# Grade 4 Life Science Unit (4.L.1)

## Decision 1: What will students learn in this unit?

### Standards Addressed:
2. Reading Informational Text: RI 4.3, RI 4.4, RI 4.5, RI 4.8, RI 4.9
3. Math: MD.4, MBT.4
5. Technology: 2.TT.1.2, 3.TT.1.2, 1.TT.1.3, 4.TT.1.1
6. Other: SL2, SL4, SL5

What do I want my students to **KNOW**, **UNDERSTAND** and be able to **DO** at the end of this unit?

<table>
<thead>
<tr>
<th>Know</th>
<th>Understand</th>
<th>Do</th>
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</thead>
<tbody>
<tr>
<td>4.L.1</td>
<td>• For any environment some kinds of plants and animals survive and some do not.</td>
<td>4.L.1.1</td>
</tr>
<tr>
<td></td>
<td>• When an insect population grows, birds that eat insects grow.</td>
<td>Students know that for any particular environment, some kinds of plants and animals survive well, some survive less well, and some do not survive at all. When the insect population grows in an area that is frequented by insect eating birds, this is advantageous for the birds. Conversely, if the insect populations are decreased by disease in a similar scenario, the population of birds would be stressed and likely, reduced.</td>
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<tr>
<td>4.L.2</td>
<td>• Animals collect information about the environment using their senses.</td>
<td>4.L.1.2</td>
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<tr>
<td></td>
<td>• Animals exhibit instinctive (inborn) behaviors.</td>
<td>Students know that animals collect information about the environment using their senses. Animals also exhibit instinctive (inborn) behaviors that help them to survive. Students know that in animals, the brain processes information, and signals the performance of behaviors that help the organism survive.</td>
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<tr>
<td>4.L.3</td>
<td>• Humans can adapt.</td>
<td>4.L.1.3</td>
</tr>
<tr>
<td>4.L.4</td>
<td>• There is a variation among individuals of one kind within a population</td>
<td>Students know that humans can adapt their behavior in order to conserve the materials and preserve the ecological systems that they depend on for survival.</td>
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<tr>
<td></td>
<td>• The variation results in individuals having an advantage in surviving and reproducing.</td>
<td>4.L.1.4</td>
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<td>Students know that there is variation among individuals of one kind within a population. Students know that sometimes this variation results in individuals having an advantage in surviving and reproducing. Survival advantage is not something that is acquired by an organism through choice; rather it is the result of characteristics that the organism already possesses.</td>
</tr>
</tbody>
</table>

### Observations
- Role plays
- Products
- Written or nonverbal descriptions of thinking skills and processes.
- Research
- Summarize
- Compare and contrast
- Hypothesize
- Investigate
- Interview
- Work samples
Decision 2: Assessment

Plan for how students will indicate learning and understanding of the concepts in the unit. How will you assess learning?

Possibilities/options:
- Pre-assessment
- Short answer tests or quizzes
- Student logs, journals and informal writing
- Lab activities
- Formal writing assignments
- Informal or formal student Interviews, conferences, observations etc.

Prior knowledge will be established by using an Anticipation Guide on Ecosystems or KWL chart. Formative Assessment techniques will be used throughout the unit in the form of:
- Viewing “What is an Ecosystem” (free from iTunes U)
- Journal Response
- Study Island
- Small Group Investigation
- Science Notebooks
- Research Projects
- Teacher Observation
- 3-2-1

Describe the performance, product, or project that will be the culminating activity for the unit.

The student’s assignment for the Culminating Activity includes:

- **Unit** essential question or “I Can” statement for the culminating activity.
- A thorough **description** of the activity including steps or task **analysis** in completing the culminating activity.
- A copy(ies) of the rubric(s) you will use to assess the culminating activity or any other aspects of the unit.

