



Lesson Plan for Implementing NETS•S—Template I

(More Directed Learning Activities)

Template with guiding questions

Teacher(s)

Name

Shari Amonett

Position

7th Grade Life Science Teacher

School/District

Dalton Middle School/Dalton Public Schools

E-mail

Shari.amonett@dalton.k12.ga.us

Phone

706-278-3903

Grade Level(s)

7th

Content Area

Life Science

Time line

One week

Standards (What do you want students to know and be able to do? What knowledge, skills, and strategies do you expect students to gain? Are there connections to other curriculum areas and subject area benchmarks?) Please put a summary of the standards you will be addressing rather than abbreviations and numbers that indicate which standards were addressed.

Content Standards

S7L4. Students will examine the dependence of organisms on one another and their environments.

A. Demonstrate in a food web that matter is transferred from one organism to can recycle between organisms and their environments.

B. Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism.

C. Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.

NETS*S Standards:

ISTE 1.b Students will create original works as a means of personal or group expression. (Digital Presentation)

ISTE 2 Students will use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. (Digital Presentation and Voice recording)

ISTE 5.a Students will advocate and practice safe, legal, and responsible use of information. (Creative Commons)

Overview (a short summary of the lesson or unit including assignment or expected or possible products)

In this lesson, the students will be relying on knowledge gained while doing field research earlier in the year, as well as the Internet to explore the ecosystem located around our school. Throughout the year my students have placed fish traps in Mill Creek and collected data on the fish we have caught. Using the exact species of fish found in our creek, students will do research using the Internet and the research skills they have learned this year to find out what things must be located in the creek that the fish eat as well as other species that prey on the fish we have collected. After completing the research and creating the food web for the ecosystem on paper, the students will create the food web on the computer using pictures collected from Creative Commons. At this point the students will work in groups of two or three to create a digital presentation. The students will be given a choice in which Web 2.0 tool they wish to use to create a digital presentation that all group members can contribute to. The students will be given a list of questions to answer about the ecosystem and then had to use Voki, or some other type of voice recording if they wanted to record their answers and embed them within the presentation. A rubric will be used to assess the final product and the students will complete a self-reflection at the end of the lesson. Students will be expected to receive 80% or higher on the rubric.

Essential Questions (What **essential question** or learning are you addressing? What would students care or want to know about the topic? What are some questions to get students thinking about the topic or generate interest about the topic? Additionally, what questions can you ask students to help them focus on important aspects of the topic? (Guiding questions) What background or prior knowledge will you expect students to bring to this topic and build on?) Remember, essential questions are meant to guide the lesson by provoking inquiry. They should not be answered with a simple “yes” or “no” and should have many acceptable answers.

How does a scientist determine what is living in a certain ecosystem?
How do species rely on each other within an ecosystem?
How does an ecosystem change if just one species changes within the ecosystem?
How do we help to protect and preserve the ecosystems we live in and around?

Assessment (What will students do or produce to illustrate their learning? What can students do to generate new knowledge? How will you assess how students are progressing (*formative assessment*)? How will you assess what they produce or do? How will you differentiate products?) You must attach copies of your assessment and/or rubrics. Include these in your presentation as well.

Students will record their research and complete the food web on paper. This must be checked by the teacher for formative assessment before they will be allowed to move on to the digital presentation. Digital presentations will be assessed using a rubric that is attached. They will be graded on the food web, questions, completion, style, and organization of the presentation. Students will also complete a self-reflection at the conclusion of the project.

Resources (How does technology support student learning? What digital tools, and resources—online student tools, research sites, student handouts, tools, tutorials, templates, assessment rubrics, etc—help elucidate or explain the content or allow students to interact with the content? What previous technology skills should students have to complete this project?)

