different when viewed from different perspectives and practise connecting 3D shapes with their 2D faces and descriptions.

Learning Intention

Students will understand that prisms have matching end faces and rectangular side faces and that 3D shapes may appear different depending on the viewing perspective.

Success Criteria

- ✓ I can identify a prism.
- ✓ I can name the shape of the matching end faces.
- ✓ I can describe the faces of a prism.
- ✓ I can connect a 3D shape to its 2D faces.
- ✓ I can recognise that shapes may look different from different viewpoints.

Language Focus

Key terms: prism, face, end face, rectangular face, 3D shape, 2D shape, triangular, rectangular, hexagonal, perspective, view

Sentence stems:

- This prism has ___ shaped ends.
- The side faces are ___ because ___.
- The shape looks different because ___.
- The 2D face is a ___ shape.

Launch Activity (5 minutes)

What Do You See?

Show a rectangular prism from two different angles.

Ask:

- Is this the same shape?
- What changed? (the view)
- What stayed the same? (the shape)

Explain:

3D shapes look different from different perspectives.

Explicit Instruction (10–12 minutes)

1. What Is a Prism?

I Do • Show several prisms.

Explain:

- A prism has **two matching end faces**
- All other faces are **rectangles**
- A prism is named after the shape of the ends

Example:

Triangular prism ➜ triangle ends

2. Identifying End Faces

I Do • Model naming end face shapes:

- Triangle ➜ triangular prism
- Rectangle ➜ rectangular prism
- Hexagon ➜ hexagonal prism

We Do • Look at shapes A–F together.

Ask:

- What shape is the orange end?
- What prism name matches?

3. Counting Faces

Explain:

Prisms have:

- 2 matching ends
- Rectangular side faces

Model counting faces carefully.

4. Connecting 3D to 2D

Show 2D shapes that match prism ends.

Explain:

3D shapes are built from 2D faces.

You Do • Students:

- Name end face shapes
- Name each prism
- Count faces
- Describe prism properties

Differentiation Tips

Support:

- Use physical prism models.
- Focus on triangle and rectangle prisms first.
- Provide face-count guides.

Extension:

- Compare prisms with different base shapes.
- Sketch prisms from another perspective.
- Predict hidden faces.

Teaching as Inquiry:

Observe:

- Can students recognise matching ends?
- Do they understand perspective?
- Can they connect 3D shapes to 2D faces?

Hands-On Activity 1 (10 minutes)

Build a Prism

Students use blocks or nets to build:

- triangular prism
- rectangular prism.

Discuss:

How many faces? What shape are the ends?

Hands-On Activity 2 (10–15 minutes)

Mystery Prism

Teacher describes:

'This prism has hexagon ends and rectangular sides'.

Students:

- identify prism
- sketch it
- describe faces.

Student Book Practice

Students complete **page 33 – Prisms**

Focus:

- Naming end faces
- Naming prisms
- Counting faces
- Describing prism properties

Mathletics Online Practice

Activities (Courses) Topic:

Geometry: Shape, space & pathways

Activity:

Relate Shapes and Solids

Reflect and Check (5 minutes)

Ask:

- What makes a shape a prism?
- How do you name a prism?
- Why can a shape look different from another view?
- What shape are the side faces of a prism?

Encourage vocabulary:

face, end, prism, rectangle, perspective

Next Steps for Teacher (Teaching as Inquiry)

- Reinforce identifying matching ends.
- Provide additional perspective drawing practice.
- Prepare students for visualising 3D shapes from different views.

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, verbal descriptions and the same shapes drawn from different perspectives

DAILY LESSON PLAN Week 7 • Lesson 2

Topic: Pyramids – Identifying and Describing 3D Shapes

In this lesson, students explore pyramids and learn how to identify their base and triangular faces. They understand that pyramids are named by the shape of the base and practise distinguishing between pyramids and prisms.

Learning Intention

Students will understand that pyramids have one base and triangular side faces and that 3D shapes can be identified by their structure and viewed from different perspectives.

Success Criteria

- ✓ I can identify a pyramid.
- ✓ I can name the shape of the base.
- ✓ I can describe the faces of a pyramid.
- ✓ I can distinguish between prisms and pyramids.
- ✓ I can connect 3D shapes with their 2D faces.

Language Focus

Key terms: pyramid, base, triangular face, vertex, edge, prism, 3D shape, square pyramid, triangular pyramid, rectangular prism, perspective

Sentence stems:

- This pyramid has a ___ base.
- All the side faces are ___ because ___.
- A pyramid is different from a prism because ___.
- The base shape is ___.

Launch Activity (5 minutes)

What Makes a Pyramid?

Show a pyramid model.

Ask:

- How many bases does this shape have? (one)
- What shape are the side faces? (triangles)

Compare with a prism:

- How many ends does a prism have? (two)

Explain:

Pyramids and prisms are different.

Explicit Instruction (10–12 minutes)

1. Identifying Pyramids

I Do • Show different pyramids.

Explain:

- A pyramid has **one base**
- All other faces are **triangles**
- Named by base shape

Example:

Square base ➜ square pyramid

2. Naming Pyramids

I Do • Model naming:

- Triangle base ➜ triangular pyramid
- Square base ➜ square pyramid
- Rectangle base ➜ rectangular pyramid

We Do • Look at shapes a, b, c together.

Ask:

- What shape is the base?
- What pyramid name matches?

3. Distinguishing Prisms and Pyramids

Explain:

Prism ➜ two matching ends

Pyramid ➜ one base, triangular sides

Students classify shapes A–E.

4. Connecting 3D to 2D Faces

Show pyramid net.

Explain:

The base is a 2D shape and side faces are triangles.

You Do • Students:

- Name pyramids
- Identify base shape
- Count faces
- Classify prism vs pyramid

Differentiation Tips

Support:

- Use physical pyramid models.
- Focus on square and triangular pyramids first.
- Use face-count chart.

Extension:

- Predict hidden faces.
- Sketch pyramid from different perspective.
- Compare number of faces between prisms and pyramids.

Teaching as Inquiry:

Observe:

- Can students identify the base correctly?
- Do they understand triangular side faces?
- Can they distinguish prisms vs pyramids?

Hands-On Activity 1 (10 minutes)

Build a Pyramid

Students construct a square pyramid using paper or sticks.

Discuss:

- How many faces?
- What shape is the base?

Hands-On Activity 2 (10–15 minutes)

Sort the Shapes

Students sort cards into:

- Pyramid
- Prism

Explain reasoning.

Student Book Practice

Students complete **page 34 – Pyramids**

Focus:

- Naming pyramids
- Identifying base shape
- Counting faces
- Distinguishing prisms and pyramids

Mathletics Online Practice

Activities (Courses) Topic:

Geometry: Shape, space & pathway

Activity:

How many faces?

Reflect and Check (5 minutes)

Ask:

- What makes a shape a pyramid?
- How many bases does a pyramid have?
- How is a pyramid different from a prism?
- What shape are the side faces?

Encourage vocabulary:

base, face, pyramid, triangle, prism, vertex

Next Steps for Teacher (Teaching as Inquiry)

- Reinforce difference between prism and pyramid.
- Provide more practice identifying base shapes.
- Prepare students for drawing 3D shapes from different views.

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, verbal descriptions and the same shapes drawn from different perspectives

DAILY LESSON PLAN Week 7 • Lesson 3

Topic: Constructing 3D Objects – Faces, Edges and Corners

In this lesson, students build prisms and pyramids using sticks and clay. They explore how 3D shapes are constructed and learn to identify faces, edges and corners (vertices).

Learning Intention

Students will understand that 3D shapes are made from faces, edges and corners and that these features help us describe and compare shapes.

Success Criteria

- ✓ I can construct a 3D shape.
- ✓ I can count faces, edges and corners.
- ✓ I can describe a prism and a pyramid.
- ✓ I can compare different 3D shapes.
- ✓ I can connect 3D shapes to diagrams and descriptions.

Language Focus

Key terms: face, edge, corner, vertex, prism, pyramid, 3D shape, base, triangular face, rectangular face, structure

Sentence stems:

- This shape has ___ faces.
- It has ___ edges and ___ corners.
- A prism has ___ matching ends.
- A pyramid has ___ triangular faces.
- I know this shape is a ___ because ___.

Launch Activity (5 minutes)

What Builds a Shape?

Show a cube.

Ask:

- What flat surfaces can you see? (faces)
- Where do faces meet? (edges)
- Where do edges meet? (corners/vertices)

Explain:

All 3D shapes are built from faces, edges and corners.

Explicit Instruction (10–12 minutes)

1. Faces, Edges and Corners

I Do • Model using a cube:

- Faces = flat surfaces
- Edges = where faces meet
- Corners = where edges meet

Count together.

2. Constructing Shapes

I Do • Build a square pyramid with sticks and clay.

Explain:

- Base shape
- Triangular faces
- Vertices meet at the top

We Do • Together build a triangular prism.

Ask:

- How many faces?
- How many edges?
- How many corners?

Record results.

3. Comparing Prisms and Pyramids

Explain:

Prism → two matching ends

Pyramid → one base, triangular faces

Compare features.

You Do • Students:

- Construct shapes using sticks/clay
- Count faces, edges and corners
- Record in table
- Compare shapes

Differentiation Tips

Support:

- Use simple shapes (cube, triangular prism).
- Provide labelled diagrams.
- Count together step-by-step.

Extension:

- Build complex prisms and pyramids.
- Predict number of edges before counting.
- Compare shapes mathematically.

Teaching as Inquiry:

Observe:

- Can students identify edges vs faces?
- Do they count systematically?
- Can they compare prism and pyramid structure?

Hands-On Activity 1 (10 minutes)

Build and Count

Students build:

- Prism
- Pyramid

Record:

Faces, edges, corners.

Hands-On Activity 2 (10–15 minutes)

Shape Detective

Teacher describes:

'This shape has 5 faces, 8 edges, 5 corners'.

Students identify:

Square pyramid.

Student Book Practice

Students complete **page 35 – Constructing 3D Objects**

Focus:

- Constructing prisms and pyramids
- Counting faces, edges and corners
- Recording and comparing shapes

Mathletics Online Practice

Activities (Courses) Topic:

Geometry: Shape, space & pathway

Activity:

Select the Objects

Reflect and Check (5 minutes)

Ask:

- What is a face?
- What is an edge?
- What is a corner?
- How is a prism different from a pyramid?

