

OUR LANDFILL FUTURE

Performance Standard 13B/12E/11A/13A.H

Students will apply the processes of scientific inquiry to explore natural resource conservation and management programs accordingly:

- *Knowledge*: Identify the impact of the issues associated with our garbage, landfills and the environment.
- *Application*: Conduct research about the parameters which influence the existence and future of a landfill.
- *Communication*: Correlate individual research presentations to final conclusions about local landfill's future.

Procedures

1. ***In order to know and apply concepts that describe the interaction between science, technology, and society (13B)***, students should experience sufficient learning opportunities to develop the following:
 - Formulate hypothesis for investigating local issue of landfill capacity from classroom questions.
 - Design an issue investigation which addresses the hypothesis from classroom decisions.
 - Select and delegate responsibilities for associated research, analysis and communication components.
 - Determine applicability of qualitative and quantitative data.
 - Research conceptual, mathematical and physical models.
 - Preview associated research and governmental policies about landfills.
 - Collect pertinent data from expert local sources.
 - Propose applicable survey instrument to conduct and assess depths of informed opinions on local landfill issue.
 - Explaining basis of safety practices, procedures and regulations associated with landfill creation, maintenance and closure.
 - Explaining decomposition (or absence) of materials sent to local landfill.
 - Interpret and represent analysis of data, research and policy correlation.
 - Evaluate survey validity.
 - Report, display and defend the process and findings of investigation.
 - Propose action response options for local landfill future prospects.
 - Generate further questions or issues for consideration.
 - Determine effectiveness and support of policies for local landfill and future prospects.

Note to teacher: This activity integrates information as suggested in standard 13B at stage H. It incorporates information from standard 12E, the processes of scientific inquiry for issue investigations from standard 11A, as well as the understanding of the accepted safety practices of science described in standard 13A. References to investigation validity are provided in sampler activity for 13A.

2. Have students review and discuss the assessment task and how the rubric will be used to evaluate their work.
3. Begin investigation of the status of the local or regional landfill. Have students generate possible questions about where our garbage goes (and stays). Organize a classroom investigation which researches and reports on the future of our landfill. Include research on the geology, economics, safety, and governmental factors, as well as the current capacity and design, anticipated closure and alternative locations. Consider scientific reports and community perceptions. Organize and conduct a public opinion survey which addresses the depth of understanding of the community about the issues facing the landfill's future. Generate a final report from student assignments as a proposal and justification to explain the past history and the future of the local or regional landfill. Individual students should generalize the process and findings of the classroom issue investigation and submit a personal reflection journal summary.
4. Evaluate each student's work using the Science Rubric as follows and add the scores to determine the performance level:
 - *Knowledge*: The varying impact of different factors affecting garbage, landfills and the environment were addressed qualitatively and quantitatively,
 - *Application*: The descriptions of the interactions associated with the past and future of the local landfill were thorough, well-detailed and accurate, and
 - *Communication*: The final conclusions from the individual presentations and personal reflection journal were thorough and well-reasoned.

Examples of Student Work not available

Time Requirements

- One period for investigation orientation and delegation of questions and duties; 3-5 days for group work in research (within or beyond classroom), survey development, data collection and analysis, etc; 1 day for presentation preparation; 1 day for presentation and journal reflection.

Resources

- Access to experts and resources for research and public opinion survey process
- Science Rubric