**The Forest Ecosystem**

A Teaching Unit for Grade 5 Students

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**Unit Overview:**

This unit has been designed to teach my 4th grade Elementary Science Class. Science is the target subject, but Language Arts and Mathematics Benchmarks are also addressed. The Michigan Objectives and Benchmarks covered within these lesson plans are an integral part of the weakness our school has shown in recent MEAP testing analysis. We currently have no curriculum to cover forests or trees and our science texts do little to address this flaw.

The overall goal of this unit is to give students a very basic understanding of a forest habitat, the creatures that live there and the importance of good management practices. Understanding that this is an elementary unit, and that deep knowledge of this subject is not required, will help teachers with a lack of prior knowledge in forestry and trees feel more comfortable teaching it.

In this unit students will observe a forest ecosystem, learn about the parts of a tree, study the different types of soil and its porosity, be able to distinguish the basic needs in a forest ecosystem, and examine the positive and negative affects that humans have on forest ecosystems. This unit was designed to be taught in a five-day period, however, due to different teaching styles, the inclusion of extension activities, as well as different learning speeds, this time period may vary.

**Resources Consulted:**

1.  Project WILD Activity Guide, Western Regional Environmental Education Council, pages 56-57, Bethesda, Maryland 1993
5.  Trapper, Stephen Cosgrove and Robin James; Price, Stearn, Sloan Publishers, Los Angeles, California 1978

**Prerequisite Knowledge:**

To better understand the level of prior knowledge each student brings into this teaching unit, a pre-assessment has been developed. The questions in this pre-assessment are designed to give the teacher a better understanding of where each student is in terms of environmental education and basic science knowledge. This in turn will enable the teacher to tailor their teaching to meet the needs of each individual learner.
Michigan Content Standards – Science:

- **Science/Strand I/Content Standard 1/Elementary/Benchmark 6**
  Construct charts and graphs and prepare summaries of observations.

- **Science/Strand III/Content Standard 2**
  All students will use classification systems to describe groups of living things; compare and contrast differences in the life cycles of living things; investigate and explain how living things obtain and use energy; and analyze how parts of living things are adapted to carry out specific functions. (Organization of Living Things)

- **Science/Strand III/Content Standard 2/Elementary/Benchmark 2**
  Compare and contrast (K-2) or classify (3-5) familiar organisms on the basis of observable physical characteristics.

- **Science/Strand III/Content Standard 2/Elementary/Benchmark 4**
  Compare and contrast food, energy, and environmental needs of selected organisms.

- **Science/Strand III/Content Standard 2/Elementary/Benchmark 5**
  Explain the functions of selected seed plant parts.

- **Science/Strand III/Content Standard 5**
  All students will explain how parts of an ecosystem are related and how they interact; explain how energy is distributed to living things in an ecosystem; investigate and explain how communities of living things change over a period of time; describe how materials cycle through an ecosystem and get reused in the environment; and analyze how humans and the environment interact. (Ecosystems)

- **Science/Strand III/Content Standard 5/Elementary/Benchmark 2**
  Describe the basic requirements for all living things to maintain their existence.

- **Science/Strand III/Content Standard 5/Elementary/Benchmark 4**
  Describe positive and negative effects of humans on the environment.

- **Science/Strand IV/Content Standard 1/Elementary/Benchmark 1**
  Classify common objects and substances according to observable attributes/properties.

- **Science/Strand V/Content Standard 2**
  All students will describe the characteristics of water and demonstrate where water is found on Earth; describe how water moves; and analyze the interaction of human activities with the hydrosphere. (Hydrosphere)

- **Science/Strand V/Content Standard 1/Elementary/Benchmark 2**
  Recognize and describe different types of Earth materials.

- **Science/Strand V/Content Standard 2/Elementary/Benchmark 2**
  Trace the path that rainwater follows after it falls.
**Daily Ongoing Activity/Assessments:**

Each day during this unit, students will be asked to keep a “Learning Log”. (To make these more exciting these journals should be shaped like a log from a tree.) The teacher should provided at least 5 minutes at the completion of each day’s activities for the students to reflect and write in their journals. Along with an area for students to record required information each day, they will also be asked to reflect on the following questions in their “logs”:

- What did I learn today?
- What did I enjoy doing the most today? What did I enjoy the least?
- What is one key word that I heard today? What does that word mean?
- What one question do I still have?

