Worksheet 5-5— Lesson Plan Format (adapted with permission)	Subject: Earth Science Lesson Name: Balancing Energy Needs and Resource Risks Class: Period 1, 2, 3 Date: March 10, 2009	Teacher: Ferro, Melyssa Location: Syringa Middle School Unit Context: Natural Resources
Activities 1. Bell work question: Which is more important…having enough energy for the whole country OR the property rights and safety of a small group of people? Why? 2. Read article "A Risky Way To Go Green" from New Scientist, Jun 7- 13, 2008 with lab partner 3. Use "Circle Once, Underline Twice" strategy to identify important main ideas in article 4. Discuss as a class the balance between the need for energy and the risks that come with different energy resources, include human piece 5. Use LCD projector to show students pictures of the Hanford Nuclear Facility in Washington and give brief background on situation 6. Exit ticket to compare China's decision with ones that are made locally in Idaho or Washington	Big6™ Skills 1. Task Definition - Clarify the assignment instructions with class 2. Information Seeking Strategies – Article found on Lili-D about China, Google images of Hanford 3. Location & Access – Obtain a copy of the article from teacher, show pictures on LCD projector 4. Use of Information – Read article with lab partner, view images and listen to background info 5. Synthesis – Highlighting main ideas and supporting ideas in article with partner, participation in class discussion 6. Evaluation – Exit ticket comparing China situation with Idaho or Washington situation	Idaho Science Standards 8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources 8-9.ES.5.2.1 Explain how science advances technology 8-9.ES.5.2.2 Explain how technology advances science 8-9.ES.1.8.1 Analyze technical writing, graphs, charts and diagrams 8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations

Learning Context:
Students will be exploring how other countries are using the renewable and nonrenewable energy resources that they researched in their Idaho energy resources projects to evaluate the ways that that country balances the need for energy with the risks associated with different energy resources.

Materials/Resources:
- Individual student copies of "A Risky Way To Go Green" from Lili-D
- Colored pencils or highlighters
- Index cards
- LCD, laptop

Evaluation:
- Monitor group work for participation
- Use numbered desk sticks to elicit participation in classroom discussion
- Exit ticket out of class asking students to compare China's problem to either Idaho's INL issues or Washington's Hanford issues.

Notes:
Content Objective – How are other countries, like China, deciding which energy resources to use in order to meet their energy needs?

Language Objective – Students will work with lab partner to read the article and then Circle Once, Underline Twice to identify the main ideas. The class will discuss how China is balancing the risks of energy solutions with their benefits.

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
1. Bell work question - "What type of energy resources does Idaho have available here in our state?" 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 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 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 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	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) 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 3. Location & Access – Identify a primary source, gather research materials 4. Use of Information – Read resource materials, complete research guide, cite sources 5. Synthesis – Power point, Classroom presentation w/ notes 6. Evaluation – Letter to editor (published in IPT)	8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources 8-9.ES.5.2.1 Explain how science advances technology 8-9.ES.5.2.2 Explain how technology advances science 8-9.ES.1.8.1 Analyze technical writing, graphs, charts and diagrams 8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations

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 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		

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 Lesson Name: Mapping Vocabulary Words Class: Period 1, 2, 3 Date: March 16, 2009	Teacher: Ferro, Melyssa Location: Syringa Middle School Unit Context: Natural Resources
Activities 1. Bell work question - "What does the prefix non- mean?" 2. Pass out the vocab maps and have Reading Coach explain the assignment 3. Work as a class to develop definitions for each term, use textbook and dictionary to check accuracy of student generated definitions 4. Students should work on their own to use textbook or internet to find pictures to illustrate each word (draw and color). 5. Students should work on their own to find or create (depending on abilities of students) a sentence that correctly uses each vocabulary word. 6. 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.	Big6™ Skills 1. 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). 2. Information Seeking Strategies – Brainstorm possible locations to find information (classmates, dictionaries, textbook, internet) 3. Location & Access – Find each resource to access information. 4. Use of Information – Discuss definitions with class, use sources to create illustration, find a sentence in the resources. 5. Synthesis – Completed vocabulary map. 6. Evaluation – Pair/share definition of one word with lab partner, check partner and self for understanding	Idaho Science Standards 8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources 8-9.ES.1.8.1 Analyze technical writing, graphs, charts and diagrams 8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations

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 as 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.

Worksheet 5-5— Lesson Plan Format (adapted with permission)	Subject: Earth Science Lesson Name: And Here We Have Idaho…Well, It's Natural Resources Anyway! Class: Period 1, 2, 3 Date: March 16, 2009	Teacher: Ferro, Melyssa Location: Syringa Middle School Unit Context: Natural Resources
Activities 1. Bell work question - "What natural resources do you know of in the state of Idaho?" 2. Students will work in lab groups to choose 10 resources off of a word list of 30. 3. Students will attempt to sort the terms into 2 categories based on prior knowledge. 4. Use the Internet to research each resource and decide which category to place it in based on characteristics. 5. Use a Word document to cut and paste pictures of each resource type, print. 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. 7. Charts will be posted in hallway and class will do a	Big6™ Skills 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. 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 3. Location & Access – Use search engine to locate proper internet sites and picture collections 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 5. Synthesis – Create a 2 column diagram on butcher paper of resources 6. Evaluation – Gallery walk of	Idaho Science Standards 8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources 8-9.ES.1.8.1 Analyze technical writing, graphs, charts and diagrams 8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations

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

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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