Encourage vocabulary:

face, edge, vertex, prism, pyramid

Next Steps for Teacher (Teaching as Inquiry)

- Reinforce systematic counting of faces/edges/corners.
- Provide additional building opportunities.
- Prepare students for drawing and visualising 3D shapes.

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, verbal descriptions and the same shapes drawn from different perspective

DAILY LESSON PLAN Week 7 • Lesson 4

Topic: Cones, Cylinders and Spheres – Identifying Curved 3D Shapes

In this lesson, students explore curved 3D shapes: cones, cylinders and spheres. They learn to describe surfaces, recognise real-life examples and compare how these shapes differ from prisms and pyramids.

Learning Intention

Students will understand that some 3D shapes have curved surfaces and that cones, cylinders and spheres can be identified by their surfaces and structure.

Success Criteria

- ✓ I can identify a cone, cylinder and sphere.
- ✓ I can describe curved and flat surfaces.
- ✓ I can compare curved shapes with prisms and pyramids.
- ✓ I can identify real-life objects matching each shape.
- ✓ I can describe the number of surfaces a shape has.

Language Focus

Key terms: cone, cylinder, sphere, curved surface, flat surface, base, surface, roll, stack, 3D shape

Sentence stems:

- This shape is a ___ because ___.
- It has ___ flat surfaces and ___ curved surface(s).
- A sphere has ___ surfaces.
- A cylinder can stack because ___.
- This object is shaped like a ___ because ___.

Launch Activity (5 minutes)

Roll or Stack?

Show:

- ball (sphere)
- can (cylinder)
- party hat (cone).

Ask:

- Which shape rolls?
- Which shape stacks?
- Why?

Explain:

Curved vs flat surfaces affect movement.

Explicit Instruction (10–12 minutes)

1. Identifying Curved Shapes

I Do • Show each shape:

Cylinder ➜ 2 flat circles + curved surface

Cone ➜ 1 flat circle + curved surface

Sphere ➜ only curved surface

2. Describing Surfaces

Model:

- Cylinder ➜ 3 surfaces (2 flat, 1 curved)
- Cone ➜ 2 surfaces (1 flat, 1 curved)
- Sphere ➜ 1 curved surface

3. Real-Life Connections

Show examples:

Cylinder ➜ can, glue stick, candle

Cone ➜ ice cream cone, party hat

Sphere ➜ ball, orange, marble

We Do • Identify shapes A, B, C.

Ask:

- Which has only curved surface?
- Which has 2 flat surfaces?
- Which has 1 flat surface?

4. Comparing Movement

Explain:

Cylinder stacks ➜ flat surfaces

Sphere rolls ➜ no flat surfaces

Cone can roll in a circle

You Do • Students:

- Name shapes
- Describe surfaces
- Count surfaces
- Identify real-life objects

Differentiation Tips

Support:

- Use real objects to feel surfaces.
- Focus on flat vs curved first.
- Use shape sorting cards.

Extension:

- Compare curved shapes to prisms and pyramids.
- Predict how shapes move.
- Draw and label surfaces.

Teaching as Inquiry:

Observe:

- Can students distinguish curved vs flat?
- Do they understand surface counting?
- Can they link shapes to real objects?

Hands-On Activity 1 (10 minutes)

Shape Sort

Students sort objects into:

- cone
- cylinder
- sphere.

Explain reasoning.

Hands-On Activity 2 (10–15 minutes)

Roll or Stack Investigation

Students test shapes:

- Which roll?
- Which stack?
- Why?

Record observations.

Student Book Practice

Students complete **page 36 – Cones, Cylinders and Spheres**

Focus:

- Naming shapes
- Describing surfaces
- Counting surfaces
- Identifying real-life examples

Mathletics Online Practice

Skill Quest Topic:

Spatial reasoning: Shapes in 3D objects

Quest:

Comparing faces of 3D objects with 2D shapes

Reflect and Check (5 minutes)

Ask:

- Which shape has only curved surface?
- Which shape has two flat surfaces?
- Which shape rolls best?
- Which shape stacks best?

Encourage vocabulary:

curved, flat, surface, cone, cylinder, sphere

Next Steps for Teacher (Teaching as Inquiry)

- Reinforce curved vs flat surface understanding.
- Provide more real-object exploration.
- Prepare students for mixed 3D shape comparison.

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, verbal descriptions and the same shapes drawn from different perspective

DAILY LESSON PLAN Week 7 • Lesson 5

Topic: Problem Solving – How can you make prisms?

In this lesson, students apply their understanding of prisms by constructing, drawing and describing them. They explore how prisms look from different perspectives and reflect on their properties.

Learning Intention

Students will understand how prisms are constructed and how their features remain consistent when viewed from different perspectives.

Success Criteria

- ✓ I can build a prism.
- ✓ I can describe how I made my prism.
- ✓ I can draw my prism from different views.
- ✓ I can identify key properties of prisms.
- ✓ I can explain what makes a shape a prism.

Language Focus

Key vocabulary: prism, faces, edges, vertices (corners), rectangular faces, matching ends, base, view, perspective, construct, 3D shape

Sentence stems:

- My prism is a ___ prism because ___.
- It has ___ faces, ___ edges and ___ corners.
- The ends are shaped like ___.
- From this view, I can see ___.
- A prism always has ___.

Launch Activity (5 minutes)

Quick Recall – What is a Prism?

Ask:

- What makes a shape a prism?
- How many matching ends does a prism have?
- What shape are the other faces?

Students explain using hands or models.

Explicit Instruction (10 minutes)

1. Building a Prism

Demonstrate building a prism using:

- Pattern blocks / cubes / sticks / clay / paper

Highlight:

- two matching ends
- rectangular side faces
- edges connect matching corners.

2. Drawing from Different Views

Model:

- front view
- side view
- top view.

Explain:

The prism is the same shape but looks different depending on perspective.

We Do • Build a simple rectangular prism together.

Count:

- faces
- edges
- corners.

Discuss:

What makes this shape a prism?

You Do • Students:

- build their own prism
- draw it
- draw from another view
- describe how they made it.

Differentiation Tips

Support:

- Use cube blocks to build rectangular prism.
- Provide step-by-step build instructions.
- Focus on identifying matching ends.

Extension:

- Build triangular prism.
- Compare prisms with pyramids.
- Draw 3 views accurately.
- Predict faces/edges/vertices before counting.

Teaching as Inquiry:

Observe:

- Can students identify prism structure?
- Do they understand matching ends?
- Can they visualise different views?
- Are drawings consistent with structure?

Hands-On Activity (15–20 minutes)

Build a Prism Challenge

Students build using:

- pattern blocks
- paper folding
- clay + sticks
- cubes.

Then:

- describe how they made it
- draw it
- draw from another view
- count faces, edges, corners.

Student Book Practice

Students complete **page 37 – How can you make prisms?**

Focus:

- Constructing prism
- Describing process
- Drawing from different views
- Identifying prism properties
- Reflecting on learning

Mathletics Online Practice

Challenge: Level 3-5

Geometry:

3D Shape

Title:

Faces, edges and vertices

Reflect and Discuss (5 minutes)

Ask:

- What makes a prism a prism?
- Did your prism look different from another view?
- How many matching ends does a prism always have?
- What did you discover about prisms?

Encourage full mathematical sentences.

Next Steps for Teacher (Teaching as Inquiry)

- Reinforce difference between prisms and pyramids.
- Support students who struggle with visualising 3D → 2D.
- Extend spatial reasoning through model building and sketching.

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, verbal descriptions and the same shapes drawn from different perspectives

End-of-Week Purpose

This lesson consolidates:

- Understanding of prisms
- 3D → 2D visualisation
- Mathematical explanation
- Spatial reasoning through construction

Unit: Geometry – 3D Shapes and Spatial Reasoning

Focus: Identifying, constructing and describing 3D shapes, understanding faces, edges and vertices, distinguishing flat and curved surfaces and recognising how shapes appear from different viewpoints.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Identifying 3D Shapes	Recognises prisms, pyramids, cones, cylinders and spheres.	Correctly identifies and names common 3D shapes in diagrams and real-world contexts.
Shape Properties	Understands faces, edges, vertices and surfaces.	Correctly counts and describes faces, edges and vertices of prisms and pyramids.
Flat and Curved Surfaces	Distinguishes between flat and curved surfaces.	Correctly identifies curved vs flat surfaces and explains differences.
Spatial Visualisation	Understands that shapes look different from different perspectives.	Can recognise and draw the same shape from another viewpoint.
Constructing and Describing Shapes	Applies knowledge to build and explain 3D shapes.	Builds prisms or pyramids and clearly describes their properties and construction.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students identify and describe 3D shapes during lessons.	Are students correctly naming shapes and using terms such as faces, edges and vertices?
Oral Check	Ask: 'What is the difference between a prism and a pyramid?'	Listen for correct description of matching ends vs single base and triangular faces.
Written Work	Review Student Book pp.33–37.	Check correct identification of shapes, counting of faces/edges and accurate diagrams.
Practical Task	Students construct a prism or pyramid using materials.	Can they correctly build and describe the shape? Do they understand faces, edges and vertices?
Exit Ticket / Quick Quiz	Provide short visual questions identifying shapes and properties.	Identify students confusing prisms and pyramids or curved vs flat surfaces.

Quick Quiz / Exit Ticket (5 Questions)

1. How many matching ends does a prism have?
2. What shape are the faces of a pyramid (other than the base)?
3. Which shape has only curved surfaces — sphere, prism or pyramid?
4. How many edges does a cube have?
5. Why might a 3D shape look different from another viewpoint?