This student journal should be collected on a daily basis and reviewed by the teacher. This enables the teacher to answer appropriate questions, re-teach unclear concepts, and use this as a daily or unit assessment tool.

A final unit assessment has also been included to give the teacher an additional testing tool.

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**Michigan Content Standards – Mathematics:**

- *Mathematics/Strand I/Content Standard 1/Elementary/Benchmark 2*
  Represent and record patterns and relationships in a variety of ways including tables, charts and pictures.

- *Mathematics/Strand III/Content Standard 1 - Collection, Organization and Presentation of Data*
  Students collect and explore data, organize data into a useful form, and develop skill in representing and reading data displayed in different formats.

- *Mathematics/Strand III/Content Standard 1/Elementary/Benchmark 2*
  Organize data using concrete objects, pictures, tallies, tables, charts, diagrams and graphs.

- *Mathematics/Strand III/Content Standard 2/Elementary/Benchmark 1*
  Read and explain data they have collected and organized themselves and progress to reading data from other sources.

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**Michigan Content Standards – Language Arts:**

*English Language Arts/Strand I/Content Standard 2/Early Elementary/Benchmark 1*
Write with developing fluency for multiple purposes to produce a variety of texts, such as stories, journals, learning logs, directions, and letters.
Day One

Forest Scavenger Hunt
(Students examine what can be found in a forest habitat)

Objective: Students will observe and classify living and nonliving things that they find in a specific forest ecosystem. They will be able to distinguish between living and non-living components in a habitat.

Michigan Content Standards:

- **Science/Strand III/Content Standard 2/Elementary/Benchmark 2**
  Compare and contrast (K-2) or classify (3-5) familiar organisms on the basis of observable physical characteristics.

- **Science/Strand III/Content Standard 5/Elementary/Benchmark 4**
  Describe positive and negative effects of humans on the environment.

- **Science/Strand IV/Content Standard 1/Elementary/Benchmark 1**
  Classify common objects and substances according to observable attributes/properties.

- **Science/Strand V/Content Standard 1/Elementary/Benchmark 2**
  Recognize and describe different types of Earth materials.

- **English-Language Arts/Strand I/Content Standard 2/Early Elementary/Benchmark 1**
  Write with developing fluency for multiple purposes to produce a variety of texts, such as stories, journals, learning logs, directions, and letters.

- **Mathematics/Strand III/Content Standard 1/Elementary/Benchmark 2**
  Organize data using concrete objects, pictures, tallies, tables, charts, diagrams and graphs.

- **Mathematics/Strand III/Content Standard 2/Elementary/Benchmark 1**
  Read and explain data they have collected and organized themselves and progress to reading data from other sources.

Materials: Student - Paper Bag, Pencil, Instruction Sheet, Learning Log
Teacher – Butcher Paper, Markers, Poster Board (for Extension Activity)

Procedure:
1. Divide the students into groups of 3-4. Make sure each group has each of the student items in the material list. (Depending on the class, you may want to staple the instruction sheet to the paper bag)

2. Students should work together as a group to collect the things listed on the instruction sheet (paying close attention to the limits given). They should also record (in their logs) things that they observe in the forest ecosystem that they are unable to collect. Give the students about 25 – 30 minutes for this collection time.

3. Have the groups return to the classroom with their collection bags and materials.

4. Ask the students to organize the things in their bags into 2 different categories: living and non-living.
5. Make a classroom chart with the Butcher Paper. This chart should be divided into the two categories (living, non-living) listed above. Have each of the groups choose a “recorder” to list their collected samples on the correct sides.

6. Finally, as a class, discuss each of the items found by the groups and whether they are living or non-living. With teacher direction, have the students come up with a list of characteristics of all living things vs. all non-living things. Post this in a visible place in the room.

