Lesson: How to Survive-All About Animal Adaptations

By: Stephanie Dean  
Instructional Coach: Chris Gibler  
Grade Level: 4th Grade

Description: Through hands on activities, reading, and research students will explore the different types of behavioral adaptations. Learners will also learn how to design and conduct an investigation as they discover how an earthworm’s behavior changes when it is exposed to different types of environments. Students will have the chance to track a butterfly and upload the information to the Journey North website. They will also be using this site to select an animal to research, and give a presentation on its migration habits. The unit will take approximately 6 days to complete but could be shortened or lengthened depending on the amount of time you have.

Essential Questions:
- How do animals adapt?
- How do animal adaptations relate to migration?

Student learner objectives-GLE’s:
- **Strand 4.1a**: Identify the ways a specific organism may interact with other organisms or with the environment (e.g., shelter, camouflage, migration, hibernation, defensive mechanism).
- **Strand 4.3c**: Identify specialized structures and senses and describe how they help animals survive in their environment (e.g., antennae, body covering, teeth, beaks, whiskers, appendages).
- **Strand 4.3d**: Recognize internal cues (e.g., hunger) and external cues (e.g., changes in the environment) that cause organisms to behave in certain ways (e.g., hunting, migration, hibernation).
- **Strand 7.1B-A**: Make qualitative observations using the five senses.
- **Strand 7.1B-B**: Make observations using simple tools and equipment (e.g., hand lenses, magnet, thermometers, metric rulers, balances, graduated cylinders, spring scale).
- **Strand 7.1 C-A**: Use quantitative and qualitative data as support for reasonable explanations.
- **Strand 7.1 C-B**: Use data as support for observed patterns and relationships, and to make predictions to be tested.
- **Strand 7.1 C-C**: Evaluate the reasonableness of an explanation.
- **Strand 7.1 D-A**: Communicate the procedures and results of investigations and explanations through: oral presentations, drawings and maps, data tables, graphs, writings.

Featured Scott Foresman’s Textbook: 4th Grade Chapter 1, Lesson 5 pages 26-33

Feature Picture Books:
- *What do you do when someone wants to eat you?* By Steve Jenkins
- *Great Migrations* by Elizabeth Carney
- *How do animals adapt?* by Bobbie Kalman
- *Pass the energy please* by Barbara Shaw McKinney

Comprehension Strategies Feature in this Lesson:
- Visualizing
- Synthesizing
- Connections
- Determining What’s Important
Time Needed:
- 6 30-45 minute sessions

Academic Vocabulary Words:
- **Organism**: An animal, plant, or single-celled life form.
- **Adaptation**: A physical feature or behavior that is passed down from an animal’s parents and helps them get food, protect themselves, move, or reproduce.
- **Migration**: The journey an animal takes to another place due to changes in the seasons, and the availability of its food source.
- **Carnivore**: An animal that eats mostly meat.
- **Herbivore**: An animal that eats mostly plants.
- **Omnivore**: An animal that eats both plants and animals.
- **Decomposers**: Breakdown the waste and remains of dead plants and animals.
- **Weather**: Describes the state of the air at a particular time and place—warm, cold, rainy, cloudy, windy, etc.
- **Climate**: The weather conditions in an area over a long period of time.

Materials Needed:
- Journals
- Post-It Notes
- Dry Erase boards & Markers
- Earthworms (3-4 worms per group)
- Tray or tub for each group to conduct experiment on
- Ammonia
- Water
- Flashlights
- Black Construction Paper Chamber- See illustration below taken from: http://www.uga.edu/srel/kidsdoscience/adaptations/behavior-master.pdf

- Paper towels- some wet, some dry
- Droppers for water and ammonia
- Masking tape to divide the tray/container
- Red cup and green cup with the bottoms taped together (1 per group)

Student Pages:
- Anticipation Guide
- Check Point Lab
- Inside the Butterfly’s Migration Article
- Letter Page
- Project Handout
- Project Rubric
Lesson Narrative:

