

# Worksheet 5-5— Lesson Plan

## Format

(adapted with permission)

Subject: Science

Teacher: Coleen Phelps/Dennis Hahs

Lesson Name: The Earth's Energy Resources Part 1

Location: Rocky Mountain High

Class: Earth Science

Unit Context: Energy and Earth's Systems

Date: March 17, 2009

### Activities

1. Ms. Phelps (Science Teacher) presents the students the problem: *"Your Mayor needs help with the energy crisis. She would like you to write up a proposal that suggests a renewable energy that Meridian can adopt."* Give rubric.
2. Mr. Hahs (teacher/Librarian) comes into the classroom and teaches the students about databases how to access and use online resources and print resources in the media center.
  - 2.1 Students brainstorm with Mr. Hahs about subjects to look up and what key words and information will help them understand energy.
  - 2.2 Students verbally go over their possible searches and resources with Ms. Phelps to ensure that they fully understand what they need

### Big6™ Skills

1. Task Definitions
  - 1.1 Define the information problem
  - 1.2 Identify information needed to complete the task
2. Information Seeking Strategies.
  - 2.1 Determine the range of possible sources (brainstorm)
  - 2.2 Evaluate the different possible sources to determine priorities<sup>1</sup>

### Idaho Science Standards

- 8-9.PS.1.6.1 Identify questions and concepts that guide scientific investigations
- 8-9.PS.1.6.2 Utilize the components of scientific problem solving to design, conduct, and communicate results of investigations
- 8-9.PS.1.6.3 Use appropriate technology and mathematics to make investigations
- 8-9.PS.1.6.4 Formulate scientific explanations and models using logic and evidence
- 8-9.PS.1.6.5 Analyze alternative explanations and models
- 8-9.PS.2.3.1 Explain that energy can be transformed but cannot be created nor destroyed
- 8-9.ES.4.2.1 Explain the internal and external energy sources of the earth

<sup>1</sup> The Big 6. Wurtser, Dennis. 2008.Wordpress. March 17, 2009 [www.big6.org](http://www.big6.org)

Learning Context: 9<sup>th</sup> grade Earth Science classroom with access to internet and resource databases. Science teacher sets “real world” problem scenario and works with media specialist to develop information literacy skills in a computer lab setting to give student a model and the resources needed to present proposals.

Materials/Resources:

- Projector
- Paper
- Rubric
- Lili access/internet

Evaluation:

Students will write out a “game plan” of key words/search term and what they are looking for.

Notes:

Mr. Hahs and Ms Phelps will teach this part of the unit together. It requires a new way of thinking for many of the students. Together we will lead them to finding the information that they need using the Big Six inquiry.

# Worksheet 5-5— Lesson Plan Format

(adapted with permission)

|                                             |                                 |
|---------------------------------------------|---------------------------------|
| Subject: Earth Science                      | Teacher: Ferro, Melyssa         |
| Lesson Name: Solving Idaho’s Energy Problem | Location: Syringa Middle School |
| Class: Period 1, 2, 3                       | Unit Context: Natural Resources |
| Date: March 10, 2009                        |                                 |

| Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Big6™ Skills                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Idaho Science Standards                                                                                                                                                                                                                                                                                                                                                              |
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| <p>1. Bell work question - “What type of energy resources does Idaho have available here in our state?”</p> <p>2. (Day 1) Teacher assigns research project and goes over each component of grading rubric, students formulate list of questions that they need answers to</p> <p>3. (Day 1) LMS leads brainstorming session to identify possible sources of information, discusses criteria for useable resources, shows students how to access Lili-D and OPAC</p> <p>4. (Day 2-3) Students will gather print and non-print materials in media center from Idaho energy entities like INL, Idaho Power, etc as well as using media center resources</p> <p>5. (Day 4-5) Work with lab partner to develop a persuasive Power Point presentation with at least 6 slides to share information with classmates</p> | <p>1. Task Definition – “How does your energy resource meet Idaho’s energy needs?”, Discuss assignment boundaries and directions, discuss final products (Power Point, class presentations, note taking, letter to editor)</p> <p>2. Information Seeking Strategies – Discuss media resources available including Lili-D, OPAC, and citation maker, Brainstorm criteria for useful resources, Discuss appropriate place for graphs and data in project</p> <p>3. Location &amp; Access – Identify a primary source, gather research materials</p> <p>4. Use of Information – Read resource materials, complete research guide, cite sources</p> <p>5. Synthesis – Power point, Classroom presentation w/ notes</p> <p>6. Evaluation – Letter to editor (published in IPT)</p> | <p>8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources</p> <p>8-9.ES.5.2.1 Explain how science advances technology</p> <p>8-9.ES.5.2.2 Explain how technology advances science</p> <p>8-9.ES.1.8.1 Analyze technical writing, graphs, charts and diagrams</p> <p>8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations</p> |

