



GRADE 3



COAST ^{TO} CACTUS

IN SOUTHERN CALIFORNIA

Curriculum and Lesson Plan Resource Guide



theNAT
SAN DIEGO NATURAL HISTORY MUSEUM



Grade 3 Plant Comparisons

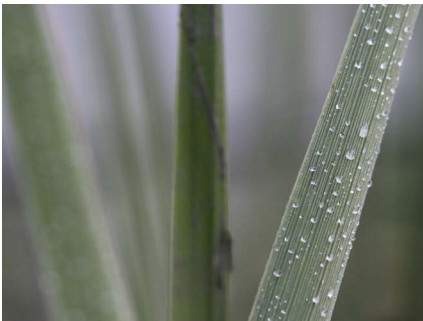
Essential Question

How do leaf shapes help plants survive the weather conditions in their habitat?

In deserts, precipitation is low and the temperature is often high. Some desert plants have several types of adaptations that help them conserve water. A leathery or waxy coating on the leaves and stems reduces evaporation. Thick cactus stems provide water storage. Shallow cactus roots help to collect water during brief rains.

Near the coast, the Torrey Pines State Natural Reserve is home to the Torrey Pine (*Pinus torreyana*), a rare type of pine tree that only grows in southern California. A Torrey Pine's long needles help the tree survive without much rain. The needles have long, shallow grooves that collect moisture from morning fog, channeling it to the ground in droplets for the tree's thirsty roots.

Coastal wetland plants have adapted to survive in estuaries, where salty water would kill most plants. Saltgrass gets rid of salt through its pores, leaving a salty crust on its stems and leaves.



Activity: Plant Comparisons

Students will explore the *Coast to Cactus in Southern California* exhibition to find new information about plant adaptations. Using the plants described in the exhibition, students will compare and contrast the conditions in different southern California habitats and the adaptations of plants in those habitats.

Plant Comparisons

Key Words

Adaptation

A change in a plant or animal that makes it better able to live in a particular place or situation.

Arid

Very dry; having very little rain or water.

Cactus

A plant that lives in the desert and that is covered in sharp needles or spines.

Desert

An area of land that receives little rain.

Materials

- Printed activity sheets
- Writing tool

This activity can be done by individual students or pairs of students with guidance from a teacher during a visit to the *Coast to Cactus in Southern California* exhibition. (See Page 2 for activity instructions.)

Before the activity

- Print student sheets with extra copies for chaperones.
- Schedule a field trip to theNAT. Reservations are required for all group visits. Please call 619.255.0349 or go online to www.sdnat.org/schoolprograms to make your reservation.

Activity

1. Start your activity by letting your students explore the *Coast to Cactus in Southern California* exhibition. Have them pay special attention to the different types of plants in the exhibition.
2. After the exploration time, gather your students. Pass out the activity sheets to your students and chaperones.
3. Ask your students: **What is the weather like in each southern California region?** Deserts are hot and dry, mountain areas get more cold weather with rain and even some snow, and the coastal regions get fog and are exposed to salty air and water. Let your students know that there are a lot of different plants in the exhibition. Some of these plants have special adaptations to help them survive the conditions in each region.
4. Ask your students to find two of the plants listed on their activity sheet. Chaperones and the teacher can help to direct the student to where the plant is located in the exhibition. Students should answer questions on the activity sheet by using observation and

NGSS Alignment for Grade 3

Performance expectation: 3-LS4-3

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Obtaining, Evaluating, Communicating Information Engaging in Argument from Evidence	LS4.C: Adaptation	Cause and Effect Patterns

Interdisciplinary Common Core Connections: RI.3.2, W.3.1, W.3.7, SL.3.1.d.



reading skills. Information about the plants can be found in the exhibit text.

5. Wrap up. After the students have visited their two plants and filled in the activity sheets, visit the plants that they chose to discuss its special adaptations. Students can present on what they saw or read in the exhibition.

Extension

Have your students collect some leaves from around the school, in their neighborhood, or on a trip to a park. Use some guiding questions to help them record their findings in a notebook using as much detail as possible.

What kind of plant did the leaf come from? Was it a tree or a bush? How big was it? Did it have any flowers? How do the leaves students collected compare to the leaves that they saw in the exhibition? Did they find any leaves from the same plants that they saw in the exhibition? What was the weather like where they found the leaves?

Key Words

Dry

Having no or very little water or liquid.

Evaporate

To change from a liquid into a gas.

Habitat

The place or type of place where a plant or animal naturally or normally lives or grows.

Moisture

A small amount of a liquid (such as water) that makes something wet or moist.