7. Allow all students to reflect by answering the daily questions in their “Learning Logs”.

**Extensions:**
For higher level students:
- Visit [http://www.urbanext.uiuc.edu/woods/index.html](http://www.urbanext.uiuc.edu/woods/index.html)
- Examine possible solutions to leaving garbage in a forest (reduce, reuse, recycle)
- Make a 3-D poster using the garbage each group brought back from their scavenger hunt encouraging people to practice the 3 “R’s”
Day Two

Every Tree For Itself

(Students will learn that trees need to compete for their needs)

Objective: Students will be able to recognize that all trees need food, water, air, nutrients, and space in order to survive. Trees that do not get these basic requirements from their habitat will die.

Michigan Content Standards

✓ Science/Strand I/Content Standard 1/Elementary/Benchmark 6
  Construct charts and graphs and prepare summaries of observations.

✓ Science/Strand III/Content Standard 2/Elementary/Benchmark 4
  Compare and contrast food, energy, and environmental needs of selected organisms.

✓ Science/Strand III/Content Standard 5/Elementary/Benchmark 2
  Describe the basic requirements for all living things to maintain their existence.

✓ English - Language Arts/Strand I/Content Standard 2/Early Elementary/Benchmark 1
  Write with developing fluency for multiple purposes to produce a variety of texts, such as stories, journals, learning logs, directions, and letters.

✓ Mathematics/Strand III/Content Standard 2/Elementary/Benchmark 1
  Read and explain data they have collected and organized themselves and progress to reading data from other sources.

Materials: Student - Pencil, Learning Log
Teacher – “Every Tree for Itself” Game Instructions, open field to play the game, whistle

Procedure:

1. Have students brainstorm what things they think that the animals, that live in the forest they observed yesterday, need in order to survive: (food, water, shelter, air & space)

2. Compare this list to what trees need to survive. (Encourage students to see that sunlight is a tree’s “food”. A tree also needs water, air, nutrients from the soil, and space)

3. Review each of these needs by giving the following physical action to them:
   - Food – hands spread wide above the head (as if they are the sun’s rays)
   - Water – hands over the mouth
   - Air – hands over the nose
   - Space – hands spread wide to the side
   - Nutrients – hands spread low (as if they are roots)

4. Have the students practice each of these actions until they have them consistently.

5. Go outside and play the “Every Tree for Itself” game. (See Instruction Sheet)
6. Students need to record the numbers of the trees that live and die each round in their “Learning Log”.

7. After returning to the classroom allow all students to reflect by answering the daily questions in their “Learning Logs”.

**Extensions:**
For higher level students:

- Have the students construct a double line graph representing the population of living and dead trees during the game.
- Allow students to research ways that seeds are distributed from trees to give them more “space”. Make a poster of the different ways seeds are spread.
- Have students design a two-sided diorama that shows the needs of animals on one side and the needs of plants on the other side.

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**Day Three**

*Parts Is Parts*

(Students will learn the 4 parts of a tree)
Objective: Students will learn the 4 basic parts of a tree and their functions. They will be able to identify each part of the tree and state its function.

Michigan Content Standards

- **Science/Strand III/Content Standard 2/Elementary/Benchmark 5**
  Explain the functions of selected seed plant parts.
- **Science/Strand V/Content Standard 2/Elementary/Benchmark 2**
  Trace the path that rainwater follows after it falls.
- **Science/Strand III/Content Standard 5/Elementary/Benchmark 2**
  Describe the basic requirements for all living things to maintain their existence.
- **English -Language Arts/Strand I/Content Standard 2/Early Elementary/Benchmark 1**
  Write with developing fluency for multiple purposes to produce a variety of texts, such as stories, journals, learning logs, directions, and letters.

Materials: Student - Pencil, Learning Log
Teacher – Whiteboard or chalkboard, Large tree to sit under

Procedure:

1. Review with the student what each tree needs to survive (food, water, air, space, nutrients) List these on the whiteboard or chalkboard.

