A DESERT HABITAT

An Elementary Science Lesson Plan

Designed For Group Inquiry

Based On The 5E Inquiry Model

GRADE LEVEL: This is a fifth grade science lesson. Students in fifth grade are learning plants and animals have specialized structures to support the transport of materials. Students will add to what they have learned in previous grades about the external characteristics and adaptations of plants and animals.

SCIENCE CONCEPT: This lesson explores the concept of diversity of organisms. Students will explore the desert habitat and the animals and plants that make this their home.

RELATIONSHIP TO CALIFORNIA SCIENCE CONTENT STANDARDS:

5 IE 6.a - Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.

LEARNING OBJECTIVES:

Students will identify structural characteristics that are used to separate plants into smaller groups by completing a classification chart.

EVALUATION IDEAS:

1. Formative: Teacher observes groups during the lesson providing scaffolding as necessary. Observe details of the notes students are taking for evidence of inquiry (students posing their own questions).

2. Summative: Classification key shows plants are classified correctly and based on structural characteristics, students compare and contrast two plants.

CONCEPTUAL BACKGROUND:

Plants and animals adapt to their surroundings. Evidence of where an animal or plant might live can be seen through observation and classification.

LESSON IMPLEMENTATION PLAN:

ENGAGE-Read *A Desert Scrapbook*: *Dawn to Dusk in the Sonoran Desert* by Virginia Wright-Frierson. (Included at back of binder)

Have students name some of the things found in the desert from the book reading. List these on the white board. Ask students for different ways these items could be categorized. For example: hard (rock, tortoise), soft (bunny), flies (buzzard, dove), does not fly (roadrunner), outer shell (palo verde pods, jojoba nut), no shell (prickly pear fruit, saguaro fruit).

State*: Certain plants and animals are found in certain habitats. What plants are found in the desert?*

Look at the plants on our list. How would you categorize these plants?

EXPLORE-

Classify a plant!

You are part of an expedition that is classifying plants in nature. You find a plant you have never seen before. How do you classify it? You can use a classification key. A classification key lists traits of organisms. It gives directions that lead you to the organisms' identities. Using the classification worksheet, classify the four plants.

Procedure:

1. Choose a plant and examine its structures with a hand lens.

2. Use the classification key to identify your plant. Start with the first pair of traits and choose the trait that belongs to your plant.

3. Repeat steps 1 & 2 until all plants have been classified.

4. Identify similarities/differences.

EXPLAIN-

Ask: *Our guest pets live in the desert. If we had a lizard or skink as a pet, of the four plants that you classified, which plant would you put in his home?*

Build a Terrarium group activity:

A desert terrarium can be built out of a large mayonnaise jar, two liter soda bottle, or other clear container.

1. Select and clean a container for the terrarium.

2. Place about 2 cups of sand onto the bottom of the jar/bottle.

3. Place a small cactus plant, a twig, and a small bottle cap filled with water in the terrarium.

4. Place the terrarium so it receives sunlight every day.

5. Your terrarium is ready for a small desert animal such as a lizard or horned toad.

6. Feed the animals live mealworms. These can be purchased from a local pet shop.

7. Keep the bottle cap filled with water.

8. Every two weeks, spray the inside with one or two squirts of water if the terrarium is dry.

State: *The terrarium is like the habitat we saw in the story. Organisms living in the terrarium must have their needs met. Observe our guest animal in its enclosure. How have its needs been met in the terrarium?* (shelter, water, food)

ELABORATE-

Using suggested books, information binder and/or the internet, complete the information chart about our guest lizard or skink. Create a poster.

EVALUATE-

Students will complete the classification key correctly classifying all four plants. Students will write at least two sentences comparing similarities and two sentences explaining differences between two plants.

DIFFERENTIATION PLANS:

Behavioral for Student A:

- Have expectations for student's behavior during each activity written on a separate note card or sticky note with well explained reward system for positive behavior. Give to

student at beginning of each transition activity. Assess student's understanding of assignment and clarify with specific instruction. Acknowledge and reward good behavior throughout the lesson. Send student on a quick errand (i.e. return/get a book from the library for you) if student appears to becoming disruptive.

Cognitive for Student B:

- Provide a diagram of the terrarium as a guide for student to follow. Provide a sheet with a picture of the four plants and their name that they can have at their desks while completing the classification chart. Student may also get out of desk to see/touch plants as needed for completion of chart. Check in with group often during "build a terrarium" activity to ensure understanding of requirements and that student is participating. Provide a list of websites for internet research of animal.

Cognitive for Student C:

- Gifted and Talented. Have student research additional information to include on poster such as animal's range (where it is found on earth) and its niche (interrelationships with other organisms).

Affective for Student D:

- Make the task relevant by engaging in a discussion of what habitats are and why they are important. Based on student's interest, habitats may include people as well as animals all over the world. Modify student poster assignment to appropriately challenge student such as with gifted/talented.

Language Demands for Students E, F, G:

- speak clearly and slowly
- use short sentences with simple syntax
- use word wall with photos for academic vocabulary

- Student E:.Explicitly link content with student's background. Do they, or have they in the past owned a pet? Explain academic tasks clearly.

- Student F: Use a variety of techniques to make content clear such as hands on materials, gestures while reading story, demonstration of the habitat activity and internet video clips showing animal habitats.

- Student G: Include same language bi-lingual partner in groupings. Re-read story with student pointing out picture clues.

LIST OF MATERIALS (PER GROUP)

- hand lens
- four plants that live in differing environments (cactus, fern, geranium, elodea)
- terrarium container (large clear food jar, clear soda bottle)
- cactus plant
- bottle cap
- sand
- 11x14 poster paper (one per student)

- Classification Key (one per student)
- Information sheet (one per student)

DIRECTIONS OR SPECIAL INSTRUCTIONS; SAFETY CONCERNS, ETC.

Students can make their own habitat or work in groups.

If using soda bottle, cut an opening on the side about 3”x 3”. This will be the top.

Puncture several air holes in lids.

Habitat needs to be placed where it receives sunlight every day.

Cactus

Geranium

Fern

Elodea

Diagram of Food Jar Terrarium