Trees, Trees, Glorious Trees

Target Grade: 6th Grade Science

Unit Overview: Students will learn how to make good observations using the trees in the Outdoor Classroom located by my school. Students will then use a dichotomous key and their observations to identify the type of trees in the outdoor classroom. Students will do research on their tree to identify the characteristics of the tree. As a Service Learning project for our school, students will create signs identifying the type of tree, characteristics of the tree and whether the tree is native or non-native to Michigan. Students will then take the 4th grade students from Elliott School on a walking field trip. During the field trip students will point out the different types of trees and how to use the signs that they have created to learn more about the trees. Students will connect what they have learned about their trees to our ecosystems unit that is currently in place, and with our Social Studies curriculum on the importance of plants in economies.

Total Time Needed: 10 Days

Sources/References:

- www.sciencenotebooks.org
- www.sciencespot.net
- Sea Grant of Maryland: http://www.mdsu.umd.edu/programs/education/interactive_lessons/key/what.htm
- Leaf Position Worksheet: http://forestry.msu.edu/extension/extdocs/leafposition.pdf

Teaching and Learning Objectives:

Students will be able to:

- Use a dichotomous key.
- Identify and classify different types of trees.
- Create observations that are detailed and include correct scientific labels.
- Communicate what they have learned about trees with other people in the community.
- Identify whether a tree is native or non-native to Michigan.
- Describe where trees get their energy.
• Describe why a tree is biotic.
• Describe why trees are important to Michigan's ecosystems and economy.

Content Benchmarks Addressed:

Science GLCES:

• S.IP.06.13 Use tools and equipment appropriate to scientific investigations.
• S.IP.06.14 Use metric measurement devices in an investigation.
• S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.
• S.RS.06.14 Draw conclusions from sets of data from multiple trials of a scientific investigation.
• L.OL.06.51 Classify producers, consumers, and decomposers based on their source of food.
• L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.
• L.EC.06.31 Identify living (abiotic) and nonliving (biotic) components of an ecosystem.

Social Studies GLCES:

• 6 – W1.2.3 Explain the impact of the Agricultural Revolution (stable food supply, surplus, population growth, trade, division of labor, development of settlements).
• 6 – G2.1.1 Describe the landform features and the climate of the region (within the Western or Eastern Hemispheres) under study.
• 6 – G3.2.1 Explain how and why ecosystems differ as a consequence of differences in latitude, elevation, and human activities (e.g., South America's location relative to the equator, effects of elevations on temperature and growing season, proximity to bodies of water and the effects on temperature and rainfall, effects of annual flooding on vegetation along river flood plains such as the Amazon).
• 6 – G3.2.2 Identify ecosystems and explain why some are more attractive for humans to use than are others (e.g., mid-latitude forest in North America, high latitude of Peru, tropical forests in Honduras, fish or marine vegetation in coastal zones).
• 6 – G5.1.1 Describe the environmental effects of human action on the atmosphere (air), biosphere (people, animals, and plants), lithosphere (soil), and hydrosphere (water) (e.g., changes in the tropical forest environments in Brazil, Peru, and Costa Rica).
• 6 – G5.1.3 Identify the ways in which human-induced changes in the physical environment in one place can cause changes in other places (e.g., cutting forests in one region may result in river basin flooding elsewhere; building a dam floods land upstream and may permit irrigation in another region).

Language Arts GLCES:

• R.CM.06.02 retell through concise summarization grade-level narrative and informational text.
• R.CM.06.04 apply significant knowledge from grade-level science, social studies, and mathematics texts.
• W.GR.06.01 in the context of writing, correctly use style conventions (e.g., Modern Language Association Handbook) and a variety of grammatical structures in writing including indefinite and predicate pronouns; transitive and intransitive verbs; adjective and adverbial phrases; adjective and adverbial subordinate clauses; comparative adverbs and adjectives; superlatives, conjunctions; compound sentences; appositives; independent and dependent clauses; introductory phrases; periods; commas; quotation marks; and use of underlining and italics for specific purposes.
• S.CN.06.01 adjust their use of language to communicate effectively with a variety of audiences and for different purposes by asking and responding to questions and remarks to engage the audience when presenting.
• S.CN.06.02 speak effectively using rhyme, rhythm, cadence, and word play for effect in narrative and informational presentations.
• S.CN.06.03 present in standard American English if it is their first language. (Students whose first language is not English will present in their developing version of standard American English.)
Lesson One: Leaf Observations