2. Take the class outside and sit under a large tree. Ask the class how a tree gets the things it needs. Teach the 4 different parts of the tree and the job each part does:
   - **Roots** – anchor the tree, absorb water & nutrients
   - **Leaves** – capture sunlight & air to make food
   - **Trunk & Branches** – support the tree & transports water and nutrients from the roots to the leaves and the created food from the leaves to the rest of the tree
   - **Fruit (Flowers)** – make & send the seeds away from the tree so that new trees can grow

3. Break students into 4 groups to create their own tree by “acting out” the jobs of each part of the tree. Each group will become (and act out) the parts listed below:
   - **Roots** – have the roots sit (with their backs to each other) in a circle. Their legs should be sticking out (so avoid stepping on them!). The roots will chant “Slurp! Slurp!” as they move their hands across their legs as if they are pulling and sucking water and nutrients up their legs.
   - **Trunk & Branches** – have the trunk group stand inside the circle made by the roots. The trunk students will chant “Up & Down” and they are to move their hands high above their heads then back down toward their feet over and over again.
   - **Leaves** – have the leaves group stand just outside the root circle. They are to spread their hands wide above their heads and sway back and forth chanting “Ah! Sunlight!”
   - **Fruit & Flowers** – have the fruit group dance around the entire “tree” chanting together “Make More, Make More!”
4. Give the opportunity for each group to take a turn being each tree part.

5. After returning to the classroom allow all students to reflect by answering the daily questions in their “Learning Logs”.

**Extensions:**
For higher level students:
- Have the students collect and identify leaves from different trees in their neighborhood.
- Have the students write a story about a tree that “fired” its leaves and would not allow them to work.

**Day Four**
*It’s a Dirty Job*
(Students will examine different soil types and their porosity)
Objective: Students will learn the 3 basic types of soil and how each soil type affects the transfer of water. They will be able to distinguish between sand, clay, and gravel and predict which of these soil types will allow water to pass through more easily.

**Michigan Content Standards:**

- **Science/Strand V/Content Standard 1/Elementary/Benchmark 2**
  Recognize and describe different types of Earth materials.
- **Science/Strand V/Content Standard 2/Elementary/Benchmark 2**
  Trace the path that rainwater follows after it falls.
- **Science/Strand IV/Content Standard 1/Elementary/Benchmark 1**
  Classify common objects and substances according to observable attributes/properties.
- **Science/Strand I/Content Standard 1/Elementary/Benchmark 6**
  Construct charts and graphs and prepare summaries of observations.
- **English - Language Arts/Strand I/Content Standard 2/Early Elementary/Benchmark 1**
  Write with developing fluency for multiple purposes to produce a variety of texts, such as stories, journals, learning logs, directions, and letters.
- **Mathematics/Strand III/Content Standard 1/Elementary/Benchmark 2**
  Organize data using concrete objects, pictures, tallies, tables, charts, diagrams and graphs.
- **Mathematics/Strand III/Content Standard 2/Elementary/Benchmark 1**
  Read and explain data they have collected and organized themselves and progress to reading data from other sources.
- **Mathematics/Strand I/Content Standard 1/Elementary/Benchmark 2**
  Represent and record patterns and relationships in a variety of ways including tables, charts and pictures.

Materials: Student - Pencil, Learning Log, Coffee Can (with top & bottom removed), metric ruler, timer, water, 4 cup measuring device
Teacher – Samples of gravel, sand, and clay; water; top ½ of 3 bottles (2-liters cut in half work great!); bucket (to catch the water)

Procedure:

1. Set up the following demonstration for the students:
   - Fill each of the bottle tops (turned up-side-down) with a different sample of soil (leaving the cap open)
   - Have the students predict which soil type will allow water to pass through the quickest and the slowest.
   - One at a time, pour equal amounts of water into each of containers, allowing the student to keep track of how long the water takes to completely run out.

2. Discuss the results:
   - Gravel = fastest because of more and larger air spaces
   - Sand = fast with fewer and smaller air spaces
   - Clay = slowest with least and smallest air spaces
3. Take students outside near a large tree. Discuss what type of soil might be underground to allow that specific tree to absorb water. Discuss what soil would be best for a tree and which would be the worst for a tree.

