KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A skilled and Ethical Society

UPPER PRIMARY SCHOOL

SCIENCE & TECHNOLOGY CURRICULUM DESIGN

GRADE 6

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TABLE OF CONTENTS

LESSON ALLOCATION AT UPPER PRIMARY

S/No	Learning Area	Number of Lessons
1.	English	5
2.	Kiswahili / Kenya Sign Language	4
3.	Mathematics	5
4.	Religious Education	3
5.	Science & Technology	4
6.	Agriculture and Nutrition	4
7.	Social Studies	3
8.	Creative Arts	6
9.	Pastoral/Religious Instruction Programme	1
Total		**35**

NATIONAL GOALS OF EDUCATION

1. **Foster nationalism, patriotism, and promote national unity**

   Kenya's people belong to different communities, races and religions and should be able to live and interact as one people. Education should enable the learner acquire a sense of nationhood and patriotism. It should also promote peace and mutual respect for   harmonious co-existence.

2. **Promote social, economic, technological and industrial needs for national development**

   Education should prepare the learner to play an effective and productive role in the nation.

   a) **Social Needs**

      Education should instil social and adaptive skills in the learner for effective participation in community and national development.

   b) **Economic Needs**

      Education should prepare a learner with requisite competences that support a modern and independent growing economy. This should translate into high standards of living for every individual.

   c) **Technological and Industrial Needs**

      Education should provide the learner with necessary competences for technological and industrial development in tandem with changing global trends.

3. **Promote individual development and self-fulfilment**

   Education should provide opportunities for the learner to develop to the fullest potential. This includes development of one's interests, talents and character for positive contribution to the society.

4. **Promote sound moral and religious values**

Education should promote acquisition of national values as enshrined in the Constitution. It should be geared towards developing a self-disciplined and ethical citizen with sound moral and religious values.

5. **Promote social equity and responsibility**

Education should promote social equity and responsibility. It should provide inclusive and equitable access to quality and differentiated education; including learners with special educational needs and disabilities. Education should also provide the learner with opportunities for shared responsibility and accountability through service learning.

6. **Promote respect for and development of Kenya's rich and varied cultures**

Education should instil in the learner appreciation of Kenya's rich and diverse cultural heritage. The learner should value own and respect other people's culture as well as embrace positive cultural practices in a dynamic society.

7. **Promote international consciousness and foster positive attitudes towards other nations**

Kenya is part of the interdependent network of diverse peoples and nations. Education should therefore enable the learner to respect, appreciate and participate in the opportunities within the international community. Education should also facilitate the learner to operate within the international community with full knowledge of the obligations, responsibilities, rights and benefits that this membership entails.
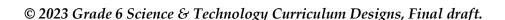
8. **Good health and environmental protection**

Education should inculcate in the learner the value of physical and psychological well-being for self and others. It should promote environmental preservation and conservation, including animal welfare for sustainable development.

LEVEL LEARNING OUTCOMES FOR PRIMARY EDUCATION

By the end of the Primary Education, the learner should be able to:

a) Communicate appropriately using verbal and or non-verbal modes in a variety of contexts.
b) Demonstrate mastery of number concepts to solve problems in day to day life
c) Demonstrate social skills, moral and religious values for positive contribution to society
d) Develop one's interests and talents for personal fulfilment
e) Make informed decisions as local and global citizens of a diverse, democratic society in an interdependent world.
f) Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development
g) Acquire digital literacy skills for learning and enjoyment.
h) Appreciate the country's rich, diverse cultural heritage for harmonious living

ESSENCE STATEMENT

Science and Technology is a learning area which engages in the human pursuit to understand the relationships between the living and non-living universe. Science is a discipline that deals with explanations and predictions about nature and the universe while Technology is the application of science to create devices that can solve problems and do tasks.

The achievement of Vision 2030 greatly depends on Science, Technology and Innovation. Sessional Paper No.1 of 2005 highlights the fact that for a breakthrough towards industrialisation, 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. This is also highlighted in the Sessional Paper 14, 2012 which stresses the need for sustainable basic and higher education, with an emphasis on Science, Technology and Innovation (ST&I). This makes it necessary for Science and Technology to be taught in Upper Primary Education level.