Time Needed: 60 minutes

Learning Objective: Students will generate a list of items that are required for scientific observations. Students will then use this list to make scientific observations from leaves found in the Outdoor Classroom.

GLCE Covered:
- S.IP.06.13 Use tools and equipment (hand lens, ruler) in scientific investigations.
- S.IP.06.11 Generate scientific questions based on observations, investigations, and research.

Assessment:

Students will be turning in their leaf observations and will be graded using the rubric for scientific observations.

Materials:
- Leaves from different trees around your school (one for each student)
- Magnifiers/hand lens (one for each student)
- Science Notebooks (for each student)
- Pencil
- Colored pencils
- Rulers (one for each student)

Lesson Outline:

1. Ask students “What is the difference between making an observation and making an inference?” Students should know that observations are the gathering of information using your five senses and that there are qualitative and quantitative observations. Inferences are explanations of your observations using prior knowledge.
2. Give an example of an observation. Example: “Jimmy is wearing a blue shirt” Give an example of an inference Example: “Jimmy’s favorite color is blue because he is wearing a blue shirt”.
3. Ask students to make some observations or inferences of things in the room. Call on students to share their observations/inferences. Ask the class whether each statement is an observation or an inference.
4. Tell students “Today we are going to focus on making good scientific observations.”
5. Ask students “What makes something a good scientific observation?” Begin writing down students responses on the board.
6. Show students examples of some scientific drawings and observations that other students have done from the website [www.sciencenotebooks.org](http://www.sciencenotebooks.org).

7. Ask students “Would you like to add anything to our list after seeing the examples?” Students should have listed: drawings/rubbings, title/name of object, scientific labels, description of object (size, texture, color, smell, hear).

8. Have students open to the first available page in their science journal. Have them title this page Scientific Observations. Have students record what needs to be in a scientific observation from the list on the board.

9. Tell students that you will use their list to create a rubric for scientific observations. See rubric at the end of the lesson.

10. Tell students “We are going to now use what they learned about scientific observations to create some observations of leaves.”

11. Turn to the next page in their science journal and title this page Leaf Observations.

12. Give each student a ruler, hand lens, colored pencils and a leaf. Have students begin making observations of their leaf. If you see students getting stuck refer them to the previous page with their list on it.

13. Tell students “We are now going to share our observations with a partner. Partners should be using the list and make sure that the observation has everything needed. If they are missing something they should add it to their observation before turning it in.

14. Collect the observations from students. Use the rubric to grade their observations.
# Observation Rubric

Name __________

page # to be graded ____________________

<table>
<thead>
<tr>
<th>Category</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Title is detailed and related to the observation</td>
<td>Title is somewhat related to the observation</td>
<td>Title is missing or not related to the drawing</td>
</tr>
<tr>
<td>Observation</td>
<td>Observations include all of the following details: - color - shape - size - amount - texture</td>
<td>Observations include 4 of the following details: - color - shape - size - amount - texture</td>
<td>Observations include less than 4 observations: - color - shape - size - amount - texture</td>
</tr>
<tr>
<td>Scientific Drawing</td>
<td>Drawing is neatly done and includes: - labels - color or shading - represents object accurately</td>
<td>Drawing is included and includes 2: - labels - color or shading - represents object accurately</td>
<td>Drawing is messy or not included, and does not include: - labels - color or shading - represents object accurately</td>
</tr>
</tbody>
</table>
Lesson Two: What is a Dichotomous Key?