4. Take a soil sample to check their predictions. (Generally the soil will be a combination of sand and clay)

5. Break the students into groups of 4. Have them find an open area to test the soil porosity:
   - Push the coffee can as far into the soil as possible.
   - Place (and hold) the metric measuring stick inside the coffee can with one end held firmly on the ground.
   - Pour the 4 cups of water into the coffee can recording the height of the water in their “Learning Log” at the moment the water is poured in, at 30 seconds, at 1 minute, at 1 minute 30 seconds, and at 2 minutes.

6. Have each group repeat the experiment one more time, remembering to record their observations and measurements in their “Learning Log”

7. Return to the classroom. Have each group record their measurements on a classroom chart.

8. Allow all students to reflect by answering the daily questions in their “Learning Logs”.

Extensions:

For higher level students:
- Using 2-liter bottles, have the students design and label their own layers of soil display.
- Have students draw a picture showing how gravel, sand, and clay “filter” water drops before we drink it.
- Using clay, have the students design 3 models of trees, each growing in one of the three soil types.

Day Five

*Here to Help*

(Discovering the positive and negative effects that humans have on a forest)

Objective: Students will learn some of the positive and negative factors that humans

**Michigan Content Standards:**

- **Science/Strand III/Content Standard 5/Elementary/Benchmark 2**
  Describe the basic requirements for all living things to maintain their existence.
- **Science/Strand III/Content Standard 5/Elementary/Benchmark 4**
  Describe positive and negative effects of humans on the environment.
- **English-Language Arts/Strand 1/Content Standard 2/Early Elementary/Benchmark 1**
  Write with developing fluency for multiple purposes to produce a variety of texts, such
introduce in a forest ecosystem. They will also develop personal guidelines for exploring and enjoying a forest.

Materials: Student - Pencil, Learning Log
Teacher – the book “Trapper” (listed in references), large butcher paper for mural, markers

Procedure:
1. Read the story “Trapper” to the students.

2. Discuss the following questions:
   - How did the story make you feel?
   - How do you think that Trapper felt at different times in the story?
   - Why did Muttsok try to collect all the seals?
   - Do you think Trapper gave Muttsok good advice?

3. Take a nature walk in a forest. Have the students use their 5 senses to determine if there is any evidence of human contact in the forest. (trails, cans, logging, garbage, traffic noise, etc..) Students should write down any evidence they find in their “Learning Log”.

4. Return to the classroom and use their evidence to compile two lists: one listing positive human contact and the other negative human contact.

   **Positive:** Proper logging, hunting, planning trees, trimming, etc…
   **Negative:** Littering, dumping, dirt bikes, vandalism, tagging, not putting out fires, etc…

5. Break into groups of 4. Each group is to come up with at least 3 rules or guidelines that humans should follow when going into a forest:
   - *Stay on marked trails*
   - *Don’t litter*
   - *Pick up litter left by others*
   - *Be careful with fire*
   - *Log responsibly*

6. Have each group share their favorite rule by drawing a mural illustrating their rule. Post these murals in the hallway.

7. Allow all students to reflect by answering the daily questions in their “Learning Logs”.
Extensions:
For higher level students:
- Have students study the different types of logging techniques and draw a picture of each.
- Encourage students to choose a part of a road or highway to “adopt” for trash clean up.
- Have the students set their rules to music and sing the song to the class.

Attachments:
- Scavenger Hunt - Instruction Sheet
- Every Tree for Itself - Game Instructions
- It’s a Dirty Job - Instruction Sheet
- Learning Log - Day 1
1. Your group will be completing a forest “Scavenger Hunt”. You must follow each of the rules listed below. Failure to follow these rules will result in a failing grade for today’s activity.

2. You may bring back the items listed on the “Bag” side of the chart only.

3. Things on the “Log” side of the chart must be recorded in your “Learning Log”. **Be careful not to harm or disturb the environment or wildlife!**
4. Each member of your group is required to find at least one thing to put in your group’s bag from the “Bag” list. Only one sample of each item is allowed in your bag.