• Engage: DOK 2
  o Moving to the Desert: Day 1 Part 1 (15-20 minutes)- In this activity students will be informed that our class will be moving to the desert. In their learning clubs students will brainstorm in their science journal a list of changes that their bodies would need to survive in the desert, and why each change would help them survive. After students have had 10 minutes to brainstorm and develop their list, share them with the whole class. Discuss the features that desert animals and plants have that enable them to survive and why.
  ▪ Most animals do not have fur, typically scaly skin
  ▪ Not many large animals, smaller bodies allow for more efficient cooling
  ▪ Need to be able to go without a lot of water or be able to get water from resources available.
  ▪ Nocturnal animals—cooler during the evening
  ▪ Feeding times—not during the heat of the day, early in the morning or in the evening

  Then have them jot in their journals what they think an adaptation is and what the word migration means. (This piece is a part of the synthesizing strategy that will be used later in the lesson.)
  o Read What do you do when someone wants to eat you? by Steve Jenkins: Day 1 Part 2 (20 minutes)- (Synthesizing/determining importance) Prior to reading the story have students answer the anticipation guide for the unit (Formative assessment). The anticipation guide will help students determine what is important to listen for as you read, as well as to help them track their thinking prior to the unit and after the unit.
  ▪ Explain to students that not all of the parts of the anticipation guide will be answered in this book; some answers will come later in the unit. Share with students that the anticipation guide will help show how their thinking has changed due to their new learning.
  ▪ After students have filled out the anticipation guide have them stick it in their science notebook for future reference. Read the story. (Synthesizing) Revisit the anticipation guide to see what new learning has occurred from the book and which questions can be addressed.
  ▪ ? Have the animals in this book always had these traits and abilities?
  ▪   A: No, slow changes over time.
  ▪ ? If not, what does that mean?
  ▪   A: Passed down from parents. Animals with adaptations have a better chance of survival.
  ▪ ? What do you think the word adaptation means?
  ▪   A: a physical feature or behavior that is passed down from an animal’s parents and helps them get food, protect themselves, move, or reproduce.

• Explore: DOK 2 & 3
  o How do earthworms adapt?: Day 3 (45 minutes)- Today students will investigate changes in environment that cause earthworms to react.
   ▪ Students will select 2 of the 3 given factors to investigate. They will explore how light, odor, or moisture affect the earthworm’s behavior.
Once they have selected their two factors they will conduct the experiment following the investigation guide.

At the conclusion of the investigation students will draw conclusions about how their observations with their earthworm relate to animal adaptations.

During the investigation groups will use the red and green cups to indicate their progress throughout the lab. When students are working and things are going fine they should put the red side up. When they have a question (after asking all of their group members) or are ready for the teacher to check off their checkpoint they will flip their cups to green. The teacher can then switch it back to red.

Come together to discuss the results of the lab.

- Investigation adapted from: [http://www.uga.edu/srel/kidsdoscience/kidsdoscience-behavior.htm](http://www.uga.edu/srel/kidsdoscience/kidsdoscience-behavior.htm)
- Checkpoint Lab Format from Picture Perfect Science, 181 &184-186

- Explain: DOK 2 & 3
  - Read *How do animals adapt?* Day 4 Part 1 (20 minutes)-
    - (Visualizing) While reading the book do not show students the cover or illustrations. Have students select one group of animals and draw on their post-it what they visualize when they imagine what that animal looks like migrating to their new habitat.
    - (Connections) After reading the book have students think-pair-share how this book relates to the engage book. *What do you do when someone wants to eat you?*
    - Create a Venn Diagram on chart paper with adaptations in one circle, migration in another and both in the overlapping part. As a class, have students fill in the Venn Diagram based on what they’ve learned so far.

