Grade 8 Mathematics

Term 1 - 53 complete lesson plans

Ready to teach, in the KICD lesson-plan format | 40-minute lessons | PDF and editable Word

ABOUT THIS PACK

53 complete, ready-to-teach Grade 8 Mathematics lesson plans for Term 1, covering integers, fractions, decimals, squares and square roots, rates, ratio, proportions and percentages, algebraic expressions and linear equations.

TOPICS IN THIS PACK

Topic	Name	Lessons
1.1	Integers	6
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1.4	Squares and Square Roots	6
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2.2	Linear Equations	7

INSIDE EVERY LESSON PLAN

- The specific learning outcomes, key inquiry question, core competencies, values and PCIs, and the resources needed.
- A timed lesson flow: what the teacher does and what the learners do, from introduction to summary.
- The key content (a worked example, notes or a practical with its expected results), then four practice questions with the answers for the teacher.
- The common mistake to watch for, and ideas for learners who need support and for those ready for more.
- A four-level CBC assessment rubric (EE, ME, AE, BE), homework, and a blank reflection space to fill in after teaching.

You also receive this pack as an editable Word file, so you can change any lesson to suit your class before you print it. Lessons follow the order of the KICD curriculum design.

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ELIMU254

Integers in real life

Strand 1.0 Numbers > Sub-strand 1.1 Integers | Lesson 1 of 6 | 40 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	**TIME**	**ROLL (B / G)**

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) identify integers in everyday situations; b) tell positive integers from negative integers

KEY INQUIRY QUESTION(S)

- Where do we use integers in real life situations?
- How do we carry out operations of integers?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Creativity and imagination**	Learners make up their own examples, patterns or ways of showing the idea.
COMPETENCY	**Learning to learn**	Learners say what they found easy or hard and decide their next step.
COMPETENCY	**Digital literacy**	Learners use a phone, tablet or the class computer to explore or check the idea.
VALUE	**Respect**	Learners listen while others explain and accept correction politely.
VALUE	**Unity**	Learners share materials fairly and work as one team.
PCI	**Self-esteem**	Developed through the activities in this lesson.

LEARNING RESOURCES

Number line drawn on the floor or chart (from (-10) to 10) | Number cards with positive and negative integers | A thermometer or a picture of one | Learners' exercise books

ORGANISATION OF LEARNING

Whole class for the introduction and the summary; pairs or groups of four to five for guided practice; individual work for the independent tasks.

KEY WORDS

integer | positive | negative | zero | number line | opposite

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
6 min	9 min	10 min	9 min	6 min

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "Climbing three stairs up and three stairs down from the landing: how could we write each move as a number?" Take two or three answers, link them to earlier work, then state today's outcome.	Answer the starter question, recall what they already know and read the outcome aloud.
Step 1: Teacher models	9	Work through the worked example on the next page, thinking aloud. Use number line drawn on the floor or chart (from (-10) to 10), number cards with positive and negative integers, a thermometer or a picture of one. Ask learners to predict each step before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	10	Give questions 1 and 2. Move round the groups, ask "How do you know?" and correct errors kindly on the spot.	Work in pairs or small groups, explain each step to a partner and check one another's answers.
Step 3: Independent practice	9	Set questions 3 and 4 for individual work. Mark as you walk round and note who needs help in the next lesson.	Work on their own, then swap books with a partner to check.
Summary and conclusion	6	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "Write the opposite of (-15)."	Say the key idea in their own words and answer the exit question in the exercise book.

WORKED EXAMPLE

Positive, negative and zero

Integers are the whole numbers and their opposites: ..., (-3), (-2), (-1), 0, 1, 2, 3, ...

Positive integers show a gain, a rise or a move forward: a profit of Ksh 50 is +50; 4 steps up is +4.

Negative integers show a loss, a fall or a move backward: a loss of Ksh 30 is (-30); 2 steps down is (-2); 5 °C below zero is (-5) °C.

