

**Survivors Lesson Plans
Grade 4**

**Written and Developed by
Melanie Potts, Breana Ranes, and Melanie Hay
Edited by Dr. Julie Green**



Table of Contents

Lesson 1: Introducing Adaptations	3-4
Lesson 2: Adaptation Stations.....	5-10
Questions for Lesson 2 Stations.....	11-12
Lesson 3: Human and Non-Human Impact on Animals.....	13-15
Annotated Bibliography	16-18

Introducing Adaptations

Name: Melanie Potts, Breana Ranes, Melanie Hay

Grade: 4th grade

Indiana Academic Standards:

Science:

4.3.2 Observe, compare and record the physical characteristics of living plants or animals from widely different environments. Describe how each plant or animal is adapted to its environment

4.3.3 Design investigations to explore how organisms meet some of their needs by responding to stimuli from their environments.

Student Materials:

- science journal
- pencil

Teacher Materials:

- blackboard/white board
- chalk or markers
- Jenkins, S, & Page, R. (2009). *What do you do with a tail like this?*. New York, NY: Houghton Mifflin Harcourt Publishing Company.

Objective: The student will be able to explain the term adaptation and give examples of how animals adapt to their habitat.

Introduction: Have the students close their eyes and imagine they are camping in the woods.

“You are camping with your family. The sun is shining and the wind is blowing your clothes in the wind. You smell the hot dogs cooking on the grill and you suddenly you hear thunder coming. The wind picks up, the sky turns dark, and rain is covering your face. Your food, belongings, and you are about to get soaked what are you going to do?”

Have students write in their journals what they would do in this situation. about 3 minutes

Now discuss with students what they would have done.

Possible answers:

Nothing, Leave, Put on raincoat, take shelter, etc.

Explain to students that they are adapting to their environment by changing their situation.

Activity/Procedure:

1. Read the book What Do You Do With a Tail Like This? by: Steve Jenkins and Robin Page.

While reading this book discuss with students why animals have certain physical characteristics. How it has helped them in their environment, what are the advantages of these characteristics?

Have students create a KWL chart individually and find out what students know, want to know, and at the end of the unit they can write what they have learned. Next, have the students share what they know and want to know by writing their ideas on the board.

2. Have students discuss with a partner

- What animals they have seen in the area and how they may adapt to our environment.

Have Partner A share what Partner B said, and then have Partner B share what Partner A said.

Extension Activity (for students who finish early, or extra classroom activity): Have the students think back to the camping trip with rain and have them think of another option that they could have done to adapt to the rain. The students will then write a story about the result.

Students with Disabilities: If students are having difficulties, refer to them individually.

Closure:

“Now that everyone knows about what adaptations are, tomorrow we are going to be learning about specific animal structural adaptations to help them survive in their environment.”

Adaptation Stations

Name: Melanie Potts, Breana Ranes, Melanie Hay

Grade: 4th grade

Indiana Academic Standards:

Science:

4.3.1: Observe and describe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.

4.3.2 Observe, compare and record the physical characteristics of living plants or animals from widely different environments. Describe how each plant or animal is adapted to its environment

4.3.3 Design investigations to explore how organisms meet some of their needs by responding to stimuli from their environments.

Reading:

4.2.5: Compare and contrast information on the same topic after reading several passages or articles.

Student Materials:

- Science Journal
- Pencil

Teacher Materials:

- Can You Find Me? Station:
 - Coldrey, J., & Morrison, K. (1986). *Hide and seek* . New York: Putnam.
 - Ganeri, A., & Verrinder, H. (1995). *Animals in disguise* . New York, N.Y.: Little Simon.
 - Helman, A., & Jecan, G. (2008). *Hide and seek: nature's best vanishing acts*. New York: Walker & Co.
 - Schwartz, D. M., Schy, Y., & Kuhn, D. (2007). *Where in the wild?: camouflaged creatures concealed-- and revealed : ear-tickling poems*. Berkeley: Tricycle Press.
- Can You Hide Me? Station:
 - computer
 - Walking with Beasts - Kids Corner. (n.d.). *ABC.net.au*. Retrieved July 13, 2011, from <http://www.abc.net.au/beasts/playground/camouflage.htm>
- How Do I Move? Station:
 - [Webbed Feet Picture](#)
 - [Wings Picture](#)
 - [Claws Picture](#)
 - [Flippers Picture](#)
 - [Padded Feet Picture](#)
 - [Hooves Picture](#)
 - [Big Feet Picture](#)

