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| **Learning Planner** |
| **Subject** | *General Science* | **Week** | *3* | **Duration** | *180 min* | **Form** |  *SHS 1* |
| **Strand** | *EXPLORING MATERIALS* | **Sub-Strand** | SCIENCE AND MATERIALS IN NATURE |
| **Content Standard** | Demonstrate knowledge and understanding of the characteristics of science and show how they are applied in everyday life. |
| **Learning Outcome(s)** | * Evaluate the characteristics of science
 |
| **Learning****Indicator(s)** | * Apply the characteristics of science where appropriate
 |
| **Essential Question(s)**  |  |
| **Pedagogical Strategies** | * *Collaborative learning*
* *Demonstration*
* *Project-based learning*
* *Research method*
* *Field trip*
 |
| **Teaching & Learning Resources** | * *Projectors*
* *Poster pictures showing scenarios in which the characteristics of science are displayed. (E.g.* [*https://evolution.berkeley.edu/nature-of-science/characteristics-of-science*](https://evolution.berkeley.edu/nature-of-science/characteristics-of-science)*/and* [*https://www.sciencebuddies.org/science-fair-projects/project-ideas/list*](https://www.sciencebuddies.org/science-fair-projects/project-ideas/list) *).*
* *Internet source*
 |
| **Key Notes on Differentiation** |
| 1. *Learning Tasks:*
* *Explain how characteristics of science can be applied in everyday life, such as in education*
* *Summary report on the field trip to the local industries, etc.*
1. *Pedagogical Exemplars:*
* *Put learners in mixed-ability groups. Using think-pair-share lets learners search for the applications of the characteristics of science (empirical evidence, systematic observation, objectivity, tentativity) in everyday life, such as agricultural science, health, education, and home and reflect on their findings. Learners discuss their findings on the applications of the characteristics of science in everyday life*
* *Let learners assess each other's contributions during group activities, presentations, and experiments*
* *Organise a visit or field trip to a local industry or school farm where learners can observe the applications of the characteristics of science first-hand. During field trips to local industries or school farms, teachers can monitor students' engagement, note-taking, and interactions with industry professionals to assess their understanding of the applications of the characteristics of science*
* *Learners write a summary report about what they learnt from the field trip, etc.*
1. *Key Assessments (DoK):*
* *Level 2: Identify at least three areas where characteristics of science are applied*
* *Level 2: Explain how empirical evidence as a characteristic of science is applied in Agriculture*
* *Level 2: Explain how the characteristics of science are applied in health and school*
* *Level 3: Analyse at least two situations or areas where the characteristics of science can be applied, etc.*
 |
| **Keywords** | * Design, application, project, characteristics, breeding etc.
 |
| **Lesson 1** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| ***Teacher Activity***  | ***Learner Activity*** |
| **Starter *Activity (10 minutes)***  |
| ***Introductory Activity (15minutes)***1.

***Activity 1 (40 minutes)******Activity 2 (40 minutes)***1.
 | ***Introductory Activity (15minutes)***1.

***Activity 1 (40 minutes)******Activity 2 (40 minutes)*** |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
| **Level 3: Strategic reasoning**  |
| **Lesson Closure** ***In completing this part, refer to the Essential Questions to check that learning has taken place.*** |
| ***Activity (15 minutes)***  |
| **Reflection & Remarks** |
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| **Lesson 2** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| ***Teacher Activity***  | ***Learner Activity*** |
| **Starter *Activity (10 minutes)***  |
| ***Introductory activity (25 minutes)***1.

