

Grade 4	Lesson 5: Plant Survival	Reference to English Interconnections Lesson
Science Standard(s): Standard 5 Objective 1, Objective 2		
Content Objective(s):	Language Objective(s):	
<p>Students will cite examples of physical features that allow particular plants to live in dry climates and describe these adaptations on lab sheets completed with their partners and independently on their exit tickets.</p> <p><i>Puedo brindar ejemplos de adaptaciones que ayudan a las plantas a vivir en los desiertos y a describir estas adaptaciones con mi compañero en una hoja de laboratorio y por mi propia cuenta en una evaluación de salida.</i></p>	<p>Teacher objective Students will describe the adaptations of deserts plants that allow them to live in dry environments to their partner and on their exit tickets.</p> <p><i>Los estudiantes pueden describir las adaptaciones de las plantas del desierto que les permiten vivir en ecosistemas áridos a sus compañeros y en las evaluaciones de salida.</i></p>	
<p>Essential Questions:</p> <p>How are desert plants adapted to live in dry environments?</p>	<p>Required Academic Vocabulary for Word Wall: Listen: desiertos, adaptaciones, capa cerosa, espinas, almacenar Speak: desiertos, adaptaciones, capa cerosa, espinas, almacenar Read: desiertos, adaptaciones, capa cerosa, espinas, almacenar Write: desiertos, adaptaciones, capa cerosa, espinas, almacenar</p> <p>Sentence Frames: ¿De qué manera ____ (adaptación) ayuda a una planta a sobrevivir en el desierto? ____ (adaptación) ayuda a una planta a sobrevivir en el desierto ____. Otro ejemplo sería ____. Estoy de acuerdo/Estoy en desacuerdo porque ____.</p>	
<p>Materials:</p> <ul style="list-style-type: none"> • Exit Tickets • Aloe Vera Plant • Leafy Plant (house plant) • Desert Plant (cactus) • 2 bagsSandwich • 2 Twist Ties or String • 2 Sponges • Vaseline • Plastic Plate • Sock • Stuffing or Scrap Paper • Pipe Cleaners • Fuzzy Cloth • Lab Sheets 	<p>Additional Lesson Vocabulary: Various desert plants</p>	
Lesson:		Instructional Time: 50 min
<p>Before the lesson:</p> <ul style="list-style-type: none"> • Place a sandwich bag over some of the leaves on the green leafy plant and the cactus leaf and tie the bag down with a twist tie or string. • Place both plants into the sun. Let the students make daily observations and record the information together. <p>In a few days, the leafy plant will lose water through its leaves. The evidence will be water droplets on the bag. The cactus will store the water in the leaves and use the water as needed. Few water droplets should appear on the bag.</p> <ul style="list-style-type: none"> • Take two sponges and soak them in water until they can no longer hold any more. • Take one of the sponges and spread Vaseline over the surface, covering the sponge completely. • Place both sponges on a plastic plate and leave them alone for two to three days. <p>After a few days, one sponge should be dried. The other sponge will still be moist. Make your own cactus by filling a sock with stuffing or scrap paper and attaching pieces of pipe cleaners to the outside.</p> <p>Opening: (3 minutes) Have the students read the objective to their partners and discuss what they think they will learn today. As partners, have them discuss what they already know about the topic. Have each partnership come up with at least one thing that they would like to know more about the topic.</p> <p>Hook/Introduce the Topic:</p>		

Remind the students about the first lesson of the unit and the basic needs of plants. “**Piensen en los ecosistemas que hemos estado estudiando. ¿Qué tipos de necesidades satisfacen o no satisfacen a sus plantas?**”

- Wetlands - lots of water - perhaps too much for some plants
- Forests - dense vegetation - lacking some sunlight - higher elevation and colder temperatures
- Deserts – little water—often extreme heat—lots of sunlight

“**Hoy estudiaremos de qué manera algunas plantas del desierto pueden adaptarse y sobrevivir en entornos hostiles**”.

