

MORE THAN WORDS

Charles Franke

Wheatland Middle School

Submitted to the Wyoming Geographic Alliance & School of Energy Resources
2011 Energy Institute



Overview of Main Idea

This lesson introduces the topic of Wyoming's energy resources to sixth grade students. Students will be asked what they know on the topic of Wyoming's energy resources. The main idea is to introduce the students to the key words, locations, and possible negative impacts these resources may bring. The students will have the opportunity to learn new technology creating Wordle word clouds, as well as discover spatial perspective (where something is, and why it is there). The objective is to bring this knowledge to the 12' by 12' Wyoming floor map and chart locations of Wyoming's resources; identify these resources; determine the reserves of these resources; and identify potential harmful effects they may have on the environment. We will conclude the lesson by asking, "of the Wyoming Energy Resources researched, which one is the most efficient producer of energy to meet human needs?"



Teaching Level- 8th Grade

Connection to the Curriculum

U.S. History, Geography, and Language Arts

Connection to the National Standards

Standard 18

The Uses of Geography

How to Apply Geography to Interpret the Present and Plan for the Future

*The practical applications of geography (along with other aspects of geographic **literacy**) need to be fostered in all students in preparation for life as the responsible citizens and leaders of tomorrow.*

Standard 1

The World in Spatial Terms

How to Use Maps and Other Geographic Representations, Tools, and Technologies to Acquire, Process, and Report Information From a Spatial Perspective.

Spatial Perspective=Where something is and Why is it There?

Connection to the State Standards

Standard 5

People, Places, and Environments

*Social studies programs should include experiences that provide for the study of people, places, and environments. In the early grades, young learners draw upon immediate personal experiences as a basis for **exploring geographic concepts and skills**.*

*They also express interest in things distant and unfamiliar and have **concern for the use and abuse of the physical environment**. During the middle school years, students relate their personal experiences to happenings in other environmental contexts. Appropriate experiences will encourage increasingly abstract thought as **students use data and apply skills in analyzing human behavior in relation to its physical and cultural environment**.*

Time- 1 Week

Materials Required

1 Laptop with Internet Access for each student

Research Folder

Title: Wyoming's Energy Resources

Access (permission)to Mr. Franke's Social Studies Teacher Page

<http://wms.schoolfusion.us>

Classroom Pages/Teacher Pages/8th Core/Mr. Franke's 8th Social Studies

Wyoming's Energy Resources Folder

Printer Access (color if possible)

12' by 12' Wyoming floor map

Writing utensils/paper

Jump Drive

Wyoming Energy Resource Flag(s)

Objectives, The Students will

- *brainstorm Wyoming Energy Resource Words*
- *become versed in Wordle to acquire knowledge about the program*
- *practice making a Wordle cloud with the teacher*
- *explain the locations of Wyoming's Energy Resources (Where is it and Why is it There?)*
- *explain the uses of Wyoming's Energy Resources*
- *posit the reserves of Wyoming's Energy Resources*
- *explain any negative effects involving Wyoming's Energy Resources*
- *chart resources and locations on a 12' by 12' Wyoming floor map*
- *posit the most efficient energy resource for human use*
- *present their findings utilizing 12'by 12' Wyoming floor map*
- *define vocabulary words related to their energy resource and teach words to the class using multi-media*

Geographic Themes or Skills

- *Developing multimedia techniques such as interactive learning procedures, creating a flexible and creative approach to geographic learning.*
- *Organizing geographic information*
- *Asking geographic questions*
- *Acquiring geographic information*
- *Answering geographic questions*

