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| **Learning Planner** |
| **Subject** | *General science* | **Week** | *2* | **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)** | Design projects using the characteristics of science |
| **Essential Question(s)**  |  |
| **Pedagogical Strategies** | * *Collaborative learning*
* *Demonstration*
* *Project-based learning*
 |
| **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 sources*
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| **Key Notes on Differentiation** |
| 1. *Learning task:*
* *Identify three steps involved in designing science projects*
* *Describe how to design science-based projects using the characteristics of science. Design a science-based project using characteristics of science*
* *Give an example of designing science-based projects where the characteristics of science can be identified, etc.*
1. *Pedagogical Exemplars:*
* *Provide videos, charts, diagrams, and pictures for learners on designing science-based projects using the characteristics of science in nature*
* *In mixed-ability groups, learners discuss the step-by-step science characteristics used in videos, charts, diagrams, and pictures to design the project*
* *Demonstrate how the characteristics of science (empiricism, systematic observation, objectivity, tentativity) are used in designing a project for the learners*
* *In mixed-ability groups, provide hands-on experimentation for learners on characteristics of science. Allow learners to explain the characteristics of science demonstrated in the experiment. For example, an experiment to show the empirical nature of science*
* *Learners present their findings from the experiment to the class for peer review or critique*
* *Encourage learners to seek feedback from peers and teachers, iterate on their designs, and reflect on the iterative design process to enhance learning outcomes, etc.*
1. *Key Assessments (DOK):*
* *Level 2: Describe the characteristics of science when designing a scientific project*
* *Level 3: Identify three characteristics of science and discuss how each can enhance the effectiveness of a scientific project's design*
* *Level 4: Why is gathering and analysing data during the design process essential? Provide examples of how empirical evidence can influence design decisions, etc.*
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| **Keywords** | Design, application, project, characteristics, etc. |

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| **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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