Year 7

Term 1

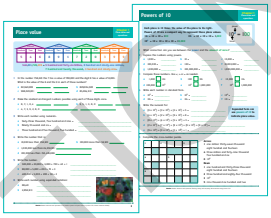
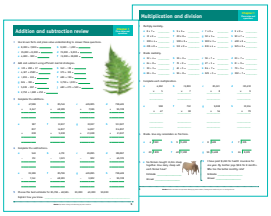
SAMPLE COPY
NOT FOR DISTRIBUTION

Term 1 Teaching Overview

Week	High-Level Curriculum Focus	Student Book	Mathletics Online Lessons
1 **Place value and operations**	**Number** Number structures and operations Reading, writing, comparing and ordering whole numbers using powers of 10 and whole number operations.	**Chapter 1: Place value and operations** **Pages 3–9**	**4 Skill Quests** **1 Activity (Courses)** **2 Challenges**
Checkpoint 1	Assesses understanding of whole-number operations.	**Pages 10–11**	
2 **Integers**	**Number** Number structures and operations Locating, ordering, adding and subtracting whole negative and positive numbers using a number line.	**Chapter 2: Integers** **Pages 13–19**	**4 Skill Quests** **2 Activities (Courses)** **1 Challenge**
Checkpoint 2	Assesses understanding of adding and subtracting positive and negative integers.	**Pages 20–21**	
3 **Number properties**	**Number** Number structures and operations Using exponents and radicals for square numbers and roots, and using divisibility rules to identify prime numbers.	**Chapter 3: Number properties** **Pages 23–26**	**3 Skill Quests** **2 Activities (Courses)**
4 **Factors**	**Number** Number structures and operations Finding the highest common factor (HCF) and the least common multiple (LCM) of two numbers under 100.	**Chapter 3: Number properties** **Pages 27–29**	**1 Skill Quest** **2 Activities (Courses)**
Checkpoint 3	Assesses understanding of exponents, square numbers, square roots, prime numbers, HCF and LCM.	**Pages 30–31**	
5 **Fractions**	**Number** Number structures and operations Identifying, reading, writing, representing, comparing, ordering, adding and subtracting fractions, and finding equivalent fractions and simplest form.	**Chapter 4: Fractions** **Pages 33–41**	**2 Skill Quests** **5 Activities (Courses)**
6 **Fraction operations**	**Number** Number structures and operations Converting between, adding and subtracting improper fractions and mixed numbers, and multiplying fractions and whole numbers.	**Chapter 4: Fractions** **Pages 42–47**	**4 Skill Quests** **3 Activities (Courses)**
7 **Fraction reasoning**	**Number** Number structures and operations Dividing fractions by whole numbers and dividing a whole number by a unit fraction, including finding a fraction of a whole number, and finding a whole amount when given a fraction.	**Chapter 4: Fractions** **Pages 48–51**	**2 Skill Quests,** **1 Activities (Courses)**
Checkpoint 4	Assesses understanding of fraction representations and operations.	**Pages 52–53**	
8 **Decimals**	**Number** Number structures and operations Identifying, reading, writing, representing, comparing, ordering and decimals, converting between fractions and decimals, including repeating decimals	**Chapter 5: Decimals** **Pages 55–59**	**5 Skill Quests** **2 Activities (Courses)**
9 **Decimal operations**	**Number** Number structures and operations Adding and subtracting decimals, and multiplying and dividing by powers of 10.	**Chapter 5: Decimals** **Pages 60–64**	**4 Skill Quests** **2 Activities (Courses)**

SAMPLE COPY
NOT FOR DISTRIBUTION

Term 1 Week 1 Overview Number: Number structures and operations
Chapter 1: Place value and operations

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Place value and powers of 10**	Use place value and powers of 10 to read, represent, compare and expand whole numbers.	✓ Read and write large whole numbers in numeral and word form ✓ Explain how moving one place left changes value by a factor of 10 ✓ Represent powers of 10 using exponent notation and standard form ✓ Write whole numbers in expanded form using place values and powers of 10	– Explore digit values in large numbers – Connect place value to powers of 10 – Compare powers of 10 and whole numbers – Represent numbers in expanded form – Discuss exponent misconceptions – **Mathletics Online Practice** **Skill Quest: Write numbers using powers of 10, Represent numbers in expanded form**	**Pages 3–4:** Read, write and partition large whole numbers and represent place value using powers of 10. 
2 **Operations review**	Select and apply efficient strategies to calculate with whole numbers.	✓ Use place value and known facts for mental addition and subtraction ✓ Add and subtract multi-digit whole numbers accurately ✓ Multiply whole numbers using mental or written strategies ✓ Divide whole numbers and express remainders as fractions when needed ✓ Use estimation to check whether answers are reasonable	– Review mental addition and subtraction strategies – Model written multiplication – Interpret division remainders – Estimate and check solutions – Compare efficient calculation strategies – **Skill Quests: Multiplying whole numbers; Dividing whole numbers; 1-digit divisor**	**Pages 5–6:** Add, subtract, multiply and divide whole numbers using efficient mental and written strategies. 
3 **Order of operations**	Evaluate numerical expressions accurately using the order of operations.	✓ Use GEMA to recall the order of operations ✓ Evaluate expressions with grouping, exponents and multiple operations ✓ Explain why changing the order can change an expression's value ✓ Insert grouping symbols to make a numerical statement true	– Apply GEMA to expressions – Work with grouping and exponents – Compare expressions with and without grouping – Identify order-of-operations errors – Insert grouping symbols to make statements true – **Activities (Courses): Multiplication & division: Order of Operations 1 (BIDMAS)**	**Page 7:** Evaluate numerical expressions using the order of operations and grouping symbols. 
4 **Number laws**	Identify and apply number laws to rearrange or partition whole-number calculations.	✓ Use the commutative law to reorder addends or factors ✓ Use the associative law to regroup for efficiency ✓ Use the distributive law to split multiplication into easier parts ✓ Choose and justify a number law that makes a calculation efficient	– Model changing order and grouping – Explain number laws with arrays and equations – Partition multiplication using the distributive law – Compare efficient strategies – Identify when number laws do not apply	**Page 8:** Apply commutative, associative and distributive laws to calculate efficiently. 
5 **Problem solving**	Select and apply appropriate whole-number operations and strategies to solve problems.	✓ Identify and choose appropriate operations ✓ Apply addition, subtraction, multiplication or division accurately ✓ Use powers of 10 and rounding when required ✓ Interpret remainders appropriately in context ✓ Use estimation or inverse operations to check reasonableness	– Analyse problem structure – Solve one- and multi-step problems – Apply powers of 10, rounding and estimation – Interpret remainders in context – Justify operations and check solutions – **Challenges: Operations: Missing operators, Multiplication & Division: Number Shuffle**	**Page 9:** Apply place value, powers of 10 and the four operations to solve problems. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 1: Place value and operations

Focus: Assess students' ability to use place value, powers of 10, whole-number operations, order of operations and number laws to calculate efficiently, solve problems and justify their reasoning.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Place value and powers of 10	Read, write, partition and compare large whole numbers and connect place value to powers of 10.	Identifies digit values, represents numbers in standard and expanded form and uses powers of 10 correctly.
Whole-number operations	Select and apply efficient mental and written strategies for all operations and estimate to check reasonableness.	Selects appropriate strategies, calculates accurately, uses appropriate methods and interprets remainders correctly in context.
Order of operations	Evaluate numerical expressions using the correct order of operations.	Applies grouping, exponents and operations in the correct sequence and inserts grouping symbols appropriately.
Number laws	Use commutative, associative and distributive laws to calculate efficiently.	Identifies and applies appropriate number laws to rearrange or partition calculations.
Problem solving and reasoning	Choose operations from the relationships in a context, solve one- and multi-step problems, and interpret rounding and remainders appropriately.	Selects appropriate operations and strategies, estimates where useful and interprets answers appropriately.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Observe students solving calculations and explaining their strategy choices during lesson activities.	Are students selecting efficient strategies and explaining their mathematical reasoning clearly?
Oral Check	Ask students to explain how place value, powers of 10 or number laws can make a calculation easier.	Can students explain the mathematical relationships underlying their strategies?
Mathematical Discussion	Give equivalent calculations and ask students to rearrange, regroup or partition them using a number law.	Can students apply place value, order of operations and number laws accurately?
Written Work	Review student book pages 3–9.	Accuracy when working with place value, powers of 10, operations, number laws and problem solving.
Exit Ticket	Use the five-question check below at the end of the week.	Can students independently select and apply appropriate strategies?
Checkpoint 1	Use the place value and operations checkpoint to assess understanding (student book pages 10–11).	Record class responses to identify skills to revisit, then use the Notes / Actions column to record any follow-up teaching needed.

Quick Quiz/Exit Ticket (5 Questions)

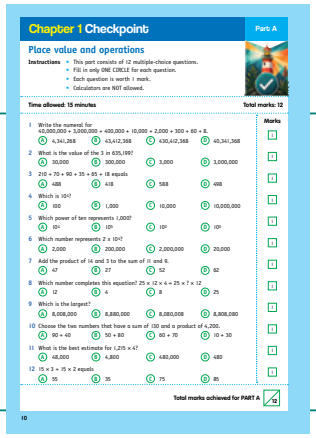
1. In 58,104,732, what is the value of the digit 8? Write 100,000 as a power of 10.
2. Estimate, then calculate: 47,825 − 19,740. Explain briefly how your estimate helps check the answer.
3. Evaluate: 24 + 6 × (15 − 11). Show the order in which you worked.
4. Use a number law to calculate 48 × 7 efficiently. Name the law and show your working.
5. A camp has 538 students travelling in vans that hold 14 students each. How many vans are needed? Explain how you used the remainder.

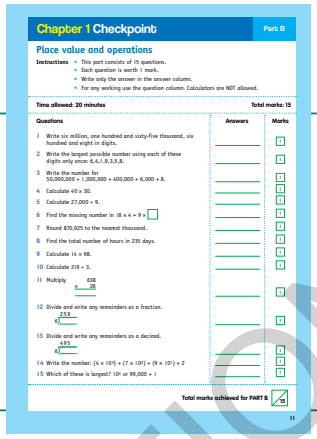
Teaching as Inquiry: Reflection Notes

Reflection Prompts	Notes / Next Steps
Did students understand this week's concepts?	
Do students require further support with place value, powers of 10 or whole-number operations?	
Could students select and apply appropriate whole-number operations and strategies?	
Can students explain and justify their mathematical reasoning using precise language?	
What misconceptions were evident about place value, exponents, operation order, number laws or remainders?	
Does vocabulary need further reinforcement?	