Zero is neither positive nor negative. It is the starting point, such as sea level or the landing.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Write a loss of Ksh 200 as an integer.	**(-200)**
2	Write 8 m above sea level as an integer.	**+8**
3	Is 0 positive or negative?	**Neither.**
4	Write the opposite of (-15).	**15**

WATCH OUT FOR

Learners think fractions such as ½ are integers. Integers are whole numbers only.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

Level	What the learner can do
Exceeds expectations (EE)	Can identify integers in everyday situations confidently and accurately, explain the method used, and apply the idea to new or unfamiliar problems.
Meets expectations (ME)	Can identify integers in everyday situations accurately in familiar situations; notices and corrects slips without help.
Approaches expectations (AE)	Can partly identify integers in everyday situations, or does so with prompts from the teacher or a partner; makes some errors.
Below expectations (BE)	Cannot yet identify integers in everyday situations without direct help; needs the idea taught again with concrete objects.

SUPPORT AND EXTENSION

Learners who need support	Act it out: stand on the zero point, step forward for positive, step back for negative.
Learners ready for more	Name two real situations in Kenya where negative numbers are used. (Answer: For example temperatures on top of Mt Kenya, or a loss in a business)
Inclusion	Seat learners with low vision near the board and read aloud whatever you write; use large, clear, tactile materials; allow extra time; pair with a patient partner; use gestures or Kenyan Sign Language for the key words.

HOMEWORK AND FOLLOW-UP

Redo questions 3 and 4 neatly in the exercise book. Then tell someone at home what you learned about "integers in real life" and bring one question of your own to ask next lesson.

TEACHER SELF-CHECK

- Did every learner get a turn to handle materials or explain their thinking?
- Did most learners meet the outcome? Write down the names of those who did not.
- Was the pace right — did any step take too long or too short a time?
- Which competency and value did I see learners showing?
- What will I change the next time I teach this lesson?

REFLECTION ON THE LESSON / SELF-REMARKS

Write this after teaching - what worked, what to change, which learners need follow-up.

ELIMU254

Representing integers on a number line

Strand 1.0 Numbers > Sub-strand 1.1 Integers | Lesson 2 of 6 | 40 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	TIME	ROLL (B / G)

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) draw a number line; b) mark integers and compare them

KEY INQUIRY QUESTION(S)

- Where do we use integers in real life situations?
- How do we carry out operations of integers?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Creativity and imagination**	Learners make up their own examples, patterns or ways of showing the idea.
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KEY WORDS

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THE LESSON AT A GLANCE

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6 min	9 min	10 min	9 min	6 min

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "Which is colder, (-3) °C or (-8) °C?" Take two or three answers, link them to earlier work, then state today's outcome.	Answer the starter question, recall what they already know and read the outcome aloud.
Step 1: Teacher models	9	Work through the worked example on the next page, thinking aloud. Use number line drawn on the floor or chart (from (-10) to 10), number cards with positive and negative integers, a thermometer or a picture of one. Ask learners to predict each step before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
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Step 3: Independent practice	9	Set questions 3 and 4 for individual work. Mark as you walk round and note who needs help in the next lesson.	Work on their own, then swap books with a partner to check.
Summary and conclusion	6	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "What integer is halfway between (-6) and 2?"	Say the key idea in their own words and answer the exit question in the exercise book.

WORKED EXAMPLE

Drawing the number line

Draw a straight line, mark 0 in the middle and equal spaces on both sides. Positive integers go to the right, negative integers to the left.

A number further right is greater: 2 is greater than (-5), and (-3) is greater than (-8).

Mark (-6), (-1), 0, 4 and 7. In order from smallest: (-6), (-1), 0, 4, 7.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Which is greater, (-4) or (-9)?	**(-4)**
2	Arrange in ascending order: 3, (-7), 0, (-2), 5.	**(-7), (-2), 0, 3, 5**
3	What integer is 4 steps to the left of 1?	**(-3)**
4	What integer is halfway between (-6) and 2?	**(-2)**

WATCH OUT FOR

Learners say (-9) is greater than (-4) because 9 is bigger than 4. Point to the number line: further left is smaller.