Time Needed: 45 minutes

Learning Objective: Students will learn how to use a dichotomous key.

GLCE Covered:

- S.IP.06.13 Use tools and equipment appropriate to scientific investigations.

Assessment: Collect the Silly Science worksheet for participation points.

Materials:

- [http://www.mdsg.umd.edu/programs/education/interactive_lessons/key/what.htm](http://www.mdsg.umd.edu/programs/education/interactive_lessons/key/what.htm) (smartboard needed OR projector connected to a computer)
- Silly Science Worksheet
- White marble (Whatnot), Colored Marble (Fancy Whatnot), White Chalk (Screecher), Unsharpened Pencil (Wadget), Sharpened Pencil more than 10 cm (Widget), Popsicle Stick (Gadget), Die (Cubey), Eraser less than 10 cm (Oopsey), Small Paperclip less than 3 cm (Itsy Bitsy), Large Paper Clip more than 3 cm (Super Duper) (1 of each per group)
- Rulers

Lesson Outline:

1. Ask students “Do you know what a dichotomous key is?” Explain to students that a dichotomous key is a valuable tool that can used to identify lots of objects from plants to minerals. Ask students “Why do you think that scientists need to have dichotomous keys?”
2. Using your smartboard or computer and a projector go to the website [http://www.mdsg.umd.edu/programs/education/interactive_lessons/key/what.htm](http://www.mdsg.umd.edu/programs/education/interactive_lessons/key/what.htm). Click on “How to Make a Key” Go through the lesson on how dichotomous keys are created. Allow students to come up and select items on the screen.
3. Once you have gone through the lesson on how dichotomous keys are created, have volunteers come up and do the interactive key that is at the bottom of the website.
4. Tell students “Now that we have learned how dichotomous keys are created and how to use one, let’s try to identify common objects found in our classroom.” Give each group of 2-4 students each of the supplies and a copy of the Silly Science Worksheet. Give groups time to use the dichotomous key to identify the silly names for each object.
5. Once each group has completed their worksheet ask volunteers to share the silly names of each object.
6. Ask students “What did you find was easy/hard about using the dichotomous key?” “How could this key be improved?”

7. Collect the worksheets and give participation points for the lesson.

8. Tell students “Be prepared to go outside tomorrow. We will be using a dichotomous key to identify trees around our school.”
Silly Science

A dichotomous key is a valuable tool that can be used to identify many objects ranging from plants to minerals. The key on this page was designed to identify common objects. Discover the silly scientific name of each object.

1a. Item is 10 cm or more in any dimension....... go to 2
1b. Item is less than 10 cm in any dimension ..... go to 5
2a. Item has wooden parts ......................... go to 3
2b. Item does not have wooden parts ............ go to 5
3a. Item has a pointed edge ........................ Widget
3b. Item does not have a pointed edge .......... go to 4
4a. Item is flat ........................................... Gadget
4b. Item is rounded ................................. Wadget
5a. Item has a spherical shape ..................... go to 6
5b. Item is not spherical ............................. go to 7
6a. Item is white in color ............................ Whatnot
6b. Item is not white in color ........................ Fancy Whatnot
7a. Item is a writing instrument.................. go to 8
7b. Item is not a writing instrument ............... go to 9
8a. Item is white in color ............................ Screecher
8b. Item is not white in color ........................ Squealer
9a. Item is partly or completely made of metal .... go to 10
9b. Item does not have metal parts ............... go to 11
10a. Item is more than 3 cm in length .......... Super Duper
10b. Item is less than 3 cm in length ........... Itsy Bitsy
11a. Item is soft or flexible .......................... Oopsey
11b. Item is not soft or flexible ..................... Cubey

Write the silly name of each object on the line.

A. White marble ______________________
B. Unsharpened Pencil __________________
C. White Chalk _______________________
D. Wooden Splint ______________________
E. Sharpened Pencil _____________________
F. Colored marble ______________________
G. Small Paperclip _____________________
H. Eraser _____________________________
I. Die ________________________________
J. Large Paperclip _____________________
Lesson Three: Using a Dichotomous Key

Time Needed: Two 60 minute class periods

Learning Objective: Students will learn about different parts of trees. Students will then use what they have learned about observations and dichotomous keys to identify trees in the outdoor classroom.