- Adaptations:
  - Can be physical or behavioral
  - Slow changes that help animals survive
  - Passed down from parents, genetic
  - Students can add specific types of adaptation

- Migration:
  - Relocate for the seasons (climate changes)
  - Move because of food source
  - Move to mate

- Both:
  - Type of Behavioral Adaptation
  - Helps animal survive

- Why they migrate: Day 4 Part 2 Formative Assessment (30-45 minutes)-
  - Review with students that *migration* is a behavior adaptation where animals move based on changes in the seasons (climate) for food or to mate.
  - Students will read the article about why butterflies migrate attached with this unit. Then, using what they have learned in the article and from the rest of the activities in the unit students will write a letter. Students will write a letter to one of the kindergarten classes explaining why butterflies migrate and do not have the adaptations necessary to stay in one climate, how they migrate, and give a glimpse of a typical migration journey.
  - Here students will learn that we will be tracking butterflies on their migration and entering the data on the Journey North Website.
• Revisit the anticipation guide from the start of the unit, and have students finish filling in the after the unit column with what they have learned. Discuss with students what they have discovered and what they were surprised by.

• Elaborate & Evaluate: DOK 2 & 3
  o Migration Report (Summative Assessment): Day 5 (30 minutes in class, assigned as part of HW Summative Assessment). Students will work by themselves or with a partner and will select an animal on the Journey North Website to research. (Project adapted from the Life Cycle Sleuth activity on the Journey North Website) They will uncover the following information about their animal’s distribution/range, food, physiology, and reproduction. Students will use all of the information they gathered to predict when their animal will migrate and why they think their animal migrates. Using the information gathered students will select a method for presenting this information to the class. Could be through a power point, poster presentation, song, skit, puppet, poem, or any other teacher approved idea. ***See the attached student handout for more information about the project.
  • Project adapted from: http://www.uga.edu/srel/kidsdoscience/kidsdoscience-behavior.htm
  o Migration Reports: Day 6 (45 minutes). This is one part of the evaluate piece. Students will present their information in their chosen format. Teachers will score projects using the rubric.

  o Formative Assessments: the anticipation guide for the unit will show what students know going into the unit and what they have learned after. The letter to the kindergartner will demonstrate what students have learned so far about migration and adaptations, applied specifically to the monarch butterfly. Both of these will give students the information necessary to complete their final project, which will bring all of the pieces together and show the teacher what they understand about adaptations and migration.

Misconceptions:
• Only wild animals have adaptations to help them survive, and house pets and humans do not make/have adaptations necessary for survival.
  o In the engage piece students will have to adapt to think about adaptations they would need to help them survive in the desert, as well as they kinds of adaptations that plants and animals in the desert have that help them survive.
  o After defining adaptations we will discuss that adaptations are features and behaviors that are passed down by “parents” and not things that happen rapidly. They are slow changes that occur over long periods of time. If an animal does not have adaptations it needs to survive in their habitat they will die.
• Animals only migrate because of the change in weather and students do not consider that they also migrate due to food source availability or that it is actually due to climate change
  o During the explain piece we will read How do animals adapt?, together to learn the reasons why animals migrate between climates. Students will learn that the animals migrate for several reasons. Students will also learn the difference between weather and climate and that animals migrate due to climate changes, not weather changes.

Advanced Preparation
• Obtain healthy earthworms from a local bait shop. European night crawlers (*Eisenia Hortensis*) are large worms and thrive between 45°F and 75°F. About 30 worms will come in each small plastic container so they will have to be divided up between the student groups; eight worms per table of four students. Each container must have air holes in them and at least 2” of moist soil.
• “Do worms prefer heat or cold?” demonstration: Before class place a heating pad under one half of a baking tray and an ice pack under the other half. Line the bottom of the baking tray with moist paper towels and place four worms in the center of the tray. Cover the tray completely so that no light gets in and set aside until needed.
• Earthworm habitats: Assemble habitats, one for each class, by filling one-gallon wide mouth jars (preferably plastic) two-thirds full with alternating layers of moist sand, clay, and or top soil. Tape together black construction paper tubes to completely cover jars when not being observed. Cover the jars with nylon window screening held in place with a rubber band or a metal lid with holes punched in the top. Feed the worms two tablespoons cooked coffee grounds once/week and keep the soil moist. Students can observe worm activity as an addition to classroom science lessons.
• Earthworm races: Cut one 2” diameter hole in the side of each of six clear 24” long plastic tubes; holes should be ~ 2” from a capped end. This hole will be the entry point for the racing worm. A scented cotton ball will be inserted into the other end of the tube at race time and the tube will be recapped.
• Prepare experimental chambers by marking the midpoint widthwise of all the containers. Light chamber lids will need to be adapted by cutting a 2” diameter hole in one half of the lid to accommodate a standard size flashlight that will rest on top of the lid. A piece of black construction paper should then be taped to the underside of the lid at the midpoint widthwise to block light from entering the other half of the container.
• Copy the “Workshop Outline,” onto a writing board or flip chart. This will help you complete all the steps in the scheduled amount of time.