This learning area builds on the competencies introduced at the lower primary under the learning area of Environmental Activities and equips the learner with pre-requisite skills which are required in Integrated Science and Pre-technical and Pre-career studies at the lower secondary level. These enable learners to prepare for Science, Technology, Engineering and Mathematics (STEM) in subsequent levels of the education cycle. Inquiry based learning (IBL), Project based learning (PBL), Problem based learning (PBL) and Social Scientific Issue learning (SSI) approaches will be employed throughout the learning experiences in this area as advocated for by John Dewey's social constructivist theory which emphasises the learner should be given an opportunity to learn through hands-on activities. Engineering design shall be used as a pedagogical strategy to bridge science concepts with other learning areas to solve simple open-ended problems, develop creative thinking and analytical skills among learners, make decisions, and consider alternative solutions to address a variety of situations.

SUBJECT GENERAL LEARNING OUTCOMES

By the end of the course, the learner should be able to:

- Interact with the environment for learning and sustainable development.
- Apply digital literacy skills appropriately for communication, learning and enjoyment.
- Appreciate the contribution of science and technology in the provision of innovative solutions.
- Use scientific knowledge to observe and explain the natural world.
- Make functional discoveries that impact individuals and the wider society.
- Use innovative approaches as well as critical thinking and problem solving skills to stimulate scientific inquiry, at the local, national and global levels for lifelong learning.

STRAND 1.0 LIVING THINGS AND THEIR ENVIRONMENT

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Suggested Key inquiry question
1.0 Living things and their Environment	**1.1 Fungi** **(12 lessons)** ● Common Fungi *(mushrooms, toadstool, puff balls, yeast and moulds)* ● Importance of Fungi *(food, fermentation, health and medicine)* ***Note:*** *scientific names and details on application of fungi in food processing not required*	By the end of the sub strand the learner should be able to: a) identify common fungi in the environment, b) describe the importance of fungi in nature, c) appreciate the importance of fungi in the economy.	The learner is guided to: ● use print and non-print materials to search for images of common fungi such as puffballs, toadstools, mushrooms and moulds, share findings with peers, ● take a walk in the school compound and the adjacent environment to observe and identify different types of Fungi, ● grow moulds on available food materials, observe and share with peers, ● use print and non-print materials to search for information on the economic importance of moulds, yeast and mushrooms, record and	What is the importance of Fungi?

			discuss with peers. **Note:** *-Learners are guided to observe precautions and safe disposal of wastes when handling fungi.*	

Core competencies to be developed:
- **Communication and collaboration:** The learner speaks clearly and effectively during discussions on the economic importance of moulds, yeast and mushrooms.
- **Self-efficacy:** The learner successfully grows moulds on food materials, observes and shares with peers.

Values:
- **Responsibility**: The learner observes safety when handling fungi.

PCIs:
- **Financial Literacy:** The learner searches for information on the economic importance of moulds, yeast and mushrooms.
- **Environmental conservation:** The learner practises safe disposal of wastes generated from growing Fungi.

Links to other learning areas:
- The information on the economic importance of Fungi is linked to food production in Agriculture and Nutrition.
- The information on growing Fungi is linked to appreciation of God's creation in Religious Education.

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Suggested Key inquiry question
1.0 Living things and the Environment	**1.2 Invertebrates (14 lessons)** ● Common Invertebrates: *(insects; spiders, ticks and mites; millipedes and centipedes; snails and slugs;worms; Sea invertebrates - octopus, starfish and crabs)* ● Importance of invertebrates *(food, pollination, soil aeration, pests, transmission of diseases)* ***Note: scientific names not required***	By the end of the sub strand the learner should be able to: a) identify common invertebrates in the environment, b) practise precautions in handling invertebrates, c) describe the general characteristics of invertebrates, d) outline the economic importance of invertebrates, e) appreciate the importance of invertebrates in nature.	The learner is guided to: ● use print and non-print material to search for information on common invertebrates and share with peers, ● discuss safety precautions applied when handling invertebrates, ● collaboratively use print and non-print materials to search for information on general characteristics of invertebrates and share with peers, ● explore the school compound and the adjacent environment to identify different invertebrates and their	What are the common fea of invertebrates?

			characteristics; practise safety precautions in handling invertebrates, • make an inventory of common invertebrates in their locality, • discuss the economic importance of invertebrates.	