GLCE Covered:

- S.IP.06.13 Use tools and equipment appropriate to scientific investigations.
- S.IP.06.14 Use metric measurement devices in an investigation.
- S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.
- S.RS.06.14 Draw conclusions from sets of data from multiple trials of a scientific investigation.
- L.OL.06.51 Classify producers, consumers, and decomposers based on their source of food.
- L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.
- L.EC.06.31 Identify living (abiotic) and nonliving (biotic) components of an ecosystem.
- 6 – G2.1.1 Describe the landform features and the climate of the region under study.

Assessment: Students will turn in the Final Tree Identification sheet to be graded.

Materials:

- Shapes of Leaves Worksheet:
  http://forestry.msu.edu/extension/extdocs/leafshape.pdf
- Leaf Position Worksheet:
  http://forestry.msu.edu/extension/extdocs/leafposition.pdf
- Tree Finder Guide
- Clipboard
- Science Notebook
- Pencil
- Scissors
- Tape or glue stick
- Final Tree Identification Sheet
Lesson Outline:

** Before the lesson begins put students into groups of 4. Make sure that there are enough trees in your schoolyard to assign each group to a different kind of tree. Make sure that you have pre-identified the trees so that you are able to assess students on their identification.

1. Ask students “Imagine that you are taking a walk. You see this tree that you think looks interesting and you want to plant it in your backyard. How would you find out what kind of tree it was and whether it would be a good choice to plant in your yard? Why is it important to know about plants in our community? State? Backyard?”

2. Have students recall what they learned about dichotomous keys during the last class. Tell students “Today we are going to use what we learned about dichotomous keys to identify trees in our outdoor classroom. I have assigned you each a lab group to work in. This group will be responsible for identify what kind of tree you have. First we have to learn about parts of the tree that will be used in identifying the name of the tree.”

3. Pass out a leaf position and shape of leaves worksheets from the websites [http://forestry.msu.edu/extension/extdocs/leafposition.pdf](http://forestry.msu.edu/extension/extdocs/leafposition.pdf) and [http://forestry.msu.edu/extension/extdocs/leafshape.pdf](http://forestry.msu.edu/extension/extdocs/leafshape.pdf). Have students cut these out and glue or tape them down in their science notebooks.

4. Give each student time to look over the worksheets. Ask students “What does it look like if leaves are opposite each other? What about alternate? What does it look like if a leaf is lobed?” Allow students an opportunity to explore these worksheets and get familiar with them. These will help them identify the names of the trees. Once you feel that students are confident using these two worksheets, have them get into their lab groups.

5. Have each group get together with their supplies. Pass out a tree finder guide to each group. Tell students “This tree finder guide is different than the dichotomous keys we used yesterday. “ Give students a chance to look through the tree finder. Ask students “What is different with this type of dichotomous key? What is the same? How will we use this to help us identify the trees in the outdoor classroom?”

6. Once students feel confident using the tree finder have them open their science notebook to the first available page. Title this page Tree Identification Lab. On the board write the following directions and have students copy these into their science notebook:
   1. Make observations of my tree. Don’t forget a sketch.
   2. Use the tree finder to identify the name of my tree. Record it in my notebook along with the location of my tree.
   3. Take a leaf from the tree to bring back to class.

7. Explain to students “When you are in the outdoor classroom I will assign you a tree. In your groups you will need to follow these three directions. Do not forget to include the location of your tree. This will help you find your tree the next time we are in the outdoor classroom.”
8. Have students line up and lead them outside. As you enter the outdoor classroom, assign each group a tree. Allow groups about 30 minutes to complete their observations and their identification. Walk around and help groups that need it.