Safety:
• Remind students to be gentle with the earthworms
• Remind students to practice safe lab techniques—not eating the worms! (Shouldn’t normally be a problem in 4th grade, at least we hope!)
• When researching on the Internet only go to teacher-approved sites.
• Instruct students on the scientific way to smell substances, be sure they don’t drink or sniff the ammonia.
• Remind students that they will need to wash their hands after handling the earthworms.

General Suggestions for students and teachers:
• Teachers may want to shorten the length of this unit. You could cut out Day 1 of the engage piece and have students write a journal about their understanding of why animals migrate instead of having them complete the project.
• It might be helpful for students to have a resource basket to pull books from or have a list of Internet sites that you would like them to gather their information from for the research project.
• For the Venn Diagram activity I did not list all the possibilities that students could give for the two books. Students will have a lot of information about adaptations after reading the book *How do animals adapt?* I left it open for what your students will come up with after reading.

Unit Extensions- additional information on animal migration:
• [http://animals.howstuffworks.com/animal-facts/animal-migration.htm](http://animals.howstuffworks.com/animal-facts/animal-migration.htm)
• How do animals spend the winter? [http://www.science.madesimple.com/animals.html](http://www.science.madesimple.com/animals.html)
• http://www.hillmanwonders.com/serengeti_migration/serengeti_migration.htm

Bibliography
• **Journey North Website**: Migration project & vacation activity
  o [http://www.learner.org/jnorth-tm/MigrationVacationA.html](http://www.learner.org/jnorth-tm/MigrationVacationA.html)
  o [http://www.learner.org/jnorth-tm/lifecycle.html](http://www.learner.org/jnorth-tm/lifecycle.html)
• **Picture Perfect Science & Even More Picture Perfect Science**: format for experiment, and article
• **Butterfly Picture From**: [http://wackyweeksclub.webs.com/photos/Animal-of-the-Month-Pictures/019a-monarch_butterfly.jpg](http://wackyweeksclub.webs.com/photos/Animal-of-the-Month-Pictures/019a-monarch_butterfly.jpg)
• **What Do You Do When Something Wants to Eat you picture**: [http://ca.pbsstatic.com/l/38/2438/9780618152438.jpg](http://ca.pbsstatic.com/l/38/2438/9780618152438.jpg)
• **Earthworm lab adapted from**: [http://www.uga.edu/srel/kidsdoscience/kidsdoscience-behavior.htm](http://www.uga.edu/srel/kidsdoscience/kidsdoscience-behavior.htm)
Name: _____________________

Let’s Learn About
Animal Adaptation & Migrations

<table>
<thead>
<tr>
<th>Before the Unit</th>
<th>True or False</th>
<th>After the Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All adaptations happen quickly.</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>2. Migration is a way that animals adapt.</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>3. Adaptations help keep animals alive.</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>4. Animals migrate to find food.</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>5. Only animals have adaptations.</td>
<td>_________</td>
<td>_________</td>
</tr>
</tbody>
</table>
Let’s Learn About
Animal Adaptation & Migrations

Before the Unit
True or False

1. All adaptations happen quickly. False

2. Migration is a way that animals adapt. True

3. Adaptations help keep animals alive. True

4. Animals migrate to find food. True

5. Only animals have adaptations. False

After the Unit
True or False
How Do Earthworms adapt? Checkpoint Lab

Earthworm Investigator: ____________________________________________

You are a member of a team with the task of investigating earthworm behavior. With your team you must select two environmental changes to test with your earthworms. You will be in charge of setting up the experiment and deciding how to carry it out. With your team you must decide what types of environments cause changes in earthworms behavior. If your team is working, put the green cup on top. If you have a question, and no one in your team is able to answer it, put the red cup on top. If you are finished with a part and you are ready for a check from your teacher, put the red cup on top.

