



INTEGRATED SCIENCE

Grade 7



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- Rationale for Integrated Science
- General Learning outcomes
- Strands and Sub strands
- Unique features of Integrated Science



KWL

- 1. What *I know* about
- 2. What *I want to know* about



Activity (10 minutes)



Read the essence statement of the Integrated Science design and note the following:

- a) What constitutes integrated Science?
- b) What skills are targeted?
- c) What is the rationale for the subject?
- d) What teaching methods are recommended for the subject?
- e) What is the theoretical foundation for the methods recommended?

ESSENCE STATEMENT (1)



- Science is a dynamic, collaborative human endeavor that enables use of distinctive ways of logistical valuing, thinking and working to understand natural phenomena in the biological, physical and technological world.
- The emphasis of science education at JSS is to enhance learners' scientific thinking through learning activities that involve planning, designing, measuring, observing, evaluating procedures, examining evidence, and analyzing data.
- Vision 2030; “The achievement of the vision greatly depends on Science, Technology and Innovation.”

Essence Statement Continued (2)



- Sessional Paper No.1 of 2005 highlights the fact that “for a breakthrough towards industrialization, achievement of the desired economic growth targets and social development, a high priority needs to be placed on the development of human capital through education and training by promoting the teaching of sciences and information technology.”
- Sessional Papers No. 14 of 2012 and Sessional Paper 1 of 2019 equally stress the need for basic and higher education, with an emphasis on Science, Technology and Innovation.

Essence Statement Continued (3)



Integrated Science learning area is expected to

- create a scientific culture among learners that inculcates scientific literacy to enable learners make informed choices in their personal lives and approach their life challenges in a systematic and logical manner.
- Enable learners to practically explore and discover knowledge within their environment and in the laboratory to allow them understand themselves and relate with their environment through application of scientific principles and ideas.
- Enhance the level of scientific literacy to equip learners with the relevant basic scientific knowledge, skills, values and attitudes needed for their own survival and/or career development.

Essence Statement Continued (4)



- Concepts are presented in units within which there are specific strands that build on the competencies acquired in science and technology at upper primary school level.
- This provides the learner with the basic requisite skills, knowledge, values and attitudes necessary for specialization in pure sciences (Physics, Chemistry, and Biology), applied sciences, Careers and Technology Studies (CTS) and Technical and Engineering subjects offered in the STEM pathway at senior school.
- Integrated science is taught through inquiry-based learning approaches with an emphasis on the 5Es: engagement, exploration, explanation, elaboration and evaluation.

Activity 2



Access the Integrated Science Grade 7 design on the KICD website. Study and Identify the following:

- a) The general learning outcomes
- b) The strands and sub strands

General Learning Outcomes for Integrated Science



By the end of middle school, the learner should be able to:

- 1) Acquire scientific knowledge, skills, values and attitudes to make informed choices on career pathways at senior school.
- 2) Select, improvise and safely use basic scientific tools, apparatus, materials and chemicals effectively in everyday life.
- 3) Explore, manipulate, manage and conserve the environment for learning and sustainable development.
- 4) Practice relevant hygiene, sanitation and nutrition skills to promote good health.

General Learning Outcomes for Integrated Science (2)



- 5) Apply the understanding of body systems with a view to promote and maintain good health.
- 6) Develop capacity for scientific inquiry and problem solving in different situations.
- 7) Appreciate and use scientific principles and practices in everyday life.
- 8) Apply acquired scientific skills and knowledge in everyday life.

Strands in Integrated Science



- Scientific Investigation
- Mixtures, Elements and Compounds
- Living Things and their Environment
- Force and Energy

Strand 1: Scientific Investigation



Strand 1, introduces the learner to science inquiry skills safety and laboratory apparatus upfront before delving into specific strands as a foundation for progressive development of scientific knowledge, skills and attitudes.

Sub- Strands in Scientific Investigation



Sub-Strand	Content
Introduction to integrated science-4 lessons	<ul style="list-style-type: none">• Learners are introduced to; the different components of Integrated Science as a field of study.• Relate knowledge and skills gained in Integrated Science to career opportunities.• Appreciate the importance of Integrated Science in daily life.
Laboratory Safety-8 lessons	<ul style="list-style-type: none">• Learners are introduced to; common hazards and their symbols in the laboratory• Causes of common accidents in the laboratory and how to carry out first aid safety measures for common laboratory accidents.• Appreciate the importance of safety in the and access to a healthy working environment.