Introduction to New Material: (10 minutes)

Aloe Vera Leaf and Roots:

Post your sentence frames and divide the students into small groups. Give each group an Aloe Vera plant leaf so the students can see the inside of the leaf and have the students discuss their observations using the sentence frames and the bounce strategy

Use the modeling cycle:

Teacher Does:

Use a puppet, stuffed animal or other object to represent your partner/group. Model how the students are to make observations of the plant and use the sentence frames to discuss the adaptations. The bounce strategy involves having the first student ask the question, the second student answers it, and the next student will either give another example or say that they agree or disagree. Continue “bouncing” until everyone in the group has participated in the conversation.

Teacher and One Group of Students Do:

Repeat the process with the help of a group of student volunteers. They will need the most help with using the sentence frames to bounce the conversation.

One Group of Students Do:

Have the same group repeat the same discussion without the help of the teacher.

- Allow all the students to observe the roots of the Aloe Vera plants.

Question:

“**¿Qué tipo de raíces tiene esta planta?**” (*raíz plana*)

Question:

“**¿De qué manera esta raíz ayuda a la planta a sobrevivir en la maceta?**” (*Permite que la planta absorba agua rápidamente.*)

All Students Practice:

Have the students use the bounce strategy to discuss the adaptation of shallow roots. Monitor their discussions and ensure that they are using the target language.

Question:

“**¿De qué manera se relaciona esta planta con una planta del desierto como, por ejemplo, un cactus?**” (*Ambas plantas tienen hojas gruesas y raíces planas. La planta almacena agua en sus hojas y la usa cuando no hay agua disponible. Ambas raíces absorben agua rápidamente.*)

Guided Practice: (15 minutes)

Leaves:

Show the students the leafy deciduous plant and the desert plant example that you have had with the bags on the leaves.

- Use turn and talk to have the students observe the plants and discuss their similarities and differences.

Questions:

“**¿Cuál es la diferencia entre la planta frondosa verde y una planta del desierto de color verde claro (cactus)?**”

“**¿Por qué una planta tiene hojas de color más claro que la otra?**” (*Las hojas más claras reflejan la luz.*)

- Have the students use the sentence frames and the bounce strategy to discuss how the lighter leaves will help the plants survive in the desert.

They should find that since the light is reflected then the leaves won't dry out so quickly. There is less transpiration.

Waxy Covering:

Show the students the two sponges. Tell them that these sponges represent leaves and water contained in them. Make sure that they understand that they were both filled with water in the beginning. The Vaseline represents the waxy covering that most desert plants have on their leaves. At this point, the sponge without the Vaseline should be dried. The dry sponge represents plants that need water every day like plants in the forest. The other sponge will still be moist. The Vaseline (waxy covering over the leaves) prevents water from leaving the plant.

- Have the students use the sentence frames and the bounce strategy to discuss this adaptation.

They should find that desert plants can store water and use it later when no water is available.

Protection:

Some desert plants use a different method to protect themselves.

Question:

“**¿Qué es lo que usa una planta del desierto como, por ejemplo, un cactus, para protegerse?**”

Show the students the cactus you made. This represents leaves with spines (prickly pear cactus).

- Have the students use the sentence frames and the bounce strategy to discuss this adaptation.

They should discuss that it protects from animals and provide shade which creates less evaporation)

- Show the students a piece of fuzzy cloth to represent sagebrush leaves.
- Have the students use the sentence frames and the bounce strategy to discuss how a plant like sagebrush, with leaves like this, protects itself from the sun.

They may need help coming to the idea that the hairs on the leaves allow less water to evaporate.

Independent Practice:(15 minutes)

Use your document camera to help the students understand the directions for the exit tickets.

- Have the students summarize on their Exit Tickets what they have learned about how desert plants are able to survive.

Closing: (2 minutes)

Have the students reread the objective with you as a class. Have them turn to their partners and tell them one thing that they learned today that they wanted to learn. Give them a chance to share what part of the lesson they enjoyed the most.

Assessment:

Group Discussion

Exit Tickets

Extra Ideas:

- Bring in many examples of desert plants for students to study.

Evaluación de salida

Nombre: _____

Hagan un resumen de lo que han aprendido acerca de cómo sobreviven las plantas del desierto (más de 4 oraciones)

Evaluación de salida

Nombre: _____

Hagan un resumen de lo que han aprendido acerca de cómo sobreviven las plantas del desierto (más de 4 oraciones)