Part A: Setting up the earthworm investigation

Check off each item as your team completes them.

____ Get a Blue Tray, Earthworms, and masking tape from the supply counter.

____ Use the masking tape to divide your tray in half vertically (stick it to the tray!)

____ Decide what two environment changes you would like to investigate and grad the appropriate materials.
   * Moisture: Get a dry paper towel and a wet paper towel
   * Odor: Get a cup of water and a cup of ammonium, & 2 eyedroppers
   * Light: Get a flashlight & paper chamber

____ Brainstorm with your group how you will conduct your investigation.

Describe how you will set up your experiment to test each environment.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Checkpoint A ☐
Part B: Design an Experiment to test the changes in an earthworm’s behavior based on a change in its environment

1. Your job is to observe the changes in an earthworm’s behavior based on the changes you make to its environment. Circle the two environment changes your team has decided to investigate.

   Circle Your Choices:
   Odor-ammonium vs. water
   Moisture-wet paper towel vs. dry paper towel
   Light- light vs. dark

2. Make a prediction about choice your earthworm will make in the two different environment changes you selected. Why do you think this?

3. How will you decide which environment change is most favorable for your earthworms?


Checkpoint B
## Checkpoint C: Data & Conclusions

1. You are now ready to conduct your experiment. For each trial set your timer for 10 minutes. Record your data in the tables below. You may conduct both experiments at the same time!

<table>
<thead>
<tr>
<th>Environment Change:</th>
<th>Trial #1</th>
<th>Trial #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chose _______________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chose _______________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unusual Behavior</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment Change:</th>
<th>Trial #1</th>
<th>Trial #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chose _______________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chose _______________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unusual Behavior</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Conclusions: What conclusions can you make about changes of your earthworms’ behavior based upon the changes in their environment? (Discussion both changes!)

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

3. Is this an example of a physical or behavioral adaptation? How do you know?

____________________________________________________________________________________
____________________________________________________________________________________
Monarch butterflies are not able to survive the cold winters of most of the United States so they migrate south and west each autumn to escape the cold weather. The monarch migration usually starts in about October of each year, but can start earlier if the weather turns cold sooner than that.

The monarch butterflies will spend their winter hibernation in Mexico and some parts of Southern California where it is warm all year long. If the monarch lives in the Eastern states, usually east of the Rocky Mountains, it will migrate to Mexico and hibernate in oyamel fir trees. If the monarch butterfly lives west of the Rocky Mountains, then it will hibernate in and around Pacific Grove, California in eucalyptus trees. Monarch butterflies use the very same trees each and every year when they migrate, which seems odd because they aren’t the same butterflies that were there last year.

These are the new fourth generation of monarch butterflies, so how do they know which trees are the right ones to hibernate in? Monarch butterflies are the only insect that migrates to a warmer climate that is 2,500 miles away each year.

The Monarch butterfly migrates for 2 reasons. They cannot withstand freezing weather in the northern and central continental climates in the winter. Also, the larval food plants do not grow in their winter overwintering sites, so the spring generation must fly back north to places where the plants are plentiful.