I can compare and contrast two different animals from the same species, using images and research to distinguish between their features, habitats, habits and adaptations that allow them to survive. I will generate an article explaining the way these two animals are able to survive in their habitats, including a focus on why these adaptations are important and how they would not be as capable of surviving in the other animal’s habitat, despite them belonging to the same species.
Example Pre/Post Assessment Questions:

4.L.1.1 What may happen to many plants and animals if a nearby river floods?
   a. there will be less polluted water
   b. plants and animals will die from the effects of the flood
   c. plants and animals will move to other areas and survive there
   d. plants and animals will help one another to survive

4.L.1.2 *See Attachment 1

4.L.1.3 If there was a drought in North Carolina, which behavior would do more harm than good during this climate cycle? Why is this so?
   a. watering the lawn in the morning hours
   b. installing a rain barrel
   c. turning the water off while brushing your teeth
   d. planting native plants that need less water

4.L.1.4 A North Carolina male pheasant has bright colors and long tail feathers. This is an advantage because:
   a. the weight of the feathers makes flying challenging
   b. the color of the feathers makes the pheasant easier to see
   c. the long tail feathers dry off faster
   d. the colors attract female pheasants.

Explain why this is important.
Decision 2: Assessments – Rubric Reminders:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Scale</th>
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<tbody>
<tr>
<td></td>
<td>1pt</td>
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<tr>
<td>Ideas/Content</td>
<td>Needs Improvement</td>
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<tr>
<td></td>
<td>Unfocused, lacks a main idea.</td>
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<tr>
<td></td>
<td>Has missing or unimportant details.</td>
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<tr>
<td>Organization</td>
<td>Needs Improvement</td>
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<tr>
<td></td>
<td>Begins abruptly, or has no opening. Story order is confusing to the reader.</td>
</tr>
<tr>
<td></td>
<td>Ends abruptly or has no conclusion.</td>
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<tr>
<td>Word Choice</td>
<td>Needs Improvement</td>
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<tr>
<td></td>
<td>Only uses a single compare or contrast key word or phrase throughout the entire paragraph.</td>
</tr>
<tr>
<td>Conventions</td>
<td>Needs Improvement</td>
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<td></td>
<td>Uses incorrect or no capitalization or punctuation. Makes frequent spelling errors.</td>
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</tbody>
</table>

### Decision 3: Student Learning Map

#### Key Learning Targets:
Understand the effects of environmental changes, adaptations, and behaviors that enable animals and humans to survive in changing habitats.

<table>
<thead>
<tr>
<th>Concept:</th>
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<tbody>
<tr>
<td><strong>4.L.1.1</strong> Give examples of changes in an organism’s environment that are beneficial to it and some that are harmful.</td>
<td><strong>4.L.1.2</strong> Explain how animals meet their needs by using behaviors in response to information from the environment.</td>
<td><strong>4.L.1.3</strong> Explain how humans can adapt their behavior to live in changing habitats (e.g., Recycling wastes, establishing rain gardens, planting trees and shrubs to prevent flooding and erosion).</td>
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<table>
<thead>
<tr>
<th>Lesson EQ(s):</th>
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<tbody>
<tr>
<td>I can identify how changes in an environment negatively and positively impact organisms. I can identify an ecosystem.</td>
<td>I can explain how animals adapt their behavior and appearance to survive in their habitat.</td>
<td>I can describe how humans adapt their behavior to preserve their environment. I can identify the effects that humans have on their environment.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vocabulary:</th>
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<th>Vocabulary:</th>
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</thead>
</table>
| - Environment  
- Organism  
- Population  
- Beneficial  
- Decrease  
- Survive  
- Impact  
- Habitat  
- Ecosystem  
- Biome  
- Interact  
- Ecology  
- Overpopulation | - Basic Needs  
- Adapt  
- Learned Behavior  
- Instinctual Behavior (migration, hibernation)  
- Diversity  
- Characteristics  
- Body Parts/Structure  
- Survive  
- Predator  
- Prey  
- Food Chain/Web  
- Producers  
- Consumers  
- Decomposer | - Preserve  
- Conservation  
- Resources  
- Recycle  
- Reuse  
- Reduce  
- Waste  
- Pollution  
- Global Warming  
- Carbon Footprint  
- Acid Rain  
- Renewable  
- Drought  
- Flooding/Erosion |
### Concept:

4.L1.4 Explain how differences among animals of the same population sometimes give individuals and advantage in surviving and reproducing in changing habitats.

### Lesson EQ(s):

I can explain how differences in animals within the same population affect their ability to survive.

### Vocabulary:

- Survival of the Fittest
- Diversity
- Reproduction
- Species

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**Decision 3 - Student Learning Map**
Decision 4: Launch Activities

Hooks and Links

Develops student interest and links prior knowledge. Provides the Student Learning Map and the key vocabulary to students.