Core competencies to be developed:
- **Critical thinking and problem solving:** The learner displays open mindedness as they discuss the economic importance of invertebrates.
- **Creativity and Imagination:** The learner makes observations and creates an inventory of common invertebrates in their locality.

Values:
- **Love:** The learner cares for others as they explore the school compound and their locality to identify different invertebrates and their characteristics.

PCIs:
- **Animal Welfare: T**he learner cares for the invertebrates as they explore the school compound and their locality to identify different invertebrates and their characteristics.
- **Safety and security**: The learner observes safety precautions in handling invertebrates.
- **Health promotion issues:** The learner discusses the role of invertebrates in transmission of diseases.

Links to other learning areas:
- The information on transmission of diseases is linked to communicable diseases in Agriculture and Nutrition.

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Suggested Key inquiry question
1.0 Living things and the Environment	1.3 Human circulatory system (16 Lessons) ● Parts of the human circulatory system *(heart, blood vessels and blood)*, ***Note:*** *details of different blood vessels and parts of the body not needed.* ● Parts of the heart and their	By the end of the sub strand the learner should be able to: a) identify main parts of the human circulatory system, b) describe functions of main parts of the human circulatory system, c) outline the symptoms and prevention of common health conditions of the human circulatory system, d) develop a routine	The learner is guided to: ● use print and non-print materials to search for information on the main parts of the human circulatory system and share with peers, ● use locally available material to model the human circulatory system and share with peers, ● use simulation software, online interactive platforms or digital images to illustrate main parts of the human circulatory system, ● use print and non-print material to search for information on parts of the heart *(auricles, ventricles and vessels)* and their functions, record and share their findings, ● collaboratively discuss the	1. What is the human circulatory system made up of? 2. What measures enhance a healthy human circulatory system?

	functions ● Major blood vessels and their functions ● Compone nts of blood and their functions ● symptom s and preventio n of common health condition s of the human circulator y system, *(hardenin g of* | plan for maintaining a healthy circulatory system e) appreciate the importance of a healthy circulatory system.	functions of the main blood vessels in the human body *(arteries, veins and capillaries),* ● discuss components of blood and their functions, *record and share, (red blood cells, white blood cells and platelets)* ● search for information on the symptoms and prevention of common health conditions of the human circulatory system and share with peers, ● collaboratively discuss ways of maintaining a healthy human circulatory system, ● discuss with peers and develop a routine plan for maintaining a healthy circulatory system, *(to include drinking plenty of water, physical activities and healthy eating).*	

	arteries, high blood pressure and heart attack)			

Core competencies to be developed:
- **Self-Efficacy:** The learner successfully develops a routine plan for maintaining a healthy circulatory system.
- **Digital literacy:** The learner uses simulation software, online interactive platforms or digital images to illustrate the human circulatory system.

Values:
- **Responsibility:** The learner shows resilience in practising ways for maintaining a healthy circulatory system.
- **Unity:** The learner respects others opinions as they collaboratively discuss and develop a routine plan on maintaining a healthy human circulatory system.

PCIs:
- **Health promotion issues:** The learner discusses ways of maintaining a healthy human circulatory system and develops a routine for maintaining a healthy circulatory system.

Links to other learning areas:
- The information on common health conditions of the human circulatory system is linked to lifestyle diseases in Agriculture and Nutrition.
- The modelling of the human circulatory system is linked to modelling in Creative arts and Sports.

