BASIS Lesson Plan

Lesson Name: Habitat Hunt: Where Do Animals Live and Why?

Grade Level Connections:

Next Generation Science Standards: Grade 1, Life Science (1-LS1)
FOSS Next Generation Edition: Grade 1, Life Science (Plants and Animals)

**Note to teachers: Detailed standards connections can be found at the end of this lesson plan.*

Teaser/Overview

Animals come in all shapes and sizes, from elephants to ants, and they live in habitats as diverse as frigid mountaintops, the depths of the ocean, and lush rain forests. In this hands-on lesson, students will learn how an animal's body is suited to the environment where it lives. Through close observations at three hands-on interactive stations, students will make connections between an animal's adaptations and the habitat it lives in.

Lesson Objectives

- Students will understand that there are different traits, which make animals different from one another, along with different habitats where they might live.
- Students will explore the different things that animals need to survive – food, water, shelter, and protection from predators.
- Students will participate in the scientific process by making observations, asking questions, and making hypotheses.

Vocabulary Words

- **Habitat:** Where an animal lives
- **Survive:** Staying alive in a habitat
- **Trait:** Something we can see or observe about an animal as a way to describe it (for example, how big an animal is, whether it has fur or not, what type of food it eats)
- **Hypothesis:** A guess based on things we already know and past things we have observed; your hypothesis can either be rejected or supported.

Materials

Volunteers will bring:

Laminated images of different habitats (rainforest, desert, & arctic)
Laminated images of polar bear, monkey, camel
Station #1
- Laminated image of giraffe
- Laminated images half animals, 6 halves (10 sets)
- Ziploc bags (10)

Station #2
- Habitat Contrast sheets (4 habitats each) (10)
- Ziploc bags, each with plastic animal #1 (10) (repeat for 5 different animals)

Station #3
- Laminated images of different bird species (hummingbird & bald eagle)
- Tweezers (11), Spoons (11), Pipettes (11)
- Tubs filled with seeds (5), Tubs filled with plastic worms (5), Tub filled with water (optional)
- Plastic cups (12)

Teachers should provide:

Students should have paper and pencils ready.

Classroom Set-Up

Students should be seated at the central classroom carpet for the introduction to the lesson. Students should then be divided into three groups and each group will rotate through three stations, so please have desks grouped into at least three stations where one third of the class and a BASIS volunteer can comfortably fit. At the end of the lesson, students should then go back to the carpeted area. It would be helpful if students wear nametags during the lesson.

Classroom Visit

1. Introduction (12 minutes)

Role Model Introduction:

Being a role model for students is an important part of being a BASIS volunteer. Begin your lesson by introducing yourselves! Every team member should take a moment to explain who they are and what they study/do as a scientist. A bonus will be to tell your "story," as if giving an elevator pitch to 7-year-olds: Why did you become a scientist? What made you interested in your topic? Why should students relate to you, or be interested in you? And remember, you can also weave your

story throughout your lesson through examples from your own life, and/or return to it with Q&A at the end.

Topic Introduction:
After you introduce yourselves as role models, take some time to introduce the topic of this lesson: *animals and their habitats*. It may be helpful to keep the suggested take-away in the back of your mind throughout the lesson: **the traits of an animal are specific to the habitat where that animal lives because those traits help it to survive.**

Your topic introduction should follow the outline below. As much as possible, try to frame this information as questions posed to the class, rather than as a lecture. This helps activate students' prior knowledge and facilitate student-guided conversation.

- Today we are going to talk about animals and where they live!
- We want everyone to close their eyes and think of their favorite animal.
- Don't tell us the name of your animal just yet! Think of some words that you would use to describe that animal. Is it big or small? What color is it? Does it have fur, feathers, or scales? Does it have wings?
- Turn to the person next to you and describe your animal using these words. See if your partner can guess the name of your animal without you telling them!
- Was your partner able to guess your animal? The words you used to describe the animal to your partner has a specific science definition – **Trait**. [Write on board]
- Where does your favorite animal live? [Call on a few students to gather a variety of places]
- Different animals live in different places. The area where a specific animal lives is called its **habitat**. [Write on board]
- Show pictures of different habitats. Ask students to describe what each habitat is like. [Hot or cold; dry or wet]
- Show students a picture of a polar bear in the jungle and a monkey in the arctic.
- See how students react to these images. What's wrong with this? Why doesn't this make any sense?
- Why do you think different animals look different in different habitats? Do you think that an animal that lives in one habitat could live in a different habitat?
- An animal has traits that help it to **survive** in its habitat. [Write on board] Survive just means to stay alive.
- We're going to do some science activities to help us understand the traits of animals, their habitats, and the reasons for why they may have those different traits!