I teach in a 1:1 situation where all students are given a laptop at the beginning of the school year and for a minimal fee, can take it home with them each night. In this activity students will rely on their prior technology knowledge that has been built all year. Students need to know how to be able to research on the Internet and discern quality sites that have accurate information. They also need to be familiar with the Flickr Creative Commons site and how to search, download, and insert graphics from the site. Students need to be familiar with a voice recording program such as Voki. My students were taught how to use this with their technology connections teacher and had practice opportunities. For students who are not familiar with Voki the teacher would need to help set up an account for them or use the Voki for the Classroom accounts. If the students create their own account it will ask for a valid email address which should only be used for students over the age of 13. For this particular lesson the students must also be comfortable with at least one type of online presentation tool such as Google Slides, Prezi, or Padlet.

Instructional Plan

Preparation (What student **needs, interests, and prior learning** provide a foundation for this lesson? How can you find out if students have this foundation? What difficulties might students have?)

Prior to this lesson the students need content knowledge in how to correctly construct a food web as well as how they work. This particular lesson is a review and culminating project, not a first time teaching of the content. Students have also participated in field research throughout the year collecting samples of the species of fish living in the ecosystem. They have been exposed to the area in large amounts and this lesson comes as a prerequisite to our final sessions of data collecting to compare the fish population at different times throughout the year. If a student has moved in to our school since we last did the field research it would be more difficult for the student to understand the ecosystem that the project is based around.

Due to the timing of this lesson it is important that the students have a strong understanding of Internet research and how to find quality information. This is a skill that our literacy teachers have spent all year building and this project helps to reinforce those skills. If a student has not mastered those skills it might be necessary to provide them with specific sites in which to find their information instead of letting them discover it for themselves. Students have also had prior experience using the devices to create Voki's and digital presentations.

Management Describe the classroom management strategies will you use to manage your students and the use of digital tools and resources. How and where will your students work? (Small groups, whole group, individuals, classroom, lab, etc.) What strategies will you use to achieve equitable access to the Internet while completing this lesson? Describe what technical issues might arise during the Internet lesson and explain how you will resolve or **trouble-shoot** them? Please note: Trouble-shooting should occur prior to implementing the lesson as well as throughout the process. Be sure to indicate how you prepared for problems and work through the issues that occurred as you implemented and even after the lesson was completed.

The beginning of the lesson will be done whole group with a review on food webs and then students will work individually in the classroom with the teacher monitoring computer research and accuracy of information. As the students get their individual food webs checked off by the teacher they will begin working in groups of two or three to complete the digital presentations. Students will be allowed to work both in class as well as at home on the projects. If there are technical issues during the research phase students will be able to use the field guide in the classroom as an alternative. If a student is struggling to find accurate information, I will direct them to knowledgeable websites that contain the information needed to complete the assignment.

If there are issues with computers during the presentation phase, students will be directed to use someone else's computer in the group. All work will be saved to their accounts on OneDrive so that it can be accessed from any computer with Internet access. Due to the familiarity of the students with the computers and the programs being used they have developed the skills to troubleshoot on their own or seek guidance if they are unable to get things working properly. If a groups work is lost for some reason they will be given additional time to complete the requirements or allowed to complete a presentation with the same information not using a computer if absolutely necessary.

Instructional Strategies and Learning Activities – Describe the research-based instructional strategies you will use with this lesson. How will your learning environment support these activities? What is your role? What are the students' roles in the lesson? How can you ensure **higher order thinking at the analysis, evaluation, or creativity levels of Bloom's Taxonomy**? How can the technology support your teaching? What authentic, relevant, and meaningful learning activities and tasks will your students complete? How will they build knowledge and skills? How will students use digital tools and resources to **communicate and collaborate** with each other and others? How will you facilitate the collaboration?

