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| **Lesson Title : Sorting Trash** | **Unit #:**  **1** | **Lesson #:**  **2** | **Activity #:**  **3** |
| **Activity Title: Trash Home Study** |

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| **Estimated Lesson Duration:** | **1 period- 45 minutes** |
| **Estimated Activity Duration:** | **1 period- 45 minutes** |

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| **Setting:** | **Classroom** |

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| **Activity Objectives:**  **Students will:**  **Analyze data from their home study and compare their trash and compost usage with other students**  **Recognize trends within the classroom by collectively looking at and analyzing data from the students** |

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| **Activity Guiding Questions:**  **How much trash do I generate vs the average American?**  **How much of my trash is reusable/recyclable?** |

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| **Next Generation Science Standards (NGSS)** | |
| **Science and Engineering Practices (Check all that apply)** | **Crosscutting Concepts (Check all that apply)** |
| X☐ Asking questions (for science) and defining problems (for engineering) | X☐ Patterns |
| ☐ Developing and using models | ☐ Cause and effect |
| X☐ Planning and carrying out investigations | ☐ Scale, proportion, and quantity |
| X☐ Analyzing and interpreting data | X☐ Systems and system models |
| ☐ Using mathematics and computational thinking | ☐ Energy and matter: Flows, cycles, and conservation |
| ☐ Constructing explanations (for science) and designing solutions (for engineering) | ☐ Structure and function. |
| ☐ Engaging in argument from evidence | ☐ Stability and change. |
| X☐ Obtaining, evaluating, and communicating information |  |

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| **Ohio’s New Learning Standards for Science (ONLS)** |
| **Expectations for Learning - Cognitive Demands (Check all that apply)** |
| ☐ Designing Technological/Engineering Solutions Using Science concepts **(T)** |
| X☐ Demonstrating Science Knowledge **(D)** |
| X☐ Interpreting and Communicating Science Concepts **(C)** |
| X☐ Recalling Accurate Science **(R)** |

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| **Common Core State Standards -- Mathematics (CCSS)** | |
| **Standards for Mathematical Practice (Check all that apply)** | |
| ☐ Make sense of problems and persevere in solving them | ☐ Useappropriate tools strategically |
| ☐ Reason abstractly and quantitatively | ☐ Attendto precision |
| ☐ Construct viable arguments and critique the reasoning of others | ☐ Look for and make use of structure |
| ☐ Model with mathematics | ☐ Look for and express regularity in repeated reasoning |

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| **Unit Academic Standards (NGSS, ONLS and/or CCSS):**  **NGSS:**   * When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. (HS-PS2-c),(HS-PS3-b),(HS-LS2-j),(HS-ESS2-b),(HS-ESS3-f),(HS-ESS3-h) * Testing should lead to improvements in the design through an iterative procedure. (HS-PS2-c),(HS-PS3-b),(HS-PS4-d) (HS-ESS3-f) |

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| **Materials**: (Link Handouts, Power Points, Resources, Websites, Supplies) |

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| **Teacher Advance Preparation: Teacher should have the Answer sheet copied before hand and should have group questions planned out.** |

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| **Activity Procedures:**  **Students will individually answer the worksheet response questions.**  **Students will get into groups of 2 or 3 and do a Think Pair Share on their personal food usage. The students will be guided by the worksheet response questions.**  **The classroom will come back together as the individual groups share what they learned during their TPS: What surprised you? What was your most common trash?**  **As a classroom, Make a class chart of the top 5 most used materials and estimate the amount of trash the class generates. After this, have a classroom discussion on what could be done with the most commonly generated trash types.** |

**Formative Assessments:** Link the items in the Activities that will be used as formative assessments.

The students will be formatively assessed in their answer sheet to their study. They also will be formatively assessed with the discussion that happens after the think pair share activity.

**Summative Assessments:** These are optional; there may be summative assessments at the end of a set of Activities or only at the end of the entire Unit.

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| **Differentiation:** This lesson did not need a lot of differentiation. Most students understood the goal of the lesson after it was explained. ELL and IEP learners may need additional instruction in future lessons |

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| **Reflection:** This lesson went very well. The students evaluated how much food and trash they wasted and then brainstormed ideas to waste less. Many students were shocked as to how much food was actually wasted in their households and vowed to try to waste less. |