- [Pond Picture](#)
- [Sky Picture](#)
- [Tree Picture](#)
- [Ocean Picture](#)
- [Grassland Picture](#)
- [Mountain Picture](#)
- [Arctic Picture](#)
- What Can I Eat? Station:
 - 2 pairs of tweezers
 - 2 sets of chopsticks
 - 4 spoons (to be used in pairs as a beak)
 - 2 clothespins
 - 8 small cups
 - 3 pie pans
 - 100 pennies
 - 25 toothpicks
 - 50 beads
 - Greenway, T. (1995). *Head to Tail Beaks and Noses*. Austin, Texas: Raintree Steck-Vaughn Publishers.
 - Miller, S. S. (2003). *Woodpeckers, toucans, and their kin*. New York: Franklin Watts.
- Why Do I Move? Station:
 - computer
 - Monarch Butterfly Migration, Spring 2011. (n.d.). *Learner.org*. Retrieved July 14, 2011, from http://www.learner.org/jnorth/maps/galleries/2011/monarch_an_spring2011.html
 - Carney, E. (2010). *Great migrations: whales, wildebeests, butterflies, elephants, and other amazing animals on the move*. Washington, D.C.: National Geographic.
 - Rylant, C., & Davis, L. (2006). *The journey: stories of migration*. New York: Blue Sky Press.
 - Sayre, A. P., & Berenzy, A. (1998). *Home at last: a song of migration*. New York: Holt.
- Extension Activity:
 - Coldrey, J., & Goldie-Morrison, K. (1986). *Danger colors*. New York: Putnam.
 - Fullick, A. (2006). *Adaptation and competition*. Chicago, Ill.: Heinemann Library.
 - Knapp, D. B. (2003). *Adapting and Surviving V. 19*. Danbury, CT: Grolier Educational.
 - Marsh, L. (2010). *Animal Journeys*. S.I.: National Geographic.
 - Simon, S., & Warnick, E. (2000). *They walk the earth: the extraordinary travels of animals on land*. San Diego: Browndeer Press.
 - Sowler, S., Lindsay, R., Gedye, J., & Young, J. (1992). *Amazing animal disguises*. New York: Knopf.

- plain computer paper
- markers/crayons

Objectives: The student will be able to demonstrate how animals adapt to their environment to get their food, hide themselves, migrate and move around their habitat. The student will also be able to explain the terms structural adaptation and behavioral adaptation and give examples of structural and behavioral adaptations of animals. The student will also compare the information of several texts on the same topic.

Introduction: Have students reflect over the prior lesson. Ask questions such as “What is an adaptation?” and “What examples can you list of animals adapting to their environment?” List their examples on the board under two columns: one being structural adaptations and one being behavioral adaptations. Do not title the chart yet. Instead have students try to predict what the adaptations have in common under the columns and give the columns appropriate titles. Explain that structural adaptations are characteristics of an animal’s body that help it to survive and that behavioral adaptations are actions animals take in order to survive in their environment. Explain to students that they will be discovering different examples of structural and behavioral adaptations of animals through activities at different stations.

Activity/Procedure: Prior to releasing the students to the stations, place the students into 5 groups. Each group will begin at a different station. Explain to the students what they will be doing at each station and what type of adaptation they will be looking at. Remind students of the expected behavior for this lesson. Each station requires students to complete some sort of activity related to both structural or behavioral adaptations and answer questions in their science journals. A list of the questions for each station are provided on a separate sheet; make copies of this paper, one for each child, and have them paste the questions on separate pieces of paper in their journals to go along with their answers. Each station should take approximately 10 to 15 minutes.