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 1
Chapter 1: Place value and operations


Chapter 1 Checkpoint
Part A
Place value and operations


Chapter 1 Checkpoint
Part B
Place value and operations

Purpose

This checkpoint assesses students' understanding of place value and powers of 10, whole-number operations, number laws and order of operations, estimation and rounding, and multiplication and division.

Part A: 12 marks | Part B: 15 marks | Total: 27 marks

Assessment Overview

Part/Questions	Focus	Skills Assessed
A1, A2, A4–A6, A9; B1–B3, B14–B15	Place value & powers of 10	Reads, writes, compares and constructs whole numbers; interprets digit value, expanded notation and powers of 10.
A3, A7, A12	Addition & order of operations	Calculates whole-number sums and evaluates expressions using the correct operation sequence.
A8, A10; B6	Number laws & relationships	Uses number relationships and multiplication structure to determine missing values and satisfy conditions.
B4, B5, B8–B13	Multiplication & division	Multiplies and divides whole numbers mentally and with written strategies; interprets remainders as fractions or decimals.
A11; B7	Estimation & rounding	Rounds whole numbers and uses estimation to judge a reasonable multiplication result.

Achievement Rubric

Score Range	Progress Descriptor	Interpretation	Suggested Follow-Up
24–27	Exceeding	Strong and consistent understanding across the assessed concepts. Accurately applies place value, powers of 10, operations, number laws, rounding and division strategies, including unfamiliar combinations.	Extend with multi-step problems, larger numbers, strategy comparisons, justification and creation of equivalent expressions.
20–23	Proficient	Secure understanding of most assessed concepts, with only occasional errors when applying place value, operations, number relationships or rounding.	Reinforce any isolated errors and provide targeted practice in the specific concept or strategy not yet fully secure.
15–19	Consolidating	Sound understanding of several concepts, with some gaps or inconsistencies in place value, operation sequence, multiplication/division, number laws or estimation.	Continue guided practice using place-value representations, worked examples, number relationships and explicit strategy discussion.
8–14	Developing	Developing understanding of core number concepts but requires support to select and apply strategies accurately and independently.	Revisit prerequisite place value and basic facts; use concrete/visual representations, scaffolded examples and short targeted practice.
0–7	Emerging	Beginning to develop foundational understanding of place value and whole-number operations and requires substantial support to interpret and solve assessment tasks.	Provide explicit reteaching with place-value materials, number lines, fact families and carefully sequenced one-step examples.

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 1 Class Review

Year 7 Mathematics Chapter 1: Place value and operations

Class: **Date:**

After students complete and partner-mark the checkpoint, review each question as a class. Ask students to raise a hand for any question that they found challenging. Record the overall class response to identify skills to revisit. Use the **Notes / Actions** column to record any follow-up teaching needed.

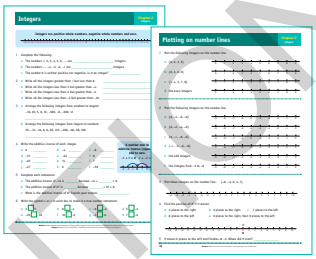
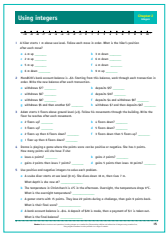
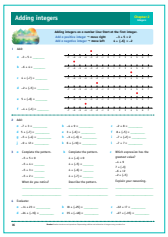
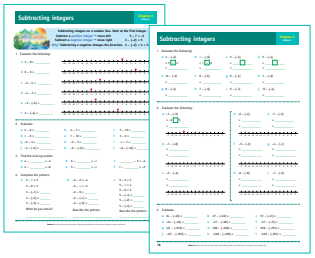
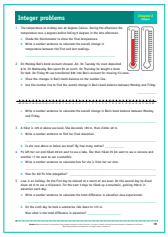
✓ **Secure** — few students need support
▲ **Review** — a group of students needs further practice
✕ **Reteach** — many students need further support

Class Check

Part	Task	Class Check	Notes / Actions
A1	Write a numeral from expanded place-value notation.		
A2	Identify the value of a digit in a whole number.		
A3	Calculate a whole-number sum mentally.		
A4	Interpret a power of 10.		
A5	Express 1,000 as a power of 10.		
A6	Evaluate a number written using a power of 10.		
A7	Evaluate an expression using sums and products.		
A8	Use number laws to identify a missing factor.		
A9	Compare whole numbers to identify the greatest value.		
A10	Identify numbers satisfying both a sum and a product condition.		
A11	Estimate a whole-number multiplication.		
A12	Evaluate an expression efficiently using multiplication and addition.		
B1	Write a whole number in digits from words.		
B2	Form the greatest possible number from given digits.		
B3	Write a numeral from expanded notation.		
B4	Multiply multiples of 10.		
B5	Divide a multiple of 1,000 by a one-digit divisor.		
B6	Find a missing factor in a multiplication equation.		
B7	Round a whole number to the nearest thousand.		
B8	Solve a multiplication problem involving days and hours.		
B9	Calculate efficiently using a near-multiple strategy.		
B10	Divide a three-digit number by a one-digit divisor.		
B11	Use a written strategy to multiply multi-digit whole numbers.		
B12	Divide and express the remainder as a fraction.		
B13	Divide and express the result as a decimal.		
B14	Write a numeral from expanded form using powers of 10.		
B15	Compare a power of 10 with a whole number to identify the greatest value.		
	TOTAL:	/ 27	

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 2 Overview Number: Number structures and operations
Chapter 2: Integers

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Integer review**	Identify, compare, order and locate integers on number lines and explain the relationship between a number and its additive inverse.	✓ Identify positive and negative integers and zero ✓ Compare and order integers on a number line ✓ Identify additive inverses ✓ Plot integers accurately on a number line ✓ Determine positions after movement left or right	– Explore integer position and order on number lines – Compare negative integers and address common misconceptions – Model additive inverses as equal distances from zero – Reason about forward and backward movement on number lines – **Mathletics Online Practice Activities (Courses): Integers: Ordering Integers (Number Line)**	**Pages 13–14:** Identify, compare and order integers, recognise additive inverses and locate integers. 
2 **Using integers**	Use positive and negative integers to represent and solve addition and subtraction problems in a range of contexts.	✓ Represent increases and decreases with signed integers ✓ Model changes on a number line ✓ Interpret positive, negative and zero results ✓ Explain how direction and size of change affect the result	– Model contextual changes on number lines – Connect deposits and withdrawals; rises and falls – Solve multi-step situations involving position, money, scores and temperature – Explain the meaning of final integer values in context – **Skill Quests: Additive inverse; Integers on a number line**	**Page 15:** Use integers to represent and solve real-world problems. 
3 **Adding integers**	Add positive and negative integers using number lines, patterns and additive-inverse reasoning.	✓ Add a positive integer by moving right ✓ Add a negative integer by moving left ✓ Use number lines to represent integer addition ✓ Recognise and explain addition patterns ✓ Evaluate integer sums and justify the sign of the result	– Model addition as directed movement on a number line – Compare adding positive and negative integers – Investigate patterns in changing addends – Use reasoning to predict and evaluate integer sums	**Page 16:** Add integers using number lines and patterns. 
4 **Subtracting integers**	Subtract positive and negative integers using number lines, patterns and the relationship between subtraction and additive inverses.	✓ Subtract positive integers by moving left ✓ Subtract negative integers by moving right ✓ Rewrite subtraction of a negative as addition ✓ Use patterns to explain integer subtraction ✓ Solve and check integer subtraction equations	– Model subtraction on number lines – Subtract positive and negative integers – Connect subtracting a negative with adding its opposite – Solve missing-number and larger-integer subtraction problems – **Skill Quest: Adding & subtracting integers, number line; Activities (Courses): Integers: Negative or Positive?**	**Pages 17–18:** Subtract integers using number lines and patterns. 
5 **Integer problems**	Apply addition and subtraction of integers to represent, solve and explain problems in real-world contexts.	✓ Identify positive and negative quantities in context ✓ Represent changes on a number line ✓ Write matching integer number sentences ✓ Calculate final values and overall changes ✓ Interpret the sign of a result in context	– Model temperature changes – Track multi-step changes with number lines and equations – Calculate changes in elevation – Solve movement and distance problems – **Skill Quest: Negative numbers in context; Challenge: Addition & Subtraction: Integers number sentences**	**Page 19:** Apply integers to solve problems. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 2: Integers

Focus: Assess students' ability to represent, compare, add and subtract integers and apply integer reasoning to number-line and contextual problems.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Integers and order	Recognise integers as positive whole numbers, negative whole numbers and zero.	Orders mixed integers and explains that values increase from left to right.
Additive inverses	Understand that an integer and its additive inverse are equal distances from zero on opposite sides and sum to zero.	Identifies opposites correctly and justifies pairs with a zero-sum equation or number-line representation.
Integer addition	Add positive and negative integers using directed movement, patterns and reasoning about signs.	Chooses the correct direction on a number line, evaluates sums accurately and explains the effect of each addend.
Integer subtraction	Subtract positive and negative integers and connect subtracting a negative with adding its opposite.	Distinguishes operation and sign, rewrites subtraction appropriately and explains direction changes.
Integers in context	Represent and solve multi-step problems involving temperature, finance, elevation, scores and directed movement.	Writes suitable number sentences, calculates accurately and interprets the sign and size of results in context.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Observe students ordering and locating a mixed set of integers on a number line.	Are students using zero, direction and number-line position to explain their reasoning?
Oral Check	Ask students to explain an additive inverse and predict the effect of adding or subtracting a negative integer.	Can students accurately explain integer size and movement using mathematical language?
Mathematical Discussion	Use a floor number line for students to model a sequence of positive and negative changes.	Can students locate integers accurately and move in the correct direction for each operation?
Written Work	Review student book pages 13–19.	Accuracy when identifying, comparing, representing, adding and subtracting and applying integers.
Exit Ticket	Use the five-question check below at the end of the week.	Can students independently apply the week's key integer concepts?
Checkpoint 2	Use the integers checkpoint to assess understanding (student book pages 20–21).	Record class responses to identify skills to revisit, then use the Notes / Actions column to record any follow-up teaching needed.

