Partnering Pedagogies Student-Centered, Web-Enhanced Lesson Plan – Part C

Global Warming in Your Community

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# Web-Enhanced Lesson Plan – Global Warming in Your Community

## Driving Question

The driving question for my web-enhanced lesson is: *How will global warming influence our local ecosystems and why is it important to make a difference locally*?

## Context

This lesson would be used in a public or private middle-school science classroom and would last five days. The class would need enough internet-capable devices to provide groups of 4 students with at least one device to use for research and project/presentation development. In accordance with New Jersey’s Student Learning Standards for Science for grades six through eight, students will satisfy standard MS-LS2-4 by “construct[ing] an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations” (NJ Department of Education, 2016.). Students will be given the opportunity to explore, photograph, and learn about their local county or state parks. This exploration and research will then be linked to a broader view of how rising temperatures will play a role in the future of the park and what will happen to the living organisms. Students would then present their findings with an online blog and video presentation. Ideally, the instructor would connect with a school that resides in a different climate so that students could then present their findings in a blog and share with the other students and vice versa.

## Concepts Covered

This project would encompass multiple concepts and permit students to approach them in unique and collaborative ways. It will guide students toward researching and understanding climate, forests, forest ecosystems, the plants and animals that reside in the forest and surrounding areas, why the plants and animals inhabit these areas, and how they interact with each other. Lastly, students will investigate air, water, and land pollution and its effect on the environment, animals, and humans and link their findings with the larger themes of global warming and pollution.

## Partnering Pedagogy

The lesson will make use of inquiry-based learning to drive students toward investigating concepts, presenting their findings in a discussion, and suggest their own solutions. As Prensky (2010) states, “since guiding questions do not necessarily have right or wrong answers, [teachers] typically [look] for well thought-out and well-supported responses” (p. 39). Because each student will research the concepts differently and will photograph and explore the local park from their own perspectives, answers will vary and give students freedom in how they choose to approach the guiding questions.

## The Learners

The learners in this lesson are the typical students found in a middle-school classroom. This project can relate to a wide array of individual interests, from sports that are played in the park, to the animals living in it, to horticultural interests, to automobiles polluting the air, to nature photography, and even to songs that birds sing in the park. The students, of course, will be digital natives, however their level of expertise will vary. It’s important for the students to learn technology from each other and for the instructor to guide the students toward making technology choices if they are struggling.

## Activities and Technologies

The investigations connect students with what is occurring in the moment and with the communities that they live in. For many students, they might not have considered the environment of the parks that they ride their bike or play sports in. They get to visit a real location and connect that data to research and develop solutions that will influence them becoming better local and global citizens. By visiting the parks/forests in their community, students will develop a curiosity for the ecosystems that they trek through and will gather initial data using their cameras and smartphones to make note of aspects that they’d like to further investigate. Students will also be introduced to larger climate topics to promote critical thinking of how their local discoveries could be affected by the impact of the broader, global topics.

The technologies that are recommended to be used for this assignment include Blogger and Adobe Spark. While there are many blog websites, it is important to keep the platform uniform so that students can easily discuss and comment on each other’s blog and with students across the country. Adobe Spark allows students to quickly create attractive graphics, videos, and websites to convey their messages and easily share their creations via social media or a blog. Using these technologies allows them to develop or improve a new communication methods by using digital storytelling, digital photography, and digital videography to display their thoughts and research in an open format for other students to view and discuss.