Suggested Procedure

- *Discuss Assessment*
 - *Use Write/Pair/Share Strategy (pre-assess)*
 - *For the teacher (A brief tutorial on Wordle)*
 - *Open the file in Mr. Franke's webpage to acquire the Wyoming Energy Resources Word List.*
 - *Discuss new words added by the teacher.*
 - *Create the Wyoming Resource Wordle together.*
 - *By clicking randomize, students may choose the Wordle they like best and print it.*
 - *Divide the class into groups of 4 (depending on class size).*
 - *Groups will receive one of four folders on Mr. Franke's teacher page to complete their research.*
 - *Students should delegate the work.*
 - *Groups will present their findings using the 12' by 12' Wyoming floor map, their resource flag, and their favorite multi-media (i.e. Powerpoint, Prezi).*
- Conclude the lesson as a class- "of the Wyoming Energy Resources researched, which one is the most efficient producer of energy to meet human needs?"*
- *Post Assessment- Rubric*
 - *Discuss extension- "Beyond Words"*



Wordle is a toy for generating "word clouds" from text that you provide. The clouds give greater prominence to words that appear more frequently in the source text. You can print them out, or save them to the Wordle gallery. Wordle the Gettysburg Address and ask the students which words Lincoln spoke the most often, simply copy the speech, go into Wordle, click "create your own", paste the speech into the "Paste in a bunch of text" box, click "go" and a Wordle will appear. If you don't like it, click randomize until you find the one you like.

www.wordle.net

Opening

Discuss with students how they will be assessed, **Say to Students:**

***The Pre-assessment will be a write-pair-share where we will find some common vocabulary to find out “What we Know” about Wyoming’s energy resources. We will create a Wordle word cloud and this is not a high stakes assessment.**

***The Post-Assessment is based on a Rubric. The Rubric has 10 categories which you will be scored either 10, 8, 6, or 4. You will be scored individually, not as a group.**

I suggest you go ahead and hand out a copy of the Rubric to the students at this point so they can see what is expected of them.

This lesson should begin with about 10 minutes left in class. After you have closed a previous lesson. Because you have to gather words from all three classes.

Brainstorm: “When you think of Wyoming Energy, what words come to mind?”

Using a "write-pair-share" strategy, make a list and share aloud. I suggest collecting responses in a Word document projected on the board for each class period. This can be used as a "pre-assessment" around Wyoming Energy.

The next day...

All students should be seated at a laptop computer. Overnight, I have compiled a list of all three classes’ energy words, typed them as many times as they were mentioned because in Wordle, the more frequent a word appears, the larger it becomes, and I have placed them on a Word document on my teacher page (<http://wms.schoolfusion.us>). I have added words to the list that I thought should be there that the students did not mention. I will introduce these words too.

I suggest the students watch and follow the teacher and together have some fun and create a Wordle word cloud.

Have the students open the Word document entitled Wyoming Energy Resources. Talk about the words and how many of them look familiar to them; talk about the new words as well.

Have the students minimize the Word document and type www.wordle.net into their browser; press enter. You should find Wordle, Beautiful Word Clouds (click on that). Make sure all students are there. Students should be watching the teacher as well as trying it themselves.

Have the students bring up the Word doc again. Have the students add their first names to the list of words.

Now, show the students how to copy all of the words. An easy way is to shade all the words and do a simple Ctrl C. Bring up Wordle and Paste (Ctrl V) the words into the “Paste a bunch of text” box. Click Go and see what happens. Be sure you are demonstrating this with the kids while they are creating their Wordles.

If you don't like your Wordle, click randomize until you find one you like.

Show the students your Wordle on the Projection

Have the students print their Wordles; it makes a nice list of common words that they will be seeing and hearing, and we will also be posting our Wordles on the large bulletin board in the hallway to pique interest in Wordle. After all, the students' names are on the Wordles, how cool is that?

Copying all of that text into a Wordle, you will find the common vocabulary as the more times a word is entered into Wordle, the larger it becomes.

Development/Procedure

Once the opening is complete and the Wordles have been printed or saved to the gallery, divide the class into 4 color groups; blue, orange, red, green.

Groups will have access to 1 of 4 research folders on Mr. Franke's teacher page entitled "Wyoming's Energy Resources". Each group will be assigned one folder. They are labeled by color.

How to get there?