Suggested Assessment Rubric				
Levels Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below expectations
Describing the importance of fungi	Describes the importance of fungi comprehensively	Describes the importance of fungi	Describes the importance of fungi partially	Describes the importance of fungi partially with prompts
Practising precautions in handling invertebrates	Practises precautions in handling invertebrates comprehensively	Practises precautions in handling invertebrates	Practises some precautions in handling invertebrates	Practises some precautions in handling invertebrates with prompts
Outlining the economic importance of invertebrates	Outlines the economic importance of invertebrates exhaustively	Outlines the economic importance of invertebrates	Outlines the economic importance of invertebrates partially	Outlines the economic importance of invertebrates partially with prompts
Describing functions of main parts of the human circulatory system	Describes functions of main parts of the human circulatory system in-depth	Describes functions of main parts of the human circulatory system	Describes functions of main parts of the human circulatory system partially	Describes functions of main parts of the human circulatory system partially with prompts
Developing a routine plan for maintaining a healthy circulatory system	Develops a detailed routine plan for maintaining a healthy circulatory system	Develops a routine plan for maintaining a healthy circulatory system	Develops a simple routine plan for maintaining a healthy circulatory system	Develops an incomplete routine plan for maintaining a healthy circulatory system

STRAND 2.0 MATTER

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Suggested Key inquiry question
2.0 Matter	**2.1 Change of state (18 lessons)** ● Changes of state of matter. *(melting evaporation, sublimation, deposition, condensation and freezing)* ● Application of change of state of matter	By the end of the sub strand the learner should be able to: a) identify the changes of state when substances are heated or cooled, b) describe the applications of the change of state of matter in everyday life, c) appreciate the applications of change of state in day to day life.	**The learner is guided to:** ● brainstorm the meaning of change of state of matter, ● carry out activities to demonstrate change of state of matter *(melting, evaporation, sublimation, condensation, freezing, deposition)* collaboratively, **note**: *observe safety while heating substances to avoid fires and burns,* ● discuss the applications of change of state of matter in everyday life, ● where possible use digital devices to access videos, observe and record what happens when matter is heated or cooled. **Project**: ● Learners to make candles using waste candle wax or beeswax, ● Learners to repair broken plastic containers.	How is change of state of matter important in day to day life?

Core competencies to be developed:
● **Communication and collaboration:** The learner listens keenly and actively as they brainstorm the meaning of change of state of matter.
● **Learning to learn**: The learner procedurally carries out activities to demonstrate change of state of matter.

Values
- **Respect**: The learner appreciates diverse opinions of others while discussing the change of state of matter in everyday life.

Pertinent and contemporary Issues
- **Socio-economic issues(Environmental Education)**: The learners make candles using waste candle wax or beeswax and repairing broken plastic containers

Linkage to other learning areas:
- Agriculture and Nutrition – The learner appreciate evaporation as a process of drying clothes and cereals

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Key inquiry question
2.0 Matter	**2.2 Composition of air** **(16 lesson**s**)** ● Composition of air in the atmosphere ● Uses of different components of air ● Air pollution	By the end of the Sub Strand, the learner should be able to: **a)** identify the components of air, **b)** outline uses of the different components of air, **c)** explain the effects of air pollution in the environment, **d)** describe methods of reducing air pollution in the environment, **e)** appreciate the need for clean air in day to day life.	**The Learner is guided to:** ● brainstorm on air and its constituent, ● draw a pie chart showing percentage composition of components of air, ● carry out activity to investigate the presence of oxygen in air collaboratively *(Use a burning candle),* ● discuss the uses of the different components of air, ● brainstorm on the meaning of air pollution, ● explore the school and neighborhood to identify air pollutants, ● discuss the effects of air pollution to the environment, ● identify and discuss methods of reducing air pollution in groups, ● where possible, use digital devices to observe the effects of air	How does air pollution affect the environment?

<table>
<tr><td></td><td></td><td></td><td>pollution.

Note: *observe safety precautions in air polluted environments (Example: practice use of dust masks, goggles, overcoats).*

Project:
Learners are guided to make posters on common air pollutants, dangers of air pollution and ways of controlling air pollution.</td><td></td></tr>
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Core competencies to be developed:
- **Citizenship:** The learner engages in critical and constructive dialogue as they discuss on air pollutants and come up with ways of reducing air pollution in the environment.
- **Learning to learn:** The learner learns independently as they explore the school and neighborhood to identify air pollutants.