- **Can You Find Me? Station:** Students will look through the 4 books provided at the station to find the animals hidden within the pictures. If less than 5 students are in a group, each student can use a book by themselves. By answering the following questions in their science journals, students will analyze what makes the animal seem hidden and think of animals they know that use these same kinds of adaptations.
 - Are these adaptations an example of structural or behavioral adaptations?
 - In the arctic (snow), what hid the animals the best?
 - In the forest, what hid the animals the best?
 - In the grass or pasture, what hid the animals best?
 - In the desert, what hid the animals the best?
 - What other animals can you think of that use their coloring or body structure to hide themselves? Describe its adaptation.

- **Can You Hide Me? Station:** Students will take turns on the website creating either a predator or prey and hiding it. By answering the following questions, students will discover why animals hide themselves.
 - Are these adaptations an example of structural or behavioral adaptations?
 - What happens if your animal is well hidden? Why?
 - What happens if your animal is not well hidden? Why?
 - Why do animals use camouflage? How are they adapting?
 - What other predators can you think of that use camouflage to hide from their prey? Describe.
 - What other prey can you think of that use camouflage to hide from their predators? Describe.

- **How Do I Move? Station:** Print off each of the pictures listed under the materials section for this station. Number each of the animal pictures and letter each of the habitat pictures so students can more easily match the animal pictures to habitat pictures. Students will look at each picture of animal structures and determine which habitat they are adapted for. Students can work together in their groups to match the pictures. Answers will be recorded in their journals. By answering the following questions, students will discover how animals adapt to move around in their environments.
 - Are these adaptations an example of structural or behavioral adaptations?
 - What physical feature(s) is(are) helpful to have if an animal lives in the water? Why?
 - What physical feature is helpful to have if an animal moves through the air? Why?
 - What physical feature is helpful to have if an animal lives in the trees? Why?
 - What physical feature is helpful to have if an animal lives in the mountains? Why?
 - What physical feature is helpful to have if an animal lives in the grassland? Why?
 - How have humans adapted to move around in our environment?

- **What Can I Eat? Station:** As preparation, place the beads, toothpicks, and pennies into separate pie pans. Lay out the clothespins, chopsticks, tweezers, and spoons to the side along with the cups. Students will be assigned to one type of bird based on the type of beak they use; the student will be a spoon bird, clothespin bird, chopstick bird, or tweezers bird. There are enough materials for there to be two of each bird in the group, depending on the size of the groups. Students will simulate birds eating by using the spoons, clothespins, chopsticks, or tweezers in their hands to eat bugs (pennies), seeds (beads), or worms (toothpicks) and place them in the belly of the bird (the cup). Students will try picking up the different foods with their beaks and choose which food their bird is adapted to eating best based on how the beaks work. Students can look through the provided books to see actual bird beaks and what they are adapted to eat.

By answering the following questions, students will discover the purposes of the different beak shapes and how they help the birds eat.

- Are these adaptations an example of structural or behavioral adaptations?
 - Which type of beak did you have? What food was your beak adapted to eating?
 - Does the shape and size of a bird's beak determine what it can eat? How?
 - What specific birds can you think of or find in the books that have special beaks to help them eat? Name the animal and describe its unique adaptation.
 - Why can a variety of bird live within the same habitat? How does the food supply not run out?
- **Why Do I Move? Station:** Students will analyze a map of the great Monarch Butterfly migration north during the spring. The animated map will be pulled up on a computer and students will notice how sightings of the butterflies continue to move north as spring moves forward and temperatures get warmer. Students will analyze the map and discuss with their group why they believe the butterflies migrate north. They will read about the butterfly migration in several books and make conclusions about why the butterflies migrate. By answering the following questions, students will discover that monarch butterflies migrate north to reproduce and live in warmer temperatures in order to survive.
- How would you define the word migration?
 - Is migration an example of a structural or behavioral adaptation?
 - What information did you gather from observing the map?
 - What information did you gather from reading the book?
 - Why do Monarch Butterflies migrate north in the spring?
 - What other animals do you know of that migrate? Why do they migrate?

Extension Activity: Students may browse through the 6 books listed in the materials section to research further about the adaptations they learned about and others they did not. If students would rather create something, ask them to create a butterfly that could be camouflaged somewhere in the room. Ask them to recall what they learned in the Can You Find Me? and Can You Hide Me? stations to make sure that their butterfly is well hidden. Once students have completed their butterflies, have them hide them throughout the room and ask students to search for them to rate how well the student camouflaged the butterfly.

