

WHERE IN THE WORLD ARE THE RESOURCES?

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

Students will apply the processes of scientific inquiry to evaluate natural resource supplies accordingly:

- *Knowledge*: Identify and describe natural resources within a geographic area.
- *Application*: Mapping the locations of natural resources within a geographic area.
- *Communication*: Explain how natural resources are distributed unevenly geographically.

Procedures

1. ***In order to know and apply concepts that describe the features and processes of the Earth and its resources (12E) and the processes, concepts and principles of scientific inquiry (11A)***, students should experience sufficient learning opportunities to develop the following:

- Formulate inquiry questions associated with the existence of natural resources and their locations.
- Research sources of scientific information related to posed questions associated with locations, uses, volumes, photographs, environmental factors, etc. (data) for analysis.
- Communicate the findings associated with mapping of natural resources (globally, nationally, regionally, locally, by teacher or class choice).
- Generate further questions for future investigations to evaluate natural resource supplies.

Note to teacher: This activity relates to knowledge associated with the standard 12E, while addressing the performance descriptors for stage D within standard 11A. A curricular unit may incorporate the performance descriptions from 13B which address the interactions of technology in science and societal situations (investigating ways that technology has changed local, national or global environments) or the interactions of societal decisions in science and technology innovations and discoveries (role playing public or personal informed decision-making about energy choices, resource availability and conservation).

2. Have students review and discuss the assessment task and how the rubric will be used to evaluate their work.
3. Begin contextual inquiry investigation about the Earth's resources with questions such as "What is a natural resource? What are some examples? Will they run out? Where are they? Who owns them? Does soil count? What about rainfall? Should air be included? How do renewable and non-renewable resources relate to natural resources, etc.?" Guide students toward answering their questions and stating their understanding using appropriate scientific vocabulary terms and resources. Introduce the investigation's premise of finding out about where natural resources are? (Determine the boundaries for this search—globally, nationally, regionally, locally. Resource suggestions include: coal, oil, natural gas, fresh water, clean air, fertile soil, adequate rainfall, etc. In some cases, they will need to define their resource: How to define fertile soil or clean air or adequate rainfall.) Assign students (individually or in groups) to find answers about their specific resource, such as: Where is it found? How much is there left? What is it used for? They should design creative maps of their assigned areas and resources and present their information to the whole class. If possible, a large classroom map could be used, upon which 'markers' of individual resources could be overlaid. In this way, visual correlations to multiple resources in similar locations can be made. Encourage students to generate further questions which could follow from their initial research and presentations. Such questions could include: How have humans caused the supplies of the resources to diminish? How have humans improved the supplies of the resources? How can we conserve resources? How have new discoveries or new inventions changed the supplies of natural resources? What will happen if we run out, etc.?"
4. Evaluate each student's work using the Science Rubric as follows and add the scores to determine the performance level:
 - *Knowledge*: The identification and descriptions of the natural resources were complete and correct.
 - *Application*: The natural resource map was complete and well-organized.
 - *Communication*: The explanations were complete and accurate. Questions for future studies were pertinent and applicable.

Examples of Student Work not available

Time Requirements

- Initial discussion and introduction to assignment: 25 to 30 minutes sessions, 2-4 days/class periods for research and presentation preparation: 1-2 class periods for presentations and new question generation.

Resources

- Resource materials for research (possible Internet access for students in small groups)
- Presentation materials: Maps, poster paper, colored paper, etc.
- Science Rubric