Values
- **Responsibility:** The learner observes safety precautions in an air polluted environment.
- **Patriotism**: The learner serves the community by making posters on common air pollutants, dangers of air pollution and ways of controlling air pollution to educate members of the community.

Pertinent and Contemporary Issues:
- **Socio-economic and environmental issues (Environmental education and climate change):** The learner practices methods of reducing air pollution.

Link to other learning areas
- **Mathematics**: The learner draws a pie chart showing the percentage composition of components of air.

Assessment Rubric				
Indicators	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below expectations**
Ability to identify the changes of state when substances are heated or cooled	Accurately identifies all the changes of state when substances are heated or cooled.	Correctly identifies four changes of state when substances are heated or cooled	Correctly identifies two to three changes of state when substances are heated or cooled	correctly identifies one change of state when substances are heated or cooled.
ability to identify the components of air	Correctly identifies all the major components of air	Correctly identifies the four major components of air	correctly identifies at least two major components of air	correctly identifies one major component of air
ability to explain the effects of air pollution to the environment	Correctly explains several effects of air pollution to the environment in detail.	Correctly explains several effects of air pollution to the environment.	correctly explains a few effects of air pollution to the environment	correctly explains minimal effects of air pollution to the environment

STRAND 3.0 FORCE AND ENERGY

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Key inquiry question
3.0 Force and energy	**3.1 Light (16 lessons)** ● Movement of light through materials ● Ray diagrams of images in plane mirrors ● Formation of shadows and eclipses ● Reflection of light at plane surfaces ● Image formation in plane mirrors ● Rainbow formation	By the end of the sub strand, the learner should be able to: a) demonstrate the movement of light through materials, b) draw ray diagrams of images formed on plane mirrors, c) illustrate the formation of shadows and eclipses in nature, d) describe the formation of rainbow in nature, e) Appreciate the importance of movement light in everyday life.	The learner is guided to: ● carry out activities to show the movement on light through different materials *(transparent, translucent and opaque)*, ● perform an experiment to show reflection of light on plane mirrors *(laws of reflection)*, ● locate and illustrate images formed on plane mirrors and discuss their characteristics, ● carry out activities to demonstrate and illustrate the formation of shadows and eclipses *(solar & lunar eclipses)*, ● use digital or print media to search for information on the movement of light through materials, image formation on plane mirrors, the formation of shadows, eclipses and rainbow in nature, ● discuss the applications of movement of light through	How does light travel?

			different media *(mirrors, periscope, kaleidoscope, lenses, magnifying glass, hand lens, mirage, rainbow).* **Project:** Learner uses locally available resources to make a functional periscope.	

Core competencies to be developed:
- **Digital literacy**: The learner interacts with digital technology as they use digital or print media to search for information on the movement of light through materials, image formation on plane mirrors, the formation of shadows, eclipses and rainbows in nature.
- **Communication and Collaboration:** The learner cooperates with peers as they discuss the applications of movement of light in different media.

Values:
- **Unity:** The learner works harmoniously with peers as they use locally available resources to make a functional periscope.

PCIs:
- **Socio-economic issues:** The learner observes safety and security as they use plane mirrors to perform experiments to demonstrate image formation and describe the characteristics of images formed.

Links to other Learning areas:
- Home Science when lighting up the home.

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Key inquiry question(s)
3.0 Force and energy	**3.2 Levers as simple machines** **(14 lessons)** ● Examples of levers ● Parts of levers ● Classification of levers ● uses of levers in day to day life	By the end of the sub strand, the learner should be able to: a) identify common levers used in day to day life, b) describe parts of a lever as used in making work easier, c) classify levers into the three classes, d) demonstrate the use of levers in making work easier, e) appreciate the use of levers in making work easier.	The learner is guided to: ● brainstorm on the meaning of levers as simple machines, ● work in groups to identify parts of a lever *(fulcrum/pivot, effort, and load)*, ● carry out activities to group levers into the three classes *(first, second and third class levers)*, ● carry out activities in groups to demonstrate the use of common levers as simple machines, *(a hole punch, pliers, scissors, a see-saw, wheelbarrow, bottle openers, nail clippers, a nutcracker, shovel, fishing rod, kitchen tongs and tweezers.)* ● use digital or print media	How are levers used in our everyday life?

			to search for information on how levers make work easier in day to day life. **Project**: In groups, learners are guided to make and use a beam balance from locally available materials.	