9. Once groups have completed their lab they can line up at the gate. If groups finish early you can challenge them to use the tree finder to identify other trees in the outdoor classroom. When all groups are done head back to the classroom.

10. When students get back into the classroom have students tape their leaf from their tree into their science notebook. Collect back all the tree finder guides.

11. Pass out the final tree identification sheet. As a group have students identify their tree and use their individual observations to create group observations. Students will be turning this in for a grade.
Final Tree Identification

Group Members Names: ________________________________

Name of Tree ________________________________

Observations that will help you identify your tree:
Lesson Four: Tree Research

Time Needed: Two 60 minute class periods in the computer lab

Learning Objective: Students will do research about their tree. They will identify important aspects of their tree to be used in an informative poster.

GLCE Covered:

- S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.
- S.RS.06.14 Draw conclusions from sets of data from multiple trials of a scientific investigation.
- L.OLO.06.51 Classify producers, consumers, and decomposers based on their source of food.
- L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.
- L.EC.06.31 Identify living (abiotic) and nonliving (biotic) components of an ecosystem.
- 6 – G2.1.1 Describe the landform features and the climate of the region under study.
- 6 – G3.2.1 Explain how and why ecosystems differ as a consequence of differences in latitude, elevation, and human activities.
- 6 – G3.2.2 Identify ecosystems and explain why some are more attractive for humans to use than are others.
- 6 – G5.1.1 Describe the environmental effects of human action on the atmosphere (air), biosphere (people, animals, and plants), lithosphere (soil), and hydrosphere (water).
- 6 – G5.1.3 Identify the ways in which human-induced changes in the physical environment in one place can cause changes in other places.
- R.CM.06.02 retell through concise summarization grade-level narrative and informational text.
- R.CM.06.04 apply significant knowledge from grade-level science, social studies, and mathematics texts.
- W.GR.06.01 in the context of writing, correctly use style conventions and a variety of grammatical structures in writing.

Assessment: Students will turn in their research notes.

Materials:  
- Tree Research Worksheet  
- Science Notebook  
- Pencil/pen  
- Computer with internet access  
- Trees of Michigan Field Guide
Lesson Outline:

1. Have students get into their groups and open their science notebook to their Tree Identification Lab.
2. Tell students “Today we are going to go to the computer lab to do some research on our trees. The purpose of this research is for us to create informative posters that we will put in the outdoor classroom. We are going to be taking some elementary students on a tour of the outdoor classroom and we will be teaching them about our trees.”
3. Pass out the research sheet (1 per group). Go over what is expected for their research. Explain to students “You will have 2 days in the computer lab and you will also have use of the Trees of Michigan Field Guide. This should allow you to find all the information you need. I have provided several helpful websites on the top of your paper. You will need to go to these websites first. If you cannot find information about your tree on these websites let me know. I should not see anyone on websites that are not listed on this paper.”
4. Walk students to the computer lab. Give them about 45 minutes to do the research on the first day and 50 minutes the second day.
5. Walk around and make sure that groups are staying on task and help students if they have questions.
6. Have students turn in their research paper at the end of each hour. This way research won’t get “lost”.

Amy Vasilion
August, 2011
Tree Research

Group Members Names ________________________________________________

Tree Name (including species name): ________________________________

Helpful Websites:

http://uptreeid.com/specieslist.htm
http://treelink.org/whattree/index.htm
http://mff.dsisd.net/TreeBasics/TreeIDspplist.htm

1. Does your tree have any other names?

2. Where is your tree found in Michigan? Be specific.

3. Is your tree native or non-native to Michigan?

4. If you tree is non-native how did it come to Michigan?
5. Describe in detail what your tree looks like. Include a description of the leaves, bark, common height of the tree, and any other identifying features.

6. Are there any common pests of your tree? If so, describe what they are and how they affect your tree.

7. Are there any diseases that affect your tree? If so, describe what they are and how they affect your tree.

8. What are some common uses of your tree?

9. What impact has your tree had on Michigan’s economy or ecosystem?
Lesson Five: Tree Posters

Time Needed: Three 60-minute class periods

Learning Objective: Students will use the research about their tree to create an informative poster about their tree. Students will then hang their poster on their tree in the Outdoor Classroom.

