Grade 6 Science and Technology

Term 3 - 44 complete lesson plans

Ready to teach, in the KICD lesson-plan format | 35-minute lessons | PDF and editable Word

ABOUT THIS PACK

44 complete, ready-to-teach Grade 6 Science and Technology lesson plans for Term 3, covering light, levers as simple machines and slopes as simple machines.

TOPICS IN THIS PACK

Topic	Name	Lessons
3.1	Light	16
3.2	Levers as simple machines	14
3.3	Slopes as simple machines	14

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

Sources of light

By the end of the lesson, the learner should be able to: a) identify natural and artificial sources of light; b) distinguish luminous and non-luminous objects

> **Sources**
> Luminous objects give out their own light: the sun, stars, fire, candles, bulbs, torches, fireflies.
> Natural sources: sun, stars, lightning, fireflies. Artificial sources: bulbs, candles, lamps, torches.

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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Sources of light

Strand 3.0 Force and energy > Sub-strand 3.1 Light | Lesson 1 of 16 | 35 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 natural and artificial sources of light; b) distinguish luminous and non-luminous objects

KEY INQUIRY QUESTION(S)

- How does light travel?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Digital literacy**	Learners use a phone, tablet or the class computer to explore or check the idea.
COMPETENCY	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
VALUE	**Unity**	Learners share materials fairly and work as one team.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
PCI	**Socio-economic issues**	Developed through the activities in this lesson.

LEARNING RESOURCES

Torch | Plane mirrors | Charts of light | 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

light | luminous | ray | beam | transparent | translucent | opaque | reflection | plane mirror | image | lateral inversion | shadow | eclipse | spectrum

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
5 min	8 min	9 min	8 min	5 min

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	5	Greet the class and ask: "Key question: how does light travel? First, where does light come from?" 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	8	Take learners through "Sources" (key ideas on the next page), explaining as you go. Use torch, plane mirrors, charts of light. Ask learners to predict what comes next before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	9	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	8	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	5	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "How do we see a book?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Sources

Luminous objects give out their own light: the sun, stars, fire, candles, bulbs, torches, fireflies.

Natural sources: sun, stars, lightning, fireflies. Artificial sources: bulbs, candles, lamps, torches.

Non-luminous objects do not give out light; we see them because light bounces off them into our eyes (the moon, a book, a table).

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Name two natural sources of light.	**The sun and stars.**
2	Name two artificial sources of light.	**A bulb and a torch.**
3	Is the moon luminous?	**No; it reflects light from the sun.**
4	How do we see a book?	**Light bounces off it into our eyes.**

WATCH OUT FOR

Many learners think the moon makes its own light.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	Sort pictures into luminous and non-luminous.
Learners ready for more	Why can you not see a book in a completely dark room? (Answer: No light bounces off it into your eyes)
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 "sources of light" 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.

Practical: light travels in straight lines

Strand 3.0 Force and energy > Sub-strand 3.1 Light | Lesson 2 of 16 | 35 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) show that light travels in straight lines; b) explain the result

KEY INQUIRY QUESTION(S)

- How does light travel?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Digital literacy**	Learners use a phone, tablet or the class computer to explore or check the idea.
COMPETENCY	**Communication and collaboration**	Learners explain their thinking to a partner and report their findings to the group.
VALUE	**Unity**	Learners share materials fairly and work as one team.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
PCI	**Socio-economic issues**	Developed through the activities in this lesson.

LEARNING RESOURCES

Torches | Three cards with holes and a string | Clear glass, tracing paper, cardboard, plastic, cloth | Plane mirrors with stands or plasticine | Rulers, pencils and plain paper | Pins (handled carefully)

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

light | luminous | ray | beam | transparent | translucent | opaque | reflection | plane mirror | image | lateral inversion | shadow | eclipse | spectrum

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
5 min	8 min	9 min	8 min	5 min

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	5	Greet the class and ask: "Can light bend around a corner by itself?" 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	8	Take learners through "Practical: three cards" (key ideas on the next page), explaining as you go. Use torches, three cards with holes and a string, clear glass, tracing paper, cardboard, plastic, cloth. Ask learners to predict what comes next before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	9	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	8	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	5	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "What is a beam?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Practical: three cards

Materials: three cards with a hole in the centre, a string, a torch.

Thread a string through the holes and pull it tight so the holes are in a straight line; remove the string carefully.

Shine a torch through the first hole: light comes out of the third hole and can be seen on a wall.

Move one card slightly: the light is blocked.

Light travels in straight lines (rays). A beam is a bundle of rays.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	What happened when one card was moved?	**The light was blocked.**
2	What does this show about light?	**It travels in straight lines.**
3	What is a ray?	**The straight-line path of light.**
4	What is a beam?	**A bundle of rays.**

WATCH OUT FOR

Never shine a torch into someone's eyes.