Quick Quiz/Exit Ticket (5 Questions)

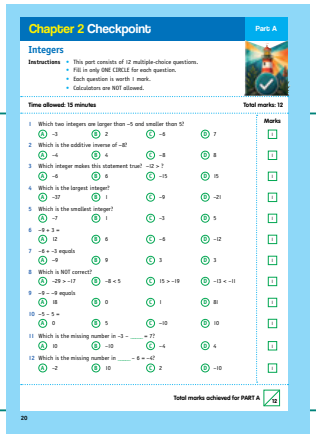
1. Order these integers from smallest to largest: −8, 3, 0, −2, 7.
2. What is the additive inverse of −14? Explain why.
3. Evaluate: −5 + 12.
4. Evaluate: 4 − (−9). Explain why the answer is greater than 4.
5. A diver is at −18 m. The diver rises 11 m, then descends 4 m. What is the final depth? Write a number sentence and interpret your answer.

Teaching as Inquiry: Reflection Notes

Reflection Prompts	Notes / Next Steps
Did students understand integer order, additive inverses, addition and subtraction?	
Do students require further support with negative values, crossing zero or the meaning of two minus signs?	
Could students select and apply integer strategies without a provided number line?	
Can students explain and justify integer reasoning using mathematical vocabulary and representations?	
What misconceptions were apparent about comparing, adding or subtracting integers?	
Does vocabulary need further reinforcement?	

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 2
Chapter 2: Integers


Chapter 2 Checkpoint Part A

Integers

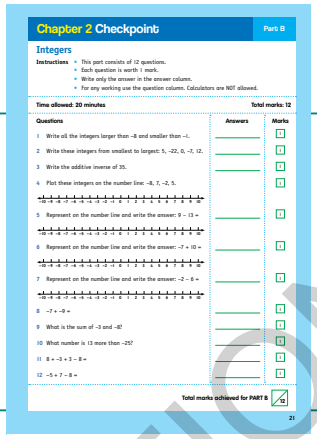
Instructions
- This part consists of 12 multiple-choice questions.
- Fill in only ONE CIRCLE for each question.
- Each question is worth 1 mark.
- Calculators are NOT allowed.

Time allowed: 15 minutes Total marks: 12

Marks

Total marks achieved for PART A /12

20


Chapter 2 Checkpoint Part B

Integers

Instructions
- This part consists of 12 questions.
- Each question is worth 1 mark.
- Write only the answer in the answer column.
- For any working use the question column. Calculators are NOT allowed.

Time allowed: 20 minutes Total marks: 12

Questions Answers Marks

Total marks achieved for PART B /12

21

Purpose

This checkpoint assesses students' understanding of integers, including comparing and ordering positive and negative integers, additive inverses, locating integers on number lines, and adding and subtracting integers.

Part A: 12 marks | Part B: 12 marks | Total: 24 marks

Assessment Overview

Part/Questions	Focus	Skills Assessed
A1–A5, A8; B1–B3	Integer value, order & additive inverses	Identifies integers in intervals; compares and orders positive and negative integers; identifies greatest/smallest values and additive inverses.
B4–B7	Number-line representation	Locates integers and represents addition or subtraction as directed movement on a number line.
A6–A7, A9; B6, B8–B11	Adding integers	Adds integers with like and unlike signs, recognises additive inverses that sum to zero, and evaluates addition expressions.
A10–A12; B5, B7, B12	Subtracting & mixed integer operations	Subtracts integers, determines missing values and evaluates expressions involving addition and subtraction.

Achievement Rubric

Score Range	Progress Descriptor	Interpretation	Suggested Follow-Up
22–24	**Exceeding**	Strong and consistent understanding of integer value, order, additive inverses, number-line representation, and integer addition and subtraction. Applies these ideas accurately across varied forms.	Extend with multi-step integer problems, unfamiliar contexts, strategy comparisons and justification of general rules.
18–21	**Proficient**	Secure understanding of most assessed integer concepts, with only occasional errors in ordering, number-line movement or signed operations.	Reinforce isolated errors and provide targeted practice in the specific representation or operation not yet fully secure.
13–17	**Consolidating**	Sound understanding of several integer concepts, with some gaps or inconsistencies in additive inverses, ordering, number-line representation, addition or subtraction.	Continue guided practice using number lines, explicit sign language, worked examples and comparison of related expressions.
7–12	**Developing**	Developing understanding of integer concepts but requires support to interpret negative values and apply addition or subtraction strategies independently.	Revisit integer position and order, additive inverses and directed movement using concrete or visual number-line representations.
0–6	**Emerging**	Beginning to develop foundational understanding of positive and negative integers and needs substantial support to compare, locate and operate with integers.	Build meaning for integers through familiar contexts and physical number lines; practise comparing values, opposites and simple one-step movements.

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 2 Class Review

Year 7 Mathematics Chapter 2: Integers

Class: **Date:**

After students complete and partner-mark the checkpoint, review each question as a class. Ask students to raise a hand for any question that they found challenging. Record the overall class response to identify skills to revisit. Use the **Notes / Actions** column to record any follow-up teaching needed.

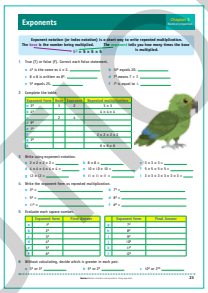
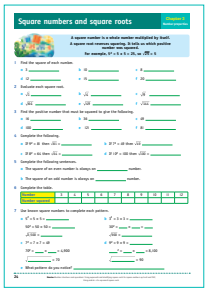
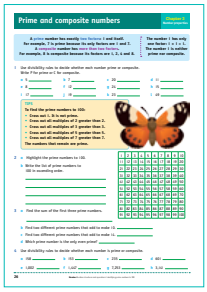
✓ **Secure** — few students need support
▲ **Review** — a group of students needs further practice
✕ **Reteach** — many students need further support

Class Check

Part	Task	Class Check	Notes / Actions
A1	Identify integers within a given interval.		
A2	Identify the additive inverse of an integer.		
A3	Compare integers using relative value.		
A4	Identify the greatest integer.		
A5	Identify the smallest integer.		
A6	Add a negative and a positive integer.		
A7	Add two negative integers.		
A8	Check the truth of integer comparisons.		
A9	Add additive inverses to make zero.		
A10	Subtract positive integers.		
A11	Find a missing integer in a subtraction equation.		
A12	Find a missing integer in a subtraction equation.		
B1	List integers within a specified interval.		
B2	Order positive and negative integers from smallest to largest.		
B3	Write the additive inverse of a positive integer.		
B4	Plot positive and negative integers on a number line.		
B5	Represent and solve integer subtraction on a number line.		
B6	Represent and solve integer addition on a number line.		
B7	Represent and solve subtraction resulting in a negative integer.		
B8	Add two negative integers.		
B9	Find the sum of two negative integers.		
B10	Determine an integer a stated amount greater than another integer.		
B11	Evaluate a mixed integer addition and subtraction expression.		
B12	Evaluate a mixed integer addition and subtraction expression.		
	TOTAL:	/ 24	

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 3 Overview Number: Number structures and operations
Chapter 3: Number properties

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Exponents**	Represent, interpret and evaluate repeated multiplication using exponent notation.	✓ Identify base and exponent ✓ Explain exponent meaning ✓ Write repeated multiplication as a power ✓ Expand and evaluate powers ✓ Compare powers using reasoning	– Interpret base and exponent – Move between powers and repeated multiplication – Compare powers and address misconceptions – Discuss equivalent representations – **Mathletics Online Practice Activities (Courses): Powers and square roots: Index Notation/Exponent Notation**	**Page 23:** Represent repeated multiplication using exponents, evaluate powers and compare exponential expressions. 
2 **Square numbers and square roots**	Connect square numbers and positive square roots using exponent and radical notation.	✓ Identify square numbers ✓ Evaluate square roots ✓ Use √ notation ✓ Find positive square roots to 144 ✓ Explain squaring and square roots as inverse processes	– Build square arrays – Link squares to exponent notation – Reverse squaring with square roots – Investigate square-number patterns – **Activities (Courses): Powers & square roots: Square Roots; Skill Quest: Use radicals to represent square roots**	**Page 24:** Calculate square numbers and square roots and use known squares to identify and extend patterns. 
3 **Divisibility rules**	Use and explain divisibility rules to determine whether whole numbers are divisible by common divisors.	✓ Apply rules for 2, 3, 4, 5, 6, 8, 9 and 10 ✓ Use digit sums and ending digits ✓ Combine divisibility rules ✓ Justify divisibility decision ✓ Connect divisibility with factors	– Test numbers for divisibility – Apply ending-digit and digit-sum rules – Apply rules to larger whole numbers – Combine factor pairs and divisibility rules – Justify divisibility decisions – **Skill Quest: Divisibility rules**	**Page 25:** Apply divisibility rules to identify numbers divisible by common factors. 
4 **Prime and composite numbers**	Identify and justify whether whole numbers are prime, composite or neither by analysing factors.	✓ Define prime numbers ✓ Define composite numbers ✓ Explain the special case of 1 ✓ Identify primes to 100 ✓ Use factors and divisibility rules to justify classifications	– Classify using factor pairs – Use divisibility rules to test numbers – Generate primes systematically – Justify prime/composite classifications – **Skill Quest: Prime & composite numbers**	**Page 26:** Identify prime and composite numbers and apply divisibility rules to determine number properties. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 3: Number properties

Focus: Assess students' ability to use exponent notation, connect square numbers and square roots, apply divisibility rules, and classify prime and composite numbers using factor reasoning.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Exponents	Understand exponent notation as a way of representing repeated multiplication.	Identifies base/exponent, expands powers and explains that the exponent counts equal factors.
Square numbers & square roots	Understand the relationship between squaring a number and finding its positive square root.	Evaluates squares and roots, uses √ notation and justifies answers with multiplication facts.
Divisibility rules	Use divisibility rules to determine whether whole numbers are divisible by common factors.	Applies rules for 2, 3, 4, 5, 6, 8, 9 and 10 and explains divisibility decisions.
Prime & composite numbers	Distinguish prime and composite numbers by analysing their factors.	Identifies prime and composite numbers, recognises that 1 is neither, and uses divisibility rules to justify classifications.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Observe students working with exponents, square numbers, divisibility rules and factors during lesson activities.	Are students recognising number properties and explaining the reasoning behind their decisions?
Oral Check	Ask students to explain the relationship between a power and repeated multiplication, or why a given number is divisible, prime or composite.	Can students use appropriate mathematical vocabulary and justify their reasoning?
Mathematical Discussion	Give students number cards to sort according to properties such as square, divisible by a given number, prime or composite.	Can students use appropriate mathematical vocabulary and justify their reasoning?
Written Work	Review student book pages 23–26.	Accuracy when using exponents, square numbers, square roots, divisibility rules and prime and composite numbers.
Exit Ticket	Use the five-question check below at the end of the week.	Can students apply the week's key number properties?

