

## Student Learning Plan - utilizing PDSA Model (Technology Integration when applicable)

Instructor(s): Lauren Huntington

Date(s): 10/1/14

Grade Level: 8

### PLAN:

**Concept/Topic to Teach:** The biological factors that make up and impact an ecosystem.  
(Lesson 4 in a 6 week unit)

#### Common Core Content Standards/Benchmarks addressed:

CCSS.ELA-Literacy.SL.8.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-Literacy.SL.8.1.a

Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

CCSS.ELA-Literacy.SL.8.1.c

Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.

CCSS.ELA-Literacy.SL.8.1.d

Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.

CCSS.ELA-Literacy.SL.8.2

Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.

CCSS.ELA-Literacy.RI.8.2

Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.

CCSS.ELA-Literacy.RI.8.3

Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).

CCSS.ELA-Literacy.RST.6-8.2

Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

CCSS.ELA-Literacy.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CCSS.ELA-Literacy.RST.6-8.9

Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

### SC8.1.6

Interrelationships of Populations and Ecosystems: Students illustrate populations of organisms and their interconnection within an ecosystem, identifying relationships among producers, consumers, and decomposers.

### SC8.2.1

Students research scientific information and present findings through appropriate means.

### SC8.2.3

Students clearly and accurately communicate the result of their own work, as well as information obtained from other sources.

### SC8.3.1

Students explore the nature and history of science.

- Students explore how scientific knowledge changes and grows over time, and impacts personal and social decisions.
- Students explore the historical use of scientific information to make personal and social decisions.

### SC8.3.2

Students explore how scientific information is used to make decisions.

- The role of science in solving personal, local, and national problems.
- Interdisciplinary connections of the sciences and connections to other subject areas and careers in science or technical fields.
- Origins and conservation of natural resources, including Wyoming examples.

### ***ISTE Standards-Students to be addressed:***

3. Research and information fluency: Students apply digital tools to gather, evaluate, and use information.
  - c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
  - d. Process data and report results

5. Digital citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

- a. Advocate and practice safe, legal, and responsible use of information and technology
- b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
- c. Demonstrate personal responsibility for lifelong learning
- d. Exhibit leadership for digital citizenship

6. Technology operations and concepts: Students demonstrate a sound understanding of technology concepts, systems, and operations.

- a. Understand and use technology systems
- b. Select and use applications effectively and productively

**Specific Learning Objective:** Students will identify with the larger picture of our local North Platte River Watershed, create an accurate map of waterways in Wyoming, and show higher order thinking by associating abiotic and biotic factors with the river to 80% accuracy.

**Technology Integration:** Students will use iPads and follow specific instructions that will lead them to an article about the watershed in Casper, Wyoming. This allows the students to expand their skills on finding useful information on the Internet and it saves paper!

**Assessment(s) to be used:** Assessment will be mostly observations. Students will be assessed based on their willingness to participate, and to follow the instructions that will be presented for the activities.

**Target (performance goal - end of unit):**

- Students will work collaboratively to develop an understanding of the the impact that biological and ecological events have on their lives.
- Students will understand the various interactions biotic and abiotic factors have on an ecosystem.
- Students will associate geologic formations with the canoes and diversity we see in today's ecosystem.
- Students will understand the relationship between rivers and the needs of plant and animal communities.
- Students will be able to locate the main drainage basins of Wyoming and know the oceans into which the main rivers empty.
- Students will be able to determine the gradient of a river using a Wyoming highway map.
- Students will demonstrate an understanding of how precipitation, topography, and climate affect vegetation patters and wildlife distribution.
- Students will demonstrate an appreciation for water conservation, it issues and their importance to agriculture.
- Students will create an accurate map of the main rivers, creeks, lakes and reservoirs in Wyoming.
  - All to 80% accuracy.