## Objectives, Investigations, Activities, Scaffolds, Tools, and Assessments

Table 1A

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Objective** | **Investigations** | **Activities** | **Scaffolds** | **Tools** | **Assessments** |
| Collaborate with other students to identify the nearby forests and parks to determine the type of ecosystem/climate that you live in. | “What are the characteristics you would use to describe a park?”  “How do those characteristics fit into your local park?”  “What is an ecosystem? How does it relate to your local community/state park?”  “What kinds of relationships do the plants and animals have with the environment, i.e. weather, temperature, shelter?” | Students will engage in two exploration activities.  First, students would be placed into groups of 4 and given half of the class time to research, read, and learn about forests, ecosystems, and parks.  They’d compile their findings into a Google Drive / Doc and use the information to determine key characteristics that make up their local parks.  The second half of the class would be a class discussion about each group’s findings and characteristics.  At the next class, or on their own time as homework, students would explore a local or state park to identify those characteristics, as well as gather new data, photographs, and video to reconsider their initial findings.  This information would then be added to the same Google Drive / Doc files. | Students would be instructed on how to set up a Google account if they don’t already have one.  There would be a “Google Help Station” where information and videos on how to use Google tools would be open on a tablet or laptop for students to go to for assistance.  A starter sheet would be provided to students to give them tips on how to research on Internet search engines and provide organizations they can investigate. | Google Docs  Google Drive  Google Photo  Online search engines  Textbooks  YouTube  Data acquisition/collection tools (cameras, tablets, smartphones) | **Formative evaluation:**Instructor will review the materials collected by the students and offer guiding questions if they are not on the right path.  Students will also share their findings within their group and provide feedback to each other on the information they are researching.  **Summative evaluation:**Students will be graded based off a rubric that will guide them to gather the correct information to serve as a foundation to form ideas later in the project. See Appendix A. |
| Research the Environmental Protection Agency and the various aspects that provide a risk to the environment to be able to explain and share your findings with other students. | “What is currently being done to protect the environment?”  “What organizations oversee and regulate the environment?”  “What is damaging the environment? How?” | A brief discussion on “what do you know about environmental protection?” will start the class for about 5 to 10 minutes. Then, the student will participate in a jigsaw activity. The groups will be assigned one topic to research and explore: EPA, pollution, global warming, alternative energy. They will have half of a class to conduct their searches and compile information and resources into their Google Doc.  In the second half of the class, each topic group will be split into a mixed group where there is at least one student representing each topic. They will then share their findings with each other and teach one another about the topic. Students will listen, take notes, and discuss each topic. | A starter sheet will be provided with some buzz-words and organizations. | Google Docs  Google Forms  YouTube  Online search engines  Textbooks | **Formative evaluation:**Students will share information that they discover.  The instructor would speak to student groups and engage in small dialogues to assess how effective the group learning is.  **Summative evaluation:**Students would be given a brief quiz through Google Forms covering each topic based off the information that the students gathered.  The information gathered would also be assessed by a rubric that will guide students toward gathering to correct information. |
| Analyze your research and create a video presentation that combines your findings to hypothesize the effects that environmental risks pose on your local community. | “What would happen to your local communities and ecosystems if global warming continues to progress?”  “What would happen to the temperature and the air?”  “How would your family be effected?”  “What changes would need to be made?”  “What would happen to plants and animals?” | Students will work together in their groups to discuss and develop a hypothesis as to what will happen to their local communities and ecosystems if global warming progresses. They will then use Adobe Spark Video to each create a video to present their findings and hypothesis, using any images or videos that they captured while visiting the park/forest to support the multimedia aspect of the presentation. | The teacher will provide guiding questions, such as “how would the local wildlife adapt to a warmer climate?” or “how would food sources change for wildlife?” or “how can a solar panel help the environment?” if students are struggling to make the connection to the larger context.  A link to a video tutorial for Adobe Spark Video will be made available for students to learn how to create and share a video using Spark. | Adobe Spark Video  Google Photos  Google Docs | **Formative evaluation:**The instructor would move around the room and assess the difficulties students are having while creating the video and discuss what might be a better tool.  Students would share their knowledge with others to help foster either a deeper understanding of the tool or exploration into the use of a new tool and development of new skills.  Students will be encouraged to use their prior knowledge of skills to apply to this situation and decide upon the best approach for themselves.  Hypotheses will be reviewed by the instructor with the students to ensure they are not too far off the topic.  **Summative evaluation:**The video will be assessed using a rubric to provide guidance for the students. |
| Write a personal reflection and share your video presentation with other students online to engage in a dialogue about environmental protection and global warming. | “What have you learned your community and the environment through this project? Provide your personal reflection in a blog along with your presentation.” | Using Blogger, since it is part of the Google family of applications, the students will create a blog post to provide a personal reflection of at least 250 words on their research, experience gathering information, and thoughts about the future. Students will include their presentation and download them from Adobe Spark to upload to YouTube or share directly from Spark using the embed option.  After posting, students will then be required to comment on at least 3 other student’s postings to initiate an online discussion.  If this project happened to be coordinated with another school from across the country that resides in a different climate (New Jersey and Southern California, for example), the students would then also explore the school’s postings and comment about the other ecosystems. This would then be followed up with a brief in-class discussion with the teacher about the similarities and differences in ecosystems and how global warming will affect each one uniquely. | A link to a video tutorial for Blogger will be made available for students to learn how to create a blog post.  Uploading video to YouTube will be available as part of the Google Help Station mentioned in objective 1. | Blogger  YouTube  Adobe Spark Video | **Formative evaluation:**Students will provide each other feedback by sharing their knowledge of blog posting and embedding multimedia.  The instructor would provide help with focusing the personal reflection.  **Summative evaluation:**Students will post their reflection and video and post to at least three other students blogs with substantial responses that evaluate the hypotheses posed.  These will then be graded by the instructor. |

## How will you group them and how will you ensure they contribute together?

Students will be grouped together in sets of four to work on their research and development of a climate hypothesis. Students within the groups will be encouraged to each research a different aspect so that every student is working. Their contributions will be tracked by their participation in the Google Doc, which will include all their resources, information, and multimedia that they gather. Additionally, the jigsaw activity in objective two will require students to be well-versed in one of the four topics of climate change so that they can move to another group and participate in the teaching and learning of the topics. Finally, students will be required to post their own video presentation of the hypothesis that the group collaborated on as well as provide a personal reflection on the activities and thoughts about the future.