Quick Quiz/Exit Ticket (5 Questions)

1. Write $4 \times 4 \times 4$ as a power and evaluate it.
2. Find $\sqrt{121}$ and explain how you know.
3. Is 4,275 divisible by 3? Show the evidence you used.
4. Classify 47 as prime or composite and justify your answer.
5. A student says every odd number is prime. Give a counterexample and explain why it disproves the claim.

Teaching as Inquiry: Reflection Notes

Reflection Prompts

Did students understand exponents, square roots, divisibility and prime numbers?

Do students require further support with exponent notation or the meaning of square roots?

Could students apply divisibility rules and select an efficient test?

Can students explain and justify prime or composite classifications using factors?

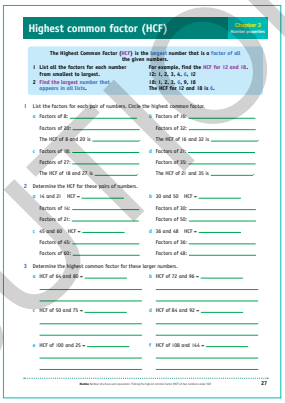
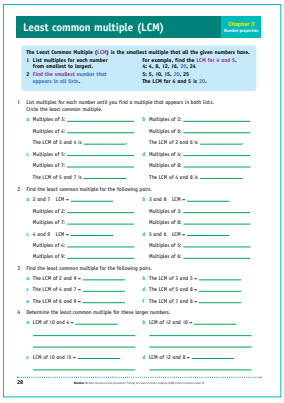
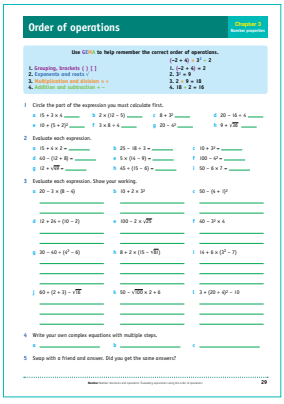
What misconceptions were evident about exponents, square roots, divisibility or prime numbers?

Does vocabulary need further reinforcement?

Notes / Next Steps

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 4 Overview Number: Number structures and operations
Chapter 3: Number properties: Factors

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Highest Common Factor (HCF)**	Identify factors and determine the highest common factor of two whole numbers using systematic factor lists and divisibility reasoning.	✓ List all factors of a whole number ✓ Identify factors common to two numbers. ✓ Find the highest common factor of two numbers. ✓ Use divisibility knowledge to find factors efficiently. ✓ Explain why a number is the HCF.	– Review factors of whole numbers – List factors systematically – Identify factors common to two numbers – Select the highest common factor – Find HCFs for larger number pairs – Explain and check HCF solutions – **Mathletics Online Practice Activities (Courses): Primes, factors & multiples: Highest Common Factor**	**Page 27:** List factors and determine the highest common factor of pairs of whole numbers. 
2 **Least Common Multiple (LCM)**	Generate multiples and determine the least common multiple of two whole numbers, explaining why it is the first positive multiple shared by both.	✓ Generate multiples of a whole number ✓ Identify multiples common to two numbers ✓ Find the least common multiple of two numbers ✓ Use known multiplication facts to find an LCM efficiently ✓ Explain why a common multiple is the least common multiple	– Review multiples of whole numbers – Generate multiples systematically – Identify common multiples – Select the least common multiple – Find LCMs for larger number pairs – Explain and check LCM solutions – **Activities (Courses): Primes, factors & multiples: Lowest Common Multiple; Skill Quest: HCF & LCM**	**Page 28:** Generate multiples and determine the least common multiple of pairs of whole numbers. 
3 **Order of operations**	Evaluate multi-step numerical expressions by applying grouping, exponents, multiplication and division, then addition and subtraction in the correct order.	✓ Identify which operation to complete first ✓ Apply grouping correctly ✓ Evaluate exponents and square roots ✓ Apply multiplication and division, addition and subtraction in order ✓ Evaluate and create multi-step expressions	– Review the GEMA order of operations – Identify the first operation in expressions – Apply exponents and square roots – Solve increasingly complex multi-step expressions – Create and check complex equations – **Skill Quest: Order of operations**	**Page 29:** Evaluate and create numerical expressions using grouping, exponents, roots and the correct order of operations. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 3: Number properties: Factors

Focus: Assess students' ability to identify factors and multiples, determine HCF and LCM, and evaluate multi-step expressions using the correct order of operations.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Highest common factor	Identify complete factor sets and determine the greatest factor common to two numbers.	Lists factors systematically, identifies common factors and correctly selects the HCF.
Least common multiple	Generate multiples and determine the smallest positive multiple common to two numbers.	Generates multiples accurately, identifies common multiples and correctly selects the LCM.
Order of operations	Evaluate expressions using grouping, exponents/roots, multiplication/division and addition/subtraction in the correct sequence.	Identifies which operation to complete first and evaluates multi-step expressions accurately.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Observe students finding factors and multiples and evaluating multi-step expressions during class activities.	Are students working systematically and selecting the correct mathematical process?
Oral Check	Ask students to explain how they would find the HCF or LCM of two numbers and identify the first step in a numerical expression.	Can students explain their strategy and justify which factor, multiple or operation they select?
Mathematical Discussion	Analyse a correct and incorrect GEMA solution.	Identification of operation priority and clear mathematical justification.
Written Work	Review student book pages 27–29.	Accuracy when finding HCF and LCM and applying the order of operations to increasingly complex expressions.
Exit Ticket	Use the five-question check below at the end of the week.	Can students independently apply the week's key number concepts?
Checkpoint 3	Use the number properties checkpoint to assess understanding (student book pages 30–31).	Record class responses to identify skills to revisit, then use the Notes / Actions column to record any follow-up teaching needed.

Quick Quiz/Exit Ticket (5 Questions)

1. Find the HCF of 24 and 40.
2. Find the LCM of 6 and 8.
3. Explain why 18 is not the LCM of 6 and 9.
4. Evaluate $20 - 3 \times 4$.
5. Evaluate $(9 - 5)^2 + \sqrt{25}$. Show the order of your steps.

Teaching as Inquiry: Reflection Notes

Reflection Prompts

Did students understand HCF, LCM and order of operations?

Do students require further support, and with which concept?

Could students apply HCF, LCM and order-of-operations strategies without prompts or representations?

Can students explain and justify their mathematical reasoning?

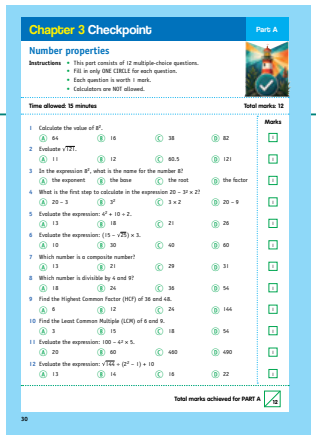
What misconceptions were evident about factors, multiples or operation order?

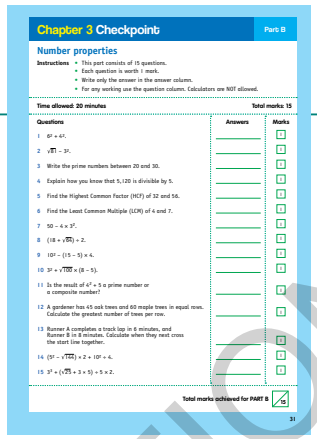
Does vocabulary need further reinforcement?

Notes / Next Steps

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 3
Chapter 3: Number properties


Chapter 3 Checkpoint Part A
Number properties
Instructions
• This part consists of 12 multiple-choice questions.
• Fill in only ONE CIRCLE for each question.
• Each question is worth 1 mark.
• Calculators are NOT allowed.
Time allowed: 15 minutes Total marks: 12
Marks
1 Calculate the value of 8^2.
A 64 B 16 C 38 D 82
2 Evaluate $\sqrt{121}$.
A 11 B 12 C 60.5 D 121
3 In the expression 8^2, what is the name for the number 8?
A the exponent B the base C the root D the factor
4 What is the first step to calculate in the expression $20 - 3^2 \times 2^7$
A $20 - 3$ B 3^2 C 3×2 D $20 - 9$
5 Evaluate the expression: $4^2 + 10 \div 2$.
A 13 B 18 C 21 D 26
6 Evaluate the expression: $(15 - \sqrt{25}) \times 3$.
A 10 B 30 C 40 D 60
7 Which number is a composite number?
A 13 B 21 C 29 D 31
8 Which number is divisible by 4 and 9?
A 18 B 24 C 36 D 54
9 Find the Highest Common Factor (HCF) of 36 and 48.
A 6 B 12 C 24 D 144
10 Find the Least Common Multiple (LCM) of 6 and 9.
A 3 B 15 C 18 D 54
11 Evaluate the expression: $100 - 4^2 \times 5$.
A 20 B 60 C 480 D 490
12 Evaluate the expression: $\sqrt{144} + (2^2 - 1) + 10$
A 13 B 14 C 16 D 22
Total marks achieved for PART A /12
30


Chapter 3 Checkpoint Part B
Number properties
Instructions
• This part consists of 15 questions.
• Each question is worth 1 mark.
• Write only the answer in the answer column.
• For any working use the question column. Calculators are NOT allowed.
Time allowed: 20 minutes Total marks: 15
Questions Answers Marks
1 $6^2 + 4^2$.
2 $\sqrt{81} - 3^2$.
3 Write the prime numbers between 20 and 30.
4 Explain how you know that 5,120 is divisible by 5.
5 Find the Highest Common Factor (HCF) of 32 and 56.
6 Find the Least Common Multiple (LCM) of 4 and 7.
7 $50 - 4 \times 3^2$.
8 $(18 + \sqrt{81}) \div 2$.
9 $101 - (15 - 5) \times 4$.
10 $3^2 + \sqrt{100} \times (8 - 5)$.
11 Is the result of $4^2 + 5$ a prime number or a composite number?
12 A gardener has 45 oak trees and 60 maple trees in equal rows. Calculate the greatest number of trees per row.
13 Runner A completes a track lap in 6 minutes, and Runner B in 8 minutes. Calculate when they next cross the start line together.
14 $(5^2 - \sqrt{144}) \times 2 + 10^2 \div 4$.
15 $3^2 + (\sqrt{25} + 3 \times 5) \div 5 \times 2$.
Total marks achieved for PART B /15
31

Purpose

This checkpoint assesses students' understanding of exponents, square numbers and square roots, prime and composite numbers, divisibility, highest common factors, least common multiples, and order of operations. It provides evidence of students' ability to apply number properties, evaluate expressions accurately and solve factor- and multiple-based problems.

