Life Cycle of the Prickly Pear Cactus

Class description: Students will learn about the life cycle of a prickly pear cactus
Location: Classroom
Duration: 1 hour

Standards Addressed:
Life Science
GLE 2.1 the duration and timing of life cycle events such as reproduction and longevity vary across organisms and species
Use evidence to develop a scientific explanation regarding the stages of how organisms develop and change over time (DOK 1-3)

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Theme:
Life cycle event in plants

Major Concepts:
-Change
-Life cycle

Objectives:
-Students will be able to describe the stages of a prickly pear cactus life cycle

Learning Target: (to be written on board)
I can describe the life cycle of the prickly pear cactus

Inquiry Questions:
Which plant goes with this seed? **¿Qué planta va con esta semilla?** Why do you think that? **¿Por qué crees eso?**

Vocabulary:
plants-**plantas**, seed- **semilla**, life cycle-**cyclo de vida,** prickly pear cactus- **cactus de tuna**

Materials: if possible different kinds of seeds found in the monument (prickly pear, Indian paint brush, mormon tea, service berry, yucca, mountain mahogany) if not then a variety of different seeds (put each seed in a small plastic baggie or glue on tag board and tape a clear plastic sheet over seed, pictures of the host plant that go with each seed, index cards, construction paper full length or 11x17 piece of copy paper to make foldable.

Class Outline

Opening:

KWL Chart- put a new KWL chart up

Ask: What have you learned or observed about life cycles of a plant? **¿Qué has aprendido o observado sobre ciclos de vida de plantas?**

What do you want to know or wonder about life cycles of a plant? **¿Qué todavía quiere aprender sobre ciclos de vida de plantas?**

Inquiry Activity:

Seed to plant – Have the seeds and pictures of host plants taped on board not in order. Pass out an index card to each pair of students. Put a number (1-5) above each seed and a letter above each plant picture and have the kids with a partner talk about which seed goes with which plant and match them up. **Con su pareja, emparejan la semilla a su planta.**

Have them write their predictions on the index card. After they are done, ask about each seed and what they think the plant is. Ask: Which plant goes with this seed? **¿Qué planta va con esta semilla?** Why do you think that? **¿Por qué crees eso?**

Discussion:

How is this seed formed? **¿Cómo se formó esta semilla?** How do you get from this seed to the plant? **Como se converte esta semilla a esta planta?** What seasons do these stages take place? **¿En qué temporada ocurren las etapas?**

During this time talk about the different plants in the monument focusing on the cactus. You may have pictures or a power point. Discuss how seeds get dispersed. **¿Como se despersen las semillas?** Animals eat and poop out seeds, pads fall off and get moved by moving water and take root in another location. Draw or write the cycle on board as you talk about it.

Activity:

Have kids illustrate the life cycle of the prickly pear in a foldable book that they make. They can glue this in their journal. To make foldable take an 11x17 piece of paper and fold it in half length wise (hotdog). Have them cut along fold. Tape the ends together so you have one long piece of paper. Have them fold the long paper in half twice and open up paper. Take one end and fold that end to the first crease. Then fold the next part at crease under to the same width of top. Each fold needs to be the same width as the previous fold and in accordion style. Cut off the last two pages. They can start at any part of the cycle just as long as they complete the cycle.

See example.

Wrap Up:

Write in journal how the life cycle of the prickly pear is similar and different from the life cycle of another plant that they learned about.

Teacher background:

The Engelmann prickly pear cactus (*Opuntia engelmannii*) can be easily identified by it's broad, flat, green pads. The white spines are 3" long and can be flat, curved or straight. They also are covered with tiny, barbed hairs known as glochids. Groups of up to 6 spines emerge from a common center areas known as areole's which are scattered around each pad. The flowers are yellow and emerge in May-June. Ripe fruit are found beginning in July and are identified by their bright red color.

The cactus is one of the best known desert plants. This spiny succulent has four important adaptations to survive in lands of little rain. First, it has an extensive root system that spreads far beyond the plant itself. Even the smallest amount of moisture is absorbed and put to use. Second, when it rains, the cactus has internal structures that act like reservoirs to store water for the future. Third, cactus has few, if any leaves, thereby reducing sources of water loss. Instead, the stems, which are covered by a thick waxy coating, carry on the functions of photosynthesis and transpiration. Fourth, cactus has spines which protect it from animals that might eat it, and chich help to shade it from the hot sun. Together, these features reduce moisture loss, and keep precious water in the plant. Cactus plants are well known for their beautiful flowers that bloom for as little as one day during the late spring and early summer. Their pollination is assured by insects and bees that are attracted to the brightly colored petals and the ample amounts of pollen. The fruit that follows is enjoyed by many creatures, most notably the pack rat and coyotes.

KWL Chart

K What do you know? **¿Qué sabes?**	W What do you want to know? **¿Qué quieres saber?**	L What have you learned? **¿Qué has aprendido?**