5. Stay together as a group at all times.

<table>
<thead>
<tr>
<th>Find these items and bring back a sample in your &quot;Bag&quot;</th>
<th>Find evidence of these things and record it in your &quot;Learning Log&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Leaves</td>
<td>1. Humans have been in this forest</td>
</tr>
<tr>
<td>2. Rocks</td>
<td>2. Animals live in this forest</td>
</tr>
<tr>
<td>3. Sticks</td>
<td>3. Trees need light to survive</td>
</tr>
<tr>
<td>4. Seeds</td>
<td>4. Dead trees help other things grow</td>
</tr>
<tr>
<td>5. Bark</td>
<td></td>
</tr>
<tr>
<td>6. Soil</td>
<td></td>
</tr>
<tr>
<td>7. Garbage</td>
<td></td>
</tr>
</tbody>
</table>

Every Tree for Itself

**Game Instructions**

(This game is more successful when played in a large open area, outdoors)

1. Review the essential components a tree needs to survive using the hand actions listed in the forestry unit lesson plan.

2. Divide the class in half, sending each half to an opposite end of the playing area.

3. Students must face away from the center of the play area, standing with their backs toward each other.

4. With their backs to each other the two groups are instructed to (individually) make one of the hand actions that represent *food, water, air, space, or nutrients*. (They are not allowed to change their action once they have made it)
5. At the sound of the teacher’s whistle, the students are to turn around and find someone (from the other group) making the same hand action as they are making.

6. If they find a match, they run to the middle of the play area and hold the hand of their matching partner above their heads. They now are “living” (or surviving) trees.

7. Students who do not find a match are recorded as “dead” (or non-surviving) trees.

8. Play as many rounds of this game as you like, but stop after each round to allow students to record the numbers of living and dead trees in their “Learning Logs”. (A chart is the best way to record these numbers)

9. To add variety to the game, introduce an “Emerald Ash Borer” to the game. This is simply one student who stands in the middle of the play area and is allowed to “tag” one other student who is looking for a matching partner. The “Emerald Ash Borer” player is only allowed to tag one student per round and cannot tag partners who already have their hands above their heads.

10. A Student who is tagged by the “Emerald Ash Borer” become “Ash Borers” themselves and can tag other students the next round. Any “Ash Borer” who does not tag another player, dies and becomes part of the needed tree components again.

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**It’s a Dirty Job**

*Instruction Sheet*

1. Your group will be testing the “porosity” of the soil. Porosity is the ability of water to pass through the soil.

2. Find a place where the ground is flat. Push your coffee can as far down into the soil as possible. Make sure that the water cannot escape under the can!

3. Place your ruler inside the can so that it is touching the ground at 0 cm. The ruler should stay against the edge of the can so that your group can read the level of the water.

4. While one person keeps track of the time (using the timer), dump all 4 cups of your water into the can. Be careful not to spill it over the edge either!
5. In your “Learning Log” record the level of the water at the following times:
   ✓ 0 seconds
   ✓ 30 seconds
   ✓ 60 seconds
   ✓ 1:30 seconds
   ✓ 2 minutes

6. Move the can slightly away from your original spot (not too far away) and repeat the experiment.

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**Learning Log**

Day 1 - *Forest Scavenger Hunt*

1. What evidence did you find that humans have been in this forest?

   ____________________________________________________________

2. What evidence did you find that animals live in this forest?

   ____________________________________________________________

3. What evidence did you find that shows trees need light to survive?

   ____________________________________________________________

4. What evidence did you find that shows that dead trees help other things grow?
5. What did I learn today?

6. What did I enjoy the most? What did I enjoy the least?

7. What is one key word I heard today? What does that word mean?

8. What one question do I still have?

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**Learning Log**

Day 2 – *Every Tree For Itself*

<table>
<thead>
<tr>
<th>Round</th>
<th># of Live Trees</th>
<th># of Dead Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. What did I learn today?
Learning Log
Day 3 – *Parts Is Parts*