Teaching as Inquiry: Reflection Notes

Reflection Prompts and Next Steps

Students confidently identifying and describing 3D shapes:

Students needing support with faces, edges or vertices:

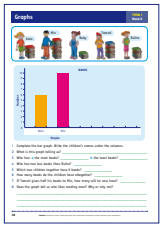
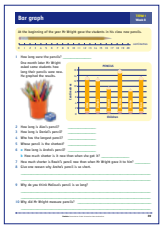
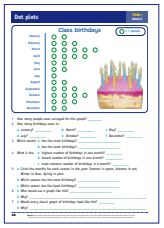
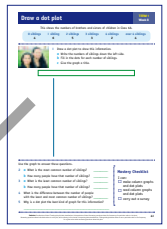
Misconceptions noticed (e.g. prisms vs pyramids, flat vs curved surfaces):

Vocabulary to revisit (faces, edges, vertices, surface, base, prism, pyramid):

Adjustments for future lessons (e.g. more hands-on construction, 3D modelling, visualisation practice):

Term 1 Week 8 Overview

Data: Graphs and Interpretation

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Graphs – Reading and Interpreting Bar Graphs**	Data can be organised and shown visually using graphs to help us see patterns, compare amounts, and interpret information.	✓ Read and interpret a bar graph correctly ✓ Identify what the graph represents (title, categories, values) ✓ Compare quantities using graph information ✓ Use graph data to answer questions ✓ Describe patterns, middle and spread in simple terms	– Explore parts of a bar graph (title, axes, categories, scale) – Read values and compare quantities – Discuss what the graph shows – Identify most, least and equal values – Describe simple patterns and middle	**Page 38:** Read and interpret bar graphs; answer questions; compare values; describe patterns. 
2 **Constructing Bar Graphs**	Data can be collected, organised and represented using bar graphs to show frequency clearly.	✓ Collect and organise simple data ✓ Construct a bar graph with correct labels and scale ✓ Choose appropriate categories ✓ Represent frequency accurately ✓ Interpret own graph	– Collect class data (e.g. favourite fruit) – Organise data into table – Construct bar graph using labelled axes – Choose appropriate scale starting at zero – Interpret completed graph	**Page 39:** Create bar graph from data; label axes; represent frequency; interpret graph. 
3 **Comparing Data from Graphs**	Graphs help us compare quantities and identify differences between categories.	✓ Compare values using graph information ✓ Identify greatest and least values ✓ Find differences between categories ✓ Interpret what the graph shows ✓ Explain comparisons using graph evidence	– Compare two or more categories – Identify highest and lowest values – Calculate simple differences – Discuss what comparisons show – Use graph language (more, less, difference)	**Page 40:** Compare graph values; find differences; interpret graph information. 
4 **Patterns, Middle and Spread**	Graphs show patterns and how data values are distributed.	✓ Identify patterns in data ✓ Recognise the middle (typical value) ✓ Describe spread (range) ✓ Interpret what data suggests ✓ Explain observations using graph evidence	– Identify repeating or increasing patterns – Find middle value visually – Discuss smallest and largest values – Describe spread of data – Interpret meaning of distribution	**Page 41:** Identify patterns, middle and spread; interpret graph information. 
5 **Problem Solving – Interpreting Data**	Graphs can be used to answer questions and solve real-life problems using data.	✓ Use graph data to solve problems ✓ Interpret questions carefully ✓ Compare and justify answers ✓ Use graph evidence ✓ Explain reasoning clearly	– Solve word problems using graph data – Interpret multi-step questions – Compare categories to justify answers – Explain reasoning using graph evidence – Discuss real-life uses of data	**Page 42:** Solve problems using graph data; interpret and explain answers. 

DAILY LESSON PLAN Week 8 • Lesson 1

Topic: Graphs – Reading and Interpreting Bar Graphs

In this lesson, students learn how data can be represented visually using bar graphs. They read and interpret graph features, compare values, identify patterns and describe the middle and spread of data.

Learning Intention

Students will understand that data can be organised and shown visually using bar graphs to help compare quantities, identify patterns and interpret information.

Success Criteria

- ✓ I can read and interpret a bar graph correctly.
- ✓ I can identify what the graph represents (title, categories, values).
- ✓ I can compare quantities using graph information.
- ✓ I can use graph data to answer questions and solve problems.
- ✓ I can describe patterns, middle and spread in simple terms.

Language Focus

Key terms: data, graph, bar, category, scale, frequency, compare, most, least, total, difference, middle, spread

Sentence stems:

The graph shows ___.

The highest value is ___ because ___.

The lowest value is ___.

The difference between ___ and ___ is ___.

The middle value is ___.

The data is similar/different because ___.

Launch Activity (5 minutes)

Discuss:

- Where do we see graphs in real life? (weather, sports scores, surveys, books read)
- What do graphs help us do? (compare, see most/least, understand data quickly)

Display a simple bar graph and ask:

- What does this graph show?
- Which is the largest? Smallest?

Mental warm-up:

8 − 3 = ___

5 + 6 = ___

10 − 4 = ___

Assessment for Learning:

Ask:

How do you read a graph?

What does the scale tell us?

How do you know which is most or least?

How can graphs help us compare information?

Explicit Instruction (10–12 minutes)

1. Understanding Graph Features

I Do • Model reading the graph step by step:

- Read the title – What is the graph about?
- Look at categories – Who/what is included?
- Check the scale – What do numbers mean?
- Read one bar carefully

We Do • Students identify another category and value.

You Do • Students answer simple graph-reading questions from p.38.

2. Comparing Data

I Do • Model comparing bars:

- Who has the most?
- Who has the least?
- Find difference between two bars

We Do • Compare two students' results together.

You Do • Students answer comparison questions from p.38.

3. Interpreting Patterns, Middle and Spread

I Do • Model interpreting data:

- Are values similar or different? (shape)
- Who is in the middle? (middle value)
- What is the difference between highest and lowest? (spread)

We Do • Discuss middle and spread together.

You Do • Students answer reasoning questions from p.38.

Differentiation Tips

Support:

- Provide pre-labelled graph.
- Use smaller numbers.
- Read scale together.
- Use counters to represent values.

Extension:

- Students create their own bar graph.
- Find the range (highest – lowest).
- Compare two categories using subtraction.
- Describe patterns in more detai.l

Teaching as Inquiry:

Observe which students:

- Can read graph features correctly.
- Interpret categories and values.
- Compare quantities accurately.
- Understand middle and spread.
- Struggle with reading scale or interpreting data.

Hands-On Activity 1 (10 minutes)

Human Bar Graph

Students stand to represent data (e.g. favourite fruit).

Class creates a physical bar graph.

Discuss: most, least, middle, difference.

Hands-On Activity 2 (10–15 minutes)

Create Your Own Graph

Students survey classmates (books read, pets, favourite sport).

Draw a bar graph.

Label title, categories and scale.

Explain findings.

Student Book Practice

Students complete **page 38 – Reading and Interpreting Bar Graphs**

Focus:

- Reading graph features
- Comparing quantities
- Interpreting data
- Explaining reasoning

Mathletics Online Practice

Activities

Creating Bar Graphs – Reinforces organising and displaying data visually

Interpreting Data – Reinforces reading graphs and comparing values

Mathletics strengthens graph interpretation through interactive visual data tasks and helps teachers monitor progress and understanding.

Reflect and Check (5 minutes)

Quick-fire questions:

- Who had the highest value?
- Who had the lowest value?
- What does the graph show?
- What is the difference between highest and lowest?
- Why are graphs useful?

Exit Question:

If one student has 6 books and another has 9 books, what is the difference?

Next Steps for Teacher

Reinforce reading graph scale accurately

Support students interpreting data and comparing values

Extend confident students with graph creation and range

Curriculum & Planning Links

NZ Curriculum (2025) – Statistics

Visualisation of data & Interpretation of data

Knowledge

- Data visualisations are representations of all available values for a variable showing the frequency for each value.
- Data visualisations show patterns, trends and variations.
- Numerical data can be visualised with dot plots or bar graphs.
- A good data visualisation includes, where appropriate: a title that gives the purpose of the visualisation, variable(s), the group the data is from, units for a numerical variable, values or categories, frequency, with the scale starting at 0.
- Interpreting a data visualisation includes describe its variables and their units, the context for the data, and the visualisation's key features: its shape, its middle group(s), its spread

Practices

- Create dot-plot or bar-graph data visualisations
- Interpreting data visualisations

DAILY LESSON PLAN Week 8 • Lesson 2

Topic: Bar Graphs – Reading, Comparing and Interpreting Data

In this lesson, students read and interpret bar graphs to compare quantities, calculate differences and understand real-world meaning from data. They learn how graph features such as titles, labelled axes and scale help us read data accurately and explain what the information represents.

Learning Intention

Students will understand that bar graphs help us compare quantities, measure change and interpret real-world data using labelled axes, categories and scale.

Success Criteria

- ✓ I can read values accurately from a bar graph.
- ✓ I can compare longest and shortest values.
- ✓ I can calculate differences using graph data.
- ✓ I can interpret what the data represents.
- ✓ I can explain possible reasons for results.

Language Focus

Key terms: data, graph, bar graph, scale, measure, compare, difference, longest, shortest, change, length, category, value

Sentence stems:

- The graph shows ___.
- The longest value is ___ because ___.
- The shortest value is ___.
- The difference between ___ and ___ is ___.
- This data tells us ___.
- A possible reason is ___.

Launch Activity (5 minutes)

Show a simple bar graph. Ask:

- What does the graph show?
- Which bar is tallest? Shortest?
- What does the height represent?

Connect to measurement:

- What tools measure length? (ruler, tape measure)
- Why might we measure pencils?

Mental warm-up:

9 − 4 = ___

12 − 7 = ___

15 − 6 = ___

Assessment for Learning:

Ask:

- How do you read a bar graph?
- What does the scale tell us?
- How do you compare two values?
- How do you find the difference between bars?

Explicit Instruction (10–12 minutes)

1. Understanding Graph Features

I Do • Model reading the Pencil Length Bar Graph (p.39):

- Read the title – What is being measured?
- Look at vertical axis – centimetres
- Check the scale – starts at 0
- Read one bar – Alex's pencil length

We Do • Students identify another student's pencil length.

You Do • Students read values from the graph.

2. Comparing Values

I Do • Model comparison:

- Longest pencil – highest bar
- Shortest pencil – lowest bar

We Do • Students compare two pencils together.

You Do • Students answer comparison questions from p.39.

3. Calculating Differences

I Do • Model subtraction using graph values:

Find how much longer Melissa's pencil is than Aroha's.

We Do • Students calculate another difference.

You Do • Students complete difference questions from p.39.

4. Interpreting Data Meaning

I Do • Model reasoning:

Some pencils are shorter because they have been used more.