Students with Disabilities: Some students may be colorblind and unable to see the camouflage of the animals or distinguish colors easily. Allow these students to work with partners to help explain what the pictures are and how the coloring helps to hide the animals. If the class cannot handle doing the stations without the teacher's constant aid, the stations can be broken up into mini lessons spread across several days.

Closure: Ask students to name specific examples of behavioral and structural adaptations they discovered in the stations. Have students get out their KWL. Have the students review the W column about what they wanted to know. See if any of their questions have been answered and discuss questions that have not. Have them fill out the L column about what I learned section. Discuss with a partner what they learned and have the partners report to their class about their partner's new found knowledge. Explain to the students that the class will be taking a field trip to Wesselman Nature Society to learn more about animal adaptations. Don't forget to wear your socks and tennis shoes!

Questions for the Stations:

Can You Find Me? Station:

1. Are these adaptations an example of structural or behavioral adaptations?
 2. In the arctic (snow), what hid the animals the best?
 3. In the forest, what hid the animals the best?
 4. In the grass or pasture, what hid the animals best?
 5. In the desert, what hid the animals the best?
 6. What other animals can you think of that use their coloring or body structure to hide themselves? Describe its adaptation.
-

Can You Hide Me? Station:

1. Are these adaptations an example of structural or behavioral adaptations?
 2. What happens if your animal is well hidden? Why?
 3. What happens if your animal is not well hidden? Why?
 4. Why do animals use camouflage? How are they adapting?
 5. What other predators can you think of that use camouflage to hide from their prey? Describe.
 6. What other prey can you think of that use camouflage to hide from their predators? Describe.
-

How Do I Move? Station:

1. Are these adaptations an example of structural or behavioral adaptations?
 2. What physical feature(s) is(are) helpful to have if an animal lives in the water? Why?
 3. What physical feature is helpful to have if an animal moves through the air? Why?
 4. What physical feature is helpful to have if an animal lives in the trees? Why?
 5. What physical feature is helpful to have if an animal lives in the mountains? Why?
 6. What physical feature is helpful to have if an animal lives in the grassland? Why?
 7. How have humans adapted to move around in our environment?
-

What Can I Eat? Station:

1. Are these adaptations an example of structural or behavioral adaptations?
 2. Which type of beak did you have? What food was your beak adapted to eating?
 3. Does the shape and size of a bird's beak determine what it can eat? How?
 4. What specific birds can you think of or find in the books that have special beaks to help them eat? Name the animal and describe its unique adaptation.
 5. Why can a variety of bird live within the same habitat? How does the food supply not run out?
-

Why Do I Move? Station:

1. How would you define the word migration?
2. Is migration an example of a structural or behavioral adaptation?
3. What information did you gather from observing the map?
4. What information did you gather from reading the book?
5. Why do Monarch Butterflies migrate north in the spring?
6. What other animals do you know of that migrate? Why do they migrate?

Human and Non-Human Impact on Animals

Name: Melanie Potts, Breana Ranes, Melanie Hay

Grade: 4th grade

Indiana Academic Standards:

Science:

4.3.3 Design investigations to explore how organisms meet some of their needs by responding to stimuli from their environments.

4.3.4 Describe a way that a given plant or animal might adapt to a change arising from a human or non-human impact on its environment.

Writing:

4.5.1 Write narratives

Teacher Materials:

- Video from PBS. <http://video.nhptv.org/video/1492029890>
- Computer
- Internet access
- 3 Feathers
- 4 Pie pans
- Simulated oil in a container with tight lid (8 tsp of black tempera paint mixed with ½ gal. of vegetable oil)
- Dishwashing soap
- Cold water
- Hot water
- 2 pitchers

Student Materials:

- Science journals
- Pencil
- Paper

Objective: Students will be able to recognize ways that animals have changed due to human and non-human impact.

Introduction: “How would you survive if all of the technology (cell phones, TV’s, computers, and video games) vanished from your neighborhood?” This is to engage students into a discussion of how animals adapt to change in their environment. “What would you do, and what would you call this change? Listen to student responses. “Those are some great ways to adapt to a change in your environment.”