Guiding Questions:

1. How are you going to get students engaged?
2. How are you going to develop student interest and link their prior knowledge?
3. How are you going to start the Student Learning Map of the unit with students?
4. How are you going to preview key vocabulary with students?
Decision 5: Acquisition Lesson One

**Language Objective(s), where appropriate:**
Give examples of changes in an organism’s environment that are beneficial to it and some that are harmful.

**Lesson Essential Question(s) or “I Can” Statement(s):**
- I can identify an ecosystem.
- I can identify how changes in an environment negatively and positively impact organisms.

**Activating Strategies: (Learners Mentally Active)**
- Nature Bridge (Oh Deer Game)  
  [http://www.naturebridge.org/sites/default/files/Oh%20Deer_1.pdf](http://www.naturebridge.org/sites/default/files/Oh%20Deer_1.pdf) by fours and 1’s are deer, all
- Acceleration/Previewing: (key vocabulary) carrying capacity, limiting factor, habitat

**Teaching Strategies: (Explain and Model; Collaborative Pairs; Distributed Guided Practice; Distributed Summarizing; Graphic Organizers)**

**What is an Ecosystem?**
Students are to read a passage from K-12 reader at: [http://www.k12reader.com/worksheet/ecosystems/](http://www.k12reader.com/worksheet/ecosystems/)
Differentiated leveled passages can also be found at: [www.readworks.org](http://www.readworks.org)

Ecosystem Graphic Organizer to be filled out during/after reading.  
[http://science-class.net/Graphic_Organizers/GO_ecosystem.pdf](http://science-class.net/Graphic_Organizers/GO_ecosystem.pdf)

Students will then create an ecosystem at school. See following link (exempt question 2)  
[http://science-class.net/Lessons/Ecology/Ecosystems_Biomes/Ecosystems_at_School.pdf](http://science-class.net/Lessons/Ecology/Ecosystems_Biomes/Ecosystems_at_School.pdf)

**Summarizing Strategies: Learners Summarize and Answer Essential Questions**

**Ticket Out the Door:** Give an example of an ecosystem and give an example of a change in the environment that would be harmful and something that will be beneficial to that ecosystem.

**Lesson Resources**
Included throughout lesson.
**Decision 5: Acquisition Lesson Two**

**Language Objective(s), where appropriate:**

| 4.L.1.2 | Explain how animals meet their needs by using behaviors in response to information from the environment. |

**Lesson Essential Question(s) or “I Can” Statement(s):**

| I can explain how animals adapt their behavior and appearance to survive in their habitat. |

**Activating Strategies: (Learners Mentally Active)**

To provide background knowledge, view the following video on Animal Adaptations.


**Teaching Strategies: (Explain and Model; Collaborative Pairs; Distributed Guided Practice; Distributed Summarizing; Graphic Organizers)**

Obtain Free Powerpoint from Teachers Pay Teachers (login necessary – free account available) at:


This interactive Powerpoint has visuals, vocabulary, and a built in interactive quiz that will allow you the option to use clickers to assess student understanding.

**OR**

Bird Beak Activity can be found at:


If you choose to use this full length activity, do this prior to the above Powerpoint.

**Summarizing Strategies: Learners Summarize and Answer Essential Questions**

Use clickers to assess student understanding (optional).

Frayer Map defining the word Adaptation to assess understanding with examples, non-examples, characteristics, and definition.

**Lesson Resources**

Imbedded throughout lesson.
**Decision 5: Acquisition Lesson Three**

**Language Objective(s), where appropriate:**

| 4.L.1.3 Explain how humans can adapt their behavior to live in changing habitats. |

**Lesson Essential Question(s) or “I Can” Statement(s):**

| I can describe how humans adapt their behavior to preserve their environment. |
| I can identify the effects that humans have on their environment. |

**Activating Strategies: (Learners Mentally Active)**

| Read Aloud: *The Great Kapok Tree* by Lynne Cherry |
| Acceleration/Previewing: (key vocabulary) |

**Teaching Strategies: (Explain and Model; Collaborative Pairs; Distributed Guided Practice; Distributed Summarizing; Graphic Organizers)**

| Create Posters persuading peers to Reduce, Reuse, and Recycle from an animal’s perspective to preserve its habitat. |
| How can we adapt our behavior to preserve our environment? What effects do we have on our environment? |