<http://platte.wms.schoolfusion.us>

Classroom Pages/Teacher Pages/8th Core/Mr. Franke's 8th Grade Social Studies

Using 4 laptops per group, students should open their folder and begin their research.

- 1. The requirement is to complete all of the tasks in the folder. When presenting your lesson, the work on your jump drive or your Prezi will be projected on the wall as a supplement to the 12' by 12' Wyoming floor map.*
- 2. All of the research should be nicely organized in Word or Powerpoint or Prezi. The work should be in presentation quality and saved on a jump drive (unless using a Prezi). Presentations must include the folder questions themselves with their answers, pictures of resources, locations, landmarks, wildlife, etc.*
- 3. Students must utilize the 12' by 12' Wyoming floor map when determining the location of their energy resources. These will be determined by using a flag(s); be prepared to locate landmarks or absolute locations.*
- 4. Students will define vocabulary words that relate to their resource during their presentation. The vocabulary will be on the multi-media projection along with a definition and a picture.*
- 5. After all of the research is complete, the students will create a small flag(s) with a picture of their energy resource on it.*

6. Students now present their findings making sure they fulfill all of the tasks in the folders.
7. Maximum time for presentations = 25 minutes



Blue Team

Energy Resource: Coal

What is your resource?

Where is your resource located?

Why is the resource located there?

What uses does your resource have?

Is your resource finite? If so, how much is left?

Is your resource renewable? If so, how efficient is it?

Are there any negative impacts when producing your resource?

Is your resource an efficient producer of energy?

Words to define and teach:

field powerplant reclamation reserve
production extract import export

Think about:

www.Reference.com

<http://www.wsgs.uwyo.edu/coalweb/>

<http://www.wma-minelife.com/coal/coalhome.html>

<http://www.rootsweb.ancestry.com/~wymining/>

<http://www.freeworldmaps.net/united-states/wyoming/map.html>

[states/wyoming/map.html](http://www.freeworldmaps.net/united-states/wyoming/map.html)



Orange Team

Energy Resource: Oil

What is your resource?

Where is your resource located?

Why is the resource located there?

What uses does your resource have?

Is your resource finite? If so, how much is left?

Is your resource renewable? If so, how efficient is it?

Are there any negative impacts when producing your resource?

Is your resource an efficient producer of energy?

Words to define and teach

strike well miner pipeline rig fracking
refinery DallasDome

Think about:

www.Reference.com

<http://sites.google.com/site/petroleumhistoryresources/Home/wyoming-oil-pioneers>

http://wyoming.hometownlocator.com/features/cultural_class_oilfield.cfm



Red Team

Energy Resource: Natural Gas

What is your resource?

Where is your resource located?

Why is the resource located there?

What uses does your resource have?

Is your resource finite? If so, how much is left?

Is your resource renewable? If so, how efficient is it?

Are there any negative impacts when producing your resource?

Is your resource an efficient producer of energy?

Words to define and teach:

energy exploration mine hydrocarbons methane petroleum finite fossilfuel

Think about:

www.reference.com

<http://www.freeworldmaps.net/united-states/wyoming/map.html>

<http://www.propublica.org/article/slides-how-wyomings-natural-gas-fields-1117>

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1004&context=usblmpub&sei-redirect=1#search=%22negative%20effects%20natural%20gas%20Wyoming%22>

http://www.google.com/imgres?q=natural+gas+map+of+wyoming&um=1&hl=en&sa=G&tbm=isch&tbnid=wX7jD1_c8y2PgM:&imgrefurl=http://www.tetonscience.org/index.cfm%3Fid%3Dcrc-projects-airquality-research&docid=gSanLzprp9AasM&w=1632&h=1056&ei=c05tTsWaCcP-sQLhw62xBA&zoom=1&biw=1024&bih=5



Green Team

Energy Resource: Wind

What is your resource?

Where is your resource located?

Why is the resource located there?

What uses does your resource have?

Is your resource finite? If so, how much is left?

Is your resource renewable? If so, how efficient is it?

Are there any negative impacts when producing your resource?

