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| **Learning Planner**  |
| **Subject**  | General Science  | **Week**  | 1  | **Duration**  | 180 minutes  | **Form**  |  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)**  | Explain the various characteristics of science in nature.   |
| **Essential** **Question(s)**  | 1. Carefully observe daily scientific principles and explain the characteristics of science applied within.
2. How do you create a chart using the characteristics of science?
3. How do you apply the characteristics of science, Measure the volume of water using a measuring cylinder?
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| **Pedagogical Strategies**  | 1. Talk for learning approach, Inquiry-based method
2. Think pair share
3. Demonstration/ practical activity
4. Collaborative learning, discussion method.
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| **Teaching &** **Learning** **Resources**  | Measuring cylinder, Beaker, Funnel, Litmus paper, Water, vinegar, Metre rule, Projector, Video and Internet  |
| **Key Notes on Differentiation**  |
| 1. Learning Task
	* Write at least three situations in life where characteristics of science are evident
	* Identify at least four characteristics of science in nature  Explain at least four characteristics of science in nature, etc.

 1. Pedagogical Exemplars:
	* Learners think about the importance of science and discuss their ideas with a peer. The teacher asks learners to present their ideas to the whole class. The teacher presents videos, charts, pictures, and demonstrations on the characteristics of science to learners, and learners in mixed-ability groups discuss the characteristics of science, considering its meaning and importance in real life.
	* Learners in mixed ability groups experiment as shown in Fig. 1, 2, 3 (refer to manual) to demonstrate the characteristics of science such as replicability, predictability (the ability of scientific investigations to make
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| accurate and reliable predictions about future events), empirical (relies on observations and data gathered) * Learners reflect and share their views of different situations in life where the characteristics of science are evident with peers for critique
* Group learners create a poster showing the key characteristics of science/definitions, significance, and application in daily life for a whole class gallery walk and presentation, etc.

 iii. Key Assessment * Level 1: Identify at least four (4) characteristics of science
* Level 2: Explain four (4) characteristics of science
* Level 2: Explain at least any four (4) characteristics of science in everyday life
* Level 2: Explain the need to study the characteristics of science • Level 2: Describe how the scientific processes can be used to make predictions etc.

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| **Keywords**  | Empirical, replication. systematic, consistency, predictability, validity, Precision and accuracy.  |
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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 (5 minutes)** **Start with a riddle. Learners listen to the riddle and give a response** **Riddle! Riddle!**  **I am something.** **The longer I grow, the shorter I become.** **What am I? Expected Response** **candle** **Note: Demonstrate with a burning candle.**  |
| **Introductory Activity (10 minutes)** 1. Put learners into mixed-ability groups and discuss the science overview and its importance using talk-forlearning.
2. Encourage learners to accommodate individuals' diverse views as they interact
 | **Introductory Activity (1 0 minutes)** In mixed-ability groups discuss the science overview and its importance in using talk-forlearning.        |

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| and collaborate in their groups.  **Activity 1 (15 minutes)** 1. Presents videos or charts or pictures or photos, and demonstrations on the characteristics of science to learners.

 1. Ask learners in mixed-ability groups to discuss and present the characteristics of science to the class, considering its meaning. E.g., Empirical replication. Systematic, consistency,

predictability, validity, experimentation, observation, recording, etc.  1. Note: Allow adequate time for the presentation.

**Activity 2 (15 minutes)** Together with learners, Summarise the characteristics of science from the learners’ presentation.  |     **Activity 1 (15 minutes)** 1. Watch and take down notes on the presented videos or charts or pictures or photos, and demonstrations on the characteristics of science.

1. in mixed-ability groups discuss and present the characteristics of science to the class, considering its meaning.

E.g., Empirical replication. Systematic, consistency, predictability, validity, experimentation, observation, recording, etc.   1. Group in turns do their presentation.

**Activity 2 (15 minutes)** Listen and put down notes.   |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual**  |
| 1. Level 1: Identify at least four (4) characteristics of science.
2. Level 2: Explain four (4) characteristics of science.
3. Level 2: Explain at least any four (4) characteristics of science in everyday life

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| **Lesson Closure** **In completing this part, refer to the Essential Questions to check that learning has taken place.**  |
| **Activity (15 minutes)** 1. Ask learners to share what they learned from the lesson with the whole class. (Offer learners the opportunity to ask questions for further clarification and address misconceptions).
2. Ask learners how the replication process contributes to the reliability of scientific findings.
3. Assign an activity for the next lesson.

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| **Reflection & Remarks**  |
| Reflection 1. What went well during the lesson delivery?
2. Were the learners able to understand the characteristics of science in nature?
3. The learners could explain the characteristics of science in everyday life.
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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 (5 minutes)** Imagine you're an explorer setting out on a quest to uncover hidden treasures in an uncharted land. What qualities do you think you'd need to succeed in such an adventure? Take a moment to jot down your thoughts. Expected responses: Good observation, curiosity, record keeping, mapping of trail etc.  Now, let's shift our focus from exploration to scientific inquiry. How do the qualities you listed align with the characteristics of science? In today's lesson, we'll delve into the scientific mindset and explore the key traits that distinguish scientific inquiry from other ways of understanding the world.  |
| **Introductory activity (10 minutes)** Learners discuss the characteristics of science. Expected response.  Empirical replication. Systematic, consistency, predictability, validity, experimentation, observation, recording. Encourage Learners to respect one another’s views as they interact and collaborate in their groups. **Activity 1 (40 minutes)** Put Learners in mixed ability groups to experiment with Measuring cylinder, Beaker, Funnel, Litmus paper, Water, vinegar, metre rule,etc the characteristics of science such as replicability, predictability (the ability of scientific investigations to make accurate and reliable predictions about future events), and empirical (relying on observations and data gathered) in different situations in life.  | **Introductory activity (10 minutes)** Discuss the characteristics of science.    **Activity 1(40 minutes)** in mixed ability groups experiment with Measuring cylinder, Beaker, Funnel, Litmus paper, Water, vinegar, metre rule,etc the characteristics of science such as replicability, predictability (the ability of scientific investigations to make accurate and reliable predictions about future events), and empirical (relies on observations and data gathered) in different situations in life.    |
| **Activity 2 (30 minutes)** Learners reflect and share their views of different situations in life where the characteristics of science are evident with peers for critique.   **Activity 3 (25 minutes)** In Groups, learners create a poster that shows the characteristics of science definitions for a whole class gallery walk and presentation.   | **Activity 2 (30 minutes)** Reflect and share their views of different situations in life where the characteristics of science are evident with peers for critique. **Activity 3 (25 minutes)** Create a poster that shows the characteristics of science definitions for a whole class gallery walk and presentation.   |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual.**  |
| 1. Level 2: Explain the need to study the characteristics of science.
2. Level 2: Describe how the scientific processes can be used to make predictions etc.

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| **Lesson Closure** **In completing this part, refer to the Essential Questions to check that learning has taken place.**  |
| **Activity (10 minutes)** 1. Ask learners to share what they learned from the lesson with the whole class. (Offer learners the opportunity to ask questions for further clarification and address misconceptions).
2. Assign an activity for the next lesson.
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| **Reflection & Remarks**  |
| Reflection 1. What went well during the lesson delivery?
2. Were the learners able to understand the characteristics of science in nature?
3. The learners could explain the characteristics of science in everyday life.

 Remarks:   |