

Name: Thomasina Mandan
Class: Earth Science
Grade Level: 10
Lesson: Oil Recovery on Fort Berthold Indian Reservation

Goals: Students will ...
Gain a better understanding of what happens when a region/area is opened up for fracking for oil
Understand why research is needed in this area
Understand the importance of developing best practices and recycling of water

Concepts

Oil recovery affects everyone in some way on the Fort Berthold Indian Reservation, in a variety of ways. Importance of developing best practices for agricultural soil use, mining (for coal, tar sands, and oil shales), and pumping (for petroleum and natural gas).

NORTH DAKOTA SCIENCE CONTENT STANDARDS

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Performance Expectations by Grade: High School Earth and Space Sciences HS-ESS3-2 Earth and Human Activity

Students who demonstrate understanding can:

HS-ESS3-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. [Clarification Statement: Emphasis is on the conservation, recycling, and reuse of resources (such as minerals and metals) where possible, and on minimizing impacts where it is not. Examples include developing best practices for agricultural soil use, mining (for coal, tar sands, and oil shales), and pumping (for petroleum and natural gas). Science knowledge indicates what can happen in natural systems—not what should happen.]

Materials:

Introduction/Opening information
Computer/projector
Pen/pencils
Paper
Slideshow on oil extraction on the Fort Berthold Indian Reservation

Motivational Hooks:

Questions: What does it mean to “frack” for oil? What happens when a well is drilled? Who is affected and how? Lead a short discussion about what the students think about this topic. Have a student volunteer write the list on the board to return to later. Then teacher will begin slide show (see “Fracking: Yes or No On Your Rez?” with narrative) of oil recovery on the Fort Berthold Indian Reservation

Framing the Lesson: Opening

Teacher begins with reading from the opening/intro document about fracking. Should be quick, and ask them to write questions down if they have any, as they may be answered in the power point. If their questions are answered in the power point, ask them to write it down by their question.

Activities: Will take place over two class periods.

1. Teacher asks, What does it mean to “frack” for oil? What happens when a well is drilled? Who is affected and how? Student volunteer writes answers on the board.
2. Teacher begins slide show and reads from accompanied narrative
3. Ask what they thought about the slideshow.
4. Ask them to get into groups of 3 or more, and give them the 2 handouts on research. They are to designate a group recorder and a spokesman.
5. After 10 minutes, have a discussion on what they came up with in their groups for ideas on possible research ideas about oil recovery.
6. Ask for a volunteer for the class, and have each group’s spokesman share what their group came up with, in order to create a list for the class.

Closing:

Teacher will ask for further thoughts on what they think about the fracking occurring on the Fort Berthold Indian Reservation. Explain why it is important the FBCC (Fort Berthold Community College) revise and update their IRB (Internal Review Board) as there many outside agencies asking to do research on the reservation as a result of the fracking.

Assignment: Write a research paper, using the information you have learned in this lesson. Be sure to include:

1. Why research is necessary
2. Why should best practices be established
3. Importance of infrastructure in an area before you open it up for drilling
4. An introduction, a well-developed body, and a conclusion to your paper.

Adaptations of the Above:

Omit some of the narrative aimed at College students for younger grades

Cross Curricular Activities: English/Language Arts

Language Arts: Writing their research paper in proper format

Math: reading and interpreting graphs as related to the oil recovery as needed.

Assessment

Use a rubric to assess the content, word choice, and language of the research paper as well as being presented correctly in either MLA or APA style.