WEEK 10

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| **Week Ending:** | | **DAY:** | | **Subject:** Science | | | |
| **Duration: 100mins** | | | | **Strand:** Humans & The Environment | | | |
| **Class:** B8 | | **Class Size:** | | **Sub Strand:** UNDERSTANDING THE ENVIRONMENT | | | |
| **Content Standard:**  B8.5.5.1 Demonstrate understanding of the differences among soils, plant roots, stems, leaves, flowers, and fruits of plants in the different environments. | | | **Indicator:**  B8.5.5.1.1 Discuss physical properties of soils. | | | | **Lesson:**  1 of 2 |
| **Performance Indicator:**  Learners can discuss physical properties of soils. | | | | | **Core Competencies:**  DL 5.3: CI 6.8: DL 5.1: CI 6.6: | | |
| **References:** Science Curriculum Pg. 80 | | | | | | | |
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| Phase/Duration | Learners Activities | | | | | Resources | |
| PHASE 1: **STARTER** | Revise with learners to review their understanding in the previous lesson.  Share performance indicators with learners. | | | | |  | |
| PHASE 2: **NEW LEARNING** | Discuss with learners on the different soil types: sandy, loamy, and clay soils. Explain their characteristics, particle sizes, and how they differ in terms of water retention and drainage.  Discuss how each soil type supports the root system of plants and how water retention affects plant growth.  Divide the class into groups and provide each group with garden trowels or small shovels.  Take a field trip to the school garden or a designated area in the community to collect soil samples. Instruct learners to collect samples of sandy, loamy, and clay soils separately.  Distribute clear plastic cups, seeds, markers, and handouts with observation sheets.  Instruct each group to fill three cups with equal amounts of each soil type. Label the cups accordingly.  Have learners plant a seed in each cup and water them with the same amount of water using a graduated cylinder.  Ask learners to record their initial observations on the handout, noting the appearance of each soil type and the water added.  Place the cups near a window or under a grow light and let the seeds germinate over the next few days.  Bring the cups back to the classroom. Have learners measure the height of the seedlings in each cup using a ruler. Discuss and record the findings on the whiteboard.  Lead a discussion based on the observation results:  - How did each soil type retain water differently?  - How did water retention affect the growth of the seedlings?  - Which soil type seemed to support the root system the best?  Assessment  Ask learners to research and write a short essay on the benefits and challenges of each soil type for specific types of crops or plants. | | | | | Pictures and charts | |
| PHASE 3: **REFLECTION** | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.  Take feedback from learners and summarize the lesson. | | | | |  | |

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| **Week Ending:** | | **DAY:** | | **Subject:** Science | | | |
| **Duration: 100mins** | | | | **Strand:** Humans & The Environment | | | |
| **Class:** B8 | | **Class Size:** | | **Sub Strand:** UNDERSTANDING THE ENVIRONMENT | | | |
| **Content Standard:**  B8.5.5.1 Demonstrate understanding of the differences among soils, plant roots, stems, leaves, flowers, and fruits of plants in the different environments | | | **Indicator:**  B8.5.5.1.2 Analyze the physical properties of soils and soil water content and demonstrate their importance in crop production. | | | | **Lesson:**  1 of 2 |
| **Performance Indicator:**  Learners can discuss physical properties of soils. | | | | | **Core Competencies:**  DL 5.3: CI 6.8: DL 5.1: CI 6.6: | | |
| **References:** Science Curriculum Pg. 80 | | | | | | | |
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| Phase/Duration | Learners Activities | | | | | Resources | |
| PHASE 1: **STARTER** | Revise with learners to review their understanding in the previous lesson.  Share performance indicators with learners. | | | | |  | |
| PHASE 2: **NEW LEARNING** | Display samples of each soil type and discuss their physical properties:   * Sandy: coarse texture, large particle size, good drainage but low nutrient content. * Loamy: balanced texture, medium particle size, and moderate water retention, rich in nutrients. * Clay: fine texture, small particle size, high water retention but can become compacted.   Allow learners to touch and feel the texture of each soil type.  Present the potted plants grown in different soils to the learners.  Ask learners to observe and describe the growth of the plants in each pot – height, leaf size, overall health, etc.  Discuss how the physical properties of the soil could influence these observations.  Discuss the concept of osmosis and explain how plants absorb water and nutrients from the soil.   * Fill two cups with water and add a few drops of food coloring to each cup, making the water visibly colored. * Place celery stalks (or alternative plant) in each cup, ensuring the leaves are still exposed. * Over time (this may extend beyond the duration of the lesson), the colored water will travel up the celery stalk, demonstrating osmosis. * If available, use a microscope to show a close-up of the plant cells absorbing water (this will be more visible in the case of translucent leaves or thin plant tissues).   Engage learners in a discussion about their observations:  Which soil type seemed best for plant growth? Why?   * How do the physical properties of soil impact water retention and nutrient availability? * How does osmosis help plants absorb the necessary water and nutrients?   Project work  Ask learners to experiment at home by placing a plant in a cup of colored water and observing any changes in the plant over a week. They should document their observations and write a short report on their findings. | | | | | Pictures and charts | |
| PHASE 3: **REFLECTION** | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.  Take feedback from learners and summarize the lesson. | | | | |  | |

