Grade 7 Mathematics

Term 2 - 48 complete lesson plans

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

ABOUT THIS PACK

48 complete, ready-to-teach Grade 7 Mathematics lesson plans for Term 2, covering linear equations, linear inequalities, Pythagorean relationship, length, area, volume and capacity and time, distance, and speed.

TOPICS IN THIS PACK

Topic	Name	Lessons
2.2	Linear Equations	6
2.3	Linear Inequalities	8
3.1	Pythagorean Relationship	4
3.2	Length	6
3.3	Area	8
3.4	Volume and Capacity	8
3.5	Time, Distance, and Speed	8

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.

A TASTE OF LESSON 1

Forming equations from a beam balance

By the end of the lesson, the learner should be able to form a linear equation from a balanced situation

> **An equation says two things are equal, like a balanced beam**
> Let the bag be m kg. Left side: m + 2. Right side: 7.

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

Forming equations from a beam balance

Strand 2.0 Algebra > Sub-strand 2.2 Linear Equations | 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 form a linear equation from a balanced situation

KEY INQUIRY QUESTION(S)

- How do we use linear equations in real life?
- Why do we use linear equations in real life?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
COMPETENCY	**Self-efficacy**	Learners attempt each task with confidence and see that effort improves results.
COMPETENCY	**Learning to learn**	Learners say what they found easy or hard and decide their next step.
VALUE	**Integrity**	Learners record their own honest results and mark work truthfully.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
PCI	**Self-esteem**	Developed through the activities in this lesson.

LEARNING RESOURCES

Beam balance (or a ruler balanced on a pencil) | Equal masses (stones, bottle tops) | Shopping items and price cards | 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

equation | unknown | solve | solution | balance | both sides

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: "Key question: how do we use linear equations in real life? A bag of unknown mass and a 2 kg mass balance 7 kg. What is in the bag?" 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 beam balance (or a ruler balanced on a pencil), equal masses (stones, bottle tops), shopping items and price cards. 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: "Two bags (b) and 3 tops balance 15 tops. Write the equation."	Say the key idea in their own words and answer the exit question in the exercise book.

WORKED EXAMPLE

An equation says two things are equal, like a balanced beam

Let the bag be m kg. Left side: m + 2. Right side: 7.

Equation: m + 2 = 7.

Three equal bags balance 12 stones: 3b = 12.

An expression (m + 2) has no equals sign; an equation (m + 2 = 7) does.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	A box (k) and 5 tops balance 11 tops. Write the equation.	**k + 5 = 11**
2	4 equal packets (p) balance 20 tops. Write the equation.	**4p = 20**
3	Is 3a + 4 an expression or an equation?	**An expression**
4	Two bags (b) and 3 tops balance 15 tops. Write the equation.	**2b + 3 = 15**

WATCH OUT FOR

Writing an expression without the right-hand side.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Use a real beam balance and stones.
Learners ready for more	Draw a balance for 2n + 1 = 9. (Answer: Two bags and 1 stone on one side, 9 stones on the other)
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 "forming equations from a beam balance" 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

Forming equations from statements

Strand 2.0 Algebra > Sub-strand 2.2 Linear Equations | 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 form equations from word statements and stories

KEY INQUIRY QUESTION(S)

- How do we use linear equations in real life?
- Why do we use linear equations in real life?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
COMPETENCY	**Self-efficacy**	Learners attempt each task with confidence and see that effort improves results.
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ORGANISATION OF LEARNING

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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: "I think of a number, multiply it by 4 and get 36. Write this as an equation." 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 beam balance (or a ruler balanced on a pencil), equal masses (stones, bottle tops), shopping items and price cards. 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: "Mary is m years old. In 6 years she will be 19. Write the equation."	Say the key idea in their own words and answer the exit question in the exercise book.

WORKED EXAMPLE

Words to equations (let the number be n)
I multiply a number by 4 and get 36: 4n = 36.
A number decreased by 9 is 15: n - 9 = 15.
Otieno has some marbles. After winning 8 he has 30: m + 8 = 30.
Twice a number plus 5 equals 21: 2n + 5 = 21.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Write: a number increased by 12 gives 40.	**n + 12 = 40**
2	Write: a number divided by 3 is 7.	**n/3 = 7**
3	Write: 5 times a number minus 4 is 26.	**5n - 4 = 26**
4	Mary is m years old. In 6 years she will be 19. Write the equation.	**m + 6 = 19**

WATCH OUT FOR

Using a different letter on each side; one unknown, one letter.