**Summarizing Strategies: Learners Summarize and Answer Essential Questions**

| Share posters and enjoy *Kapok Crunch* (see recipe at Teachers Pay Teachers, by Heather Chapman) [http://www.teacherspayteachers.com/Product/Kapok-Krunch](http://www.teacherspayteachers.com/Product/Kapok-Krunch) |

**Lesson Resources**
## Decision 5: Acquisition Lesson Four

### Language Objective(s), where appropriate:

| 4.L.1.4 Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats. |

### Lesson Essential Question(s) or “I Can” Statement(s):

| I can explain how differences in animals within the same population affect their ability to survive. |

### Activating Strategies: (Learners Mentally Active)

- Play *How Bears Can Live in the Forest?* (Project Wild)
  

### Acceleration/Previewing: (key vocabulary)

### Teaching Strategies: (Explain and Model; Collaborative Pairs; Distributed Guided Practice; Distributed Summarizing; Graphic Organizers)

- Share results of the above game. Discuss the strategies used by those who lived and the struggles by those who had a limiting factor as they try to meet their needs with space, food, water, etc.

- How do differences in animals within the same population affect their ability to survive?

### Summarizing Strategies: Learners Summarize and Answer Essential Questions

- Quick write about your experience as a bear that lives among other bears in the forest and then pass to another student “bear” for reflection and reactions.

### Lesson Resources

| Embedded in lesson. |
**Decision 6: Extending Thinking Activities**

Include extending activities for several lessons in the essential units.

<table>
<thead>
<tr>
<th>Cause/Effect</th>
<th>Compare/Contrast</th>
<th>Deduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Justification</td>
<td>Induction</td>
<td>Analyzing Perspective</td>
</tr>
<tr>
<td>Error Analysis</td>
<td>Abstracting</td>
<td>Evaluation</td>
</tr>
<tr>
<td>Classifying</td>
<td>Constructing Support</td>
<td>Writing Prompt</td>
</tr>
</tbody>
</table>
**Decision 7: Differentiating the Unit**

What accommodations will you make in order to meet the varied interests, learning styles, and ability levels of all students?

<table>
<thead>
<tr>
<th>choice menus</th>
<th>compacting</th>
<th>grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td>seating</td>
<td>visual, auditory, kinesthetic activities</td>
<td>scaffolding</td>
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<tr>
<td>real world meaning</td>
<td>interests</td>
<td></td>
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</table>
Decision 8: Unit Calendar

Determine the most viable sequence for the experiences, activities, and lesson and create a timeline.
Decision 9: Resources

Provide graphic organizers, links, book titles, websites, etc. that provide support for teaching this unit. Some have been embedded in lesson.

Project Wild
http://www.projectwild.org/documents/ProjectWILD.pdf

Project Learning Tree

Additional Websites

Safari Montage  https://www.safarimontage.com/
Discovery Education  http://www.discoveryeducation.com/
Brain Pop  http://www.brainpop.com/science/
Study Jams  http://studyjams.scholastic.com/studyjams/index.htm
Beyond Penguins and Polar Bears (stories for students)
http://beyondpenguins.ehe.osu.edu/stories-for-students
Just for Educators (additional classroom resources)
http://www.projectwild.org/EducatorResources.htm
Teachers Pay Teachers http://www.teacherspayteachers.com/
Gaggle http://www.hendersoncountypublicschoolsnc.org/instructional-technology/resources-by-topic/software-resources/gaggle-login/
mysite.cherokee.k12.ga.us
rcampus.com http://www.rcampus.com/
k12reader.com http://www.k12reader.com/
**Unit Designers:**

**Date:** January 22, 2013

<table>
<thead>
<tr>
<th>Name</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashley Hammond</td>
<td>Sugarloaf</td>
</tr>
<tr>
<td>Hadley McCutcheon</td>
<td>Marlow</td>
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<tr>
<td>Amanda Upton</td>
<td>Hendersonville</td>
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<tr>
<td>Chaz Morrison</td>
<td>Atkinson</td>
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<tr>
<td>Sheri Ritchie</td>
<td>Clear Creek</td>
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<td>Alison Stout</td>
<td>Upward</td>
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