GLCE Covered:

- S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.
- R.CM.06.02 retell through concise summarization grade-level narrative and informational text.
- R.CM.06.04 apply significant knowledge from grade-level science, social studies, and mathematics texts.
- W.GR.06.01 in the context of writing, correctly use style conventions (e.g., Modern Language Association Handbook) and a variety of grammatical structures in writing.
- S.CN.06.01 adjust their use of language to communicate effectively with a variety of audiences and for different purposes by asking and responding to questions and remarks to engage the audience when presenting.

Assessment: Students will turn in their completed poster for a grade using the rubric.

Materials:
- Computer Lab
- Completed Tree Research worksheet
- Colored printer
- Zip Ties
- Laminator
- Hole Punch
- Poster Rubric

Lesson Outline:

Day 1:

1. Have students get into their research groups. Pass back their graded Tree Research worksheet and the Poster Rubric.
2. Tell students, “Today we will be going back to the computer lab. We will be taking our research and creating an informational poster that you will hang on your tree in the Outdoor Classroom. You will need to include all the information from your research along with 2-3 pictures of your tree. You
will also need to include all of your information on no more than 2 pages. Make sure that you are following the rubric in order to receive full credit.”

3. Give students a few minutes to look over the rubric and ask if there is any questions about what is expected.

4. Take students to the computer lab. Allow them 45 minutes to work in the computer lab.

Day 2:

1. Have students get into their groups.
2. Ask students, “Who would like to share how they are setting up their poster?” Allow students an opportunity to share how they are setting up their poster.
3. Tell students “Our goal today is to finish our poster and be able to print it by the end of the hour. Please let me know if you have questions or need help while we are in the lab.”
4. Take students to the computer lab and allow them the remainder of the hour to complete their poster and print it.
5. Have groups turn in their poster for a grade.

Day Three:

*** Prior to day three make sure you have laminated each groups posters and hole punched the top to allow the zip tie to fit through. It may be helpful to glue/paste their poster onto tag board before you run it through the laminator. This will allow the poster to last longer outside.

1. Tell students, “Today we are going to go hang out posters on our trees in the Outdoor Classroom.”
2. Ask students, “If the purpose of this activity is to create posters informing the community about our tree, how will we want to hang our posters on the trees?” Hopefully students will say that they need to be within reach so people can read them.
3. Tell students, “While you are in the Outdoor Classroom you need to do the following things: Attach your poster to your tree and practice your presentation. You will be presenting your tree to your classmates to practice for our 4th graders that will be coming with us tomorrow.”
4. Teach students how to use the zip ties. Once they are ready you can pass out their laminated posters and head out to the Outdoor Classroom.
5. Take students to the Outdoor Classroom. Allow them 15 minutes to hang their poster and practice.
6. Gather the class and rotate from each group’s tree. After each groups presentation have students give the groups 3 things they did well and 1 thing they can improve on for tomorrows presentation.
7. When all the groups have presented you can head back to the classroom.
# Poster Rubric