Teaching Tip: Say, Write, Show

- Bring in photos and props to illustrate the topic intro
- Write new vocabulary words, key terms, and brainstorm lists on the board
- Refer back to the board to engage visual learners and English Language Learners

2. Learning Experience (33 minutes)

Students will be split into three groups. Each group will start at one of three stations set up around the room, and rotate every 10 minutes. At each station, a BASIS volunteer will lead an activity to explore animals and their habitats. An additional BASIS volunteer will keep time and offer support to the other stations as needed. Remember that all three of these stations are designed to address the take-away in a particular way: **the traits of an animal are specific to the habitat where that animal lives because those traits help it to survive.**

Classroom Management Tips: Station Rotation

- Keep students from getting too restless by moving them through stations
- It helps to keep things orderly. When it's time to rotate, have the leader announce that all students should stand up in place and NOT MOVE until you say so; point out where each group will move to; confirm that everyone understands; THEN instruct students to move to the next station.
- Have a volunteer keep time and tell station leaders to wrap up at 9 minutes.
- Ask the teacher if you need help!
- Remember that students might visit your station first, second, or third: don't assume prior knowledge from another station!

Station 1: The "Liopus" and other mystical creatures

1. Engage students in a conversation about the different traits of an animal and the different things they need to survive.
    a. Show students an image of a giraffe [or whatever animal you'd like].
    b. Prompt students with some guiding questions: "What do you need to survive?" [food, water, shelter, safety] "Do you think animals need similar things?" "What does this animal need to survive?" "What traits help it to survive?"
2. Do the Mystical Creature Trait Activity
    a. Give each student a bag filled with the same 6 half animal laminated images.
    b. Have the students chose 2 halves to make a new complete animal (must be one front and one back).
    c. Have each student come up with a new name for their mystical creature that is the combination of the two animal names. Model this for students. (e.g. Lion and Octopus together could be "Liopus")
    d. Which trait helps the animal to survive the weather? Have students go around and share. Repeat with the following questions.
    e. Which trait helps the animal move through its habitat?
    f. Which trait helps the animal get enough food?
    g. Is there a habitat where your animal would NOT be able to survive?

3. Connect the activity to the big picture
    a. Invite students to reflect what we can learn about where an animal might live by observing the traits of that animal.
    b. Emphasize the overall takeaway of the station: Animals have many different traits based on the habitat where they live and the other animals that live there.
    c. Emphasize the overall takeaway of the lesson: **the traits of an animal are specific to the habitat where that animal lives because those traits help it survive.**

Station 2: Different habitats, Different animals

1. Engage students in a conversation about the differences between habitats
    a. Show students an image of the arctic and an image of a rainforest
    b. Prompt students with some guiding questions: "Has anyone ever been to the arctic?" "What are some things we know about this place?" "Has anyone ever been to a rainforest?" "What are some things we know about a rainforest?"
2. Do the Habitat Matching Activity
    a. Hand out one "Habitat Contrast" sheet to each student that has side-by-side images of four habitats.
    b. Instruct students that in a moment, they will be making a **hypothesis** about where different animals live. Define **hypothesis**.
    c. Model the activity with an example animal. Check for student understanding.
    d. Hand a small plastic animal figurine to each student. Don't look at the animal until everyone gets theirs.
    e. Okay, now open your hand and put the animal in the habitat where you think it lives!
    f. Discuss how they were able to sort their animals. "Did everyone put the animal in the same habitat?" "Are there different ideas here?" "What is some of the **evidence** that you used to support your **hypothesis**?" "Were any animals particularly difficult to place into one habitat?"
    g. Repeat steps c through f for several plastic figurine animals.
3. Connect the activity to the big picture
    a. Invite students to reflect what we can learn about where an animal might live by observing the traits of that animal.
    b. Emphasize the overall takeaway of the station: Animals have specific traits based on the habitat where they live.
    c. Emphasize the overall takeaway of the lesson: **the traits of an animal are specific to the habitat where that animal lives because those traits help it survive.**