Is your resource an efficient producer of energy?

Words to define and teach:

turbine transmission wildlife WindFarm conservation renewable reliable potential

Think about:

www.reference.com

http://www.windpoweringamerica.gov/maps_template.asp?stateab=wy

http://www.usda.gov/oce/forum/2009_Speeches/Presentations/Stumbough.pdf

<http://windeis.anl.gov/guide/basics/index.cfm>

<http://www.freeworldmaps.net/united-states/wyoming/map.html>

<http://www.savewesternny.org/environment.html>

Closing or Concluding the Lesson

After all classes have presented on the 12' by 12' Wyoming floor map, I suggest celebrating by inviting the school board up for a presentation. They can come to us or we can go to them at the next scheduled meeting (although it might be hard fitting the Wyoming map into the board room). I think recognizing students is a good thing and a great opportunity to show off the big map. Students will also post their cool Wordle clouds on the big hallway board to recognize their work as well as to pique interest of other students as to Wordle. At the conclusion of the lesson, the students will have all of their work saved on their file as well as on their jump drive for any future enrichments. Since we began the lesson asking, "When you think of Wyoming Energy, what words come to mind?" We can close the lesson by asking, "of the Wyoming Energy Resources you researched, which one is the most efficient producer of energy to meet human needs? Explain" Take a class vote and determine a winner.



Assessment of Student Learning

Pre-Assessment

Assessing a group's ability to identify big ideas in a domain can be done with word clouds. The word clouds show which words appear more frequently in the original text by making them bigger in a collection of words on a page as shown in the example below. Once the word cloud is made you can manipulate it in a number of ways to make really attractive graphics. The result could be a visual representation of which words a group agrees on as important because they appear more frequently than less important ideas. In this case, we identified common words dealing with Wyoming's Energy Resources as a "What do you Know" tool.



Post-Assessment

The lesson will be assessed using a Rubric. The students have seen the Rubric and should know what is expected of them. The Rubric has 10 categories based on the presentation, the work on the 12' by 12' Wyoming floor map, the requirements of the lesson, as well as the workload.

Wyoming's Energy Resources Lesson Rubric

Teacher Name: **Mr. Franke**

Student Name: _____

CATEGORY	10	8	7	5
Requirements	All requirements are met and exceeded.	All requirements are met.	One requirement was not completely met.	More than one requirement was not completely met.
Organization	Content is well organized using headings or bulleted lists to group related material.	Uses headings or bulleted lists to organize, but the overall organization of topics appears flawed.	Content is logically organized for the most part.	There was no clear or logical organizational structure, just lots of facts.
Workload	The workload is divided and shared equally by all team members.	The workload is divided and shared fairly by all team members, though workloads may vary from person to person.	The workload was divided, but one person in the group is viewed as not doing his/her fair share of the work.	The workload was not divided OR several people in the group are viewed as not doing their fair share of the work.
Content	Covers topic in-depth with details and examples. Subject knowledge is excellent.	Includes essential knowledge about the topic. Subject knowledge appears to be good.	Includes essential information about the topic but there are 1-2 factual errors.	Content is minimal OR there are several factual errors.
Attractiveness	Makes excellent use of font, color, graphics, effects, etc. to enhance the presentation.	Makes good use of font, color, graphics, effects, etc. to enhance to presentation.	Makes use of font, color, graphics, effects, etc. but occasionally these detract from the presentation content.	Use of font, color, graphics, effects etc. but these often distract from the presentation content.
12ft by 12ft Wyoming floor map	Identifies all locations and landmarks where energy resource is found.	Identifies most locations and landmarks where energy resource is found.	Has some idea where locations and landmarks of energy resources are found but is unsure.	Clearly struggles to identify locations and landmarks of energy resources.
Wordle	Follows all directions and participates in write-pair-share activity. Completes and prints a Wordle	Follows directions and participates somewhat in write-pair-share activity. Wordle has misspelled words.	Somewhat follows along with the teacher and participates in pre-assessment. Several misspelled words and Wordle not printed.	Does not follow along with teacher. Does not open Word doc nor open Wordle. Does not complete Wordle cloud.
Vocabulary	Vocabulary is clearly defined to class in context. Definition is accompanied by a picture.	Vocabulary is defined to class but somewhat out of context. Definition is accompanied by a picture.	Vocabulary is not well defined and confusing and has no picture.	Vocabulary is not defined and has no picture.
Uses of Wyoming's Resources	Clearly identifies several uses for energy resource. Has several ideas on the benefits of this resource.	Identifies uses for resource. Has a limited idea what resource is used for.	Vaguely identifies uses for resources. Has little information regarding resources uses.	Clearly has done little research and has very few ideas on the uses of resource.
Negative Impact on Environment	Identifies several possible negative environmental issues related to this resource.	Identifies more than one negative environmental issue related to this resource.	Identifies one and has no clear understanding what the issue might be.	Identifies no issues that might be considered harmful relating to resource.