Core competencies to be developed
- **Creativity and imagination:** The learner assembles different parts to make a beam balance from locally available materials.
- **Learning to learn:** The learner carries out activities with peers as they demonstrate the use of common levers as simple machines.

Values:
- **Respect:** The learner displays positive regard for self and others as they work together in groups to identify parts of a lever.

PCIs:
- **Citizenship education:** The learner exercises care and protection for one another while performing experiments to demonstrate the use of common levers as simple machines.

Link to other learning areas:
- **Agriculture and Nutrition:** Learner applies the principle of levers in farm tools, use of cutlery; spoons and bottle openers.
- **Creative Arts:** Learner applies the principle of simple leavers as they play on a seesaw.

Strand	Sub Strand	Specific learning outcomes	Suggested learning experiences	Key inquiry question
3.0 Force and energy	**3.3 Slopes as simple machines** **(14 lessons)** ● Types of slopes ● Uses of slopes	By the end of the sub strand, the learner should be able to: a) identify types of slopes used as simple machines, b) demonstrate how a slope makes work easier in day to day life, c) appreciate the use of slopes in everyday life.	The learner is guided to: ● discuss the meaning of slope as a simple machine *(inclined plane)*, ●give practical examples on where slopes are used to make work easier around the school environment *(ladders, ramps, staircase, road winding up-hill, wedge, roofs, loading a lorry)*, ● discuss how slopes are used to make work easier in day to day life, ●carry out activities to show how slopes make work easier, ●where possible, use digital media to search for information on how slopes make work easier *(elevators/lifts, escalators/moving stares, stair case, ladders, cableways, ramps, road*	How are slopes used in everyday life?

			winding up-hill, wedge, roofs, loading a lorry), ● discuss the importance of use of slopes in day to day life. **Project:** make a simple slope for use in school or at home using locally available materials.	

Core competencies to be developed:
- **Citizenship:** The learner exercises ethical responsibility as they make a simple slope for use in school or at home using locally available materials
- **Critical thinking and problem solving:** The learner thinks clearly as they make a simple slope for use in school or at home using locally available materials.

Values:
- **Integrity:** The learner utilises resources prudently while making a simple slope for use in school or at home.
- **Peace:** The learner shows empathy as they make a simple slope for use in school or at home using locally available materials.

PCIs :
- **Socio economic issues:** The learner exercises safety and security as they carry out activities to show how slopes make work easier.

Links to other Learning areas:
- **Agriculture and Nutrition**: The learner relates the concept of slope in the use of farm tools, equipment and machinery to carry out the projects.

Assessment Rubric				
Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below expectations
Ability to demonstrate the movement of light through materials.	Creatively demonstrates the movement of light through all materials.	Demonstrates the movement of light through all materials.	Demonstrates the movement of light through at least two materials.	Demonstrates the movement of light through at least one material.
Ability to illustrate the formation of shadows and eclipses in nature	Illustrates and labels the formation of shadows and eclipses in nature correctly.	Illustrates the formation of shadows and eclipses in nature correctly.	Illustrates the formation of shadows and eclipses in nature omitting some basic details.	Illustrates the formation of shadows and eclipses in nature omitting basic details.
Ability to identify common levers used in day to day life	Identifies all common levers used in day to day life	Correctly identifies most common levers used in day to day life.	Correctly identifies some common levers used in day to day life.	Correctly identifies some common levers used in day to day life with prompts.
Ability to demonstrate the use of levers to make work easier	Demonstrates skillfully the use of levers to make work easier	Demonstrates effectively the use of levers to make work easier	Demonstrates appropriately the use of levers to make work easier	Demonstrates inappropriately the use of levers to make work easier
Ability to identify types of slopes used as simple machines	Identifies types of slopes used as simple machines accurately.	Identifies most types of slopes used as simple machines	Identifies a few types of slopes used as simple machines	Identifies a few types of slopes used as simple machines with prompts.