The monarch overwintering sites are under threat because of people cutting down their favorite trees to build roads, houses and farms. What will happen to the monarchs if they do not have their special trees to spend the winter? There are groups that collect money to save the important trees and educate people about monarch conservation.
Butterfly Letter

Write a letter to a kindergartner explaining them a butterfly’s migration journey. Explain why butterflies migrate and do not just adapt to one climate, how they migrate, and give a glimpse of a typical migration journey. Be creative, use correct letter format, and make your letter come to life!
**Letter Rubric**

Name: ____________________

*Letter to Kindergartner about a butterfly’s migration*

<table>
<thead>
<tr>
<th><strong>Date</strong></th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing</td>
<td>Present, but not in the top right corner of the page.</td>
<td>Present, in the top right corner of the page.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Greeting</strong></th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing</td>
<td>Present, but missing a comma.</td>
<td>Present, has a comma</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Body</strong></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very short, lacks, good word choice, and does not give any details about the article</td>
<td>Only 2-3 details from the article, but support may be missing, some good word choice, and is engaging.</td>
<td>Gives 3 details with great support, has great word choice, and begs the reader to continue reading. Very creative.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Grammar</strong></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not use correct capitalization or punctuation throughout the letter, the writing does not make sense and is hard to understand.</td>
<td>A few capitalization or punctuation errors in the letter, the writing makes sense most of the time.</td>
<td>No capitalization or punctuations errors, the writing makes sense.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Closing</strong></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present without a comma, and is not in the center of the page.</td>
<td>Present, without comma or not in line with the date,</td>
<td>Present, with a comma and in line with the date.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Signature</strong></th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing</td>
<td>Present either not in full cursive or in line under the closing.</td>
<td>Present, lined up under the closing and in full cursive.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Audience</strong></th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not talk in a voice appropriate for a kindergartner</td>
<td>Talks in a mostly in a voice appropriate for a kindergartner.</td>
<td>Always talks in a voice appropriate for a kindergartner</td>
<td></td>
</tr>
</tbody>
</table>

Points ______ out of 19  
Letter Grade _______
Migration Report

You have been selected as a member of a research team studying migration. You may choose to work with a research partner (choose wisely if you do) or by yourself. Your task is to select one animal from the Journey North Website to dig up some information on. You will be responsible for finding out information about the animal’s distribution/range, food, physiology, and reproduction. All of this information will help you predict when and why your animal migrates. Also, using the information you gather you will create a food web for your selected animal that is to be included in your presentation.

Once your research is complete you will decide how you would like to present your findings to the rest of the research team. You can: make a power point, poster presentation, write a song, skit, make a puppet & write a puppet presentation, write a poem, or any other teacher approved idea. Have fun and be creative. You will be graded on your information, quality of presentation, and predictions.

Use this checklist to help you complete your project.

___ Select an animal from http://www.learner.org/jnorth
(animal: __________________)

___ Read begin researching. Use the research guide to help you find all of the necessary information. **Be sure to predict when your animal will migrate (tell why you think this) and why you think it migrates!**

___ Keep track of sources used on the Resources Page provided to you by your teacher

___ Select a method to present your information to the rest of the research team
(my presentation will be a __________________________)

___ Rehearse your presentation so you are ready and confident when you present to the rest of the team

___ Bring rubric, materials for presentation, and resources page with you the day of your presentation.
**Background:**
Migration is a risky business. Animals face countless challenges and risk their lives when they migrate. So why do they do it? Select one of the Journey North species. Try to find the answer to each of the questions below. Notice that all of the questions relate to survival, either of the individual animal or its offspring. By carefully exploring what an animal needs in order to stay alive — or in order to reproduce so its young can live — you can discover how migration relates to survival. You may also be able to predict when your animal will take its journey.

**Distribution and Range:**

Where is your animal found in the winter months? In the summer months?

Describe its habitat on its wintering grounds.

Describe its habitat on its summering grounds.

If the habitat is different, in what ways is it different?

How much do temperatures change during the year on the animal’s wintering grounds/summer grounds?

Compare the amount of habitat available north and south of the border

Does this animal follow the same migration patterns (timing and route) every year?

Do virtually all the individuals of this species migrate?
**Food:** from this section create a food web for your animal to be display as a part of or with your presentation.

What does this animal eat? (What is its prey?)

How does this animal get its food? (What are its methods of feeding or hunting?)

What physical adaptations does this animal have for obtaining its food?