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Elements</td>
<td>The poster includes all required elements (pictures and information from the research) as well as additional information.</td>
<td>All required elements are included on the poster.</td>
<td>All but 1 of the required elements are included on the poster.</td>
<td>Several required elements were missing.</td>
</tr>
<tr>
<td>Content - Accuracy</td>
<td>All of the information from your research is accurate and are displayed on the poster.</td>
<td>5-6 accurate facts are displayed on the poster.</td>
<td>3-4 accurate facts are displayed on the poster.</td>
<td>Less than 3 accurate facts are displayed on the poster.</td>
</tr>
<tr>
<td>Graphics - Clarity</td>
<td>Graphics are all in focus and there are at least 3 graphics.</td>
<td>Most graphics are in focus and there are at least 2.</td>
<td>Most graphics are in focus and there is only 1 graphic.</td>
<td>Many graphics are not clear or there are no graphics.</td>
</tr>
<tr>
<td>Grammar</td>
<td>There are no grammatical mistakes on the poster.</td>
<td>There is 1 grammatical mistake on the poster.</td>
<td>There are 2 grammatical mistakes on the poster.</td>
<td>There are more than 2 grammatical mistakes on the poster.</td>
</tr>
<tr>
<td>Attractiveness</td>
<td>The poster is exceptionally attractive in terms of design, layout, and neatness.</td>
<td>The poster is attractive in terms of design, layout and neatness.</td>
<td>The poster is acceptably attractive though it may be a bit messy.</td>
<td>The poster is distractingly messy or very poorly designed. It is not attractive.</td>
</tr>
</tbody>
</table>

Group Members Names  ________________________________
Lesson Six: Tree Presentations

Time Needed: 60 Minutes

Learning Objective: Students will present their poster to students from the elementary school.

GLCE Covered:

- S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.
- S.RS.06.14 Draw conclusions from sets of data from multiple trials of a scientific investigation.
- L.OL.06.51 Classify producers, consumers, and decomposers based on their source of food.
- L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.
- L.EC.06.31 Identify living (abiotic) and nonliving (biotic) components of an ecosystem.
- 6 – W1.2.3 Explain the impact of the Agricultural Revolution.
- 6 – G2.1.1 Describe the landform features and the climate of the region under study.
- 6 – G3.2.1 Explain how and why ecosystems differ as a consequence of differences in latitude, elevation, and human activities.
- 6 – G3.2.2 Identify ecosystems and explain why some are more attractive for humans to use than are others.
- 6 – G5.1.1 Describe the environmental effects of human action on the atmosphere (air), biosphere (people, animals, and plants), lithosphere (soil), and hydrosphere (water).
- 6 – G5.1.3 Identify the ways in which human-induced changes in the physical environment in one place can cause changes in other places.
- R.CM.06.02 retell through concise summarization grade-level narrative and informational text.
- R.CM.06.04 apply significant knowledge from grade-level science, social studies, and mathematics texts.
- S.CN.06.01 adjust their use of language to communicate effectively with a variety of audiences and for different purposes by asking and responding to questions and remarks to engage the audience when presenting.
- S.CN.06.02 speak effectively using rhyme, rhythm, cadence, and word play for effect in narrative and informational presentations.
- S.CN.06.03 present in standard American English if it is their first language.
Materials:

- Posters in Outdoor Classroom
- Elementary Students

Lesson Outline:

** Prior to this lesson arrange to meet an elementary class at the outdoor classroom. Have that teacher put their students into groups of 4.

1. Tell students, "Today is the day we are going to be meeting the 4th graders at the Outdoor Classroom. What is our goal of today's lesson?" Students should know that they are teaching the 4th graders about the trees in the Outdoor Classroom. "What will I see as I walk around the Outdoor Classroom?" Students should know that they will have a group of students and will be in charge of teaching them how to use their informational poster and teaching student's about their tree. Each group of 4th graders will rotate to each tree.

2. Take students to the outdoor classroom. Have each group gather around their tree.

3. When the 4th graders get there tell them "You will be traveling to each group in the Outdoor Classroom. Each group is going to teach you how to use the posters in the Outdoor Classroom and they will also teach you about their tree. Feel free to ask the students questions about their tree."

4. Have each 4th grade group pair up with a 6th grade group and they can begin their 5-minute rotation.

5. After all the groups have learned about each tree gather the 4th graders and the 6th graders together. Ask students "What did you learn today? What was your favorite part? How might you use these informational posters?"

6. Thank the 4th graders for being such a great audience. Then take the 6th graders back to the classroom.

7. Ask student's "What do you think went well with your presentations? What could you improve on next time? Who would you like to present to next? Why is it important to teach our community about the trees?"

8. Have student's make thank you cards for the 4th graders and then send those over to their school.