The graph shows change over time.

We Do • Discuss possible reasons for differences.

You Do • Students answer interpretation questions from p.39.

Differentiation Tips

Support:

- Use rulers and draw matching bar lengths.
- Highlight scale intervals.
- Provide numbers to compare directly.
- Use real pencils to measure and compare.

Extension:

- Calculate range (longest − shortest).
- Predict pencil length after more use.
- Create own bar graph of pencil use.
- Explain reasoning using mathematical language.

Teaching as Inquiry:

Observe which students:

- can read graph values accurately.
- compare quantities correctly.
- subtract to find differences.
- interpret real-world meaning.
- struggle with scale or subtraction.

Hands-On Activity 1 (10 minutes)

Measure and Graph

Students measure their pencil using a ruler.

Create a class bar graph.

Identify longest, shortest and difference.

Hands-On Activity 2 (10–15 minutes)

Graph Detective

Students receive a simple bar graph and must:

Identify title, categories and scale.

Find longest and shortest values.

Calculate one difference.

Explain what the graph shows.

Student Book Practice

Students complete **page 39 – Bar Graphs**

Focus:

- Reading graph values
- Comparing lengths
- Calculating differences
- Interpreting data meaning
- Explaining reasoning

Mathletics Online Practice

Recommended Sets:

Interpreting Bar Graphs – Reinforces reading scales and comparing values

Measurement: Length – Reinforces interpreting measured quantities

Mathletics strengthens graph and measurement skills through interactive data tasks and helps teachers monitor understanding and identify students needing support.

Reflect and Check (5 minutes)

Quick-fire questions:

- Who has the longest pencil?
- Who has the shortest?
- How much longer is Melissa's than Aroha's?
- What does this graph show?
- Why are bar graphs useful?

Exit Question:

If one pencil is 12 cm and another is 9 cm, what is the difference?

Next Steps for Teacher

Reinforce reading scale accurately

Support students with subtraction using graph values

Extend confident students with graph creation and interpretation

Curriculum & Planning Links

NZ Curriculum (2025) – Statistics

Interpretation of data

Knowledge

- Interpreting a data visualisation includes describe its variables and their units, the context for the data, and the visualisation's key features: its shape, its middle group(s), its spread

Practices

- Interpreting data visualisations

DAILY LESSON PLAN Week 8 • Lesson 3

Topic: Dot Plots – Representing and Reading Data

In this lesson, students read and interpret dot plots to understand how often values occur, identify most and least common values and describe patterns in data. They learn how dot plots visually represent frequency and help us understand real-world information.

Learning Intention

Students will understand that dot plots show how often each value occurs and help us identify patterns, compare values and interpret real-world data.

Success Criteria

- ✓ I can read and interpret a dot plot accurately.
- ✓ I can count frequency using dots.
- ✓ I can identify most, least and common values.
- ✓ I can describe patterns in the data.
- ✓ I can explain what the data represents.

Language Focus

Key terms: data, dot plot, frequency, category, value, most, least, common, pattern, survey, compare

Sentence stems:

The dot plot shows ___.

Each dot represents ___.

The most common value is ___ because ___.

The least common value is ___.

A pattern I notice is ___.

This data tells us ___.

Launch Activity (5 minutes)

Ask:

- When might we collect data? (birthdays, pets, favourite foods)
- How could we show data visually?
- What does one dot usually represent?

Quick mini-demo:

Create a simple dot plot (favourite fruit) on the board.

Mental warm-up:

5 + 3 = ___

7 − 2 = ___

6 + 4 = ___

Assessment for Learning:

Ask:

- How do you read a dot plot?
- What does one dot represent?
- How do you find the most common value?
- How do you compare two categories?

Explicit Instruction (10–12 minutes)

1. Understanding Dot Plot Features

I Do • Display Class Birthdays Dot Plot (p.40):

- Read the title – What data is shown?
- Identify category – Month of birthday
- Identify unit – Each dot = 1 person
- Count dots for one month

We Do • Students count dots for another month together.

You Do • Students read values from the dot plot.

2. Identifying Most, Least and Common Values

I Do • Model identifying:

- Most birthdays ➜ most dots
- Least birthdays ➜ fewest dots

We Do • Students identify another comparison together.

You Do • Students answer comparison questions from p.40.

3. Describing Patterns and Frequency

I Do • Model thinking aloud:

March has the most birthdays ➜ busiest month

July has the least ➜ quiet month

We Do • Discuss patterns in the data.

You Do • Students describe patterns in the dot plot.

4. Interpreting Real-World Meaning

I Do • Model interpretation:

Dot plots show frequency clearly and help us understand groups.

We Do • Discuss what the data tells us about the class.

You Do • Students answer interpretation questions from p.40.

Differentiation Tips

Support:

- Highlight one row at a time.
- Count dots together.
- Use counters to recreate dot plot.
- Provide scaffolded answers.

Extension:

- Create own birthday dot plot.
- Find difference between most and least.
- Compare two categories numerically.
- Convert dot plot into a bar graph.

Teaching as Inquiry:

Observe which students:

- read dot plots accurately.
- count frequency correctly.
- identify most/least/common values.
- recognise patterns in data.
- struggle with interpreting frequency.

Hands-On Activity 1 (10 minutes)

Class Dot Plot

Students record their birthday month.

Create a class dot plot.

Identify most, least and common months.

Hands-On Activity 2 (10–15 minutes)

Data Detective

Students receive a simple dot plot and must:

- count frequency.
- identify most and least common values.
- describe one pattern.
- explain what the data shows.

Student Book Practice

Students complete **page 40 – Dot Plots**

Focus:

- Counting frequency
- Comparing values
- Identifying most and least
- Recognising patterns
- Interpreting data meaning

Mathletics Online Practice

Recommended Sets:

Reading Data Displays – Reinforces interpreting frequency and patterns

Collecting & Representing Data – Reinforces building and understanding visual data

Mathletics strengthens graph and data skills through interactive visual tasks and helps teachers monitor understanding over time.

Reflect and Check (5 minutes)

Quick-fire questions:

- What does one dot represent?
- Which month has the most birthdays?
- Which has the least?
- What pattern do you notice?
- Why are dot plots useful?

Exit Question:

If April has 6 dots and May has 3 dots, how many more birthdays are in April?

Next Steps for Teacher

Reinforce counting frequency accurately.

Support students interpreting dot plot patterns.

Extend confident students with creating and converting data displays.

Curriculum & Planning Links

NZ Curriculum (2025) – Statistics

Interpretation of data

Knowledge

- Interpreting a data visualisation includes describe its variables and their units, the context for the data, and the visualisation's key features: its shape, its middle group(s), its spread

Practices

- Answering questions about the frequency of a particular value in dot plots
- Answering questions about individual values in a dot plot, while referring to the context
- Distinguishing between when to use a particular value or the frequency for a given value when answering questions about dot plots

DAILY LESSON PLAN Week 8 • Lesson 4

Topic: Drawing a Dot Plot

In this lesson, students create dot plots from given data, represent frequency accurately using dots, and interpret the data to identify most and least common values. They learn how dot plots organise information clearly and help reveal patterns in data.

Learning Intention

Students will understand that dot plots can be created to organise data clearly, represent frequency and help identify patterns and comparisons.

Success Criteria

- ✓ I can create a dot plot from given data.
- ✓ I can label categories correctly.
- ✓ I can represent frequency accurately using dots.
- ✓ I can identify most and least common values.
- ✓ I can explain what the data shows.

Language Focus

Key terms: data, dot plot, category, frequency, survey, most, least, compare, represent, pattern

Sentence stems:

- The dot plot shows ___.
- Each dot represents ___.
- The most common value is ___ because ___.
- The least common value is ___.
- A pattern I notice is ___.
- This graph helps us see ___.

Launch Activity (5 minutes)

Ask:

- What is a dot plot used for?
- What does one dot usually represent?
- When might we collect data like this?

Quick review:

Show a simple dot plot and ask:

- Which category has the most?
- Which has the least?

Mental warm-up:

6 + 2 = ___

9 − 3 = ___

5 + 5 = ___

Assessment for Learning:

Ask:

- How do you create a dot plot?
- What does one dot represent?
- How do you know which category is most common?
- How do you check your dot plot is correct?

Explicit Instruction (10–12 minutes)

1. Creating a Dot Plot

I Do • Display sibling data from p.41:

0 ➜ 4, 1 ➜ 6, 2 ➜ 5, 3 ➜ 3, 4 ➜ 2, over 4 ➜ 4

Model step-by-step:

- Write categories
- Explain each dot = 1 student
- Draw dots above each category
- Add a clear title
- Check totals

We Do • Students help add dots for one category.

You Do • Students begin constructing dot plot from given data.

2. Representing Frequency Accurately

I Do • Model careful counting of dots and checking totals.

We Do • Students verify frequency for a category together.

You Do • Students complete dot plot accurately.

3. Interpreting Most and Least Common Values

I Do • Model:

Most common ➜ 1 sibling

Least common ➜ 4 siblings

We Do • Students identify another comparison.

You Do • Students answer interpretation questions.

4. Explaining What the Graph Shows

I Do • Model interpretation:

Dot plots show patterns quickly and clearly.

We Do • Discuss what the data tells about the class.

You Do • Students write one sentence describing the data.

Differentiation Tips

Support:

- Provide partially completed axes.
- Count dots together.
- Use counters before drawing.
- Reduce number of categories.

Extension:

- Create a new class survey.
- Compare two categories numerically.
- Convert dot plot into bar graph.
- Write a sentence describing a pattern.

Teaching as Inquiry:

Observe which students:

- create dot plots accurately.
- represent frequency correctly.
- label categories clearly.
- identify most/least value.
- struggle with interpreting data.

Hands-On Activity 1 (10 minutes)

Build the Dot Plot

Students use counters to represent sibling data first, then transfer to paper dot plot.

Hands-On Activity 2 (10–15 minutes)

Graph Detective

Students analyse a prepared dot plot and must:

- identify most and least common values.
- count total data points.
- describe one pattern.
- explain what the graph shows.

