I. Lesson Overview

Lesson Title:	Classifying Whole Numbers: Odd and Even
Strand:	Numbers and Algebra
Sub-Strand:	Real Numbers
Grade Level:	10
Estimated Duration:	40 minutes

Key Inquiry Question

How do we use the properties of real numbers in our day-to-day activities?

II. Learning Objectives & Standards

Learning Objectives

Upon completion of this lesson, Learners will be able to:

1. **Know (Conceptual Understanding):** Understand the definitions and properties of odd, even, prime, and composite numbers.
2. **Do (Procedural Skill):** Classify whole numbers as odd, even, prime, and composite in different situations.
3. **Apply (Application/Problem-Solving):** Use the properties of numbers to explain and solve real-world scenarios.

Curriculum Alignment

Strand:	Numbers and Algebra
Sub-Strand:	Real Numbers
Specific Learning Outcome:	Classifying whole numbers as odd, even, prime, and composite in different situations.

III. Materials & Resources

Textbooks:	CBC Grade 10 Mathematics Learner's Book CBC Grade 10 Mathematics Teacher's Book

IV. Lesson Procedure

Phase 1: Problem-Solving and Discovery / Engage & Explore (12 minutes)

Objective: To activate prior knowledge about number properties through a collaborative, open-ended task.

Anchor Activity:

1. Group Work: In small groups, Learners work with a list of numbers from 1 to 50.
2. Recall & Sort: Learners recall the definitions of odd and even numbers and sort the numbers accordingly.
3. Pattern Recognition: They identify and discuss patterns they notice between the two groups.
4. Prime & Composite: From their sorted lists, they identify prime and composite numbers.
5. Discussion: Groups discuss how numbers are classified and identify any prime numbers that are also even.
6. Real-World Connection: Learners brainstorm and share real-life examples where these number classifications are found (e.g., pairs of shoes are even).
7. Application: They discuss why classifying numbers in real life is useful.
8. Sharing: Groups share their findings with the class.

Teacher's Role: The teacher circulates among the groups, listening to their discussions and observing their sorting methods. The teacher asks probing questions to guide discovery without giving direct answers (e.g., "What do all the even numbers have in common?", "Why is the number 2 a special case?"). The teacher will then select a few groups to share their findings, using their solutions and reasoning as a bridge to the next phase of structured instruction.

Phase 2: Structured Instruction / Explain (8 minutes)

Objective: To formalize the concepts and properties Learners discovered in the anchor task.

Activity: The teacher leads a whole-class discussion, explicitly connecting the Learners' discoveries from the anchor task to formal mathematical definitions and properties.

Key Takeaways & Teacher Connection:

- **Connecting to leaner Work:** "Many of you noticed that numbers ending in 0, 2, 4, 6, or 8 were in your 'even' list. This is a great rule of thumb! Let's formalize that. An even number is any integer that is divisible by 2."
- **Formalizing Properties:** "Your group found that when you added two odd numbers, the answer was always even. Let's look at the property: The sum or difference of two odd numbers is even (e.g., 7 + 3 = 10)."
- **Addressing Misconceptions:** If Learners incorrectly classified 1 as a prime number, the teacher will clarify, "That's a common thought! A prime number has exactly two distinct

factors: 1 and itself. The number 1 only has one factor, so it is a special case and is not prime."

- **Explicit Instruction:** The teacher will clearly present the properties of operations with odd and even numbers as outlined in the provided content.

Phase 3: Practice and Application / Elaborate (12 minutes)

Objective: To apply the learned concepts and procedures to solve varied problems.

Activity: Learners work on a set of problems individually or in pairs. The problems are designed to move from simple classification to application and reasoning.

Varied Problems:

1. **Direct Classification:** Classify the following numbers as even or odd:

a) 1107 (Odd)
b) 2028 (Even)
c) 3333 (Odd)
d) 5052 (Even)

2. **Word Problem Application:**

Kirui has 35 cows on his farm and wants to group them into 2 pens. Will each pen have an equal number of cows? Explain using properties of even and odd numbers.

Learners should identify 35 as an odd number and explain that an odd number cannot be divided into two equal whole number groups.

Teacher's Role: The teacher monitors Learners as they work, providing support where needed and encouraging Learners to explain their reasoning using the formal properties discussed in Phase 2.

Phase 4: Assessment / Evaluate (8 minutes)

Objective: To formatively assess individual learner understanding of the lesson objectives.

Activity (Exit Ticket): Learners independently complete a short assessment task.

1. Classify the following numbers as even or odd: a) 1008 b) 1521

2. A grade 10 class has 52 Learners and their class teacher wanted to group them in pairs. Will each group have an equal number of Learners? Explain using odd or even properties.

Teacher's Role: Collect and review the exit tickets to gauge leaner understanding and identify any common misconceptions that need to be addressed in the next lesson.

V. Differentiation

leaner Group	Strategy & Activity
Struggling Learners (Support)	Scaffolding: Provide a 1-50 chart with multiples of 2 already highlighted. Offer a handout with the definitions and properties of each number type for reference during the practice phase. Work with this group in a small setting during the anchor task.
On-Level Learners (Core)	The core lesson activities as described above.
Advanced Learners (Challenge)	Extension Activity: Mutula is organizing a party, and he has 35 party hats. Can Mutula arrange the hats in rows where each row has the same number of hats? What does this tell you about the number 35? This prompts learners to think about factors and composite numbers beyond just odd/even classification.

VI. Assessment

Type	Method	Purpose
Formative (During Lesson)	- Observation: Teacher circulates during the anchor task, listening to group discussions. - Questioning: Teacher asks probing questions to check for understanding. - Exit Ticket: A short, independent task at the end of the lesson.	To monitor leaner progress in real-time, provide immediate feedback, and adjust instruction as needed.
Summative (After Lesson)	- Homework assignment with more complex problems. - Future quiz/test questions	To evaluate mastery of the learning objectives after instruction and practice.

Checkpoint Integration

Pre-class Preparation list:

1. Test internet connectivity and access to https://innodems.github.io/CBC-Grade-10-Maths/
2. Ensure all leaner devices can access the digital textbook
3. Pre-load the checkpoint page on the teacher's display device
4. Have backup printed worksheets in case of technical issues
5. Arrange seating for pair work and station rotations

Checkpoint protocol for Learners:

1. Click “Show new example question” to load the problem
2. Solve the displayed question
3. Click “submit” to check your answer
4. If incorrect, carefully read the feedback and analyse the error before trying a new question. The immediate feedback from checkpoint submissions allows learners to identify and correct errors in real-time.
5. Complete at least 5 questions before rotating
6. Pair learners strategically so stronger learners can explain reasoning to peers.

Teacher's Role: Collect and review the exit tickets to gauge leaner understanding and identify any common misconceptions that need to be addressed in the next lesson.

VII. Teacher Reflection

To be completed after the lesson.

1. What went well?

2. What would I change?

3. leaner Understanding: What did the exit tickets reveal about leaner learning?

4. Next Steps: Based on the assessment data, what is the plan for the next lesson?