Part A: 12 marks | Part B: 15 marks | Total: 27 marks

Assessment Overview

Part/Questions	Focus	Skills Assessed
A1–A3; B1–B2	Exponents, squares & square roots	Evaluates powers and square roots; identifies the base in exponent notation.
A7–A8; B3–B4, B11	Prime/composite & divisibility	Identifies prime/composite numbers and applies divisibility reasoning.
A9; B5, B12	Highest common factor	Finds HCF and applies it to equal-group problems.
A10; B6, B13	Least common multiple	Finds LCM and applies it to recurring-event problems.
A4–A6, A11–A12; B7–B10, B14–B15	Order of operations	Evaluates expressions involving grouping, exponents, roots and the four operations in the correct sequence.

Achievement Rubric

Score Range	Progress Descriptor	Interpretation	Suggested Follow-Up
24–27	**Exceeding**	Strong and consistent understanding across number properties. Accurately connects exponents, roots, divisibility, HCF/LCM and operation order in varied problems.	Extend with unfamiliar multi-step problems, proofs, strategy comparisons and creation of constrained expressions.
20–23	**Proficient**	Secure understanding of most assessed concepts, with only occasional errors in number properties or multi-step evaluation.	Reinforce isolated errors with targeted practice in the specific concept or operation sequence.
15–19	**Consolidating**	Sound understanding of several concepts, with some gaps in factors/multiples, roots, divisibility or order of operations.	Continue guided practice with explicit representations, worked examples and verbal justification.
8–14	**Developing**	Developing understanding of core number properties but requires support to select and apply strategies independently.	Revisit prerequisite multiplication facts, factors/multiples, square numbers and GEMA using scaffolded examples.
0–7	**Emerging**	Beginning to develop foundational understanding and requires substantial support to interpret and solve number-property tasks.	Provide explicit reteaching with multiplication arrays/charts, factor lists, square models and carefully sequenced one-step expressions.

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 3 Class Review

Year 7 Mathematics Chapter 3: Number properties

Class: **Date:**

After students complete and partner-mark the checkpoint, review each question as a class. Ask students to raise a hand for any question that they found challenging. Record the overall class response to identify skills to revisit. Use the **Notes / Actions** column to record any follow-up teaching needed.

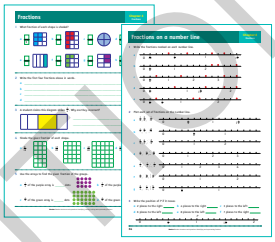
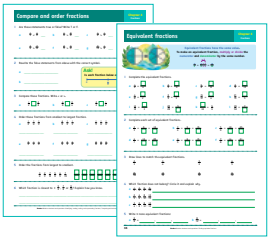
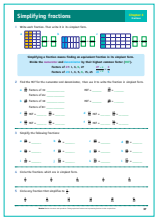
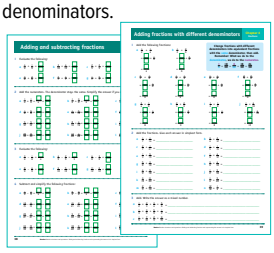
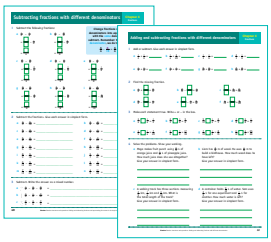
✓ **Secure** — few students need support
▲ **Review** — a group of students needs further practice
✕ **Reteach** — many students need further support

Class Check

Part	Task	Class Check	Notes / Actions
A1	Evaluate a square number.		
A2	Evaluate a square root.		
A3	Identify the base in exponent notation.		
A4	Identify the first step in an order-of-operations expression.		
A5	Evaluate an expression involving a square, division and addition.		
A6	Evaluate an expression involving grouping, a square root and multiplication.		
A7	Identify a composite number.		
A8	Identify a number divisible by two given divisors.		
A9	Find the highest common factor of two numbers.		
A10	Find the least common multiple of two numbers.		
A11	Evaluate an expression involving a square, multiplication and subtraction.		
A12	Evaluate an expression involving grouping, powers, division and addition.		
B1	Evaluate a sum of square numbers.		
B2	Evaluate an expression involving a square root and square.		
B3	Identify prime numbers within an interval.		
B4	Explain divisibility by 5.		
B5	Find the HCF of two numbers.		
B6	Find the LCM of two numbers.		
B7	Evaluate an expression involving a square, multiplication and subtraction.		
B8	Evaluate a grouped expression involving grouping, a square root and division.		
B9	Evaluate an expression involving grouping, a square, multiplication and subtraction.		
B10	Evaluate an expression applying the order of operations.		
B11	Determine whether the result of an expression is prime or composite.		
B12	Use HCF to solve an equal-group problem.		
B13	Use LCM to solve a recurring-event problem.		
B14	Evaluate a complex expression applying the order of operations.		
B15	Evaluate a complex expression applying the order of operations.		
	TOTAL:	/ 27	

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 5 Overview Number: Number structures and operations
Chapter 4: Fractions

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 Fractions	Identify, represent and locate fractions by relating the numerator and denominator to equal parts of a whole, set or number line.	✓ Identify the numerator and denominator and explain what each represents ✓ Write fractions shown by area and set models ✓ Locate and plot fractions on a number line ✓ Interpret fractions greater than one on a number line	– Identify fractions shown by shaded shapes – Represent fractions of shapes and groups – Discuss the importance of equal parts – Read and plot fractions on number lines – Locate fractions greater than one – Interpret movement along fractional number lines – **Mathletics Online Practice Activities (Courses): Fractions: Fraction Wall Labelling 1, Arranging Fractions**	**Pages 33–34:** Represent fractions with models and number lines. 
2 Compare fractions	Compare, order and generate equivalent fractions using fraction size, benchmarks and multiplicative relationships.	✓ Compare fractions using <, > and = accurately ✓ Use benchmarks such as $\frac{1}{2}$ and 1 to reason about fraction size ✓ Order sets of fractions ✓ Generate equivalent fractions by multiplying or dividing numerator and denominator by the same number ✓ Explain why equivalent fractions have the same value	– Compare fractions using benchmarks such as $\frac{1}{2}$ – Order sets of fractions – Explain relative fraction size – Explore equivalent fraction representations – Generate equivalents by multiplying or dividing – Match and justify equivalent fractions – **Skill Quest: Compare & order FDP: Comparing & ordering fractions & mixed numbers**	**Pages 35–36:** Compare, order and find equivalent fractions. 
3 Simplifying fractions	Simplify fractions by identifying common factors and dividing the numerator and denominator by their highest common factor.	✓ Identify common factors of a numerator and denominator ✓ Find the HCF of two numbers ✓ Simplify a fraction by dividing numerator and denominator by the same factor ✓ Explain why simplifying does not change the value of a fraction	– Connect simplifying to equivalent fractions – Find factors of numerators and denominators – Identify the highest common factor – Divide numerator and denominator by the HCF – Simplify a range of fractions – Identify fractions in simplest form – **Skill Quest: Equivalent fractions; Activities (Courses): Fractions: Simplify Fractions**	**Page 37:** Simplify fractions using common factors and HCF. 
4 Add and subtract fractions	Add and subtract fractions by using common denominators and represent answers in simplest form.	✓ Add and subtract fractions with the same denominator ✓ Explain why the denominator remains unchanged when equal-sized parts are combined or removed ✓ Find equivalent fractions with a common denominator ✓ Add fractions with different denominators ✓ Simplify answers and convert improper fractions to mixed numbers	– Add fractions with common denominators – Simplify fraction sums – Find common denominators – Convert to equivalent fractions – Add fractions with different denominators – Express answers in simplest form or as mixed numbers – **Activities (Courses): Fractions: Common Denominator**	**Pages 38–39:** Add and subtract fractions using common denominators. 
5 Add and subtract more fractions	Add and subtract fractions with different denominators and apply equivalent-fraction strategies to equations and contextual problems.	✓ Find efficient common denominators ✓ Add and subtract unlike fractions accurately ✓ Represent final answers in simplest form ✓ Find missing fractions in addition and subtraction equations ✓ Solve contextual fraction problems and justify the operation used	– Find common denominators for subtraction – Subtract and simplify fractions – Express improper answers as mixed numbers – Add and subtract fractions with different denominators – Find missing fractions and operations – Solve contextual fraction problems – **Activities (Courses): Fractions: No Common Denominator; Challenge: Fractions: Fractional differences**	**Pages 40–41:** Add and subtract unlike fractions in equations and problems. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 4: Fractions

Focus: Assess students' ability to represent, compare, order and simplify fractions and to add and subtract fractions using equivalent fractions and common denominators.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Fraction representation	Identify and represent fractions as parts of shapes, groups and positions on a number line.	Reads, writes, shades and plots fractions, recognising that fractional parts must be equal.
Comparison and equivalence	Compare and order fractions by considering their relative size and using benchmarks.	Uses < and >, orders fractions and explains comparisons using benchmarks such as $\frac{1}{2}$.
Simplest form	Simplify fractions using common factors and the HCF.	Divides numerator and denominator by common factors and checks no common factor greater than 1 remains.
Fraction operations	Adds and subtracts fractions with like and unlike denominators and simplifies results.	Creates valid equivalent fractions, operates on numerators with a common denominator and simplifies accurately.
Problem solving	Apply fraction addition and subtraction to equations and contexts.	Selects the correct operation, shows coherent working and interprets the result with appropriate units.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Observe fraction models, number-line placement and common-denominator work during guided discussion.	Are students using numerator, denominator, equivalence and relative size accurately in their explanations?
Oral Check	Ask students to justify comparisons, equivalence and simplification choices.	Can students explain fraction relationships and justify the steps used?
Mathematical Discussion	Compare strategies for ordering fractions or choosing common denominators.	Can students demonstrate equivalent fractions and model addition or subtraction accurately?
Written Work	Review student book pages 33–41.	Accuracy across representation, equivalence, simplification and operations.
Exit Ticket	Use the five-question check below at the end of the week.	Can students independently apply the key fraction concepts and simplify their answers?