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| <p>6. (Day 6-8) Each group will share Power point presentation in 5-7 minute oral presentation, classmates will take notes on a pro's/con's foldable during presentations</p> <p>7. (Day 9) Individually, students will have to decide which energy resource is best for Idaho and write a letter to the editor (using the Idaho Press Tribune guidelines) defending their choice</p> |  |  |
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**Learning Context:**

Students will be exploring the different energy sources available in Idaho and performing a pro's and con's analysis of each one. Students will use their critical thinking skills to chose an energy resource and defend it to their audience.

**Materials/Resources:**

- Assignment sheet & rubric
- LMS presentation about sources
- Citation maker on district website
- OPAC, Lili-D
- List of Idaho entities
- Computer lab w/ PowerPoint access
- Note-taking foldable
- IPT letter to editor guidelines

**Evaluation:**

- Grade Power point and presentation using rubric
- Students complete letter to editor to evaluate their own learnings

**Notes:**

Content Objective – What energy resources are available in the state of Idaho? What are the pro's and con's of each resource?

Language Objective – Students will work with lab partners to research and present information in a persuasive format to the class about a particular energy resource. Students will keep a data table of the pro’s and con’s of each source during the presentations. Students will individually make a decision about which resource is best for Idaho based on data from presentations and write a letter to the editor defending their choice with data.

# Worksheet 5-5— Lesson Plan Format

(adapted with permission)

|                                       |                                 |
|---------------------------------------|---------------------------------|
| Subject: Earth Science                | Teacher: Ferro, Melyssa         |
| Lesson Name: Mapping Vocabulary Words | Location: Syringa Middle School |
| Class: Period 1, 2, 3                 | Unit Context: Natural Resources |
| Date: March 16, 2009                  |                                 |

| Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Big6™ Skills                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Idaho Science Standards                                                                                                                                                                                                                                      |
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| <ol style="list-style-type: none"> <li>Bell work question - “What does the prefix non-mean?”</li> <li>Pass out the vocab maps and have Reading Coach explain the assignment</li> <li>Work as a class to develop definitions for each term, use textbook and dictionary to check accuracy of student generated definitions</li> <li>Students should work on their own to use textbook or internet to find pictures to illustrate each word (draw and color).</li> <li>Students should work on their own to find or create (depending on abilities of students) a sentence that correctly uses each vocabulary word.</li> <li>Use last 5 minutes of class time to pair with lab partner and share your sentence and illustration for each term. Give feedback to partner about accuracy of assignment.</li> </ol> | <ol style="list-style-type: none"> <li>Task Definition – “What is a natural resource? What is a nonrenewable resource? What is a renewable resource?” Discuss directions with class (term, class generated definition, illustration, sentence).</li> <li>Information Seeking Strategies – Brainstorm possible locations to find information (classmates, dictionaries, textbook, internet)</li> <li>Location &amp; Access – Find each resource to access information.</li> <li>Use of Information – Discuss definitions with class, use sources to create illustration, find a sentence in the resources.</li> <li>Synthesis – Completed vocabulary map.</li> <li>Evaluation – Pair/share definition of one word with lab partner, check partner and self for understanding</li> </ol> | <p>8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources</p> <p>8-9.ES.1.8.1 Analyze technical writing, graphs, charts and diagrams</p> <p>8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations</p> |

**Learning Context:**

Students will be creating a vocabulary map to better understand the vocabulary terms that will be used in this unit. The building Reading Coach will be working with classroom teacher to use this vocabulary strategy to ensure that students have a good understanding of these words before continuing with the unit.