1. What did I learn today?

____________________________________________________________________________

2. What did I enjoy the most? What did I enjoy the least?

____________________________________________________________________________

3. What is one key word I heard today? What does that word mean?

____________________________________________________________________________

4. What one question do I still have?

____________________________________________________________________________
## Learning Log

**Day 4 – It’s a Dirty Job**

<table>
<thead>
<tr>
<th>Time</th>
<th>cm of water</th>
<th>Time</th>
<th>cm of water</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>30 sec.</td>
<td></td>
<td>30 sec.</td>
<td></td>
</tr>
<tr>
<td>1 min.</td>
<td></td>
<td>1 min.</td>
<td></td>
</tr>
<tr>
<td>1:30</td>
<td></td>
<td>1:30</td>
<td></td>
</tr>
<tr>
<td>2 min.</td>
<td></td>
<td>2 min.</td>
<td></td>
</tr>
</tbody>
</table>

**Trial #1**

**Trial #2**

1. What did I learn today?

_____________________________________________________________________

2. What did I enjoy the most? What did I enjoy the least?

_____________________________________________________________________

3. What is one key word I heard today? What does that word mean?

_____________________________________________________________________

4. What one question do I still have?

_____________________________________________________________________
Learning Log
Day 5 – *Here to Help*

1. What did I learn today?

2. What did I enjoy the most? What did I enjoy the least?

3. What is one key word I heard today? What does that word mean?

4. What one question do I still have?
Forests

*Pre-Assessment*

Answer the following questions to the best of your ability. Try to show as much as you know. This test will **not** be graded, but do your **best** anyway!

1. What is an ecosystem?

   ___________________________________________________
   ___________________________________________________
   ___________________________________________________

2. Give one example of an ecosystem found in Michigan. List 5 living and 3 non-living things that could be found in that ecosystem.

   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________

3. Name 5 things that a tree needs to survive.

   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________

4. A tree has 4 basic parts. Name the parts and tell each part’s job.

   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________

5. If I had a bag of gravel, a bag of sand, and a bag of clay, which would water travel through the fastest? Why?

   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
6. Name 2 good things that you could do to help a forest grow, then name 2 bad things you could do to harm a forest.
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
7. If everything needs food to survive, where does a tree get its food?
________________________________________________________________________
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Forests

Test Study Guide – 4th grade

1. All things in a forest can be classified into living and non-living things. Living things are organisms, like animals and plants that either are currently alive, or used to be alive. Non-living things are things like water, air, and soil.

2. To survive in a forest habitat, plants need 5 things: air, water, minerals, space, and sunlight (to make their own food).

3. A tree has 4 basic parts. The roots anchor the tree and absorb the needed water and nutrients.

4. The stem (or trunk) of a tree works as an elevator, sending nutrients and water up and down the trunk. The trunk also has bark, which is a protective layer on the outside of a tree.

5. The leaves of a tree collect sunlight to make the food. This process of food making is called photosynthesis.

6. The flowers of a tree make the seed. The seed is responsible for their reproduction of new trees.

7. There are 3 basic soil types: gravel, sand, and clay. Gravel lets water through the fastest, then sand, and finally clay (which does not allow much water to pass through).

8. Humans can have a positive or a negative impact on the forest ecosystem. Some positive things they can do included picking up garbage, tending fires, and even cutting trees that need cutting. Some of the negative things include burying trash, cutting trees for unnecessary reasons, and dumping motor oil or chemicals in the ground.

9. Have your parents study with you and sign this form stating they have. If you return this form, signed by your parents, at test time, you will receive 5 extra credit points!

10. I have studied with my child _____________________________________________

    Parent Signature ____________________________________________________

Forests

Test Study Guide – 5th grade
1. All things in a forest can be classified into living and non-living things. Living things (biotic) are organisms, like animals and plants that either are currently alive, or used to be alive. Non-living things (abiotic) are things like water, air, and soil.

2. To survive in a forest habitat, plants need 5 things: air (carbon dioxide), water, minerals, space, and sunlight (to make their own food).

3. A tree has 4 basic parts. The roots anchor the tree and absorb the needed water and nutrients.

4. The stem (or trunk) of a tree works as an elevator, sending nutrients and water up and down the trunk. The trunk also has bark, which is a protective layer on the outside of a tree.