Quick Quiz/Exit Ticket (5 Questions)

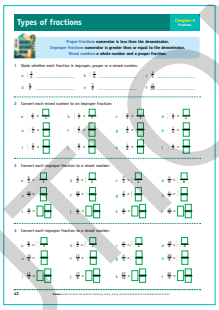
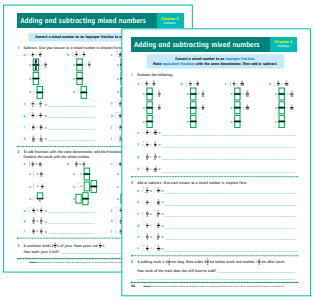
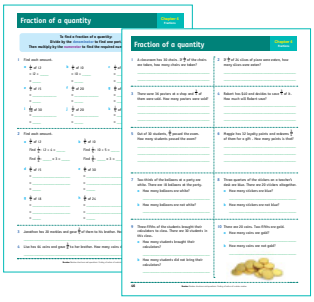
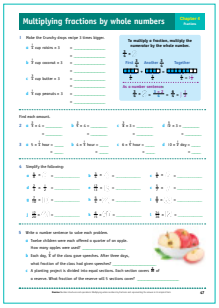
1. A shape is divided into 8 equal parts and 3 are shaded. Write the fraction and explain what the denominator represents.
2. Order $\frac{1}{2}$, $\frac{3}{4}$ and $\frac{2}{5}$ from smallest to largest.
3. Write one fraction equivalent to $\frac{5}{6}$ and explain how you generated it.
4. Simplify $\frac{18}{24}$ to simplest form.
5. Calculate $\frac{2}{3} + \frac{1}{4}$ and give the answer in simplest form.

Teaching as Inquiry: Reflection Notes

Reflection Prompts	Notes / Next Steps
Did students understand fraction representations and operations?	
Do students require further support with equal parts, number lines or fraction size?	
Could students apply equivalent-fraction and common-denominator strategies?	
Can students explain and justify fraction reasoning?	
What misconceptions were apparent about denominators, equivalence or operations?	
Does vocabulary need further reinforcement?	

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 6 Overview Number: Number structures and operations
Chapter 4: Fraction operations

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Types of fractions**	Identify fraction types and convert between mixed numbers and improper fractions.	✓ Classify proper, improper and mixed forms ✓ Explain quantities greater than one whole ✓ Convert mixed numbers to improper fraction ✓ Convert improper fractions to mixed numbers ✓ Check equivalent representations	– Classify proper and improper fractions and mixed numbers – Compare numerators and denominators – Convert mixed numbers to improper fractions – Convert improper fractions to mixed numbers – **Mathletics Online Practice Activities (Courses): Fractions: Improper to Mixed**	**Page 42:** Convert between improper fractions and mixed numbers. 
2 **Add and subtract mixed numbers**	Add and subtract mixed numbers using equivalent fractions and simplest form.	✓ Convert mixed numbers when useful ✓ Create common denominators ✓ Add mixed numbers accurately ✓ Subtract mixed numbers accurately ✓ Simplify and justify answers	– Convert mixed numbers to improper fractions – Find common denominators – Add and subtract mixed numbers – Simplify and interpret answers in context – **Skill Quests: Add & subtract fractions: Adding fractions & mixed numbers; Subtracting fractions & mixed fractions**	**Pages 43–44:** Add and subtract mixed numbers using improper and equivalent fractions. 
3 **Fraction of a quantity**	Find a fraction of a whole-number quantity using equal grouping and scaling.	✓ Identify the whole and required fraction ✓ Divide by the denominator ✓ Multiply by the numerator ✓ Solve contextual fraction problems ✓ Check whether answers are reasonable	– Find fractions by division and multiplication – Connect numerator and denominator to the calculation – Calculate fractions of larger quantities – Solve contextual fraction problems – Find complementary quantities – **Activities (Courses): Fractions: Fraction of an Amount; Skill Quest: Fraction of a whole number**	**Pages 45–46:** Find fractions of whole-number quantities and apply to real world problems. 
4 **Multiply fractions by wholes**	Multiply fractions by whole numbers and express products in simplest form.	✓ Represent repeated fraction groups ✓ Multiply the numerator correctly ✓ Keep the denominator unchanged ✓ Simplify or convert products ✓ Explain fraction-by-whole multiplication	– Model multiplication as repeated fractional amounts – Multiply numerators by whole numbers – Simplify fraction products – Convert improper fractions to mixed numbers – Apply multiplication to time and measurement – **Activities (Courses): Fractions: Multiply: Whole Number and Fraction; Skill Quest: Multiplying whole numbers & fractions**	**Page 47:** Multiply fractions, simplify products and apply to real world problems. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 4: Fraction operations

Focus: Assess students' understanding of fraction forms and equivalence, operations with mixed numbers, finding fractions of quantities, and multiplying fractions by whole numbers.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Types of fractions	Identify proper fractions, improper fractions and mixed numbers and convert between forms.	Classifies fractions and accurately converts between improper fractions and mixed numbers.
Mixed-number operations	Add and subtract mixed numbers using improper and equivalent fractions where required.	Converts fraction forms appropriately, finds common denominators and expresses answers as mixed numbers in simplest form.
Fraction of a quantity	Find unit and non-unit fractions of whole-number quantities.	Divides by the denominator, multiplies by the numerator and applies the process accurately to contextual problems.
Fraction × whole number	Multiply fractions by whole numbers and simplify the resulting fraction.	Multiplies the numerator by the whole number, keeps the denominator, and simplifies or converts appropriately.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Listen to students explain their strategies while converting, calculating with and applying fractions.	Are students selecting appropriate fraction strategies and explaining each step accurately?
Oral Check	Ask students to explain how to convert between an improper fraction and a mixed number or find a fraction of a quantity.	Can students explain the relationship between the numerator, denominator and whole number?
Mathematical Discussion	Compare two strategies for adding or subtracting mixed numbers.	Can students connect concrete representations to the corresponding fraction calculations?
Written Work	Review student book pages 42–47.	Accuracy when converting fractions, calculating with mixed numbers, finding fractions of quantities and multiplying fractions.
Exit Ticket	Use the five-question quick quiz below.	Can students independently select and apply the appropriate fraction strategy?

Quick Quiz/Exit Ticket (5 Questions)

1. Convert $3\frac{2}{5}$ to an improper fraction.
2. Convert $\frac{17}{4}$ to a mixed number.
3. Calculate $2\frac{1}{3} + 1\frac{1}{6}$ and give the answer in simplest form.
4. Find $\frac{3}{5}$ of 25. Explain the role of the denominator.
5. Calculate $4 \times \frac{3}{8}$ and simplify. Explain why the denominator is not multiplied by 4.

Teaching as Inquiry: Reflection Notes

Reflection Prompts

Did students understand how to distinguish and convert fraction forms?

Do students require further support with equivalent fractions or common denominators?

Could students apply mixed-number operations?

Can students explain and justify fraction reasoning using mathematical vocabulary?

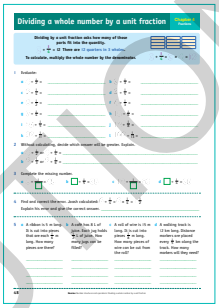
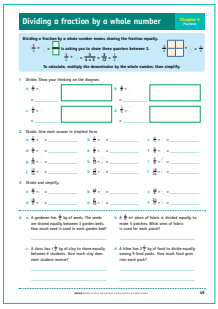
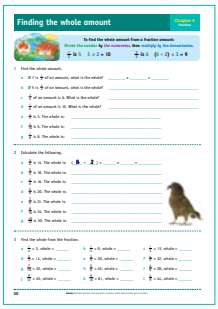
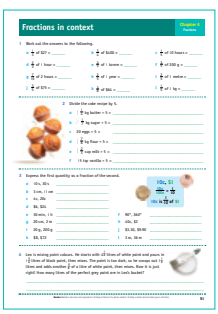
What misconceptions were evident about numerators, denominators or simplification?

Which representations (fraction bars, number lines, equal groups) need reinforcement?

Notes / Next Steps

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 7 Overview Number: Number structures and operations
Chapter 4: Fraction reasoning

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Dividing a whole by a unit fraction**	Divide whole numbers by unit fractions and explain the multiplicative relationship.	✓ Interpret division by a unit fraction ✓ Divide whole numbers by unit fractions ✓ Connect division to multiplication by the denominator ✓ Find missing values in division equations ✓ Apply division by unit fractions to problems	– Connect division by a unit fraction to multiplication – Calculate whole number ÷ unit fraction – Compare division expressions – Find and correct errors in reasoning – Solve real-world division problems – **Mathletics Online Practice Activities (Courses): Fractions: Divide by a Unit Fraction**	**Page 48:** Divide integers by unit fractions and apply the strategy to word problems. 
2 **Dividing a fraction by a whole**	Divide fractions by whole numbers using equal-sharing representations and simplest form.	✓ Represent fraction division visually ✓ Divide fractions by whole numbers ✓ Connect division to changes in the denominator ✓ Simplify fraction answers ✓ Apply fraction division to problems	– Share fractional quantities equally – Divide fractions by whole numbers – Simplify resulting fractions – Divide improper fractions and mixed quantities – Apply division to measurement contexts – **Skill Quest: Dividing fractions by whole numbers**	**Page 49:** Divide fractions by whole numbers and apply fraction division. 
3 **Finding the whole amount**	Find a whole amount when given a fractional part.	✓ Identify the known fractional amount ✓ Find the value of one fractional part ✓ Scale from a fractional part to the whole ✓ Use division and multiplication appropriately ✓ Find whole quantities accurately	– Connect fractional parts to whole quantities – Divide by the numerator to find one part – Multiply by the denominator to find the whole – Calculate whole amounts from unit and non-unit fractions – **Skill Quest: Finding the whole given a fraction**	**Page 50:** Find a whole quantity when a unit or non-unit fractional amount is known. 
4 **Fractions in context**	Apply fraction strategies to quantities, measures and proportional contexts.	✓ Find fractions of quantities ✓ Divide fractional quantities accurately ✓ Express one quantity as a fraction of another ✓ Work with fractions in measurement contexts ✓ Solve multi-step fraction problems	– Find fractions of money, time, mass and length – Divide quantities and mixed numbers – Express one quantity as a fraction of another – Apply strategies to practical contexts – Solve multi-step fraction problems	**Page 51:** Apply fraction strategies to problems involving money, time, measurement, quantities and proportions. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 4: Fraction reasoning

Focus: Assess students' understanding of dividing whole numbers by unit fractions, dividing fractions by whole numbers, finding a whole amount from a fractional part, and applying fraction reasoning in context.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Whole number ÷ unit fraction	Divide a whole number by a unit fraction by determining how many fractional parts fit into the whole.	Connects division by a unit fraction to multiplication by the denominator and explains the relationship.
Fraction ÷ whole number	Divide a fraction by a whole number and express the result in simplest form.	Uses a diagram or equivalent reasoning, calculates accurately, and simplifies appropriately.
Finding the whole	Determine a whole quantity when a unit or non-unit fractional amount is known.	Divides by the numerator, multiplies by the denominator and checks the original fractional amount.
Fractions in context	Apply appropriate fraction strategies to practical problems involving quantities and measures.	Selects appropriate operations and accurately works with money, time, mass, length and other quantities.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Listen to students explain their strategies when dividing fractions and finding whole quantities.	Are students interpreting the fraction operation correctly and explaining each step clearly?
Oral Check	Ask students to explain why whole ÷ unit fraction produces a larger count.	Can students connect the calculation to the number of fractional parts contained in the whole?
Mathematical Discussion	Compare finding a fraction of a whole with finding the whole from a fractional amount.	Can students distinguish forward and inverse fraction reasoning?
Written Work	Review student book pages 48–51.	Accuracy when dividing with fractions, finding whole amounts and applying fractions to contextual problems.
Exit Ticket	Use the five-question quick quiz below.	Can students independently identify and apply the appropriate fraction strategy?
Checkpoint 4	Use the fractions checkpoint to assess understanding (student book pages 52–53).	Record class responses to identify skills to revisit, then use the Notes / Actions column to record any follow-up teaching needed.