Stem

The main long part of a plant that rises above the soil and supports the leaves and flowers.

Survive

To remain alive; to continue to live.

Temperature

A measurement that indicates how hot or cold something is.



What will they learn?

In this activity, students use observation and research skills while exploring the *Coast to Cactus in Southern California* exhibition. Students focus on plant adaptations and their relationship to environmental conditions in their habitats. By comparing and contrasting different types of plants, students gain an understanding of different adaptations plants use to help them survive.

Additional Resources

- Check out a specimen from our Nature to You Loan Library. Specimens related to this lesson include: Coastal Sage Scrub kit, Mountain Forest kit, Leaf Shape and Formations kit. For more information visit sdnat.org/specimenssearch or contact the Loan Library at loanprogram@sdnhm.org or 619.255.0236.
- Use the *Explore the Region from Coast to Cactus* website to learn more about the different habitats in the southern California region. Visit coasttocactus.sdnhm.org to journey through coastal areas, mountains, and deserts, and to learn more about San Diego's amazing diversity of plant and animal life.



Plant Adaptation Activity Sheet

Name: _____

Pick two plants from the list below.

Torrey Pines Section

Shaw's Agave
Torrey Pine
Ladies' Fingers
California Saltbush
Coast Prickly-pear
Coast Cholla
Del Mar Manzanita

Desert Section

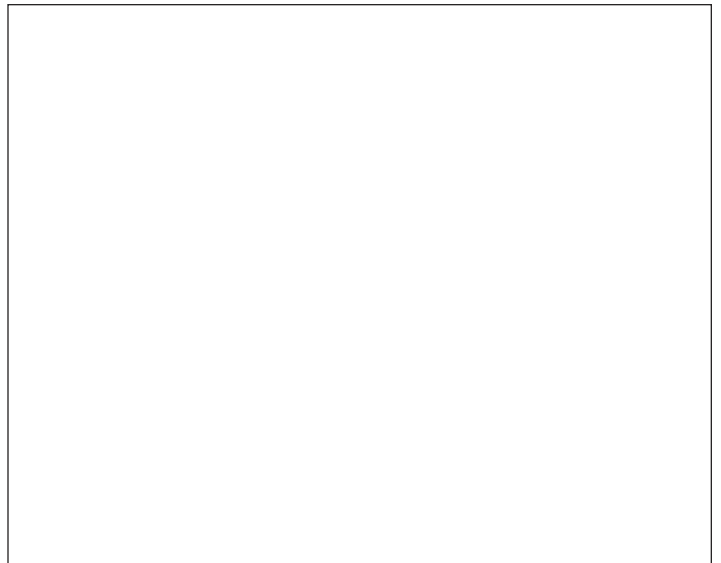
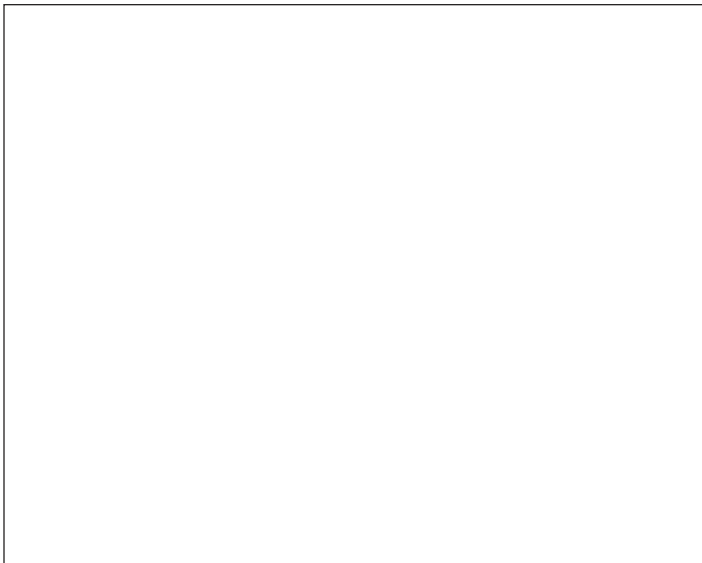
Orcutt's Aster
Desert Chicory
Barrel Cactus
Teddy-bear Cholla
Smoke Tree
Desert Agave

Wetland

Pacific Pickleweed
Saltgrass
Cordgrass

What are the names of the two plants you chose? _____

Draw a picture of each plant.



Where do these plants live? _____

Plant Adaptation Activity Sheet

What is the weather like where these plants live? Is it cold or hot? Is there a lot of rain or no rain at all?

What special adaptations do each of these plants have? An adaptation is a change in a plant or animal that makes it better able to live in a particular place or situation.

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