Extending the Lesson

As we concluded the “No More Words” lesson, we visited as a class about how we could go “Beyond Words” We decided to identify at least one controversial issue in the State of Wyoming. There would not be as many restrictions on this extension as on the “No More Words” assignment. We decided we could break up our color groups into smaller groups of two. Our job was to identify some words from the Wyoming Energy Resource Word List that were not talked about in the “No More Words” lesson.

“Beyond Words”- A lesson extension

Objective: The students will

Identify one current controversial issue and present it to the class.

Pairs of students may choose one topic from the terms list and research it as a controversial issue in Wyoming.

The group will then present their discoveries to the class in a 5-10 minute discussion.

Groups will present their discoveries using a Word doc with their finding projected on the wall. Locations and pictures to be included.

Assessment: participants are required that their voices are heard!

Potential topics

Fracking Reclamation or lack thereof, Wind Farms and transmission struggles, Mule Deer population, Birds near Wind Farms, Sage Grouse CO2 extraction.



Resources

www.reference.com

<http://www.propublica.org/article/slideshow-wyomings-natural-gas-fields-1117>

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1004&context=usblmpub&sei-redir=1#search=%22negative%20effects%20natural%20gas%20Wyoming%22>

http://www.google.com/imgres?q=natural+gas+map+of+wyoming&um=1&hl=en&sa=G&tbn=i sch&tbnid=wX7jD1_c8y2PgM:&imgrefurl=http://www.tetonscience.org/index.cfm%3Fid%3Dcr c-projects-airquality-research&docid=gSanLZprp9AasM&w=1632&h=1056&ei=c05tTsWaCcP-sQLhw62xBA&zoom=1&biw=1024&bih=562&iact=rc&dur=390&page=1&tbnh=122

http://www.windpoweringamerica.gov/maps_template.asp?stateab=wy

http://www.usda.gov/oce/forum/2009_Speeches/Presentations/Stumbough.pdf

<http://windeis.anl.gov/guide/basics/index.cfm>

<http://www.wsgs.uwyo.edu/coalweb/>

<http://www.wma-minelife.com/coal/coalhome.html>

<http://www.rootsweb.ancestry.com/~wymining/>

<http://www.freeworldmaps.net/united-states/wyoming/map.html>

<http://sites.google.com/site/petroleumhistoryresources/Home/wyoming-oil-pioneers>

<http://wyoming.hometownlocator.com/features/cultural,class,oilfield.cfm>

<http://www.ewg.org/sites/riggedgame/>

<http://www.freeworldmaps.net/united-states/wyoming/map.html>

http://www.raremaps.com/gallery/detail/20584/Oil_Map_of_Wyoming/Hotchkiss%20Map%20Co..html

<http://www.savewesternny.org/environment.html>

www.wordle.net

Velvet Fitzpatrick; Tenille Denise Medley; Thalia Anagnos; Sean Brophy; Pamela McClure (2011), "Using Wordle as an Assessment Tool," <http://nees.org/resources/3446>.