Quick Quiz/Exit Ticket (5 Questions)

1. Calculate $6 \div \frac{1}{3}$. Explain what the answer represents.
2. Calculate $\frac{3}{4} \div 3$ and give the answer in simplest form.
3. If $\frac{2}{5}$ of an amount is 14, find the whole.
4. Express 40 cm of 4 m as a fraction and give the answer in simplest form.
5. Find $\frac{4}{5}$ of 1 metre. Write the answer in centimetres.

Teaching as Inquiry: Reflection Notes

Reflection Prompts

Did students understand whole-number division by a unit fraction?

Do students require further support with fraction ÷ whole-number sharing?

Could students distinguish finding a fraction of a quantity from finding the whole?

Can students explain how to use and convert units accurately in context?

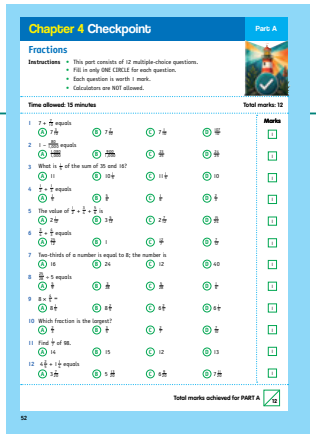
What misconceptions were apparent about numerator, denominator or operation choice?

Which representations (bars, equal groups, equations) need reinforcement?

Notes / Next Steps

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 4
Chapter 4: Fractions


Chapter 4 Checkpoint

Part A

Fractions

Instructions
- This part consists of 12 multiple-choice questions.
- Fill in only ONE CIRCLE for each question.
- Each question is worth 1 mark.
- Calculators are NOT allowed.

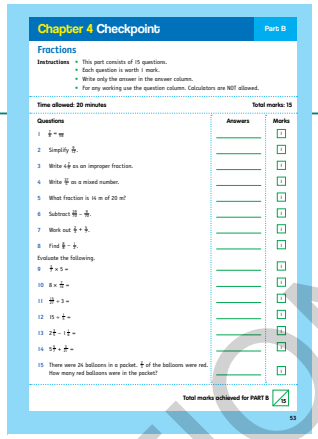
Time allowed: 15 minutes

Total marks: 12

Marks

Total marks achieved for PART A

52


Chapter 4 Checkpoint

Part B

Fractions

Instructions
- This part consists of 15 questions.
- Each question is worth 1 mark.
- Write only the answer in the answer column.
- For any working use the question column. Calculators are NOT allowed.

Time allowed: 20 minutes

Total marks: 15

Questions

Answers

Marks

Total marks achieved for PART B

53

Purpose

This checkpoint assesses students' understanding of representing, comparing and simplifying fractions; converting between mixed numbers and improper fractions; performing operations with fractions and mixed numbers; and solving problems involving fractions of quantities and whole amounts.

Part A: 12 marks | Part B: 15 marks | Total: 27 marks

Assessment Overview

Part/Questions	Focus	Skills Assessed
A1–A2, A4–A6, A12; B6–B8, B13–B14	Fraction addition and subtraction	Uses equivalent fractions and accurate operations; records simplified fractions or mixed numbers.
B1–B4	Fraction equivalence and forms	Recognises equivalent forms and converts accurately between fraction representations.
A3, A7, A11; B5, B15	Fractions of quantities and finding the whole	Uses division and multiplication relationships to connect a fractional part with the whole.
A8–A9; B9–B12	Multiplication and division with fractions	Interprets multiplication and division involving fractions and simplifies results appropriately.
A10	Comparing fractions	Uses size, equivalence or benchmark reasoning to compare fractions.
A3, B15	Fraction reasoning in context	Selects the relevant operation and communicates a mathematically sensible result.

Achievement Rubric

Score Range	Progress Descriptor	Interpretation	Suggested Follow-Up
24–27	**Exceeding**	Strong and consistent understanding across fraction representations and operations. Accurately applies strategies in unfamiliar or multi-step items and simplifies results appropriately.	Extend through multi-step fraction problems, justification of efficient strategies, and problems requiring generalisation or multiple representations.
20–23	**Proficient**	Secure understanding of most assessed fraction concepts with only occasional errors. Independently applies appropriate procedures to familiar problems.	Reinforce any isolated gaps in unlike-denominator operations, mixed-number conversion, fraction division, or finding the whole.
15–19	**Consolidating**	Sound understanding of several concepts, with some inconsistency in equivalence, mixed numbers, fraction operations or contextual application.	Provide guided practice using visual models, equivalent fractions, common denominators and explicit links between operations.
8–14	**Developing**	Developing understanding of fraction size and operations, but requires support to select and carry out strategies consistently.	Focus on concrete and visual fraction models, equivalence, conversion between forms, and one operation at a time before combining steps.
0–7	**Emerging**	Beginning to develop foundational understanding of fractions and needs substantial support with representations, equivalence and operations.	Revisit unit fractions, equal parts, number-line and area models, simple equivalence, and fraction-of-a-quantity tasks with small numbers.

SAMPLE COPY NOT FOR DISTRIBUTION

CHECKPOINT 4 Class Review

Year 7 Mathematics Chapter 4: Fractions

Class: **Date:**

After students complete and partner-mark the checkpoint, review each question as a class. Ask students to raise a hand for any question that they found challenging. Record the overall class response to identify skills to revisit. Use the **Notes / Actions** column to record any follow-up teaching needed.

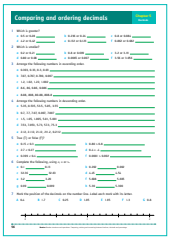
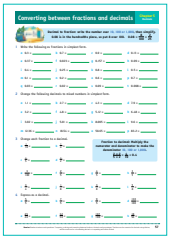
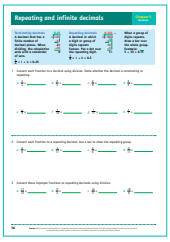
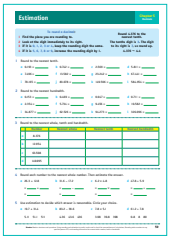
✓ **Secure** — few students need support
▲ **Review** — a group of students needs further practice
✕ **Reteach** — many students need further support

Class Check

Part	Task	Class Check	Notes / Actions
A1	Add fractions with the same denominator and express the result as a mixed number.		
A2	Subtract a fraction from 1.		
A3	Find a fraction of a sum.		
A4	Add fractions with different denominators.		
A5	Add several fractions by finding a common denominator and express the result as a mixed number.		
A6	Add fractions with different denominators.		
A7	Find a whole number when a fraction of it is known.		
A8	Divide a fraction by a whole number and express the result in simplest form.		
A9	Multiply a whole number by a fraction.		
A10	Compare fractions and identify the greatest fraction.		
A11	Find a fraction of a whole-number quantity.		
A12	Add mixed numbers with different denominators.		
B1	Find the equivalent fraction based on the denominator.		
B2	Simplify a fraction.		
B3	Convert a mixed number to an improper fraction.		
B4	Convert an improper fraction to a mixed number.		
B5	Find a fraction of a measurement quantity and simplify.		
B6	Subtract fractions with a common denominator and simplify.		
B7	Add fractions with different denominators.		
B8	Subtract fractions by finding a common denominator.		
B9	Multiply a fraction by a whole number.		
B10	Multiply a whole number by a fraction.		
B11	Divide a fraction by a whole number and simplify.		
B12	Divide a whole number by a unit fraction.		
B13	Subtract mixed numbers with different denominators.		
B14	Add mixed numbers with different denominators and simplify.		
B15	Find the whole amount when a fraction of the whole is known.		
	TOTAL:	/ 27	

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 8 Overview Number: Number structures and operations
Chapter 5: Decimals

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Decimal place value**	Read, write and represent decimals using place value and expanded form.	✓ Identify tenths, hundredths and thousandths ✓ Write decimals in expanded form ✓ Convert between words and decimal notation ✓ Identify the value of digits in decimals ✓ Extend decimal number patterns	– Review decimal place value to thousandths – Build decimals from place-value parts – Write decimals in standard and expanded form – Connect decimal words to notation – Extend decimal sequences – Explain the value of individual digits – **Mathletics Online Practice** **Skill Quest: Represent decimals: Decimal place value**	**Page 55:** Read, write and represent decimals using place value, expanded form and number patterns. 
2 **Comparing and ordering decimals**	Compare, order and locate decimals using place-value reasoning.	✓ Compare decimal values accurately ✓ Identify greater and smaller decimals ✓ Order decimals in ascending order ✓ Order decimals in descending order ✓ Locate decimals on a number line	– Compare decimals using place value – Identify greater and smaller values – Order sets of decimal numbers – Use <, = and > correctly – Recognise equivalent decimal representations – Position decimals on a number line – **Skill Quest: Compare & order FDP: Comparing & ordering terminating decimals; Activities (Courses): Decimals: Decimals on a Number Line**	**Page 56:** Compare and order decimal numbers and locate decimal values accurately on a number line. 
3 **Convert between fractions and decimals**	Convert between equivalent fraction and decimal representations.	✓ Convert decimals to fractions ✓ Simplify fractions converted from decimals ✓ Convert decimals greater than one to mixed numbers ✓ Convert fractions to decimals ✓ Use equivalent fractions with denominators of 10, 100 or 1,000	– Connect decimal place value to fractional notation – Convert tenths, hundredths and thousandths to fractions – Simplify resulting fractions – Convert decimals to mixed numbers – Generate equivalent fractions with powers-of-ten denominators – Express fractions as decimals – **Activities (Courses): Decimals: Fractions to Terminating Decimal**	**Page 57:** Convert between fractions, mixed numbers and decimals. 
4 **Repeating and infinite decimals**	Use division to convert fractions and classify decimal results.	✓ Convert fractions to decimals using division ✓ Identify terminating decimals ✓ Identify repeating decimals ✓ Recognise repeating digit patterns ✓ Use notation to show repeating groups	– Review terminating and repeating decimals – Convert fractions using division – Identify whether decimal representations terminate or repeat – Examine repeating digit patterns – Represent repeating groups using appropriate notation – Convert improper fractions to repeating decimals – **Skill Quest: Represent decimals: Repeating decimals; Compare & order FDP: Ordering terminating & repeating decimals**	**Page 58:** Convert fractions to decimals. 
5 **Estimation**	Round decimals and use estimates to predict and check results.	✓ Round decimals to the nearest whole number ✓ Round to the nearest tenth ✓ Round to the nearest hundredth ✓ Estimate calculations using rounded values ✓ Judge whether an answer is reasonable	– Review decimal rounding rules – Round decimals to different place values – Compare rounding to whole numbers, tenths and hundredths – Estimate addition and subtraction calculations – Estimate multiplication and division calculations – Use estimation to check reasonableness – **Skill Quest: Round whole numbers & decimals: Rounding decimals**	**Page 59:** Round decimals and use estimation to check the reasonableness of calculations. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 5: Decimals