- This lesson will begin with activation of prior knowledge about the creek, the fish we caught in our traps, and how food webs show the flow of energy in an ecosystem. This will be accomplished through questioning and partner sharing.
- The students will then begin to collect the information needed to create the food web of Mill Creek and fill in the handout as they go. Students will be allowed to use the Internet to research the information that they are unsure about. If they have difficulty in this inquiry task the teacher will provide guiding questions. The teacher will serve as a facilitator during this phase of the project.
- Once the food webs are created on paper, the teacher will check for understanding and then the individual students will use Creative Commons to create a digital version of their food web using Paint.
- Students will turn in the digital food web on Canvas and the teacher will pair them with another student based on interest and academic achievement.
- In pairs or groups of three, the students will analyze each other's food webs to determine which one they wish to use for their presentation.
- Students will read the response questions and synthesize an answer that all group members are happy with and choose one member to record their answer using a voice recording tool and embedding it in the presentation. Each group member should be given an opportunity to complete one or more voice recordings.
- At the conclusion of the project each student will be asked to evaluate their project using the rubric given at the beginning of the project and then also complete a self-reflection component.

The students will be engaged in a real world project as they look to use the data and knowledge from previous field research we have completed to gain a larger perspective on what makes up the ecosystem of our local creek.

This project begins with application and synthesis activities as they complete the food web and then moves to higher-order thinking skills as they work to formulate in-depth answers to the three response questions.

Technology is being used to support the student's learning as well as serve as a means of communication and collaboration amongst peers and even families during the upcoming showcase evening at our school where parents are invited to view some of the outstanding work students have created.

Differentiation (How will you differentiate **content and process** to accommodate various learning styles and abilities? How will you help students learn independently and with others? How will you provide extensions and opportunities for enrichment? What assistive technologies will you need to provide?)

There are several ways in which this lesson can be differentiated. The easiest form of differentiation will be the pace of the project for each student. Due to the availability of technology at all times, students are able to work through at their own pace without having to worry about what days the computer lab is open or other technology is available for them to use.

Differentiation has also been created in the food web portion of the assignment. The majority of students will be required to create a web revolving around three species of fish that we have found in the creek as well as their prey and predators. To extend I will require students to include more species of fish and fewer species for those who need remediation. Teacher involvement in the groups will also be altered depending on the needs of the group. If needed, the teacher can also pair students to work together based on ability to help guide struggling students.

If this lesson were to be taught in a situation where adaptive/assistive technologies would be required the teacher could work with the child to adjust the requirements as necessary to meet the needs of the child. For example, the student could go and take pictures on the species outside instead of searching for the online. If needed the student could type all of their information instead of doing a voice recording. It might also be beneficial to pair the student with another student who could help guide them through the process and content.

Reflection (Will there be a closing event? Will students be asked to reflect upon their work? Will students be asked to provide feedback on the assignment itself? What will be *your process* for answering the following questions?)

- Did students find the lesson meaningful and worth completing?
- In what ways was this lesson effective?
- What went well and why?
- What did not go well and why?
- How would you teach this lesson differently?)

For the students, there will be a reflective piece at the end of the lesson where they self-evaluate themselves based on the rubric and then answer the questions of what they are most proud of in their work for this project, what they wish they had done differently, and what they have learned about themselves as a learner that would help with future projects. I will also ask what they would change about the project if it were repeated in the future.

As a teacher I find it important to reflect on each lesson to guide my next steps with my students. Throughout the lesson I was able to gauge student progress and adapt as needed. For example, some students were required to only include two species of fish while others included four or five species. At the conclusion of the lesson I did have students reflect on the activity and give me feedback for the future. Many of the students thoroughly enjoyed creating a food web with real life examples from our school and suggested I use this earlier in the year with my students instead of waiting till April and using it as a review or culminating task. While I agree with that thought, I might adapt it slightly if I teach it earlier in the year. The overall quality of digital presentations turned in was higher than my expectations and it was nice to see how their skills have improved since their first digital presentation at the beginning of the year. If I were to use this in September like they suggested it would take longer and I would spend more time walking them through how to use each of the Web 2.0 tools. I will have to plan in advance for students who work faster than others. Even with extensions embedded in the project, some students were still able to finish much faster than their peers and I want to be better prepared with purposeful work for them to complete when they are done.

Closure: Anything else you would like to reflect upon regarding lessons learned and/or your experience with implementing this lesson. What advice would you give others if they were to implement the lesson? Please provide a quality reflection on your experience with this lesson and its implementation.