**Materials needed - including software/hardware and any technology tools:**

- iPads with internet access
- Wyoming Road Maps
- Transparent sheets of paper cut to the size of the map
- Pencils
- Tape
- Projector with computer connection

**Key Vocabulary specific to content and technology tool(s)/concepts:**

- Ecosystem: A biological community of interacting organisms and their physical environment.
- Abiotic: Physical rather than biological, not derived from living organisms.
- Biotic: Relating to, or resulting from living organisms in their ecological relations.
- Population: A group of organisms of one species that interbreed and live in the same pace at the same time.
- Habitat: The natural home or environment of an animal, plant, or other organism.
- Community: An ecological unit composed of a group of organisms or a populations of different species occupying a particular area, usually interacting with each other and their environment.
- Watershed: The area of land where all of the water that is under it or drains off of it goes into the same place.
- Reservoir: A large natural or artificial lake used as a source of water supply.
- Topography: The arrangement of the natural and artificial physical features of an area.

## DO:

### **Anticipatory Set (lead in or introduction of content; motivation and engagement of students):**

Students will be asked to find an article with the URL I will be providing and read it. The article is about the North Platte Watershed and the water that runs into it. It ties up any loose ends from their previous activity where the students researched the North Platte River's past, and what it might be like in the future. It also provides a nice transition to looking at the big picture of the local watershed, the state watersheds, and how they fit into the national watersheds and the ocean. The reading will provide a topic of discussion about abiotic and biotic factors that effect watersheds locally, and in the bigger picture.

<http://casperwy.gov/cms/One.aspx?portalId=63067&pageId=81338>

### **Step-by-Step Procedures: (List pg. #, books, etc.; be specific)**

#### **THE TEACHER WILL:**

° Ask the students to get their assigned iPads and follow the instructions projected on the board to find the article they are asked to read.

#### **THE STUDENT WILL: :**

° Use their iPad to find the website and article about the Casper watershed.

#### **THE TEACHER WILL:**

° Allow the students 10-15 minutes to read and comprehend the article. Tell them to think about abiotic and biotic factors as they read it and how it ties in to everything they've been learning in class.

#### **THE STUDENT WILL: :**

° Take 10-15 minutes to read the assigned article thoroughly.

#### **THE TEACHER WILL:**

° Tell the students to discuss the article with their table mate for a minute or two.

° Lead a discussion about the article encouraging the students to share their thoughts. Ask the students what they learned as far as abiotic and biotic factors effecting the watershed in the article.

#### **THE STUDENT WILL: :**

° Participate in a class discussion about the reading. Practice higher order thinking skills by making connections about what was read to what they have learned up to this point.

#### **THE TEACHER WILL:**

° Guide the students to thinking if how we take care of our local watershed effects other towns, states, or even the ocean. Use Keynote (powerpoint) to display a Google Earth image of the entire Platte River watershed. Discuss how big it looks, and how the North Platte fits into it. On the next slide, a Google Earth image of the Missouri River watershed will show an even bigger area and how the North Platte works into that. The next slide will show the Mississippi River watershed, how much water from all over feeds into the Mississippi River and where the Mississippi River flows into the Gulf of Mexico.

#### **THE STUDENT WILL: :**

° Realize the big picture of how our local Casper Watershed plays a small, but important role, in a very large system.

#### **THE TEACHER WILL:**

° Continue to the next slide in Keynote which shows the Colorado Watershed and I will explain that all parts of Wyoming play a big role in different national watersheds. Explain that the Green River basin feeds into the Colorado watershed. The next slide shows the Columbia Watershed, which includes the Snake River are of Wyoming.

#### **THE STUDENT WILL: :**

- ° Start thinking about how watersheds are really important to a variety of different ecosystems.

**THE TEACHER WILL:**

° Lead a discussion encouraging the students to think about the importance and vastness of water in Wyoming.

**THE STUDENT WILL:**

° Discuss the abiotic factors that make up so many different ecosystems, communities, and populations even though all these things may depend on the same water source.

**THE TEACHER WILL:**

° Present the students with an activity in which they will receive a Wyoming road map as well as a large piece of transparent paper, and, with a group of 3, they will locate and trace all the main rivers, creeks, lakes, and reservoirs in Wyoming and label them. They will also locate and mark where main rivers exit the state, and note which ocean the water will end up. A picture of a Wyoming road map will be shown on the Keynote presentation as well as a picture that shows what the students' end result should look like.