Student Book Practice

Students complete **page 41 – Drawing a Dot Plot**

Focus:

- Creating dot plot accurately
- Labelling categories
- Representing frequency correctly
- Identifying most and least values
- Interpreting data meaning

Mathletics Online Practice

Recommended Sets:

Representing Data – Reinforces constructing data displays

Reading Graphs & Data – Reinforces interpreting frequency and patterns

Mathletics strengthens data visualisation and interpretation skills through interactive graphing tasks and provides ongoing progress evidence.

Reflect and Check (5 minutes)

Quick-fire questions:

- What does one dot represent?
- Which number of siblings is most common?
- Which is least common?
- Why are dot plots useful?
- What did today's graph show?

Exit Question:

If one category has 6 dots and another has 3, how many more students are in the first category?

Next Steps for Teacher

Reinforce careful counting of frequency.

Support students interpreting dot plot meaning.

Extend confident students into creating and comparing graphs.

Curriculum & Planning Links

NZ Curriculum (2025) – Statistics

Visualisation of data & Interpretation of data

Knowledge

- Data visualisations are representations of all available values for a variable showing the frequency for each value.
- Data visualisations show patterns, trends and variations.
- Numerical data can be visualised with dot plots or bar graphs.
- A good data visualisation includes, where appropriate: a title that gives the purpose of the visualisation, variable(s), the group the data is from, units for a numerical variable, values or categories, frequency, with the scale starting at 0.
- Interpreting a data visualisation includes describe its variables and their units, the context for the data, and the visualisation's key features: its shape, its middle group(s), its spread

Practices

- Create dot-plot or bar-graph data visualisations
- Answering questions about the frequency of a particular value in dot plots
- Answering questions and individual values in a dot plot, while referring to the context
- Interpreting data visualisations
- Distinguishing between when to use a particular value or the frequency for a given value when answering question about dot plot

DAILY LESSON PLAN Week 8 • Lesson 5

Topic: Problem Solving – Class Favourites Survey

In this lesson, students design and conduct a simple class survey, organise results using tally marks, represent the data using a graph and interpret their findings. They apply data skills to solve a real-world problem and communicate conclusions clearly.

Learning Intention

Students will understand that data can be collected through a survey, organised using tally marks and represented visually to help interpret results and answer questions.

Success Criteria

- ✓ I can write a clear survey question.
- ✓ I can collect and record data using tally marks.
- ✓ I can organise and count results accurately.
- ✓ I can represent data using a picture graph or bar graph.
- ✓ I can explain what my data shows

Language Focus

Key terms: survey, data, tally, category, frequency, graph, results, most, least, compare, represent, organise, interpret

Sentence stems:

- Our survey question was ___.
- I recorded the data using ___.
- The most popular choice was ___.
- The least popular choice was ___.
- The graph shows that ___.
- From the data, I learned ___.

Launch Activity (5 minutes)

Ask:

- What is a survey?
- Why do we collect data?
- What makes a good survey question?

Show examples:

- favourite sport
- favourite food
- favourite game

Discuss:

- Clear question
- Fair choices
- Easy to record answers

Mental warm-up:

5 + 5 = ___

10 − 3 = ___

6 + 4 = ___

Assessment for Learning:

Ask:

- How do you record data using tally marks?
- Why do we group tallies in fives?
- How do you turn tallies into totals?
- How does a graph help us understand results?

Explicit Instruction (10–12 minutes)

1. Writing a Survey Question

I Do • Model creating a clear survey question:
'What is your favourite fruit?'
Explain:
Simple
Clear
One answer per person

We Do • Students suggest another question.

You Do • Students write their own survey question.

2. Recording Data Using Tally Marks

I Do • Model tally recording and grouping in fives.

We Do • Class records tallies together.

You Do • Students record tallies from survey results.

3. Organising and Counting Results

I Do • Convert tallies into totals.

We Do • Count one category together.

You Do • Students calculate totals for all categories.

4. Representing Data in a Graph

I Do • Model creating a simple graph with:
Title
Categories
Scale starting at 0
Bars or picture symbols

We Do • Class creates one category together.

You Do • Students draw their own graph.

5. Interpreting Results

I Do • Model interpretation:
Most popular
Least popular
What the data shows

We Do • Discuss class results.

You Do • Students write one conclusion sentence.

Differentiation Tips

Support:

- Provide ready-made categories.
- Use small-group survey.
- Provide partially completed graph.
- Count tallies together.

Extension:

- Create second graph from same data.
- Compare two categories numerically.
- Write comparison statement ('___ more than ___').
- Explain why a bar graph or picture graph works best.

Teaching as Inquiry:

Observe which students:

- write clear survey questions.
- record tally marks correctly.
- count totals accurately.
- represent data clearly.
- struggle with interpreting results.

Hands-On Activity 1 (10 minutes)

Class Survey

Students survey classmates and must:

- ask question
- record tallies
- count totals
- check results.

Hands-On Activity 2 (10–15 minutes)

Graph Builder Challenge

Students:

- create graph from collected data
- label clearly
- identify most and least
- write one conclusion.

Student Book Practice

Students complete **page 42 – Class Favourites Survey**

Focus:

- Writing a survey question
- Recording tally marks
- Organising results
- Drawing graph
- Interpreting data

Mathletics Online Practice

Activities

Collecting and Representing Data – Reinforces tally and graph skills

Interpreting Graphs – Reinforces reading and understanding data

Mathletics strengthens data collection and interpretation through interactive tasks and provides progress evidence for teachers.

Reflect and Check (5 minutes)

Quick-fire questions:

- What was your survey question?
- How did you record your data?
- Which category had the most responses?
- Why do we use graphs to show data?
- What did your survey help you learn?

Exit Question:

If one category has 12 responses and another has 8, how many more chose the first category?

Next Steps for Teacher

- Reinforce tally grouping and counting
- Support students interpreting data meaning
- Extend confident students into comparing and explaining results

Curriculum & Planning Links

NZ Curriculum (2025) – Statistics

Developing knowledge from data, Visualisation of data & Interpretation of data

Knowledge

- A variable is an attribute or measurement of the people or objects being studied: categorical variables classify objects or individuals into groups, discrete numerical variables are counted, continuous numerical variables are measured.
- Data visualisations are representations of all available values for a variable showing the frequency for each value.
- Data visualisations show patterns, trends and variations.
- Numerical data can be visualised with dot plots or bar graphs.
- A good data visualisation includes, where appropriate: a title that gives the purpose of the visualisation, variable(s), the group the data is from, units for a numerical variable, values or categories, frequency, with the scale starting at 0.
- Interpreting a data visualisation includes describe its variables and their units, the context for the data, and the visualisation's key features: its shape, its middle group(s), its spread

Practices

- Collecting numerical data, and, if needed, rounding to an appropriate unit or part of a unit, based on the context
- Create dot-plot or bar-graph data visualisations
- Interpreting data visualisations

Unit: Data – Graphs and Interpretation

Focus: Reading, constructing, and interpreting bar graphs; identifying patterns, middle, and spread; using data to compare and solve problems.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Reading Graphs	Students understand that graphs represent data values and frequencies visually.	Correctly reads values from bars; identifies title, categories and scale.
Graph Structure	Recognises the key features of a good graph (title, labelled axes, scale starting at zero).	Labels graphs correctly; uses appropriate scale; organises categories clearly.
Comparing Data	Understands how graphs help compare quantities between categories.	Identifies most, least and equal values; compares using graph evidence.
Patterns, Middle and Spread	Recognises patterns and describes distribution of data.	Identifies highest, lowest and middle values; describes simple patterns and range.
Constructing Graphs	Can organise data and represent it accurately in a bar graph.	Constructs graph with correct labels, scale and bar heights matching data.
Problem Solving with Data	Uses graph information to answer questions and solve problems.	Interprets questions correctly; justifies answers using graph evidence.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students read and interpret a class bar graph.	Can students read values accurately? Do they understand graph parts (title, axes, scale)?
Oral Check	Ask: 'What does this graph show?' 'Which category has the most?' 'How do you know?'	Look for use of correct language: most, least, difference, data, graph, category, scale.
Written Work	Review Student Book pp. 38–42.	Check graph reading accuracy, correct construction, comparisons and interpretation.
Practical Task	Class survey → students construct their own bar graph from collected data.	Are axes labelled? Is scale correct? Do bars match data? Can students interpret their graph?

Quick Quiz / Exit Ticket (5 Questions)

1. Look at a bar graph. Which category has the highest value?
2. Which category has the lowest value?
3. How many more ___ than ___? (comparison question)
4. What does the title of the graph tell you?
5. What is the difference between the highest and lowest values?

Teaching as Inquiry: Reflection Notes

Reflection Prompts and Next Steps

Students confidently reading and interpreting graphs:

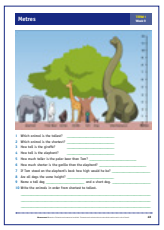
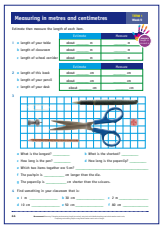
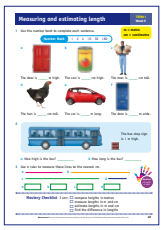
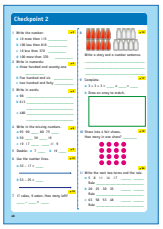
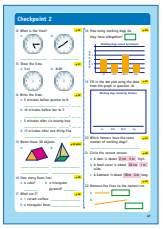
Students accurately constructing bar graphs with correct scale and labels:

Students confidently comparing data and identifying most/least:

Misconceptions noticed (e.g. reading bar height incorrectly, ignoring scale, mislabelling axes):

Term 1 Week 9 Overview

Measurement: Length (metres and centimetres)

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Metres**	Length can be measured and compared using metres as a whole-number unit.	✓ Identify the tallest and shortest ✓ Read and interpret a metre scale ✓ Compare heights using 'taller than/ shorter than' and 'difference' language	– Use the animal height picture to read heights in metres – Compare and discuss which is tallest/shortest – Order the animals from shortest to tallest – Solve 'how much taller/ shorter' questions using the scale	**Page 43:** Read heights on a metre scale; compare and order animals; answer difference questions. 
2 **Measuring in metres and centimetres**	Different tools and units (m and cm) are used to measure different lengths, and the unit must be recorded with the measurement.	✓ Choose whether to measure in metres or centimetres ✓ Estimate and then measure using an appropriate tool ✓ Record measurements using correct units (m or cm)	– Estimate lengths around the room then measure and record – Estimate common items in centimetres then measure and record – Use the grid picture to compare object lengths and answer 'longest/ shortest/difference' questions	**Page 44:** Estimate then measure items in m and cm; compare objects on a grid; find and record lengths and differences. 
3 **Measuring and estimating length**	Real-world objects have lengths that can be reasonably estimated and measured using metric units (m and cm).	✓ Select sensible units for different objects ✓ Estimate realistic lengths using benchmarks ✓ Measure to the nearest centimetre and compare lengths	– Use the number bank to choose reasonable estimates (m or cm) for everyday items – Use benchmarks (e.g. 1 m = door handle height, 10 cm = hand width) to justify estimates – Measure the line segments to the nearest cm and compare results	**Page 45:** Choose sensible estimates in m or cm; measure lines to the nearest cm; compare and check reasonableness. 
4 **Checkpoint 2**	You can show what you have learned by applying number, patterns, time, geometry, data and measurement skills in one assessment.	✓ Apply skills from Weeks 5–9 across strands ✓ Show working and explain thinking where needed ✓ Complete tasks accurately and independently	– Complete Checkpoint 2 (may be done in two sittings) – Teacher circulates to note strategies, misconceptions and confidence – Quick review: revisit 2–3 common error types as a class	**Pages 46–47:** Checkpoint 2 assessment (covers number, patterns, time, 3D objects, graphs and measurement).  