Sub- Strands in Scientific Investigation(2)



Sub Strand	Content
Basic Science skills- 10 lessons	<ul style="list-style-type: none">• learners Identify basic skills in science• Use the International System of Units (SI) for basic and derived quantities in science• Appreciate the application of Basic skills in science
Laboratory apparatus and instruments 10 lessons	<ul style="list-style-type: none">• Learners are guided on how to use and care for different laboratory apparatus and instruments in the laboratory.• Appreciate the importance of consumer protection when handling different apparatus and chemicals in the laboratory

Strand 2: Mixtures, Elements and Compounds



Sub – Strands	Content
Mixtures 14 lessons	<ul style="list-style-type: none">• Learners are guided to classify different types of mixtures as homogeneous or heterogeneous• Distinguish between pure and impure substances using melting and boiling points• Separate mixtures using a variety of methods• Appreciate the use of different methods of separating mixtures in day-to-day life
Acids, bases and indicators 15 lessons	<p>Learners use plant extracts as acid-base indicator</p> <p>Categorize different house-hold solutions as either acidic or basic using indicators.</p> <p>Determine the strength of acids and bases using universal indicator</p> <p>Outline applications of acids, bases and indicators in real life</p> <p>Appreciate the applications of acids and bases in real life</p>

Strand 3: Living Things and Their Environment



Sub – Strands	Content
Reproduction in Human Beings 16 Lessons	<p>The learner should be able to:</p> <ul style="list-style-type: none">• describe the menstrual cycle in human beings• describe challenges related to the menstrual cycle• describe the process of fertilization and implantation. <p>Unique Features: Covers Challenges related to intersex condition and challenges related to the menstrual cycle</p>
Human Excretory System (Skin and Kidneys) 11 Lessons	<p>The learner should be able to:</p> <ul style="list-style-type: none">• identify the external parts of the human skin and their functions.• identify the external parts of the kidney and their functions.• describe causes of kidney disorders• adopt a healthy lifestyle to promote kidney and skin health.• appreciate the importance of proper use of cosmetics for consumer protection. <p>Unique Features: Covers responsible use of cosmetics</p>

Strand 4: Force and Energy



Sub-Strands	Content
Static Electricity – 12 Lessons	The sub strand the learner should be able to: <ul style="list-style-type: none">• demonstrate the existence of static charges in objects• charge objects using different methods• demonstrate the effects of force between charged objects• appreciate the use of static charges in daily life
Electrical Energy- 12 Lessons	The learner should be able to: <ul style="list-style-type: none">• identify various sources of electricity in their environment• set up simple electrical circuits in series and parallel using dry cells, bulbs, ammeters and voltmeters• classify materials as conductors and non-conductors of electricity• identify electrical appliances in their locality• identify safety measures when handling electrical appliances• appreciate the use of electricity in their daily life
Magnetism – 10 Lessons	The learner should be able to: <ul style="list-style-type: none">• classify materials in the environment as magnetic or non-magnetic• investigate the force between like and unlike poles of magnets• identify the uses of magnets in day-to-day life• appreciate the applications of magnets in day-to-day life

Unique Features



Integration of aspects from the three science domains (Biology, Chemistry & Physics) into one broad learning area of study.

The main strands (topics) have been reduced from 10 to 4

Strand 1, introduces the learner to science inquiry skills safety and laboratory apparatus upfront before delving into specific strands as a foundation for progressive development of scientific knowledge, skills, and attitudes.

Mainstreaming of core competencies, values, & Pertinent and contemporary issues

Emphasis on application of learnt concepts in real life experiences

Emphasis on development of knowledge-skills values & scientific attitudes across the learning outcomes.



Self-Reflection

1. I learnt.....
 2. I need to learn more about.....
 3. How I will apply what I have learnt
- Suggestions I have for improvement of the session

Upload your responses on
<https://forms.office.com/r/7nHVcLMZrt>

Facilitators to use this link to View Responses:

<https://tinyurl.com/KWL-Facilitators>



END

THANK YOU



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