

Weekly Lesson Plan – Rational Numbers Unit

Grade: 7

Strand: Number

Duration: 2 Week (5 Lessons, 50–60 minutes each)

Big Idea: Rational numbers include positive and negative fractions and decimals. They can be represented, compared, and used to solve problems involving direction, temperature, and other real-world contexts.

Curriculum Expectations

Overall Expectations

- Demonstrate an understanding of rational numbers and their properties.
- Represent, compare, and order rational numbers in various forms.
- Apply operations with rational numbers in real-life contexts.

Specific Expectations

1. Represent positive and negative rational numbers on a number line.
2. Compare and order rational numbers in fractional and decimal forms.
3. Add and subtract rational numbers in real-world situations.
4. Explain how opposite numbers combine to make zero.
5. Solve problems involving rational numbers, including temperatures, gains/losses, and elevations.

Weekly Overview

Day 1, 2 – Introduction to Rational Numbers

Learning Goal: I can identify and represent positive and negative rational numbers.

Success Criteria:

- I can define rational numbers.
- I can locate positive and negative numbers on a number line.

Day 3,4 – Comparing and Ordering Rational Numbers

Learning Goal: I can compare and order rational numbers in fraction and decimal form.

Success Criteria:

- I can order fractions and decimals.
- I can explain my reasoning using benchmarks (0, $\frac{1}{2}$, -1, etc.).

Day 5,6 – Adding and Subtracting Rational Numbers

Learning Goal: I can add and subtract positive and negative rational numbers.

Success Criteria:

- I can use models to show addition and subtraction of rational numbers.
- I can explain patterns when adding and subtracting negatives.

Day 7, 8 – Real-Life Applications of Rational Numbers

Learning Goal: I can apply rational numbers to real-life contexts such as temperature, elevation, and finances.

Success Criteria:

- I can use rational numbers to represent and solve real-world problems.
- I can justify my solutions.

Day 9, 10 – Problem Solving and Assessment

Learning Goal: I can demonstrate my understanding of rational numbers through problem solving.

Success Criteria:

- I can apply all operations with rational numbers in context.
- I can communicate my reasoning clearly.

Lesson Details

Day 1, 2 – Introduction to Rational Numbers

Materials: Number lines, cards with positive/negative numbers, interactive whiteboard.

Minds On: Discuss examples of real-life integers (temperature, bank accounts, elevation).

Action: Define rational numbers (integers, fractions, and decimals that can be expressed as a ratio). Represent rational numbers on a number line. Identify opposites and explain what zero represents.

Consolidation: Quick quiz on identifying and plotting rational numbers.

Assessment: Observation and oral questioning.

Differentiation: Provide visuals; allow manipulatives like two-colour counters for conceptual understanding.

Day 3,4 – Comparing and Ordering Rational Numbers

Materials: Fraction tiles, decimal/fraction charts, number line strips.

Minds On: Review Day 1 with a number line activity (temperature comparisons).

Action: Demonstrate comparing positive and negative fractions and decimals. Students order sets of rational numbers and justify reasoning.

Consolidation: Exit ticket – order a set of mixed rational numbers.

Assessment: Exit ticket, class participation.

Differentiation: Use benchmark numbers for support; provide challenge tasks with improper fractions.

Day 5, 6 – Adding and Subtracting Rational Numbers

Materials: Two-colour counters, integer chips, whiteboards.

Minds On: Discuss real-life gains and losses (money, sports scores).

Action: Model adding and subtracting positive/negative rational numbers. Connect models to symbolic algorithms.

Consolidation: Partner challenge: “Temperature changes through a week.”

Assessment: Teacher observation, journal reflections.

Differentiation: Scaffolded examples; provide visual aids for conceptual learners.

Day 7,8 – Applying Rational Numbers to Real-Life Contexts

Materials: Scenario cards (temperature, elevation, money), chart paper.

Minds On: Brainstorm real-world contexts where rational numbers appear.

Action: Groups solve contextual problems involving rational numbers. Present reasoning using models, diagrams, and words.

Consolidation: Class gallery walk to share solutions.

Assessment: Group work rubric, self-assessment.

Differentiation: Mixed-ability grouping; tiered problem sets.

Day 9,10 – Problem Solving and Assessment

Materials: Task sheets, calculators (if needed), reflection forms.

Minds On: Review key concepts with a class quiz game (Kahoot or cards).

Action: Independent or paired problem-solving task applying all operations with rational numbers. Reflect on learning goals and growth.

Consolidation: Self-assessment reflection form.

Assessment: Summative assessment – quiz or performance task.

Differentiation: Offer sentence starters or guided questions for support.

Assessment Strategies

- For Learning: Diagnostic quiz, questioning, exit tickets.
- As Learning: Peer discussions, self-assessments, math journals.
- Of Learning: Performance task or quiz at the end of the unit.

Differentiated Instruction

- Visual, auditory, and kinesthetic learning options.
- Scaffolded examples using manipulatives.
- Challenge tasks for advanced learners.
- Support for struggling learners through small-group reteaching.

Home Connection

Encourage students to:

- Track daily temperatures (include negatives).
- Practice rational number operations with online tools (Prodigy, Mathies).
- Discuss examples of rational numbers in real-life contexts like weather, sports, and money.