DAILY LESSON PLAN Week 9 • Lesson 1

Topic: Measuring Length in Metres

In this lesson, students explore how height and length are measured using metres. They read a vertical height scale, compare heights of animals and people, and use measurement language such as taller, shorter and difference. Students learn that metres are used to measure taller or longer objects and practise ordering objects from shortest to tallest.

Learning Intention

Students will understand that length can be measured using metres and that objects can be compared and ordered by their measurable height.

Success Criteria

- ✓ I can read height from a metre scale.
- ✓ I can compare objects using taller and shorter language.
- ✓ I can estimate height in metres.
- ✓ I can order objects from shortest to tallest.

Language Focus

Key terms: metre, length, height, measure, compare, tallest, shortest, estimate, difference, order

Sentence stems:

- The ___ is taller than the ___.
- The height of ___ is about ___ metres.
- I know because it is higher/lower on the scale.
- From shortest to tallest: ___.

Launch Activity (5 minutes)

Display Student Book p.43 showing the animals and height scale.

Ask:

- Which animal looks tallest?
- Which looks shortest?
- How do you know?

Introduce:

Today we measure height using **metres**.

Assessment for Learning:

Ask:

- What does the height scale show?
- Which object is higher on the scale?
- What might that mean?

Explicit Instruction (10–12 minutes)

1. Understanding Metres

I Do • Show a metre ruler or tape measure.

Explain:

- A metre is used to measure taller or longer objects.
- We use metres for height like people, trees and animals.

Demonstrate reading a vertical metre scale.

We Do • Read heights from the picture together:

- giraffe
- elephant
- Tom

Ask:

Which is taller? How do you know?

You Do • Students estimate the height of objects in the classroom using a metre reference.

Check for understanding

Ask: When do we use metres instead of centimetres?

2. Comparing Length and Height

I Do • Model:

- Which is taller: giraffe or elephant?
- How much taller?

Use the scale to show the difference.

We Do • Compare two more objects together.

Discuss language: taller, shorter, higher, lower, difference.

You Do • Students compare heights from the page and explain using measurement language.

3. Ordering by Height

I Do • Model ordering three animals from shortest to tallest using the scale.

We Do • Order animals together using class discussion.

You Do • Students complete ordering task from p.43 independently.

Check for understanding

Ask:

- Which is shortest?
- Which is tallest?
- How do you know?

Differentiation Tips

Support:

- Use simple comparisons (two objects only.)
- Provide visual metre scale.
- Use physical measurement with metre tape.

Extension:

- Calculate height differences.
- Estimate before reading the scale.
- Introduce metres and centimetres relationship.

Teaching as Inquiry:

Observe which students can read scales accurately and which need support interpreting height differences.

Hands-On Activity 1 (10 minutes)

Human Height Comparison

Students stand beside a wall height scale marked in metres.

Compare heights using taller/shorter language.

Ask: Who is tallest? Who is shortest?

Hands-On Activity 2 (10–15 minutes)

Estimate and Measure

Students estimate heights of classroom objects, then measure using metre tape.

Record:

Estimate → Actual → Difference

Discuss:

Which estimates were close? Why?

Student Book Practice

Students complete **page 43 – Metres**

Focus: Reading height from a scale, comparing and ordering lengths, using measurement language.

Mathletics Online Practice

Measurement – Comparing Length and Height

Reinforces:

- Comparing measurable attributes
- Reading measurement scales
- Ordering by size

Completion data helps track student understanding of measurement concepts.

Reflect and Check (5 minutes)

Quick-fire questions:

- What unit did we use today?
- When do we use metres?
- Which animal was tallest?
- How do we compare heights?

Reflect and Share:

How does measuring help us compare objects?

Feedback:

Encourage students to explain using reasoning words such as *taller, shorter, difference* and *because*.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who cannot read a vertical scale correctly.
- Provide additional support with measurement comparison language.
- Extend confident students with estimating and calculating height differences.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- Systems of measurement have a history; different cultures use different approaches

Practices

- Estimating and measuring length using tools with labelled markings and whole-number metric units
- Comparing and ordering objects using whole-number metric units of length

DAILY LESSON PLAN Week 9 • Lesson 2

Topic: Measuring in Metres and Centimetres

In this lesson, students learn that different measurement tools and scales use different-sized units. They explore when to measure using metres or centimetres, practise estimating and measuring real objects, and learn that every measurement must include a unit. Students use rulers, metre sticks and grid scales to measure accurately and compare lengths.

Learning Intention

Students will understand that different measurement tools use different-sized units and that measurements must always include a unit such as metres or centimetres.

Success Criteria

- ✓ I can choose the correct unit (m or cm) for measuring length.
- ✓ I can estimate length before measuring.
- ✓ I can measure using rulers and metre tools.
- ✓ I can record measurements with the correct unit.

Language Focus

Key terms: metre, centimetre, unit, estimate, measure, length, scale, tool, longer, shorter, compare

Sentence stems:

- I measured ___ using ___ because ___.
- The length is ___ cm / m.
- I estimated ___ and measured ___.
- I know this unit is correct because ___.

Launch Activity (5 minutes)

Display Student Book p.44.

Ask:

- When would we measure in metres?
- When would we measure in centimetres?
- Which is bigger — a metre or a centimetre?

Show a metre stick and ruler.

Assessment for Learning:

Ask:

- Which tool would you use to measure a classroom?
- Which tool would you use to measure a pencil?
- Why?

Explicit Instruction (10–12 minutes)

1. Understanding Units and Tools

I Do • Explain:

- Metres measure longer objects (room, table, corridor).
- Centimetres measure smaller objects (book, pencil, paperclip).

Model reading a ruler and metre stick.

We Do • Look at examples together:

- Which unit for desk?
- Which unit for book?

Discuss reasoning.

You Do • Students identify appropriate unit for objects around the classroom.

Check for understanding

Ask: Why must we include the unit when measuring?

2. Estimating and Measuring

I Do • Model:

Estimate ➜ Measure ➜ Compare

Example:

Estimate table length ➜ measure ➜ compare difference.

We Do • Estimate and measure a classroom object together.

Discuss:

Was the estimate close?

You Do • Students estimate and measure:

- book
- desk
- pencil

Record estimate and actual measurement.

3. Comparing and Reading Scales

I Do • Model measuring objects on the grid picture (pen, scissors, paperclip).

Count squares and convert to centimetres.

We Do • Compare lengths:

Which is longest? Shortest?

You Do • Students complete measurement questions from p.44.

Check for understanding

Ask:

- Which tool did you use?
- Which object was longest?
- How do you know?

Differentiation Tips

Support:

- Use marked rulers and simple objects.
- Measure using whole numbers only.
- Work with partner suppor.t

Extension:

- Calculate differences between measurements.
- Convert between cm and m (100 cm = 1 m).
- Measure multiple objects and order them.

Teaching as Inquiry:

Observe students' ability to choose correct tools and record units accurately.

Hands-On Activity 1 (10 minutes)

Estimate → Measure → Record

Students measure:

- book (cm)
- desk (cm)
- classroom object (m)

Record:

Estimate | Measure | Difference

Discuss accuracy of estimates.

Hands-On Activity 2 (10 minutes)

Measurement Hunt

Students find objects in classroom that are:

- 1 m
- 30 cm
- 50 cm
- 80 cm

Measure and record results.

Discuss:

Which objects were closest?

Student Book Practice

Students complete **page 44 – Measuring in metres and centimetres**

Focus:

- Estimating and measuring
- Using correct unit
- Comparing lengths
- Choosing appropriate measurement tool

Mathletics Online Practice

Measurement – Choosing Units and Measuring Length

Reinforces:

- Selecting appropriate units
- Measuring accurately
- Comparing lengths

Completion data supports teacher monitoring of measurement understanding.

Reflect and Check (5 minutes)

Quick-fire questions:

- When do we use metres?
- When do we use centimetres?
- Why must we include the unit?
- Was your estimate close to your measurement?

Reflect and Share:

How do tools help us measure accurately?

Feedback:

Encourage use of reasoning words such as *estimate, measure, unit, compare* and *because*.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students confusing metres and centimetres.
- Provide more ruler-reading practice if needed.
- Extend confident students with unit conversion and difference calculations.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- Systems of measurement have a history; different cultures use different approaches

Practices

- Estimating and measuring length using tools with labelled markings and whole-number metric units
- Comparing and ordering objects using whole-number metric units of length

DAILY LESSON PLAN Week 9 • Lesson 3

Topic: Measuring and Estimating Length

In this lesson, students practise estimating and measuring lengths using metres and centimetres. They compare real-world lengths, measure using rulers and select appropriate units for different objects. Students also develop accuracy when measuring and learn to explain differences between estimated and actual measurements.

Learning Intention

Students will understand how to estimate and measure length accurately using metres and centimetres and explain differences between lengths.

