

Jennifer Stirling

Science Inquiry Station

Teaching 11/25/14

## Adaptation and Survival: Inquiry Centers

### 1. Basic Information:

-Grade: 5<sup>th</sup>

-Time Allotted: 1 Hour

-Standards to Cover (GLCEs):

- **K-7 Standard L.EV:** Develop an understanding that plants and animals have observable parts and characteristics that help them survive and flourish in their environments.
- **L.EV.05.11** Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.
- **L.EV.05.12** Describe the physical characteristics (traits) of organisms that help them survive in their environment.

-Learning Goals/Objectives:

- Students will gain an understanding, through inquiry at stations, of how plants and animals adapt to their environment in order to survive.
- Students will communicate and collaborate with group members in order to complete each station's task and acquire knowledge.

### 2. Materials Needed:

-Inquiry Packet for Each Student

-Explanation/Directions of Each Station

-Different Objects for Students to Pick Up

-Different Tools for Students to Use as "Beaks"

-Books with Information on Migration and Hibernation

-Various Plants

-Cutout of Animal and Background to Camouflage

-Technology

-Images of Similar Animals that Use Mimicry

### 3. Teacher Preparation:

-The teacher must have a great knowledge of adaptation and how animals and plants change to survive.

-Teachers must plan ahead to gather all the materials needed.

4. **Introduction:** To begin the inquiry time, I will address prior knowledge by engaging the students in a conversation of adaptation. What is adaptation? Do we as humans adapt? What do we adapt to? I will then give an explanation on each station and allow them to begin working. As the teacher, I will be observing each station, to interact and hear the communication of the groups.

- 5. Station #1: Two Types of Adaptation – Structural/Physical Adaptation:**
  - a. Students will be presented with different objects to try and pick up using different tools. The students will then apply this knowledge to birds and how their beaks have adapted over time to different food sources. Students will then answer questions and draw beaks in their inquiry packets.
  
- 6. Station #2: Two Types of Adaptation – Behavioral Adaptation:**
  - a. Students will be presented with different trade books to read, providing them with information on migration and hibernation of different animals. Students will find interesting facts pertaining to these topics and write them in their inquiry packets.
  - b. Books can include: *Fitting In: Animals in their Habitats* by Gilda & Melvin Berger, *Animal Adaptations* by Peter Winkler, *How Do Animals Adapt?* by Bobbie Kalman, and *Surviving: How Animals Adapt to Their Environment* by Alessandro Minelli.
  
- 7. Station #3: Plant Adaptation in Response to the Environment:**
  - a. Students will be presented with a plant that has adapted to its environment. They will use the information provided to identify parts, draw them, and then explain how these parts helped it adapt in their inquiry packets.
  
- 8. Station #4: Plant Adaptation in Response to Predators:**
  - a. Students will be presented with a cactus (or cactus like plant) that has clearly adapted to become more protected. Students will observe the plant and discuss with their group this form of protection and how other plants may adapt to protect themselves. They will then write about their conversation in their inquiry packets.
  
- 9. Station #5: Camouflage – A Form of Animal Adaptation for Protection:**
  - a. Students will use their technology to play a fun “hide and seek” type game on the Internet.  
-Resource:  
<http://www.sheppardsoftware.com/content/animals/hidden%20animals/Hidden%20Animals.htm>
  - b. They will then answer questions on the purposes of camouflage, such as protection and hiding, in their inquiry packets.
  
- 10. Station #6: Mimicry – A Form of Animal Adaptation for Protection & Predation:**
  - a. Students will examine different examples of mimicry and what/why mimicry is used to survive. The distinction between camouflage and mimicry will be addressed, and students will express their understanding in their inquiry packets.
  
- 11. Closure:** To conclude, I will check for understanding by asking about information that the stations covered. Students will be able to share interesting findings, definitions, etc. Packets will be collected, checked for understanding, and returned as a resource for the students.

## **12. Reflection:**

After the lesson, I talked with Mrs. Rodriguez about how it went. She was very happy with my confidence and overall presence in the classroom. I felt very comfortable in the classroom, even though it was a class full of students I had never met. Mrs. Rodriguez also added that she really liked how I walked around and helped all the centers. Mrs. Rodriguez did not offer any criticisms, but I felt that I could have been a bit more prepared. However, if I have learned one thing from this placement, it is that you have to be flexible.

The students that I asked said they enjoyed the stations, especially because they got to get active in the classroom, which is rare these days. The class was able to make very clear observations about plants and animals and how they survive in their environment. The cacti that I brought in were a huge hit, as students could observe or touch them and see how they protect themselves to survive. Another big hit was the incorporation of technology in the stations, with an interactive game allowing students to find animals in their camouflage. This helped them learn physical characteristics and how these structural adaptations help the animals.