When I first developed this lesson I debated on if I should have the students use Diigo or Delicious to find the information needed for the research portion of the project. I decided against this idea and instead had students discover the information on their own using credible sites. I feel like this was the correct choice for my students because they have had a great deal of training this year on how to do just that. Others doing this activity may not have that same experiences with their students and need to provide them with specific sites to obtain their information.

As I stated previously, my students have been using their devices on a daily basis since the beginning of the school year in one class or another. For students who have not had the same experience more scaffolding will need to take place to ensure that the students have the skills needed to meet and exceed the expectations of the project.

Name: _____

Date: _____

Mill Creek Food Web Project

Name 3 different species of fish that we trapped in our nets during the fall. (Look back on Canvas or ask a neighbor if you cannot remember.)

1. _____

2. _____

3. _____

For each species, please research and find out exactly what they eat and record it below.

Species #1: _____

Species #2: _____

Species #3: _____

Name at least one predator for each species of fish mentioned above.

On the back of this page, draw a food web including the species of fish you listed and everything that they eat. Make sure you include the sun, producers, primary consumers, secondary consumers, and even tertiary consumers as needed. This means you may also include others species that prey on the fish we catch.

Remember: prey  predator

Mill Creek Ecosystem Project Rubric & Guidelines

	Needs Improvement	Acceptable	Exceeds Expectations	Score
Food Web Content	5	10	15	
	Several species were missing from the food web.	Food web included the necessary species of fish and most of the other producers, primary consumers, secondary consumers, and tertiary consumers, but was not complete.	Food web was thorough and included three or more species of fish from our data collection. Producers, primary consumers, secondary consumers, and tertiary consumers were all included.	
Food Web Energy Flow	5	10	15	
	Energy flow was not correctly represented with 3 or more errors.	1-2 errors were shown in the energy flow.	Energy flow was correctly represented.	
Food Web Images	5	10	15	
	Creative Commons was not used for images to create the food web or there were no images.	Some images used were from Creative Commons while some were not.	Food web was created using all images from the Creative Commons.	
Response Questions	5	10	15	
	One or more questions were not answered.	All questions were answered, but could have been expanded more.	All questions were answered will thoughtful in-depth answers.	
Voice Recording	5	10	15	
	Voki or other voice recording was not included or embedded in the presentation for each question.	Voki or other voice recording was included or embedded in the presentation for each question but it may have been difficult to hear or understand.	Voki or other voice recording was included or embedded in the presentation for each question and was clearly understood.	

Completion	5	10	15	
	3 or more requirements were missing from the project.	1-2 requirements were missing from the project.	All requirements were met for the project.	
Style & Organization	3	7	10	
	Digital presentation was not put together in a way that easy to understand or follow.	Digital presentation was simple but easy to understand and follow.	Digital presentation was created using images and text as needed. It was easy to follow and understand the thoughts of the presenter.	
TOTAL				

You are working with a partner to create a presentation about the Mill Creek Ecosystem. You may use any digital tool to create your presentation that you feel comfortable with. You might consider Google Slides, Prezi, or Padlet. If you wish to use another tool please let me know before you begin.

Your presentation must include:

-Food Web of Mill Creek including images from Creative Commons

-[Voki](#) (or other voice recording) to answer the three questions: (One question per slide)

- What have you learned about the Mill Creek Ecosystem through our experiences outside and your research?
- Explain what would happen if just one species disappeared from the Mill Creek food web.
- What can you do to help protect the Mill Creek ecosystem?

-Any interesting facts or details you want to share with others about the Mill Creek Ecosystem

Name: _____

Date: _____

Mill Creek Ecosystem Project Self-Reflection

Answer each question using complete sentences and evidence to back up your answer.

- 1. What do you feel most proud about accomplishing for this project, and why?**

- 2. What do you wish you would have done differently for this project, and why?**

- 3. What have you learned about yourself during this project that you can use in the future?**

- 4. What did you like about this project, and why?**

- 5. What would you change about this project, and why?**