Success Criteria

- ✓ I can estimate length using metres or centimetres.
- ✓ I can measure using a ruler to the nearest centimetre.
- ✓ I can choose the correct unit for measuring.
- ✓ I can compare lengths and find differences.

Language Focus

Key terms: estimate, measure, centimetre, metre, length, unit, compare, difference, longer, shorter, nearest, scale

Sentence stems:

- I estimated ___ and measured ___.
- The length is ___ cm / m.
- This object is longer than ___ by ___.
- I chose this unit because ___.

Launch Activity (5 minutes)

Display Student Book p.45.

Ask:

- Which unit would you use to measure a door?
- Which unit would you use to measure a can?
- Why do we estimate before measuring?

Show a ruler and metre stick.

Assessment for Learning:

Ask:

- Which is bigger — a metre or a centimetre?
- When do we measure to the nearest centimetre?

Explicit Instruction (10–12 minutes)

1. Estimating Length

I Do • Model estimating:

- door height (m)
- can height (cm)
- person height (m)

Explain:

Estimation helps us predict before measuring.

We Do • Estimate several classroom objects together.

Discuss: Which unit is appropriate?

You Do • Students estimate lengths from the page before measuring.

Check for understanding

Ask: Why was your estimate close or far?

2. Measuring with a Ruler

I Do • Model measuring a line from the page:

- Start at zero
- Read to nearest centimetre

Explain importance of correct starting point.

We Do • Measure one line together.

Compare answers.

You Do • Students measure lines a–d on p.45.

Check for understanding

Ask:

- Did you start at zero?
- What unit did you use?

3. Comparing and Finding Differences

I Do • Model comparing lengths:

Door vs Can

Explain difference between two lengths.

We Do • Compare two measured lines together.

You Do • Students find differences between objects from the page.

Check for understanding

Ask:

- Which is longer?
- By how much?

Differentiation Tips

Support:

- Use clear rulers with marked centimetres.
- Measure shorter, simple objects.
- Work with guided teacher suppor.t

Extension:

- Convert cm to m and compare.
- Measure and record multiple classroom objects.
- Calculate total or difference of two lengths.

Teaching as Inquiry:

Observe ruler-reading accuracy and unit selection.

Hands-On Activity 1 (10 minutes)

Estimate → Measure → Compare

Students:

- estimate length of book, pencil, desk
- measure using ruler
- compare estimate vs measurement.

Discuss accuracy and strategies.

Hands-On Activity 2 (10–15 minutes)

Measurement Challenge

Students:

- measure 3 classroom objects
- order from shortest to longest
- record measurement and unit.

Discuss:

Which measurement surprised you?

Student Book Practice

Students complete **page 45 – Measuring and Estimating Length**

Focus:

- Estimating lengths
- Measuring to nearest centimetre
- Choosing correct unit
- Comparing and finding differences

Mathletics Online Practice

Measurement – Estimating and Measuring Length

Reinforces:

- Selecting correct unit
- Measuring accurately
- Comparing and calculating differences

Completion results support progress monitoring and measurement skill development.

Reflect and Check (5 minutes)

Quick-fire questions:

- Why do we estimate before measuring?
- When do we use metres?
- When do we use centimetres?
- How do we measure to the nearest centimetre?

Reflect and Share:

How does measuring help us compare objects?

Feedback:

Encourage reasoning language such as *estimate, measure, compare, difference* and *because*.

Next Steps for Teacher (Teaching as Inquiry)

- Identify students who misread ruler scales.
- Reinforce starting measurement at zero.
- Extend confident students with cm–m conversions and comparisons.

Curriculum & Planning Links

NZ Curriculum (2025) – Measurement

Measuring

Knowledge

- Systems of measurement have a history; different cultures use different approaches

Practices

- Estimating and measuring length using tools with labelled markings and whole-number metric units

CHECKPOINT 2 Week 9 • Lesson 4

Topic: Drawing a Dot Plot

In this lesson, students create dot plots from given data, represent frequency accurately using dots, and interpret the data to identify most and least common values. They learn how dot plots organise information clearly and help reveal patterns in data.

Learning Intention

Students will understand that dot plots can be created to organise data clearly, represent frequency and help identify patterns and comparisons.

Success Criteria

- ✓ I can create a dot plot from given data.
- ✓ I can label categories correctly.
- ✓ I can represent frequency accurately using dots.
- ✓ I can identify most and least common values.
- ✓ I can explain what the data shows.

Language Focus

Key terms: data, dot plot, category, frequency, survey, most, least, compare, represent, pattern

Sentence stems:

The dot plot shows ___.

Each dot represents ___.

The most common value is ___ because ___.

The least common value is ___.

A pattern I notice is ___.

This graph helps us see ___.

Launch Activity (5 minutes)

Ask:

- What is a dot plot used for?
- What does one dot usually represent?
- When might we collect data like this?

Quick review:

Show a simple dot plot and ask:

- Which category has the most?
- Which has the least?

Mental warm-up:

6 + 2 = ___

9 − 3 = ___

5 + 5 = ___

Assessment for Learning:

Ask:

- How do you create a dot plot?
- What does one dot represent?
- How do you know which category is most common?
- How do you check your dot plot is correct?

Explicit Instruction (10–12 minutes)

1. Creating a Dot Plot

I Do • Display sibling data from p.41:

0 ➜ 4, 1 ➜ 6, 2 ➜ 5, 3 ➜ 3, 4 ➜ 2, over 4 ➜ 4

Model step-by-step:

- write categories
- explain each dot = 1 student
- draw dots above each category
- add a clear title
- check totals.

We Do • Students help add dots for one category.

You Do • Students begin constructing dot plot from given data.

2. Representing Frequency Accurately

I Do • Model careful counting of dots and checking totals.

We Do • Students verify frequency for a category together.

You Do • Students complete dot plot accurately.

3. Interpreting Most and Least Common Values

I Do • Model:

Most common ➜ 1 sibling

Least common ➜ 4 siblings

We Do • Students identify another comparison.

You Do • Students answer interpretation questions.

4. Explaining What the Graph Shows

I Do • Model interpretation:

Dot plots show patterns quickly and clearly.

We Do • Discuss what the data tells about the class.

You Do • Students write one sentence describing the data.

Differentiation Tips

Support:

- Provide partially completed axes.
- Count dots together.
- Use counters before drawing.
- Reduce number of categories.

Extension:

- Create a new class survey.
- Compare two categories numerically.
- Convert dot plot into bar graph.
- Write a sentence describing a pattern.

Teaching as Inquiry:

Observe which students:

- create dot plots accurately.
- represent frequency correctly.
- label categories clearly.
- identify most/least value.s
- struggle with interpreting data.

Hands-On Activity 1 (10 minutes)

Build the Dot Plot

Students use counters to represent sibling data first, then transfer to paper dot plot.

Hands-On Activity 2 (10–15 minutes)

Graph Detective

Students analyse a prepared dot plot and must:

- identify most and least common values.
- count total data points.
- describe one pattern.
- explain what the graph shows.

Student Book Practice

Students complete **page 41 – Drawing a Dot Plot**

Focus:

- Creating dot plot accurately
- Labelling categories
- Representing frequency correctly
- Identifying most and least values
- Interpreting data meaning

Mathletics Online Practice

Recommended Sets:

Representing Data – Reinforces constructing data displays

Reading Graphs & Data – Reinforces interpreting frequency and patterns

Mathletics strengthens data visualisation and interpretation skills through interactive graphing tasks and provides ongoing progress evidence.

Reflect and Check (5 minutes)

Quick-fire questions:

- What does one dot represent?
- Which number of siblings is most common?
- Which is least common?
- Why are dot plots useful?
- What did today's graph show?

Exit Question:

If one category has 6 dots and another has 3, how many more students are in the first category?

Next Steps for Teacher

- Reinforce careful counting of frequency.
- Support students interpreting dot plot meaning.
- Extend confident students into creating and comparing graphs.

Curriculum & Planning Links

NZ Curriculum (2025) – Statistics

Visualisation of data & Interpretation of data

Knowledge

- Data visualisations are representations of all available values for a variable showing the frequency for each value.
- Data visualisations show patterns, trends and variations.
- Numerical data can be visualised with dot plots or bar graphs.
- A good data visualisation includes, where appropriate: a title that gives the purpose of the visualisation, variable(s), the group the data is from, units for a numerical variable, values or categories, frequency, with the scale starting at 0.
- Interpreting a data visualisation includes describe its variables and their units, the context for the data, and the visualisation's key features: its shape, its middle group(s), its spread

Practices

- Create dot-plot or bar-graph data visualisations
- Answering questions about the frequency of a particular value in dot plots
- Answering questions and individual values in a dot plot, while referring to the context
- Interpreting data visualisations
- Distinguishing between when to use a particular value or the frequency for a given value when answering question about dot plot

DAILY LESSON PLAN Week 9 • Lesson 5

Topic: Problem Solving – Class Favourites Survey

In this lesson, students design and conduct a simple class survey, organise results using tally marks, represent the data using a graph and interpret their findings. They apply data skills to solve a real-world problem and communicate conclusions clearly.

Learning Intention

Students will understand that data can be collected through a survey, organised using tally marks and represented visually to help interpret results and answer questions.

Success Criteria

- ✓ I can write a clear survey question.
- ✓ I can collect and record data using tally marks.
- ✓ I can organise and count results accurately.
- ✓ I can represent data using a picture graph or bar graph.
- ✓ I can explain what my data shows

Language Focus

Key terms: survey, data, tally, category, frequency, graph, results, most, least, compare, represent, organise, interpret

Sentence stems:

Our survey question was ___.

I recorded the data using ___.

The most popular choice was ___.

The least popular choice was ___.

The graph shows that ___.

From the data, I learned ___.

Launch Activity (5 minutes)

Ask:

- What is a survey?
- Why do we collect data?
- What makes a good survey question?

Show examples:

- favourite sport
- favourite food
- favourite game

Discuss:

- clear question
- fair choices
- easy to record answers

Mental warm-up:

5 + 5 = ___

10 − 3 = ___

6 + 4 = ___

Assessment for Learning:

Ask:

- How do you record data using tally marks?
- Why do we group tallies in fives?
- How do you turn tallies into totals?
- How does a graph help us understand results?

