Grade 8 Mathematics

Term 3 - 47 complete lesson plans

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

ABOUT THIS PACK

47 complete, ready-to-teach Grade 8 Mathematics lesson plans for Term 3, covering scale drawing, common solids, data presentation and interpretation and probability.

TOPICS IN THIS PACK

Topic	Name	Lessons
4.3	Scale Drawing	14
4.4	Common Solids	16
5.1	Data Presentation and Interpretation	10
5.2	Probability	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.

A TASTE OF LESSON 1

What is a scale?

By the end of the lesson, the learner should be able to: a) explain why scales are used; b) represent a length to a given scale

> **Drawing big things small**
> A scale tells how a length on a drawing compares with the real (actual) length.
> Scale 1 cm represents 2 m: a wall 8 m long is drawn 8 ÷ 2 = 4 cm long.

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

What is a scale?

Strand 4.0 Geometry > Sub-strand 4.3 Scale Drawing | Lesson 1 of 14 | 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) explain why scales are used; b) represent a length to a given scale

KEY INQUIRY QUESTION(S)

- How do we determine scales in real life?
- Where do we use scale drawing in real-life situations?

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	**Critical thinking and problem solving**	Learners choose a method, check their answers and give reasons for their choices.
COMPETENCY	**Digital literacy**	Learners use a phone, tablet or the class computer to explore or check the idea.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
VALUE	**Integrity**	Learners record their own honest results and mark work truthfully.
PCI	**Environmental education**	Examples link to caring for the school and home environment.
PCI	**Citizenship**	Learners connect the work to their rights and duties in the community.

LEARNING RESOURCES

Ruler | Tape measure | Graph paper | A map of Kenya or the county | Protractor | 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

scale | actual length | scale length | statement form | ratio form | representative fraction | scale drawing | map

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 determine scales in real life?" 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 ruler, tape measure, graph paper. 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: "Scale 1 cm represents 1 km. What does 7 cm represent?"	Say the key idea in their own words and answer the exit question in the exercise book.

WORKED EXAMPLE

Drawing big things small

A scale tells how a length on a drawing compares with the real (actual) length.

Scale 1 cm represents 2 m: a wall 8 m long is drawn 8 ÷ 2 = 4 cm long.

Measure the length of your desk and draw it to the scale 1 cm represents 10 cm: a desk 120 cm long is drawn 12 cm.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Scale 1 cm represents 5 m. How long is a 30 m fence on the drawing?	**6 cm**
2	Scale 1 cm represents 10 cm. Draw a line for a 75 cm table.	**7.5 cm**
3	Why do maps and house plans use scales?	**Real objects are too big to draw full size.**
4	Scale 1 cm represents 1 km. What does 7 cm represent?	**7 km**

WATCH OUT FOR

Learners multiply when they should divide. Big real length -> small drawing length: divide.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Use a two-column table: drawing, real.
Learners ready for more	Draw the classroom door to the scale 1 cm represents 20 cm. (Answer: Answers will vary by door size)
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 "what is a scale?" 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

Converting actual length to scale length

Strand 4.0 Geometry > Sub-strand 4.3 Scale Drawing | Lesson 2 of 14 | 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) convert real lengths to scale lengths; b) change units correctly

KEY INQUIRY QUESTION(S)

- How do we determine scales in real life?
- Where do we use scale drawing in real-life situations?

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.
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KEY WORDS

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THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
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LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "A football pitch is 100 m long. How long is it on a drawing with scale 1 cm represents 10 m?" 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 ruler, tape measure, graph paper. 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.
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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: "Scale 1 cm represents 20 cm. Find the scale length of 1.5 m."	Say the key idea in their own words and answer the exit question in the exercise book.

WORKED EXAMPLE

Divide by the scale

Scale 1 cm represents 10 m: 100 m gives 100 ÷ 10 = 10 cm.

Scale 1 cm represents 50 m: 375 m gives 375 ÷ 50 = 7.5 cm.

Change units first if needed: scale 1 cm represents 2 km; a road of 9,000 m is 9 km, giving 9 ÷ 2 = 4.5 cm.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Scale 1 cm represents 4 m. Find the scale length of 22 m.	**5.5 cm**
2	Scale 1 cm represents 25 km. Find the scale length of 150 km.	**6 cm**
3	Scale 1 cm represents 500 m. Find the scale length of 3 km.	**6 cm**
4	Scale 1 cm represents 20 cm. Find the scale length of 1.5 m.	**7.5 cm**

WATCH OUT FOR

Check units match before dividing.