Activities/procedures:

1. “Now we are going to watch a video on how animal habitats are destroyed or altered. You will learn what happens to animals when their habitat changes and how they have to adapt to this change. You will need to pay attention during the movie so it can help you write a narrative.”

- Start the movie for the students
 - While the class is watching the video collect your materials and place them at a table in the back of the class or an available area. Place the pie pans and feathers on a table and the oil (paint and oil), and water on a table next to you (so the students can't reach it).
2. When the movie is finished ask students to share with a partner what the movie was about and how they think we impact animal habitats (for about five minutes). Then write some of their ideas on the board.
 3. "Now we are going see how oil spills effect birds and animals with feathers. I have some pie pans set up and I'm going to put oil on a feather to see what it is like to get the oil of the feather. I have cold water, warm water, and dish soap with water. What do you think will be the best method to remove the oil from the feather?" Listen to responses and make a list of how many people choose each method on the board.
 4. Go to your demonstration area where you set up the activity. "Now if everyone can come back and find a spot where they can see.
 - Add oil to the first pie pan
 - Add cold water to the second pie pan
 - Dip a feather in the oil pan and then put it in the cold water pan
 - Try to get the oil off
 - Add the hot water to the second pie pan and dip a feather in the oil and put it in the hot water pan trying to get the oil off
 - Add cold water and dish soap to the last pie pan
 - Dip the last feather in the oil and try and get the oil off by putting it in the soap and water pie pan

Ask the students why the soap and water method worked best. Why do they think an oil spill effects ocean life and why? How do they think the animals feel, do you think they can breathe with oil all over them? Write their responses on the board next divided from the movie responses.

5. "Now you have learned how humans and nature have impacted the environment. I would like everyone to get their science journals out and write a narrative over the video and demonstration. Include how humans and nature have impacted animals. Remember all of the ways the movie explained and you can use the oil and feather activity we just did. You can add how you reacted if you didn't have technology and how the animals may feel when their environment changes. Allow me to see what it would be like to have to adapt to a change in environment." Remind them "they can reference the answers on the board for help."

Extension Activity: "If you finish early, write down some ways that our class can help the environment. The best idea that the class comes up with will be a new project the class will do to help the environment."

Students with Disabilities: If students are struggling with writing the narrative you can give those students ideas to start with. Ex. Start a story web to get them started; have them write from one of the animals perspectives etc.

Closure: Now you understand how animals adapt to change and why it is important to adapt for survival. Remember plants and animals as you are entering their habitats.

Annotated Bibliography

Lesson 1: Introducing Adaptations

Book for First Lesson:

Jenkins, Steve, and Robin Page. *What do you do with a tail like this?*. Boston: Houghton Mifflin, 2003. Print.

Summary: Physical features of animals are discussed along with the purpose the adaptations serves for the animal.

Resource for First Lesson:

Earth Floor: Adaptation. (2005, April 28). *Exploring the Environment*. Retrieved July 10, 2011, from www.cotf.edu/ete/modules/msease/earthsysflr/adapt.html

Summary: The idea for the introduction of the first lesson was used in reference to this site.

Lesson 2: Adaptation Stations

Books for Can You Find Me? Station:

Coldrey, J., & Morrison, K. (1986). *Hide and seek*. New York: Putnam.

Summary: Different habitats are highlighted and the predators and prey that use camouflage to hide.

Ganeri, A., & Verrinder, H. (1995). *Animals in disguise*. New York, N.Y.: Little Simon.

Summary: Readers learn about different animals that use camouflage and how it helps them to survive. Illustrations of the animals are on see-through pages to allow the animals to be easily seen.

Helman, A., & Jecan, G. (2008). *Hide and seek: nature's best vanishing acts*. New York: Walker & Co.

Summary: Highlighted in this book are various habitats and the animals within them that use camouflage. Information about how the animal uses its camouflage in the habitats is provided.

Schwartz, D. M., Schy, Y., & Kuhn, D. (2007). *Where in the wild?: camouflaged creatures concealed-- and revealed : ear-tickling poems*. Berkeley: Tricycle Press.

Summary: Readers strive to find the camouflaged animals hidden in each amazing photograph. Poetic verses about the camouflage along with supplemental information about the animal are included.