What behavioral adaptations does this animal have for obtaining its food?

How might cold weather affect this animal’s ability to obtain food?

What does its prey eat? If its prey is plants, what do these plants require?

What preys on it?

Draw a food chain showing your animal’s place(s) on it.

Which links on this food chain are affected by cold weather? Freezing temperatures?
**Physiology:**

How would cold weather affect this animal?

How would freezing temperatures affect it?

How would hot temperatures affect it?

How would drought affect it?

How would temperatures affect the amount of food this animal needs?

**Reproduction:**

How does this animal select a mate?

When & where does this animal mate?

Does this animal need special habitat, food, or temperatures to mate?

When and where are its young born or hatched?

Do the young need special habitat or temperatures in order to survive?

What do the young eat? Is this different from their parents’ diet?

How long does this animal live?

Do all age groups (young and old) migrate?
Animal Research Resources

Use the lines below to record the resources where you found your information about your animal. Remember you must have at least 2 different sources. You do not need to use all of the lines. Be sure to tell the name and web address for internet sources. For book sources write the title and the author.

1. ______________________________________________________
   ______________________________________________________

2. ______________________________________________________
   ______________________________________________________

3. ______________________________________________________
   ______________________________________________________

4. ______________________________________________________
   ______________________________________________________

5. ______________________________________________________
   ______________________________________________________

6. ______________________________________________________
   ______________________________________________________

7. ______________________________________________________
   ______________________________________________________

8. ______________________________________________________
   ______________________________________________________

9. ______________________________________________________
   ______________________________________________________

10. ______________________________________________________
     ______________________________________________________

## Scoring Rubric - Migration Project

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>4</th>
<th>2</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>Very well researched. Resources are listed, and the team used more than 2 different sources. Information is very accurate.</td>
<td>Well researched. Resources are listed, and the team used 2 different sources. Information is accurate and relevant.</td>
<td>There is evidence of some research. The team listed 1 source used. The information is somewhat accurate.</td>
<td>There is no evidence the team did any research. There are no sources listed.</td>
</tr>
<tr>
<td>Content</td>
<td>The project included all of the required information about the species they selected; a neat and detailed food web is present.</td>
<td>The project included all of the required information about the species they selected. All information is complete. There is a completed food web.</td>
<td>The project is incomplete. There is 3-4 pieces of information missing. There was an attempt to make a food web, but it may not be complete or accurate.</td>
<td>The project is incomplete. There is 5 or more pieces of information missing. There was an no attempt to make a food web.</td>
</tr>
<tr>
<td>Creativity</td>
<td>The project is unique and creative. The researcher(s) put forth effort into creating a high quality project.</td>
<td>The project is somewhat creative. The researcher(s) put thought into their project.</td>
<td>The project is not well put together and it is needs some work before it is a polished piece.</td>
<td>There is not much of a project to go with the presentation. The researcher(s) need to complete the project.</td>
</tr>
<tr>
<td>Presentation</td>
<td>The presentation is interesting and informational. All writing is easy to see and legible. Everything is very well organized.</td>
<td>The presentation is somewhat interesting, but is informational. All writing is easy to see and legible. Everything is well organized.</td>
<td>The researcher(s) presented their information. Parts of the presentation may be confusing or unclear. Some writing is easy to see. Everything is somewhat organized.</td>
<td>The team presented their information. Parts of the presentation were missing and the presentation was confusing and unclear. Writing is difficult to read and everything is not well organized.</td>
</tr>
<tr>
<td>Grammar/ Mechanics</td>
<td>2 or fewer spelling errors. All writing flows together, is very informative, and very well written</td>
<td>3-4 spelling errors. All writing flows together, is informative, and well written.</td>
<td>5-6 spelling errors. Writing does not flow together well, but may have moments where it does. It is somewhat informative and somewhat well written.</td>
<td>7 or more spelling errors. Writing does not flow together. The writing is not very informative or well written.</td>
</tr>
</tbody>
</table>

**Total:** _____/30

**Comments:**