Grade 7 Integrated Science

Term 1 - 42 complete lesson plans

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

ABOUT THIS PACK

42 complete, ready-to-teach Grade 7 Integrated Science lesson plans for Term 1, covering introduction to Integrated Science, laboratory safety and laboratory apparatus and instruments.

TOPICS IN THIS PACK

Topic	Name	Lessons
1.1	Introduction to Integrated Science	12
1.2	Laboratory Safety	14
1.3	Laboratory apparatus and instruments	16

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 science?

By the end of the lesson, the learner should be able to: a) explain the meaning of science; b) give examples of science in daily life

> **Science**
> Science is the study of the natural world through observation, asking questions and doing experiments. Scientists find out how things work and test their ideas with evidence.

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.

CONTENTS

No.	Lesson	Topic	Page
1	What is science?	1.1 Introduction to Integrated Science	4
2	Components of Integrated Science: biology	1.1 Introduction to Integrated Science	7
3	Components of Integrated Science: chemistry	1.1 Introduction to Integrated Science	10
4	Components of Integrated Science: physics	1.1 Introduction to Integrated Science	13
5	Sorting topics into components	1.1 Introduction to Integrated Science	16
6	Importance of science in health	1.1 Introduction to Integrated Science	19
7	Importance of science in agriculture	1.1 Introduction to Integrated Science	22
8	Importance of science in industry	1.1 Introduction to Integrated Science	25
9	Importance of science in transport	1.1 Introduction to Integrated Science	28
10	Importance of science in food and textiles	1.1 Introduction to Integrated Science	31
11	Careers and senior school pathways in science	1.1 Introduction to Integrated Science	34
12	Project: making a career chart	1.1 Introduction to Integrated Science	37
13	The laboratory and why safety matters	1.2 Laboratory Safety	40
14	Hazard symbols: flammable	1.2 Laboratory Safety	43
15	Hazard symbols: corrosive	1.2 Laboratory Safety	46
16	Hazard symbols: toxic	1.2 Laboratory Safety	49
17	Hazard symbols: carcinogenic and radioactive	1.2 Laboratory Safety	52
18	Reading hazard labels on household products	1.2 Laboratory Safety	55
19	Common accidents in the laboratory and their causes	1.2 Laboratory Safety	58
20	First aid for burns and scalds	1.2 Laboratory Safety	61
21	First aid for cuts	1.2 Laboratory Safety	64
22	First aid for swallowing harmful substances	1.2 Laboratory Safety	67
23	Role-play: first aid procedures	1.2 Laboratory Safety	70
24	Laboratory rules and safety measures	1.2 Laboratory Safety	73
25	Safety in the school environment	1.2 Laboratory Safety	76

26	The importance of laboratory safety	1.2 Laboratory Safety	79
27	Basic science skills: observation and classification	1.3 Laboratory apparatus and instruments	82
28	Basic science skills: measuring, predicting, communicating and concluding	1.3 Laboratory apparatus and instruments	85
29	Apparatus for heating: the Bunsen burner	1.3 Laboratory apparatus and instruments	88
30	Other heating apparatus	1.3 Laboratory apparatus and instruments	91
31	Measuring mass	1.3 Laboratory apparatus and instruments	94
32	Measuring volume	1.3 Laboratory apparatus and instruments	97
33	Measuring temperature and time	1.3 Laboratory apparatus and instruments	100
34	Measuring length and weight	1.3 Laboratory apparatus and instruments	103
35	Parts and functions of a light microscope	1.3 Laboratory apparatus and instruments	106
36	Using and caring for a microscope and hand lens	1.3 Laboratory apparatus and instruments	109
37	Caring for apparatus and instruments	1.3 Laboratory apparatus and instruments	112
38	SI units of basic quantities	1.3 Laboratory apparatus and instruments	115
39	Measuring basic quantities in SI units	1.3 Laboratory apparatus and instruments	118
40	Derived quantities: area and volume	1.3 Laboratory apparatus and instruments	121
41	Derived quantities: speed and density	1.3 Laboratory apparatus and instruments	124
42	Quantities on packaging labels and consumer protection	1.3 Laboratory apparatus and instruments	127

What is science?

Strand 1.0 Scientific Investigation > Sub-strand 1.1 Introduction to Integrated Science | Lesson 1 of 12 | 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 the meaning of science; b) give examples of science in daily life

KEY INQUIRY QUESTION(S)

- How is the knowledge acquired in Integrated Science useful in daily 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	**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	**Career guidance**	Developed through the activities in this lesson.

LEARNING RESOURCES

Charts | Pictures of scientists at work | Newspapers and magazines | Digital devices where available | 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

science | biology | chemistry | physics | scientist | technology | career | pathway | STEM

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 is the knowledge acquired in Integrated Science useful in daily life? Why does a cooked egg become hard? Why does a phone need charging?" 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	Take learners through "Science" (key ideas on the next page), explaining as you go. Use charts, pictures of scientists at work, newspapers and magazines. 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	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: "What do scientists use to test their ideas?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Science

Science is the study of the natural world through observation, asking questions and doing experiments.
Scientists find out how things work and test their ideas with evidence.
Technology uses scientific knowledge to make tools and solve problems (a solar lamp, a water filter).
Integrated Science joins several branches of science into one learning area at junior school.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	What is science?	**The study of the natural world through observation and experiments**
2	What is the difference between science and technology?	**Science finds out how things work; technology uses that knowledge to make tools**
3	Give one example of technology at home.	**A solar lamp (also a phone, a jiko, a water filter)**
4	What do scientists use to test their ideas?	**Experiments and evidence**

WATCH OUT FOR

Thinking science happens only in laboratories; it is everywhere.

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

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

SUPPORT AND EXTENSION

Learners who need support	List questions learners have about the world and sort them later into branches.
Learners ready for more	Write three questions about the world you would like science to answer. (Answer: Answers will vary)
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 science?" 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.

Components of Integrated Science: biology

Strand 1.0 Scientific Investigation > Sub-strand 1.1 Introduction to Integrated Science | Lesson 2 of 12 | 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 describe biology as a component of Integrated Science

KEY INQUIRY QUESTION(S)

- How is the knowledge acquired in Integrated Science useful in daily 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	**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.
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LEARNING RESOURCES

Charts | Pictures of scientists at work | Newspapers and magazines | Digital devices where available | 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

science | biology | chemistry | physics | scientist | technology | career | pathway | STEM

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

Inside this plan: the step-by-step lesson flow with what the teacher and learners do, the key content, practice questions with answers, a common mistake to watch for, an assessment rubric on the four CBC levels, support and extension ideas, homework and a reflection page.

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "What is the difference between a living and a non-living thing?" 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	Take learners through "Biology" (key ideas on the next page), explaining as you go. Use charts, pictures of scientists at work, newspapers and magazines. 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	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: "Which topic this year is biology?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Biology

Biology is the study of living things: plants, animals, microorganisms and humans.
It covers how living things feed, grow, reproduce, breathe and depend on their environment.
At junior school we study the human body systems and living things in the environment.
Activity: brainstorm living things around the school and one question biology could answer about each.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	What is biology?	**The study of living things**
2	Name two things studied in biology.	**Plants and the human body (also animals, microorganisms)**
3	Name one job that uses biology.	**Doctor (also nurse, farmer, vet)**
4	Which topic this year is biology?	**The human reproductive or excretory system**

WATCH OUT FOR

Learners may treat agriculture as separate from biology; it uses biology.