**SLED Implementation Plan**

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| **Your Name(s):**  Shanna Bradford | **Unit BIG IDEAS:**  Describe that all organisms, including humans, are part of complex systems found in all biomes. (Use a compost protocol or procedure to create compost.) |
| **Grade Level**:  6th | **Key vocabulary:**  Autotroph, heterotroph, habitat, taxon, abiotic,  biotic, decomposer, decomposition, aerobic decomposition, anaerobic, decomposition, prokaryotic cell, eukaryotic cell, cytoplasm, mitochondrion |
| **School:**  Lafayette Sunnyside Middle School | **Unit prior to and following this unit**:  Prior to**:** Ch. 5 – Life’s Classification and Structure  Following: Ch. 8 – Biomes and Ecosystems |
| **Total time (hours or class sessions):**  Twelve 45 minute class sessions | **Estimated starting date in the school year:**  Beginning of November 2011 |

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| **Unit Objectives**:  ***By the end of this unit, students will be able to:***   * Define decomposition. * Identify three different examples of decomposers. * Differentiate between aerobic and anaerobic decomposers. * Explain what decomposers do. * Use evidence to explain how certain factors influence decomposition. * Recognize that food provides the energy for the work that cells do and is a source of the molecular building blocks that can be incorporated into a cell’s structure or stored for later use. |
| **Core Indiana Academic Standard to be addressed**:  Standard 3: Life Science  Describe that all organisms, including humans, are part of complex systems found in all biomes.   * Understand that the major source of energy for ecosystems is light produced by major nuclear reactions in the sun. * The design process.   **Standard Indicator(s) to be addressed:**   * 6.3.3 Describe how certain biotic and abiotic actor, such as predators, quantity of light and water, range of temperatures and soil composition can limit the number of organisms an ecosystem can support. * 6.3.4 Recognize that plants use energy from the sun to make sugar (glucose) by the process of photosynthesis. * 6.3.6 Recognize that food provides the energy for the work that cells do and is a source of the molecular building blocks that can be incorporated into a cell’s structure or stored for later use. * The Design Process. |
| **Materials and Resources (available in school and/or will need to get):**  Tools/ Equipment:   * X-acto knifes * Scissors * Rulers * Thermometers * Flip Cameras * Microscopes   Materials:   * 1-2 Liter bottles * Soil * Grass/lawn cuttings * Brown and green leaves * Red worms * Water * Design notebooks * Food scraps  |  |  | | --- | --- | |  |  | |