## How long is the lesson? When will the lesson be taught?

The lesson is intended to take about four to five days, where one learning objective will be completed per day. However, the lesson length is dependent on the class length and whether students will take a field trip to a local park/forest or will explore them on their own time as homework. It would be taught as a spring lesson, where the forests and in bloom and thriving and the wildlife is very active.

## How will you monitor your students' learning during the unit?

The instructor will monitor students’ learning through formative evaluations listed in Table 1A to ensure that students are learning the correct information and forming relevant thoughts on the topics. This includes a variety of feedback, guiding questions, and knowledge sharing.

## What evidence/artifacts will students create to demonstrate learning?

Students will develop hypotheses on global warming’s effect on their communities based upon critical analysis of information that they research and discover through the various activities within the lesson, as seen in Table 1A. They will produce collective research documents that include information, web references, and multimedia that support their ideas and help to formulate opinions for discussions and presentations. To accompany and expound their hypotheses, students will develop a multimedia presentation and blog posting. Additionally, students will provide personal reflections and form educated opinions through online discussions.

## How will you assess students' processes and products?

Student processes and final products will be assessed through a series of rubrics that will outline what is expected of each activity. The rubrics will not only cover what aspects need to be fulfilled by each activity, but it will also account for the thoroughness that each student illustrates for each product. Please refer to summative evaluations in Table 1A and examples in the attached Appendicies.

## When and by whom will the assessments occur?

Assessments will be completed as part of the activity at the end of each activity/day. The instructor would then evaluate the student work after the activity and provide feedback for the next day. Doing so will also give students that may struggle in the beginning an opportunity to work toward improving the final hypothesis, video, and blog posting.

## Appendices

Appendix A: Objective 1 Rubric……………………………………………………………p. 12

Appendix B: Objective 3 Adobe Spark Tutorial……………………………………………p. 14

Appendix C: Objective 4 Rubric…………………………………………………………….p. 14

Appendix A

Objective 1 Rubric

1. You provide a clear understanding of ecosystems, how they function, and the type you find locally.

|  |  |  |  |
| --- | --- | --- | --- |
| 0 pts. | 1 pts. | 2 pts. | 3 pts. |
| You have no idea. |  |  | You provided well researched resources, findings and original thoughts. |

Additional Comments:

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1. You researched national, state, and local parks and how they’re important to the community.

|  |  |  |  |
| --- | --- | --- | --- |
| 0 pts. | 1 pts. | 2 pts. | 3 pts. |
| You have no idea. |  |  | You provided well researched resources, findings and original thoughts. |

Additional Comments:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. You investigated plant life and wild life in your local community and can describe how they are integrated into the ecosystem.

|  |  |  |  |
| --- | --- | --- | --- |
| 0 pts. | 1 pts. | 2 pts. | 3 pts. |
| You have no idea. |  |  | You provided well researched resources, findings and original thoughts, as well as plenty of photographs and video clips. |

Additional Comments:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. You actively participated in the group discussion about ecosystems and communities.

|  |  |  |  |
| --- | --- | --- | --- |
| 0 pts. | 1 pts. | 2 pts. | 3 pts. |
| You have no idea. |  |  | You voiced your opinion more than once. |

Additional Comments:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. You helped your group develop a thorough Google Doc and Google Drive.

|  |  |  |  |
| --- | --- | --- | --- |
| 0 pts. | 1 pts. | 2 pts. | 3 pts. |
| You have no idea. |  |  | You actively participated in the construction of your group’s knowledge. |

Additional Comments:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Appendix B

Objective 3 Adobe Spark Tutorial

[YouTube Link: Learning Adobe Spark Video for Classroom Integration](https://www.youtube.com/watch?v=1rP2kfZwpFA)

Appendix C

Objective 4 Rubric

|  |  |  |  |
| --- | --- | --- | --- |
| Criteria | Total Pts. | Pts. Earned | Instructor Comments |
| You included your hypothesis at the top of the posting. | 2 |  |  |
| Your reflection was at least 250 words and commented on your research, experience gathering information, and thoughts about the future. | 3 |  |  |
| You included your video by embedding it through either YouTube or Adobe Spark. | 2 |  |  |
| You commented on at least 3 other student postings and wrote substantial postings that expand upon, reflected on, or debated (respectfully!) their point of view. | 3 |  |  |

Additional Overall Comments:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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