Station 3: Similar animals, one trait difference

1. Engage students in a conversation about differences between similar animals
    a. Show students an image of a hummingbird and an image of an ostrich.
    b. Prompt students with some guiding questions: "What type of animals are theses?" They're both birds. "How do you know they're birds? What are some similarities?" "What are some differences?" Those differences are the **traits** of an animal. One of the specific traits of birds are their beaks. What do they use those for? [Eating!]
2. Do the Trait Matching Activity
    a. Show students the different objects that they will be able to choose from in this activity (tweezer, pipette, paper clip, spoon, fork). Each of these objects represents the beak of a bird. These beaks are one of the traits of the animals the birds.
    b. Instruct students that in a moment, they will be making a **hypothesis** about which trait, specifically the bird beak, would be the best for eating a specific type of food found in a **habitat**. Define **hypothesis**.
    c. In our first habitat there are only trees that produce seeds (show tubs of seeds).
    d. Which beak would a bird need to have in order to live in this habitat? Have each student make a hypothesis.
    e. Discuss how they were able to make their hypothesis. "Did everyone choose the same trait?" "Are there different ideas here?" "What is some evidence that you used to support your hypothesis?"
    f. Hand out a beak that the students DID NOT choose. Have them try and "eat" some food with their beak. Discuss how successful the students were.
    g. Collect the tools. Now distribute the beak model that the students DID choose. Have them try and "eat" some food with this beak now. Discuss how successful the students were.
    h. Repeat activity with different food sources [if time allows]
3. Connect the activity to the big picture
    a. Invite students to reflect what we can learn about where an animal might live by observing the traits of that animal.
    b. Emphasize the overall takeaway of the station: Animals have specific traits based on the habitat where they live, specifically related to the types of food that are available in that habitat.
    c. Emphasize the overall takeaway of the lesson: **the traits of an animal are specific to the habitat where that animal lives because those traits help it survive.**

3. Wrap Up: Review and Discuss the Learning Experience (5 minutes)

Have students rejoin you on the carpet for a wrap-up discussion.

- What is a **habitat** and what is an animal **trait**? Review of vocabulary words.
- What did we learn at station 1, 2, & 3?
- Prompt students to think about what other questions they would investigate in the future to figure out what animals live in a certain habitat and why they have certain traits.

4. Connections & Close (5 minutes)

Connections to the real world around students:

- What are some of the animals that live in the city around you? What animals make the East Bay their habitat? What are some of their traits?
- Are having different habitats important? (Yes, different animals live in different habitats and they can only survive in their specific place)
- If that's the case, then what can we do to try and make sure those habitats stay healthy for the animals that live there?

If possible, tie lesson back into your research or role model story.

Close:

- Reiterate for students that science helps us learn about animals, their traits, and their habitats.
- Ask students if they have any questions about science or being a scientist
- Close with a good bye and a thank you, and encourage the kids to keep thinking about the animals they see around them every day!
- Don't forget to help clean up!

Follow Up: After the Presentation

Teachers who wish to extend the impact of this lesson may find the following CRS web pages useful:

- http://www.crscience.org/educators/helpfulreports
- http://www.crscience.org/educators/treasuretrove

Standards Connections

NGSS:

- Connections by topic
  - Life Science: 1. Structure and Function
- Connections by disciplinary core ideas
  - Life Science: 1-LS1. From Molecules to Organisms: Structure and Processes
- Connections by scientific & engineering practices
  - 4. Analyzing and interpreting data
  - 6. Constructing explanations and designing solutions
  - 7. Engaging in Argument from Evidence
- Connections by crosscutting concepts
  - 1. Patterns.
  - 6. Structure and Function: Determine properties of things
- Connections by performance expectation
  - 1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

FOSS Next Generation Edition: Grade 1 Life Science: Plants and Animals Module