- ° Assign groups of 3 to work together.
- ° Allow students to get up and get the supplies needed for the activity.

**THE STUDENT WILL:**

° Work collaboratively with a group to trace rivers, creeks, lakes, and reservoirs from a Wyoming road map onto a transparent sheet of paper. Label these items appropriately, as well as mark where main rivers exit the state and which ocean the water will end up.

- ° Make connections about where the most water is and where the biggest towns are.

**Applications (for students with lower skills - differentiated instruction); look for how technology tools may assist:** (Students who will receive IEP's for this specific class have yet to have their meetings, so no specific student accommodations have been noted)

- ° Repeat instructions if needed
- ° Allow more time to read article
- ° Allow students to use iPads to assist with finding the waterways on the map

**Extensions (for students with higher skills - differentiated instruction); look for how technology tools may extend learning:**

- ° Assign further reading on watersheds and ask for a written summary

*(next two main sections completed after plan has been taught)*

**STUDY:**

**Results - How did students perform? - (includes assessment results) What was the outcome of lesson objectives; is homework/reinforcement and independent practice needed?**

The students' performances were right on track with what I was expecting. They listened and comprehended instructions, and actively got involved in discussions. They asked questions, as well as answered questions directed toward them. The assessment was purely observational, and students remained focused on the activity at hand for the duration of the class time. Some groups worked better than others, and got a lot more accomplished, and some groups needed constant redirecting to stay on task. Homework was not needed, and students were able to comprehend the reasoning behind the activity and make connections with what they have been learning in this unit, which is the outcome I was hoping for.

## **Reflection/Evaluation: What worked?**

This class can be tricky to keep on task. They like to talk. A lot. So the best strategy to get them to reach the objectives is to allow them to express themselves by first talking with a partner, then opening up and sharing thoughts with the class. They were more than happy to participate in the class discussion and they had great things to say. They made connections right away with the article I asked them to read, to everything they had learned in this unit up until this point. They were able to provide great insight into how the article ties in to the ecosystem here in Casper, and were also able to look at the big picture. The next strategy was to let them know that group work can easily turn into individual work (as they have proven in the past that they have trouble staying on task in groups). They heard the message, and performed well in groups of 3.

Since it's typical for 8th graders to focus on the task at hand for only about 15-20 minutes before getting really sidetracked, I made sure that I didn't give them a whole list of instructions to follow right at the beginning of the activity. I would interrupt them every 15-20 minutes or so and ask them to add something to their task at hand. This seemed to keep them more focused on what they were doing.

The visuals seemed to really work well for this class. Even though it was just a simple powerpoint, the previous classes did not have visuals and had a harder time grasping the big picture idea. They really seemed to like being able to see just how big of an effect our small river has on a large area. They also appreciated seeing the road map on a bigger scale, as well as a picture of what their maps might end up looking like.

## **ACT:**

**Closure (Reteach/reflections/relevance/review - What needs to happen next? Do certain concepts need to be retaught?)**

I feel the lesson was successful. Some students were able to get a lot more accomplished than others, and some groups needed repeated instructions. This is an activity that the students worked on for my lesson, and also the following class period as well, so students who didn't have as much done needed to speed things up or have homework. Speaking loud enough, with enough authority, to get them to stop what they were doing and listen to another instruction seemed to be a challenge for me. Apparently my voice isn't very authoritative.

As far as concepts go, the content of the lesson has been something that they've been focusing on for the last 4 weeks in class, and it is apparent that they are really starting to make the necessary connections to reach the objectives. I don't think any part of the lesson would need to be retaught.

With this lesson, we were able to continue to bridge the gap between what they learned in 7th grade earth science, and keep them moving forward into life science. This activity will lead them into a look at population density, where they will see that people tend to settle near water, which has an effect on the plant and animal life that also depend on that water. They will then be focusing on vegetation, and be lead into photosynthesis.