5. The leaves of a tree collect sunlight to make the food. This process of food making is called photosynthesis. In photosynthesis a leaf combines sunlight, water and minerals, and carbon dioxide to make the food, which is called glucose.

6. The flowers of a tree make the seed. The seed is responsible for their reproduction of new trees. Seeds “get away” from the parent tree by means of sticking to animals, blowing in the wind, or even being eaten by other animals (fruit).

7. There are 3 basic soil types: gravel, sand, and clay. Porosity is the ability of the soil to let water through. Gravel has the highest porosity (lets the water through the fastest), then sand, and finally clay (which does not allow much water).

8. Humans can have a positive or a negative impact on the forest ecosystem. Some positive things they can do included picking up garbage, tending fires, and even cutting trees that need cutting. Some of the negative things include burying trash, cutting trees for unnecessary reasons, and dumping motor oil or chemicals in the ground.

9. Have your parents study with you and sign this form stating they have. If you return this form, signed by your parents, at test time, you will receive 5 extra credit points!

10. I have studied with my child _________________________________________

    Parent Signature __________________________________________________

**Forests**

*Post Assessment-4th Grade*

Circle the letter that shows the **BEST** answer:

1. Which of the following is a characteristic of all living things?
   a. All living things move
b. All living things have legs
c. All living things grow
d. All living things live in houses

2. Which non-living thing would I most likely find in a forest habitat?
   a. Leaf
   b. Deer
   c. Insect
   d. Air

3. All living things need food to survive. Which of the following is considered “food” for trees?
   a. Soil
   b. Sunlight
   c. Air
   d. Water

4. All trees have basic requirements to survive. Which of the following is not a basic requirement for a tree?
   a. Home
   b. Water
   c. Air
   d. Space

5. What part of the tree is responsible for making the food?
   a. Roots
   b. Flowers
   c. Branches
   d. Leaves

Write the matching letter in the blank before each definition:
6. _____ Makes the food for the tree  a. Trunk
7. _____ Absorbs water and nutrients  b. Roots
8. _____ Makes the seeds  c. Leaves
9. _____ Transports water around the tree  d. Fruit
10. _____ Sends the seeds away from the tree  e. Flower

11. Draw a picture filling each filter below with the type of soil indicated by its ability to allow water to flow though. Then label the soil type.
12. You enter a forest near your house and that someone has just dumped a bunch of garbage along its edge. Name 2 positive things you can do to help this forest.
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___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

13. A Newscaster on TV made this statement, “Cutting trees can be a bad thing but it can also be a good thing.” Is the newscaster right or wrong? Give examples.
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___________________________________________________________________________
___________________________________________________________________________
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Forests
Post Assessment-5th Grade

Circle the letter that shows the BEST answer:
1. Which of the following is a characteristic of all living things?
   a. All living things move
b. All living things have legs
c. All living things grow
d. All living things live in houses

2. Which abiotic thing would I most likely find in a forest habitat?
   a. Leaf
   b. Deer
   c. Insect
   d. Air

3. All living things need food to survive. Which of the following is considered “food” for trees?
   a. Soil
   b. Sunlight
   c. Air
   d. Water

4. All organisms have basic requirements to survive. Which of the following is not a basic requirement for a tree?
   a. Home
   b. Water
   c. Air
   d. Space

5. What part of the tree is responsible for getting the food?
   a. Roots
   b. Flowers
   c. Branches
   d. Leaves

Write the matching letter in the blank before each definition:

6. _____ Makes the food for the tree  
   a. Trunk
7. _____ Absorbs water and nutrients  
   b. Roots
8. _____ Makes the seeds  
   c. Leaves
9. _____ Transports water around the tree  
   d. Fruit
10. _____ Sends the seeds away from the tree  
   e. Flower

11. Draw a picture filling each filter below with the type of soil indicated by its porosity. Then label the soil type.
12. You enter a forest near your house and that someone has just dumped a bunch of garbage along its edge. Name 2 positive things you can do to help this forest.

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___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

13. A Newscaster on TV made this statement, “Cutting trees can be a bad thing but it can also be a good thing.” Is the newscaster right or wrong? Give examples.

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