Ability to demonstrate how a slope makes work easier in day to day life	Demonstrates skillfully how a slope makes work easier in day to day life	Demonstrates correctly how a slope makes work easier in day to day life	Demonstrates partially how a slope makes work easier in day to day life	Demonstrates partially with prompts how a slope makes work easier in day to day life

APPENDIX: LIST OF ASSESSMENT METHODS, LEARNING RESOURCES AND NON-FORMAL ACTIVITIES

Assessment Methods in Science	Learning Resources	Non-Formal Activities
- Reflections - Game Playing - Pre-Post Testing - Model Making - Explorations - Experiments - Investigations - Conventions, Conferences, and Debates - Applications - Teacher Observations - Project - Journals - Portfolio - Oral or Aural Questions - Learner's Profile - Written Tests - Anecdotal Records	- Laboratory Apparatus and Equipment - Textbooks - Software - Relevant reading materials - Digital Devices - Recordings	- Visit the science historical sites. - Use digital devices to conduct scientific research. - Organizing walks to have live learning experiences. - Developing simple guidelines on how to identify and solve some community problems. - Conducting science document analysis. - Participating in talks by resource persons on science concepts. - Participating in science clubs and societies - Attending and participating science and engineering fairs - Organizing and participating in exchange programmes. - Making oral presentations and demonstrations on science issues.

CSL at Upper Primary (grade 4-6)

At this level, the goal of the CSL activity is to provide linkages between concepts learnt in the various Learning Activities and the real life experiences. Learners begin to make connections between what they learn and the relevance to their daily life. CSL is hosted in the Social studies learning area. The implementation of the CSL activity is a collaborative effort where the class teacher coordinates and works with other subject teachers to design and implement the integrated CSL activity. Though they are teacher-guided, the learners should progressively be given more autonomy to identify problems and come up with solutions. The safety of the learners should also be taken into account when selecting the CSL activity. The following steps for the integrated CSL activity should be staggered across the school terms:

Steps in carrying out the integrated CSL activity
1) **Preparation**   ● Map out the targeted core competencies, values and specific learning areas skills for the CSL activity   ● Identify resources required for the activity (locally available materials)   ● Stagger the activities across the term (Set dates and time for the activities)   ● Communicate to learners, parents/caregivers/guardians, school administration, teachers and other relevant stakeholders in the school community   ● Identify and develop assessment tools
2) **Implementation CSL Activity**   ● Assigning roles to learners.   ● Ensure every learner actively participates in the activity   ● Observe learners as they carry out the CSL activity and record feedback.   ● Use an appropriate assessment tool to   assess both the process and the product (Assess learner's work from the beginning to the end product)   ● Assess the targeted core competencies, values and subject skills.

3) Reflection on the CSL Activity

Conduct a self-evaluation session with learners on the integrated CSL activity undertaken by discussing the following:

- what went well and why
- what did not go well and why,
- what can be done differently next time
- what they have learnt.

There will be **one** integrated CSL activity that will be conducted **annually.** The thematic areas for the integrated CSL activity will be derived from the broader categories of the PCIs and concepts from the various Learning Areas. Teachers are expected to vary the themes yearly to allow learners to address different PCIs within their contexts. There should be a linkage between the skills from the learning areas and the themes.

The integrated CSL activity will take a Whole School Approach (WSA) where the entire school community is involved (learners, parents/caregivers/guardians, school administration, teachers). Parents/caregivers/guardians are key stakeholders in the planning and execution of the CSL activity. Although the teacher takes the lead role in the planning and integration of the CSL activity, learners will be expected to participate actively in the whole process.

The CSL activity provides an opportunity for the development of core competencies and the nurturing of various values. The teacher is expected to vary the core competencies and values emphasised in the activity yearly.

Assessment of the CSL Activity

Assessment of the integrated CSL activity will focus on 3 components namely: skills from various learning areas applied in carrying out the activity, and core competencies and values demonstrated. Assessment should focus on both the process and end product of the CSL activity. The teacher will assess learners in groups using various tools such as an observation schedule, checklist or rating scale or any other appropriate tool.