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| **Overview of Lesson Activities:**  The following outline will be presented in sequential order over a twelve day period of time to 6th grade students. Included after the outline are the specific questions/topics to be answered during the completion of the unit.     1. Begin with Ch. 5 - Guiding Questions, p.148. 2. Inquiry: “Why All the Hooks?” p. 148 - Guiding Questions. 3. Anticipation Set for Lesson 1: Get Ready to Read: “What do you think?” p. 149. 4. Engage: Reading Guide using vocabulary: “Bringing a Big Term Down to Size” p. 150. 5. Explore: Inquiry Launch Lab with tapered candle, p. 150. 6. Engage: “What are living things?” p. 150. 7. Explain: “Living things are organized.” p. 152&153 - Guiding Questions. 8. Explain: “Living things use energy.” p. 154 - Guiding Questions. 9. Explain: “Living things respond to stimuli.” p. 154 - Guiding Questions. 10. Explain: “What do living things need?” p. 155 - Guiding Questions. 11. Explain: “How are living things classified?” p. 156 & 157 - Guiding Questions. 12. Explore: Inquiry Mini Lab with “Whose Shoe is it?” p. 157. 13. Evaluate: Lesson # 1 Review. p. 158. 14. Extend: “On a Quest for Leeches.” p. 159. 15. Extend: “Getting the Dirt on Decomposition” Lesson Plan # 1-4. SLED materials. 16. Engage: Reading Guide using vocabulary. p. 160. 17. Explore: Inquiry Launch Lab with notebook and textbook. p. 161. 18. Explain: “What are cells made of?” p. 162 - Guiding Questions. 19. Explain: “Types of Cells.” p. 162 - Guiding Questions. 20. Explain: “The Outside of a Cell.” p. 163 - Guiding Questions. 21. Explain: “The Inside of a Cell.” p.164 to 166 – Guiding Questions. 22. Explore: “Inquiry Mini Lab with “What can you see in a cell?” p. 164. 23. Evaluate: Lesson # 2 Review. p. 167. 24. Extend: “How can living things be classified?” p. 168. 25. Evaluate: Ch. 5 Study Guide p. 170-173. 26. Evaluate: Ch. 5 Test.     Lesson Introduction:   * Students will have been exposed to Ch. 5, Section 1 in the Glencoe 6th grade science textbook prior to beginning the “Getting the Dirt on Decomposition” SLED activity. Once the compost lessons have been completed and the compost created, the remaining Ch. 5, Section 2 will be discussed in the Glencoe text. * The actual lesson will begin with Lesson Plan # 1 activity sheet from the “Getting the Dirt on Decomposition” in which a K-W-L worksheet will be completed by the students who will be asked the following questions after they have read “The Rotting Apple” worksheet prompt: * What do you KNOW about decay, decomposers, and decomposition? * How do you know if something has decayed? * What does it look like? * What does it smell like?   Hands-on Activities:   * “The Rotting Apple” worksheet prompt. * K-W-L worksheet. * Web search of facts on how to make a compost bin/pile. * Design notebook. * “Learning about Decomposition and the Compost Cycle” from lesson plan # 2 worksheet. * Data tables # 1 & 2 from lesson plan # 3 worksheet. * Create a word bank of decomposition vocabulary words. * Create a compost bin/pile. * Graph of compost results from lesson plan # 4. * Microscope usage. * Persuasive letter.   Engineering/Design Process:   * The engineering/design process will be utilized when the students actually attempt to design a compost column.   Science concepts and vocabulary:   * Concepts and vocabulary will be introduced prior to the SLED activity during Ch. 5 as well as when lesson plan #2 from the “Getting the Dirt on Decomposition” is discussed.   Science concepts and vocabulary connection:   * Connections will be reinforced throughout the unit by me as the students work through each of the lessons included in the unit.   Lesson builds on existing curriculum:   * “Getting the Dirt on Decomposition” builds on the information imparted to the students in Ch. 5 of our Glencoe science textbook. The chapter develops the students’ understanding of what comprises living organisms, what they need to live, and then, delves into living cells and microscope usage. The chapter includes several comparable topics which mimic many of the activities utilized in the unit.   Unit conclusion:   * Students will practice using a microscope. After at least six weeks have past, students will have gathered & recorded observations and measurements gleaned from the compost bin/pile. Additionally, students will complete the L on their K-W-L worksheet. Also, a persuasive letter will be written.   Day-by-day timeline:  Day 1-2 Ch. 5 Glencoe science textbook, section # 1.  Day 3 Lesson plan # 1.  Day 4-5 Lesson plan # 2.  Day 6 Lesson plan # 3.  Day 7-10 Ch. 5 Glencoe science textbook, section # 2.  Day 11 Lesson plan # 4, part 1 (six weeks later).  Day 12 Lesson plan # 4, part 2 (six weeks later).  Materials created or used:   * SLED activity entitled “Getting the Dirt on Decomposition.” * K-W-L worksheet. * Word bank worksheet/foldable. * Design notebook. * Web search worksheet. * Six week measurement graphs. * Persuasive letter. |
| **Cross-curricular connections:**   * **Math** – measurements, charts, temperature, ratios * **Language** **Arts** – graphic organizers, vocabulary, reading, writing, K-W-L, journaling, visual literacy, critical thinking * **Science** – science processes, foldables * **Art** - drawings * **Technology** – web quests/search |
| **Assessment:**   * Lesson 1 Review. * Lesson 2 Review. * Journal entries – rubric. * Ch. 5 Study Guide questions. * Ch. 5 Test. * K-W-L worksheet. * Web Search homework. * Six week measurement graphs. * Compost bin/pile completion (rubric). * Persuasive letter.   Student learning assessment:   * Assessment will be both formative and summative in nature based on the assessment assignments.   Mastery of big ideas and/or vocabulary:   * Scores on the K-W-L worksheet, the six-week measurement graphs, the notebook, the persuasive letter and the compost bin/pile completion will be taken and analyzed.   Evidence collected:   * K-W-L worksheet, the six-week measurement graphs, the notebook, and the persuasive letter. |