Focus: Assess students' understanding of decimal place value, comparing and ordering decimals, converting between fractions and decimals, distinguishing terminating and repeating decimals, and using rounding and estimation.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Decimal place value	Read, write and represent decimals using place value to thousandths.	Identifies the value of digits, writes decimals in standard and expanded form, and extends decimal patterns accurately.
Comparing and ordering decimals	Compare and order decimals using place value and position them on a number line.	Uses <, = and >, orders decimal values and locates decimals accurately on a number line.
Fractions and decimals	Convert between fractions, mixed numbers and decimals using equivalent representations.	Converts accurately between forms and simplifies fractions where required.
Terminating and repeating decimals	Recognise and represent terminating and repeating decimal values.	Uses division to convert fractions to decimals and correctly identifies whether a decimal terminates or repeats.
Rounding and estimation	Round decimals to specified place values and use estimation to check calculations.	Rounds accurately to whole numbers, tenths and hundredths and uses estimates to judge whether answers are reasonable.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Listen to students explain decimal place value, comparisons and conversions during lesson activities.	Are students using place value accurately and explaining the relationships between decimals and fractions?
Oral Check	Ask students to compare close decimals and explain a fraction-decimal conversion.	Can students justify their reasoning using place value and fraction-decimal relationships?
Mathematical Discussion	Compare terminating and repeating decimal examples generated by division.	Can students connect remainder patterns to the decimal classification?
Written Work	Review student book pages 55–59.	Accuracy when representing, comparing, converting and rounding decimals and identifying terminating and repeating decimals.
Exit Ticket	Use the five-question quick quiz below.	Can students independently select and apply the appropriate decimal strategy?

Quick Quiz/Exit Ticket (5 Questions)

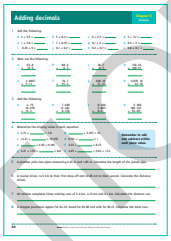
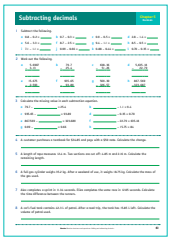
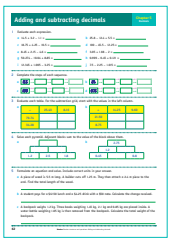
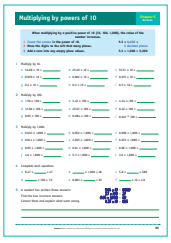
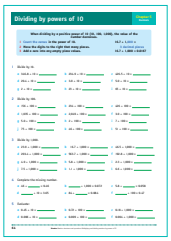
1. Write 4.307 in expanded form.
2. Write <, > or =: 0.42 ___ 0.402.
3. Convert $\frac{3}{5}$ to a decimal.
4. Is $\frac{2}{3}$ terminating or repeating? Explain briefly.
5. Round 18.476 to the nearest tenth, then use it to give a sensible estimate where appropriate.

Teaching as Inquiry: Reflection Notes

Reflection Prompts	Notes / Next Steps
Did students understand decimal place value?	
Do students require further support with comparing and ordering close decimal values?	
Could students convert between fractions and decimals?	
Can students explain the difference between terminating and repeating decimals?	
What misconceptions were evident about rounding or estimation?	
Does vocabulary need further reinforcement?	

SAMPLE COPY NOT FOR DISTRIBUTION

Term 1 Week 9 Overview Number: Number structures and operations
Chapter 5: Decimal operations

Lesson & Topic	Learning Intention	Success Criteria	Main Activities	Student Book Practice
1 **Adding decimals**	Add decimals accurately using place-value reasoning.	✓ Add decimals mentally where appropriate ✓ Align decimal place values correctly ✓ Add decimals with different numbers of decimal places ✓ Find missing values in addition equations ✓ Apply decimal addition to problems	– Add decimals using mental strategies – Align place values for written addition – Add two or more decimal numbers – Find missing values in equations – Solve decimal addition problems in context – **Mathletics Online Practice Activities (Courses): Decimals: Adding Decimals**	**Page 60:** Add decimal numbers accurately, find missing values and apply decimal addition. 
2 **Subtracting decimals**	Subtract decimals accurately and check differences.	✓ Subtract decimals mentally where appropriate ✓ Align decimal place values correctly ✓ Subtract decimals with different numbers of decimal places ✓ Find missing values in subtraction equations ✓ Apply decimal subtraction to problems	– Subtract decimals mentally – Use written strategies for decimal subtraction – Find missing values in equations – Calculate differences between decimal quantities – Solve subtraction problems involving money and measurement – **Activities (Courses): Decimals: Subtracting Decimals**	**Page 61:** Subtract decimals, determine missing values and apply subtraction to money and measurement. 
3 **Adding and subtracting decimals**	Apply decimal addition and subtraction in multi-step situations.	✓ Select addition or subtraction appropriately ✓ Evaluate multi-step decimal expressions ✓ Complete decimal number sequences ✓ Solve decimal tables and pyramids ✓ Formulate and solve equations from contexts	– Complete sequences involving decimal operations – Apply addition and subtraction in tables – Solve decimal number pyramids – Solve multi-step money and measurement problems – **Skill Quests: Adding decimals; Subtracting decimals**	**Page 62:** Apply decimal addition and subtraction to multi-step calculations. 
4 **Multiplying by powers of 10**	Multiply decimals by powers of 10 using place value.	✓ Multiply decimals by 10 ✓ Multiply decimals by 100 ✓ Multiply decimals by 1,000 ✓ Find missing powers of 10 ✓ Identify and correct calculation errors	– Multiply decimals by 10, 100 and 1,000 – Track digit movement across place values – Use zeros as placeholders where required – Complete missing-value equations – Analyse and correct multiplication errors – **Skill Quest: Multiplying decimals by powers of 10**	**Page 63:** Multiply decimal numbers by 10, 100 and 1,000. 
5 **Dividing by powers of 10**	Divide numbers by powers of 10 using place value.	✓ Divide numbers by 10 ✓ Divide numbers by 100 ✓ Divide numbers by 1,000 ✓ Find missing divisors in equations ✓ Apply place value accurately when dividing	– Divide by 10, 100 and 1,000 – Track digit movement across place values – Use zeros as placeholders where required – Complete missing-value equations – Apply division to whole numbers and decimals – **Skill Quest: Dividing decimals by powers of 10**	**Page 64:** Divide whole and decimal numbers by 10, 100 and 1,000. 

SAMPLE COPY NOT FOR DISTRIBUTION

Chapter 5: Decimal operations

Focus: Assess students' ability to add and subtract decimals, apply decimal operations in multi-step situations, and multiply and divide by powers of 10 using place-value reasoning.

Key Understandings to Assess

Area	Expected Understanding	Evidence to Look For
Adding decimals	Add decimal numbers by aligning corresponding place values.	Aligns decimal places correctly, calculates accurately and finds missing values in addition equations.
Subtracting decimals	Subtract decimal numbers using place-value understanding.	Uses accurate written and mental strategies and applies subtraction to money and measurement contexts.
Decimal problem solving	Select and apply addition and subtraction to multi-step decimal calculations and problems.	Chooses appropriate operations, forms equations and solves contextual problems accurately.
Multiplying by powers of 10	Understand how multiplying by 10, 100 and 1,000 changes the value of each digit.	Applies place-value shifts, completes missing-value equations and identifies errors.
Dividing by powers of 10	Understand how dividing by 10, 100 and 1,000 changes the value of each digit.	Applies place-value shifts and uses zeros as placeholders where required.

Assessment Opportunities

Type	Suggested Activity	What to Observe
Observation (Formative)	Listen to students explain their strategies while adding, subtracting, multiplying and dividing decimals.	Are students using place value accurately and selecting efficient calculation strategies?
Oral Check	Ask students to explain why place values must align when adding or subtracting and what happens to digit values when multiplying or dividing by powers of 10.	Can students explain the effect of each operation using place-value language?
Mathematical Discussion	Analyse a correct and incorrect power-of-10 example.	Are students able to identify misconceptions and explain corrections using place value?
Written Work	Review student book pages 60–64.	Accuracy when adding and subtracting decimals, solving problems and multiplying and dividing by powers of 10.
Exit Ticket	Use the five-question quick quiz below.	Can students independently select and apply the correct decimal strategy?

Quick Quiz/Exit Ticket (5 Questions)

1. Calculate 18.45 + 7.3.
2. Calculate 42.6 − 15.75.
3. A runner travels 5.2 km, 4.75 km and 6.1 km. Find the total distance.
4. Calculate 0.63 × 100 and explain the place-value change.
5. Calculate 46 ÷ 100 and check your answer using multiplication.

Teaching as Inquiry: Reflection Notes

Reflection Prompts	Notes / Next Steps
Did students understand decimal addition and subtraction?	
Do students require further support with aligning place values or regrouping?	
Could students select and apply decimal operations?	
Can students explain multiplication and division by powers of 10 using place value?	
What misconceptions appeared in missing-value or power-of-10 calculations?	
Does vocabulary need further reinforcement?	

SAMPLE COPY NOT FOR DISTRIBUTION