Books for What Can I Eat? Station:

Greenway, T. (1995). *Head to Tail Beaks and Noses*. Austin, Texas: Raintree Steck-Vaughn Publishers.

Summary: Different types of noses and beaks are exemplified and demonstrate how animals adapt to their environments. For each nose or beak action, different animals are exemplified.

Miller, S. S. (2003). *Woodpeckers, toucans, and their kin*. New York: Franklin Watts.

Summary: Woodpeckers, toucans, and other piciform birds are highlighted and described by their habitat and physical features.

Resource for What Can I Eat? Station:

Bird Beaks. (n.d.). *Illinois Institute of Technology | Office of Technology Services*. Retrieved July 14, 2011, from <http://mypages.iit.edu/~smile/bi9407.html>

Summary: This site outlines the lesson used in the bird beak station.

Website for Can You Hide Me? Station:

Walking with Beasts - Kids Corner. (n.d.). *ABC.net.au*. Retrieved July 13, 2011, from <http://www.abc.net.au/beasts/playground/camouflage.htm>

Summary: Students create a predator or prey and try to camouflage the animal by choosing appropriate habitat, animal coloring, animal shading, and animal pattern.

Books for Why Do I Move? Station:

Carney, E. (2010). *Great migrations: whales, wildebeests, butterflies, elephants, and other amazing animals on the move*. Washington, D.C.: National Geographic.

Summary: Vivid photographs and interesting facts detail the migrations of whales, wildebeests, butterflies, elephants, red crabs, jellyfish, zebras, and ants.

Rylant, C., & Davis, L. (2006). *The journey: stories of migration*. New York: Blue Sky Press.

Summary: With detailed illustrations and text, the migration stories of locusts, whales, eels, butterflies, caribous, and tern are detailed.

Sayre, A. P., & Berenzy, A. (1998). *Home at last: a song of migration*. New York: Holt.

Summary: Described are the ways animals such as butterflies, sea turtles, and caribou migrate home.

Website for Why Do I Move? Station:

Monarch Butterfly Migration, Spring 2011. (n.d.). *Learner.org*. Retrieved July 14, 2011, from http://www.learner.org/jnorth/maps/galleries/2011/monarch_an_spring2011.html

Summary: This map illustrates the points of first sightings of adult monarch butterflies on their journey north during spring.

Books for Extension Activity of Lesson 2:

Coldrey, J., & Goldie-Morrison, K. (1986). *Danger colors*. New York: Putnam.

Summary: Photographs and accompanying text explain how some animals use coloration as a way of protecting themselves from enemies.

Fullick, A. (2006). *Adaptation and competition*. Chicago, Ill.: Heinemann Library.

Summary: In-depth discussion about specific animal adaptations such as feeding methods, migration, and adaptations to climate along with how competition among species is included.

Knapp, D. B. (2003). *Adapting and Surviving V. 19*. Danbury, CT: Grolier Educational.

Summary: Plant adaptations for survival are focused along with some animal adaptations on based on their habitat.

Marsh, L. (2010). *Animal Journeys*. S.I.: National Geographic.

Summary: With vivid photographs and interesting facts, this book details several animals' great migrations.

Simon, S., & Warnick, E. (2000). *They walk the earth: the extraordinary travels of animals on land*. San Diego: Browndeer Press.

Summary: Detailed are the movements and migrations of varying species across different conditions of land.

Sowler, S., Lindsay, R., Gedye, J., & Young, J. (1992). *Amazing animal disguises*. New York: Knopf.

Summary: Categorized by adaptation type, this book takes a look at ways animals use disguises to hide themselves as predators or prey.

Lesson 3: Human and Non-Human Impact on Animals

Video for Lesson 3:

Life At Risk. Dir. Scott Jones. Perf. Patrice Forrester, Dave Erler. PBS, 2010. Film.

Summary: This video describes ways in which humans change the environment and its detrimental impact on plants and animals.

Resource for Lesson 3:

Kauble, Christena. "Oil Spill Cleanup." *Taylor & Francis Online* 48.1 (2010): 9-12. *Taylor & Francis*. Web. 13 July 2010.

Summary: This site outlines activities teachers can implement in their classroom about oil spills.