**Materials/Resources:**

- Vocabulary map sheet
- Dictionary
- Textbook
- Internet access in computer lab
- Colored pencils

**Evaluation:**

- Teacher will grade vocabulary map
- Students will pair/share to check for understanding

**Notes:**

Content Objective – What does natural resource mean? What is the difference between a renewable and a nonrenewable resource?

Language Objective – Students will work with classmates to generate a definition for each of 3 vocabulary terms. Then students will work individually to give examples of the terms using an illustration and a sentence from their classroom resources.

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|                                                                            |                                 |
|----------------------------------------------------------------------------|---------------------------------|
| Subject: Earth Science                                                     | Teacher: Ferro, Melyssa         |
| Lesson Name: And Here We Have Idaho...Well, It's Natural Resources Anyway! | Location: Syringa Middle School |
| Class: Period 1, 2, 3                                                      | Unit Context: Natural Resources |
| Date: March 16, 2009                                                       |                                 |

| Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Big6™ Skills                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Idaho Science Standards                                                                                                                                                                                                                                      |
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| <ol style="list-style-type: none"> <li>1. Bell work question - "What natural resources do you know of in the state of Idaho?"</li> <li>2. Students will work in lab groups to choose 10 resources off of a word list of 30.</li> <li>3. Students will attempt to sort the terms into 2 categories based on prior knowledge.</li> <li>4. Use the Internet to research each resource and decide which category to place it in based on characteristics.</li> <li>5. Use a Word document to cut and paste pictures of each resource type, print.</li> <li>6. On a large sheet of butcher paper, each group will combine pictures and research to make a 2 column chart of Idaho's renewable and nonrenewable resources.</li> <li>7. Charts will be posted in hallway and class will do a</li> </ol> | <ol style="list-style-type: none"> <li>1. Task Definition – "What natural resources can be found in Idaho that are not energy related? Are those resources renewable or nonrenewable?" Discuss assignment boundaries and directions.</li> <li>2. Information Seeking Strategies – Decide which types of websites will be best to gather information from, discuss what type of pictures will be best for the assignment</li> <li>3. Location &amp; Access – Use search engine to locate proper internet sites and picture collections</li> <li>4. Use of Information – Read sites for Idaho resources and identify which type of resource they are, cut and paste pictures from those sites to a Word document to use in project</li> <li>5. Synthesis – Create a 2 column diagram on butcher paper of resources</li> <li>6. Evaluation – Gallery walk of</li> </ol> | <p>8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources</p> <p>8-9.ES.1.8.1 Analyze technical writing, graphs, charts and diagrams</p> <p>8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations</p> |

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| <p>gallery walk to see other groups' work.</p> <p>8. In bell work for the next day, students will write about what they learned about resources available in the state of Idaho.</p> | <p>other students' projects and then write about Idaho's resources in bell work tomorrow</p> |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--|

**Learning Context:**

Students will identify different non-energy natural resources that are present in Idaho. They will choose from a list of possible choices, do some research on the Internet and then decide whether each resource is renewable or nonrenewable.

**Materials/Resources:**

- List of 30 Idaho resources
- Butcher paper
- Scissors, glue
- Colored pencils
- Internet access in computer lab
- Microsoft Word program, printer

**Evaluation:**

- Teacher will assess Word sorts
- Students will do gallery walk and use bell work to journal about what they learned

**Notes:**

Content Objective – What non-energy natural resources are present in Idaho? Are they renewable or nonrenewable?

Language Objective – Students will work with lab groups to research Idaho resources and then sort them into 2 categories based on their renewable or nonrenewable characteristics. Students will use pictures to illustrate their word sort.

## **Lesson Plan Citations for Melyssa Ferro March 16, 2009**

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