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| **Duration: 100mins** | | | | **Strand:** Humans & The Environment | | | |
| **Class:** B8 | | **Class Size:** | | **Sub Strand:** UNDERSTANDING THE ENVIRONMENT | | | |
| **Content Standard:**  B8.5.6.1 Recognize the different types of rocks as origin of different types of soils | | | **Indicator:**  B8.5.6.1.1 Observe and describe different types of rocks as origins of soils. | | | | **Lesson:**  1 of 2 |
| **Performance Indicator:**  Learners can identify different types of rocks and describe their visible characteristics. | | | | | **Core Competencies:**  DL 5.3: CI 6.8: DL 5.1: CI 6.6: | | |
| **References:** Science Curriculum Pg. 85 | | | | | | | |
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| Phase/Duration | Learners Activities | | | | | Resources | |
| PHASE 1: **STARTER** | Revise with learners to review their understanding in the previous lesson.  Share performance indicators with learners. | | | | |  | |
| PHASE 2: **NEW LEARNING** | Brainstorm learners on what rocks are and why they are important to our planet.  Introduce the three main rock types: igneous, sedimentary, and metamorphic.  Distribute labeled rock samples to each student or group of learners.  Provide each student or group with a magnifying glass and rock identification guide.  Learners examine their rock samples, noting the name of the rock and using the guide to confirm the classification.  After identifying each rock, learners will describe its visible characteristics in their notebooks. For example, color, texture, grain size, luster, and any visible minerals.  Facilitate a discussion, asking learners to share their descriptions and noting any similarities or differences between the rock samples.  Assessment   1. What are rocks, and why are they important? 2. Name the three main types of rocks. 3. How can you use a rock identification guide to determine the type of rock you have? 4. Describe one physical characteristic you could use to identify a rock. 5. List three visible characteristics you might observe when examining a rock. 6. How might the texture of an igneous rock differ from that of a sedimentary rock? | | | | | Pictures and charts | |
| PHASE 3: **REFLECTION** | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.  Take feedback from learners and summarize the lesson. | | | | |  | |

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| **Duration: 100mins** | | | | **Strand:** Humans & The Environment | | | |
| **Class:** B8 | | **Class Size:** | | **Sub Strand:** Rocks | | | |
| **Content Standard:**  B8.5.6.1 Recognize the different types of rocks as origin of different types of soils | | | **Indicator:**  B8.5.6.1.1 Observe and describe different types of rocks as origins of soils. | | | | **Lesson:**  2 of 2 |
| **Performance Indicator:**  Learners can collect rock samples from their community, identify them using a guide, and research the stages of weathering of rocks to form soil. | | | | | **Core Competencies:**  DL 5.3: CI 6.8: DL 5.1: CI 6.6: | | |
| **References:** Science Curriculum Pg. 85 | | | | | | | |
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| Phase/Duration | Learners Activities | | | | | Resources | |
| PHASE 1: **STARTER** | Revise with learners to review their understanding in the previous lesson.  Share performance indicators with learners. | | | | |  | |
| PHASE 2: **NEW LEARNING** | Ask learners to present the rock they found as homework, describing its visible characteristics.  Learners should then use the rock identification guide to attempt to classify their rock.  Compare the student-found rocks to the labeled laboratory samples from Lesson 1.  Divide learners into small groups and assign each group a specific stage or type of weathering (physical, chemical, and biological).  Using classroom resources or the internet, learners will research their assigned stage/type of weathering and how it contributes to soil formation.  Each group will then present their findings to the class.  Assessment   1. Describe the rock you found in your community. What visible characteristics did you observe? 2. Did you use a rock identification guide to classify your rock? If so, what type of rock did you determine it to be? 3. What is weathering, and why is it important in the formation of soil? 4. Name one type of weathering and describe how it affects rocks. | | | | | Pictures and charts | |
| PHASE 3: **REFLECTION** | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.  Take feedback from learners and summarize the lesson. | | | | |  | |