Personally, I thought the lesson went rather well. Looking over their packets, it was clear that the students were more interested in the activity at the station than answering the questions. Also, it was very obvious that the students had very little background knowledge on the topic, which made the guides more difficult to fill out. Hopefully, even though their assessment may not show their knowledge, they gathered a basic understanding of adaptation from the lesson, that Mrs. Rodriguez can then build off of. Overall, the lesson went well, and everyone, including me, was happy with the result.

# Station #1:

- Use the tools provided to try and pick up the objects in the tray.
- Can you crack the seeds?
- What does this mean for birds when they pick up their food?  
What type of beak will they need?

## **Station #2:**

- Read sections of the books you find interesting.
- Discuss/write down your findings.

# Station #3:

- Examine the plant.
- What do you notice about its leaf structure? Do they look like mini-umbrellas? What does that mean about the source of water?
- What if I told you this plant was going to turn purple? Would that help or hurt the plant in its environment?
- Draw the plant and answer the questions.

# Station #4:

- Examine the plant.
- What do you notice about it? What type of plant is it?
- What are some physical characteristics that help protect the plant?
- Think about other types of plants that adapt to protect themselves.

# Station #5:

- Go on your Chromebook and go to the following website:

<http://www.sheppardsoftware.com/content/animals/>

- Feel free to play multiple different animal groups. What are these animals doing? What type of adaptation is this?
- Examine the similar images. Can you find the animals?



## **Station #6:**

- Examine the images.
- What are these animals doing? Why does that help them?

**What is adaptation?** \_\_\_\_\_

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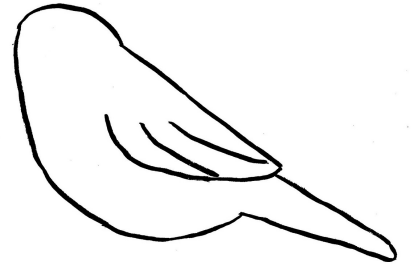
**What are the two types of adaptation?**

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**Station #1: Draw the beak on the bird.**

What type of beak would a bird need to eat sunflower seeds?



What type of beak would a bird need to catch small animals, like mice or rabbits?



What type of beak would a bird need to eat worms?



**Station #2: Use the provided books to answer the questions.**

What types of animals migrate? \_\_\_\_\_

What types of animals hibernate? \_\_\_\_\_

Describe an animal in the book and it's experiences with either migration or hibernation: \_\_\_\_\_

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**Station #3: Observe the plant and answer the following questions.**

What type of environment do you think this plant is from?

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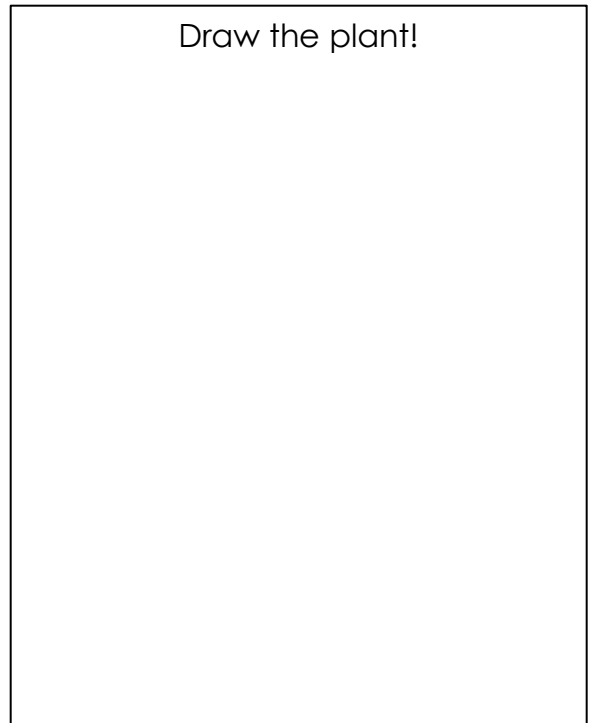
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Why do you think that? \_\_\_\_\_

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Draw the plant!



**Station #4: Observe the following plant and answer the questions below.**

What has the plant developed in order to stay protected?

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What other ways can a plant stay protected from predators?

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**Station #5: Examine the provided images/games and locate the camouflaged animals.**

How does an animal camouflage him- or herself?

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Is that a structural or behavioral adaptation? \_\_\_\_\_

What is *protective coloration*? \_\_\_\_\_

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How is that different from *protective resemblance*?

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**Station #6: Looking at the images provided, answer the following questions.**

What is *mimicry*? \_\_\_\_\_

\_\_\_\_\_

Looking at the poisonous snake, how can another type of snake use mimicry to protect them? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Draw that newly adapted snake below:

