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| Modified 5 E Lesson Plan | | |
| TOPIC: Resource Conservation-Reduce, Reuse, Recycle  Last revision 10/13/2013 | | DATE(S): |
| SCIENCE STANDARDS: (possibly)  MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.  [Clarification Statement: Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible, and designing and evaluating solutions that could reduce that impact. Examples of human impacts can include water usage (such as the withdrawal of water from streams and aquifers or the construction of dams and levees), land usage (such as urban development, agriculture, or the removal of wetlands), and pollution (such as of the air, water, or land).]  Disciplinary Core Idea  ESS3.C: Human Impacts on Earth Systems  Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth’s environments can have different impacts (negative and positive) for different living things. (MS-ESS3-3)  Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise. (MS- ESS3-3),(MS-ESS3-4) | | |
| COMMON CORE STANDARDS:  **CCSS Anchor Standards for Reading**  1 – Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.  2 – Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.  3 – Analyze how and why individuals, events, and ideas develop and interact.  4 – Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific work choices shape the meaning or tone.  6 – Assess how point of view or purpose shapes the content and style of a text.  7 – Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.  9 – Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.  10 – Read and comprehend complex literary and informational texts independently and proficiently.  **CCSS Anchor Standards for Writing**  2 – Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.  4 – Produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose, and audience.  5 – Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.  6 – Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.  7 – Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.  8 – Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.  9 – Draw evidence from literary or informational texts to support analysis, reflection, and research.  10 – Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audience.  **Grades 6-8 Literacy in Science and Technical Subjects**   * [CCSS.ELA-Literacy.RST.6-8.1](http://www.corestandards.org/ELA-Literacy/RST/6-8/1/) Cite specific textual evidence to support analysis of science and technical texts. * [CCSS.ELA-Literacy.RST.6-8.2](http://www.corestandards.org/ELA-Literacy/RST/6-8/2/) Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. * [CCSS.ELA-Literacy.RST.6-8.3](http://www.corestandards.org/ELA-Literacy/RST/6-8/3/) Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.   **Craft and Structure**   * [CCSS.ELA-Literacy.RST.6-8.4](http://www.corestandards.org/ELA-Literacy/RST/6-8/4/) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6–8 texts and topics*.   **Integration of Knowledge and Ideas**   * [CCSS.ELA-Literacy.RST.6-8.7](http://www.corestandards.org/ELA-Literacy/RST/6-8/7/) Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). * [CCSS.ELA-Literacy.RST.6-8.9](http://www.corestandards.org/ELA-Literacy/RST/6-8/9/) Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. | | |
| **ENGAGE:** Use a question, discrete event, piece of text, video, cartoon, picture, symbol or demonstration that exemplifies the question but not the answer. | | |
| Before the engage, randomly place students into group of 3 to work through the explore phase. Papers and projects are then completed individually for grading.  Option 1: Show a recycling symbol and ask students to write what it makes them think of individually. Have them compile a group/table/pairs list to share with the class. One symbol is included in the handouts, but there are many others.  Option 2: You have probably heard of the 3 R’s. Do you know what they are? (reduce, reuse, recycle). Which is the most important R? | | |
| **EXPLORE:** Identify and investigative technique or text and product to be used/created it the exploration. Describe what the students will do. | | |
| Students will practice close reading with the following pieces of text. They are available in the handouts. The two EPA documents are combined into one in the handouts.  <http://www.adeq.state.ar.us/solwaste/newsletters/pdfs/2012_winter_sw_quarterly.pdf>  pages 1 and 2, article “Recycling rate rebounds.”  <http://www.epa.gov/recycle/recycle.html>  read all  <http://www.epa.gov/recycle/reduce.html>  read all  <http://en.wikipedia.org/wiki/Waste_hierarchy>  read all  <http://www.independencecounty.com/content/recycling-solid-waste>  read all  Students will write a 5-paragraph informational/explanatory paper using the text and include a works cited page.  Students will then chose to create a poster, a video, a PowerPoint presentation, or a 6-panel brochure to present the information from their paper to the class.  Students remain in the same groups until ready to complete the paper and project individually.  Lesson 1: Model close reading with the Close Reading Worksheet found in the handouts and any one of the pieces of text. The most difficult text is the Wikipedia article, so you might model with it. Discuss the text, answer questions, collect and discuss/define the problem vocabulary words. Discuss how close reading is different from the way we usually read for schoolwork.  Print out 4 copies of this worksheet for each student, front and back copies are preferable.  Lesson 2: Have students use the Close Reading Worksheet to finish reading the other articles. Discuss the articles and define problem vocabulary in groups and then with the whole class.  Lesson 3: Model the MLA worksheet with the first article, then have students complete the rest of the articles as a group. Print 2 of the MLA worksheet per student, front and back copies are preferable. Students are then ready to begin organizing, writing, and revising. Students should finish the paper as homework and bring a finished copy to the next class. Students may type or handwrite the paper.  Lesson 4: Students will exchange papers within their groups for editing purposes; the final draft may be prepared in or out of class as necessary. Students will then be prepared to create their projects in or out of class as necessary and be prepared to present to the class the next time class meets. The teacher may use the rubric with the papers before the final is turned in. The same rubric is used for the project  Lesson 5: Students present their work, this is the explain phase. | | |
| **EXPLAIN:** **Students** will summarize the results of the EXPLORE phase in oral or written form. This may be a class discussion, reports, or a product. | | |
| Students will present their project, and answer questions posed by the audience. | | |
| **ELABORATE:** Teachers challenge and extend students’ conceptual understanding and skills. Through new experiences, the students develop deeper and broader understanding, more information, and adequate skills. Students apply their understanding of the concept by conducting additional activities. This may be done before, during, or after any other E. | | |
| Students will investigate some of the issues and concerns they had during the explore phase. Students should contact local officials to find out what is recycled in their area and how it is done. A guest from the local government or recycling facilities would be a way to get more questions answered. | | |
| **EVALUATE:** Use frequent formative evaluations to make instructional decisions about clarifying, re-teaching, or moving on. Use Summative evaluations to assign grades. | | |
| Formative: | Summative: | |
| Circulate while students are working to help with problems and keep students on track.  Examine the student papers and make edits if necessary before they turn in the final paper with the project, grading with rubric if desired. Rubric included in handouts | Use rubric to evaluate the final project and paper. | |

For More Information:

Reasons for the 5E Lesson Plan: <http://science.education.nih.gov/houseofreps.nsf/b82d55fa138783c2852572c9004f5566/$FILE/Appendix%20D.pdf>

CCSS for Literacy:

<http://www.corestandards.org/ELA-Literacy>

Next Generation Science Standards:

<http://www.nextgenscience.org/next-generation-science-standards>