***Activity 1 (25 minutes)***1.

***Activity 2 (25 minutes)***1.

***Activity 3 (25 minutes)***1.
 | ***Introductory activity (25 minutes)******Activity 1(30 minutes)***1.

***Activity 2 (25 minutes)******Activity 3 (25 minutes)*** |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
| **Level 3: Strategic reasoning**  |
| **Lesson Closure** ***In completing this part, refer to the Essential Questions to check that learning has taken place.***  |
| ***Activity (15 minutes)***  |
| **Reflection & Remarks** |
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| **Learning Planner** |
| **Subject** | *General science* | **Week** | *4* | **Duration** | *180 min* | **Form** |  *SHS 1* |
| **Strand** | *EXPLORING MATERIALS* | **Sub-Strand** | SCIENCE AND MATERIALS IN NATURE |
| **Content Standard** | * Know, understand, and identify the roles of solids in life
 |
| **Learning Outcome(s)** | * Explain the functions of solids in life.
 |
| **Learning****Indicator(s)** | * Classify different solids and their uses.
 |
| **Essential Question(s)**  |  |
| **Pedagogical Strategies** | * *Collaborative learning*
* *Activity-based learning*
* *Research method*
* *Nature walk*
* *Talk- for learning*
 |
| **Teaching & Learning Resources** | * *Internet resources such as Massive Open Online Courses (MOOCs); (*[*https://www.youtube.com/watch?v=N4MdZx1fgbA*](https://www.youtube.com/watch?v=N4MdZx1fgbA)*;* [*https://www.youtube.com/watch?v=ZcF8E8aAOGs*](https://www.youtube.com/watch?v=ZcF8E8aAOGs)*;* [*https://www.youtube.com/watch?v=vTq4sgGd2QU*](https://www.youtube.com/watch?v=vTq4sgGd2QU)*)*
* *Projectors*
* *Charts*
* *Solid substances such as iron nails, plastic bottles, stones etc,.*
 |
| **Key Notes on Differentiation** |
| 1. Learning task
* Enumerate three properties each of metals, non-metals, and semi-metals
* In tabular form, outline four differences between metals and nonmetals
* Explain why metal objects should be kept dry and clean?, etc.
1. Pedagogical Exemplars:
* Learners can be grouped in mixed-gender and mixed-ability groups to explore the uses of various solid materials in different structures and substances within their community during a walk around their community (e.g., buildings, vehicles, litter, glass, plastic, construction materials etc.)
* Let learners use the internet to research these different solid materials and classify them based on specific criteria using concept maps. Teacher ensures learners classify solid materials into metals, non-metals, semi-metals. Note: there will be some that cannot as they are compounds or mixtures
* In mixed groups, discuss the classification of solids into metals, non-metals, semi-metals using their properties. Groups can present their conclusions
* Using samples of metals, semi-metals and non-metals, guide learners in pairs to research and distinguish between their properties such as lustre, electrical and thermal conductivity, malleability, ductility, and sonority
* Assign learners in separate groups to perform the different practical activities. Let learners present their results to the rest of the class for discussion.
* Working in small groups, let learners create a poster which shows the findings from their practical activities, etc.

 1. Key Assessments (DoK)
* Level 1: Identify three substances which are solids at room temperature
* Level 2: Explain why gold and platinum do not corrode
* Level 2: Describe an experiment to explain the conditions necessary for corrosion of iron

Level 3: Describe and explain the differences between metals and non- metals, etc. |
| **Keywords** | Structures, ductility, lustre, malleability, tensile, periodic table, amorphous solids, etc,. |
| **Lesson 1** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| ***Teacher Activity***  | ***Learner Activity*** |
| **Starter *Activity (10 minutes)***  |
| ***Introductory Activity (15minutes)***1.

***Activity 1 (40 minutes)******Activity 2 (40 minutes)***1.
 | ***Introductory Activity (15minutes)***1.

***Activity 1 (40 minutes)******Activity 2 (40 minutes)*** |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
| Level 2: Skills of conceptual understanding  |
| **Lesson Closure** ***In completing this part, refer to the Essential Questions to check that learning has taken place.*** |
| ***Activity (15 minutes)***  |
| **Reflection & Remarks** |
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| **Lesson 2** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| ***Teacher Activity***  | ***Learner Activity*** |
| **Starter *Activity (10 minutes)***  |
| ***Introductory activity (25 minutes)***1.

***Activity 1 (25 minutes)***1.

***Activity 2 (25 minutes)***1.

***Activity 3 (25 minutes)***1.
 | ***Introductory activity (25 minutes)******Activity 1(30 minutes)***1.

***Activity 2 (25 minutes)******Activity 3 (25 minutes)*** |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
| Level 2: Skills of conceptual understanding  |
| **Lesson Closure** ***In completing this part, refer to the Essential Questions to check that learning has taken place.***  |
| ***Activity (15 minutes)***  |
| **Reflection & Remarks** |
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