Explicit Instruction (10–12 minutes)

1. Writing a Survey Question

I Do • Model creating a clear survey question:

'What is your favourite fruit?'

Explain:

Simple

Clear

One answer per person

We Do • Students suggest another question.

You Do • Students write their own survey question.

2. Recording Data Using Tally Marks

I Do • Model tally recording and grouping in fives.

We Do • Class records tallies together.

You Do • Students record tallies from survey results.

3. Organising and Counting Results

I Do • Convert tallies into totals.

We Do • Count one category together.

You Do • Students calculate totals for all categories.

4. Representing Data in a Graph

I Do • Model creating a simple graph with:

Title

Categories

Scale starting at 0

Bars or picture symbols

We Do • Class creates one category together.

You Do • Students draw their own graph.

5. Interpreting Results

I Do • Model interpretation:

Most popular

Least popular

What the data shows

We Do • Discuss class results.

You Do • Students write one conclusion sentence.

Differentiation Tips

Support:

- Provide ready-made categories.
- Use small-group survey.
- Provide partially completed graph.
- Count tallies together.

Extension:

- Create second graph from same data.
- Compare two categories numerically.
- Write comparison statement ('___ more than ___').
- Explain why a bar graph or picture graph works best.

Teaching as Inquiry:

Observe which students:

- write clear survey questions.
- record tally marks correctly.
- count totals accurately.
- represent data clearly.
- struggle with interpreting results.

Hands-On Activity 1 (10 minutes)

Class Survey

Students survey classmates and must:

- ask question.
- record tallies.
- count totals.
- check results.

Hands-On Activity 2 (10–15 minutes)

Graph Builder Challenge

Students:

- Create graph from collected data.
- Label clearly.
- Identify most and least.
- Write one conclusion.

Student Book Practice

Students complete **page 42 – Class Favourites Survey**

Focus:

- Writing a survey question
- Recording tally marks
- Organising results
- Drawing graph
- Interpreting data

Mathletics Online Practice

Activities

Collecting and Representing Data – Reinforces tally and graph skills

Interpreting Graphs – Reinforces reading and understanding data

Mathletics strengthens data collection and interpretation through interactive tasks and provides progress evidence for teachers.

Reflect and Check (5 minutes)

Quick-fire questions:

- What was your survey question?
- How did you record your data?
- Which category had the most responses?
- Why do we use graphs to show data?
- What did your survey help you learn?

Exit Question:

If one category has 12 responses and another has 8, how many more chose the first category?

Next Steps for Teacher

- Reinforce tally grouping and counting
- Support students interpreting data meaning
- Extend confident students into comparing and explaining results

Curriculum & Planning Links

NZ Curriculum (2025) – Statistics

Developing knowledge from data, Visualisation of data & Interpretation of data

Knowledge

- A variable is an attribute or measurement of the people or objects being studied: categorical variables classify objects or individuals into groups, discrete numerical variables are counted, continuous numerical variables are measured.
- Data visualisations are representations of all available values for a variable showing the frequency for each value.
- Data visualisations show patterns, trends and variations.
- Numerical data can be visualised with dot plots or bar graphs.
- A good data visualisation includes, where appropriate: a title that gives the purpose of the visualisation, variable(s), the group the data is from, units for a numerical variable, values or categories, frequency, with the scale starting at 0.
- Interpreting a data visualisation includes describe its variables and their units, the context for the data, and the visualisation's key features: its shape, its middle group(s), its spread

Practices

- Collecting numerical data, and, if needed, rounding to an appropriate unit or part of a unit, based on the context
- Create dot-plot or bar-graph data visualisations
- Interpreting data visualisations

CHECKPOINT 2 Week 9 • Term 1

Topic: Measurement, Time, Geometry and Number

Purpose

This Checkpoint assesses students' understanding of the key mathematical concepts taught across the first nine weeks of Year 4. It provides a clear snapshot of student progress in number knowledge, operations, patterns, measurement, time, geometry and data interpretation.

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 Knowledge	Place value, more/less, numerals and number words	Number – Place Value	Understanding hundreds, tens and ones, reading and writing numbers
Operations	Addition, subtraction, multiplication thinking	Operations	Solving number sentences, using number lines, arrays and equal groups
Patterns & Algebra	Identifying and continuing number patterns	Algebraic Thinking	Recognising rules and extending sequences
Time	Reading and interpreting analogue time	Measurement – Time	Reading clocks and solving time problems
Measurement	Length and real-world measurement estimates	Measurement – Length	Choosing appropriate units and estimating/measuring
Geometry	3D shapes and properties	Geometry – Shape	Identifying faces, curved surfaces and shape properties
Statistics	Interpreting bar graphs and dot plots	Statistics – Data	Reading data displays and comparing values

Checkpoint 2 Structure

Part	Focus	Questions	Skills Tested
1	Place value and more/less	Write numbers 10 more/less, 100 more/less	Understanding place value changes
2	Numerals and number words	Write numbers in numerals and words	Reading and writing numbers correctly
3	Number sequences	Fill missing numbers	Pattern recognition and sequencing
4	Doubles and basic facts	Double numbers	Recall and fluency
5	Number line subtraction	Solve subtraction using number lines	Understanding difference and jumps
6	Word problem	Solve subtraction in context	Applying operations
7	Equal groups and arrays	Complete multiplication representation	Understanding repeated addition
8	Sharing equally	Divide into equal groups	Early division reasoning
9	Pattern rules	Continue sequences and describe rule	Algebraic thinking
10	Time	Read and interpret clocks	Understanding time language
11	3D shapes	Identify shapes and properties	Geometry knowledge
12	Data & Measurement	Interpret graphs and measure length	Reading data and using units

CHECKPOINT 2 Week 9 • Term 1

Topic: Number, Operations, Time, Measurement and Data **Total Marks:** 40

Student Name:

Marking Sheet

Part	Task	Max Marks	Student Score	Notes / Observations
1	Place value (10/100 more or less)	4	/ 4	
2	Write numerals from words	3	/ 3	
3	Write numbers in words	3	/ 3	
4	Complete number sequences	3	/ 3	
5	Doubles facts	2	/ 2	
6	Subtraction using number lines	2	/ 2	
7	Solve word problem	2	/ 2	
8	Equal groups / sharing	3	/ 3	
9	Continue patterns and state rule	6	/ 6	
10	Read and interpret time	4	/ 4	
11	Identify 3D shapes & properties	4	/ 4	
12	Interpret graph & measure length	4	/ 4	
			TOTAL: / 40	

Achievement Rubric

Score Range	Level	Interpretation	Suggested Follow-Up
34–40	**Secure**	Strong understanding across number, measurement, time and data.	Ready for extension into multi-step problems and deeper reasoning.
26–33	**Developing**	Core skills mostly secure but some gaps remain.	Target place value, time interpretation and pattern rules.
18–25	**Emerging**	Partial understanding with noticeable gaps.	Provide small-group support in number operations and measurement.
Below 18	**At Risk**	Significant foundational gaps.	Prioritise intervention in place value, number facts and reading data.

Diagnostic Notes (Teacher Use)

Skill Area	Observations	Follow-Up Plan
Place Value & Number Knowledge		
Addition/Subtraction Strategies		
Equal Groups & Sharing		
Pattern Recognition		
Time Understanding		
Measurement & Units		
Geometry (3D Shapes)		
Data Interpretation		

Unit: Measurement, Checkpoint 2 – Number, Operations, Time, Geometry and Data

Focus: Measuring and comparing length using appropriate units, estimating and measuring accurately, and reviewing key skills through Checkpoint 2 to identify strengths, misconceptions and next steps.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Measuring Length **Comparing Length** **Estimating Length**	Understands that length can be measured using standard units (cm, m) and appropriate tools. Can compare and order objects by length and determine differences. Understands how to estimate length before measuring.	Accurately measures objects, aligns ruler correctly and records correct units. Correctly identifies longer/shorter and calculates difference between lengths. Makes reasonable estimates and checks accuracy using measurement.
Unit Understanding	Recognises when to use cm vs m in real-life contexts.	Chooses appropriate unit for small vs large objects.
Number Knowledge	Demonstrates understanding of place value, numerals and number patterns.	Correct answers in number, sequencing and place-value tasks.
Operations	Applies addition, subtraction and equal-group thinking accurately.	Correct working in number sentences, sharing and subtraction problems.
Time Understanding	Reads and interprets analogue time correctly.	Correctly reads clocks and solves time questions.
Geometry Knowledge	Recognises 3D shapes and describes properties.	Correct identification of shapes, faces and curved surfaces.
Data Interpretation	Reads and interprets bar graphs and dot plots.	Correctly compares values and explains data meaning.

Assessment Opportunities

Assessment Type	Suggested Activity	What to Observe
Observation (Formative)	Watch students measure classroom objects using rulers.	Do students align ruler at zero? Do they use correct unit and read scale accurately?
Oral Check	Ask: 'How do you know whether to measure in cm or m?' and 'How can you check if your measurement is correct?'	Listen for understanding of units, estimation and measurement reasoning.
Written Work	Review Student Book pp.43–45 and Checkpoint 2 (pp.46–47).	Check accurate measurement, correct units, number understanding and reasoning.
Practical Task	Students estimate, measure and compare two classroom objects, then explain difference.	Can students estimate reasonably, measure correctly and compare lengths accurately?
Checkpoint Review	Analyse Checkpoint 2 results.	Identify strengths, gaps and misconceptions across number, time, geometry and data.
Exit Ticket / Quick Quiz	Provide short length and number questions.	Identify students secure vs needing support in measurement and key concepts.

Quick Quiz / Exit Ticket (5 Questions)

1. Estimate the length of your pencil, then measure it in centimetres.
2. Which unit would you use to measure a classroom: cm or m? Why?
3. What is the difference between 48 cm and 35 cm?
4. A clock shows 3:30. What time is it?
5. Which is longer: 2 m or 150 cm? Explain.

Teaching as Inquiry: Reflection Notes

Students accurately estimating and then measuring length using correct units:

Students able to compare and calculate differences in length:

Students demonstrating strong number and operations knowledge in Checkpoint 2:

Students needing support with reading time or interpreting graphs:

Misconceptions noticed (e.g. cm vs m confusion, place value errors):

Vocabulary to revisit (length, measure, estimate, centimetre, metre, difference, unit, scale):