

Creek to Coast Reading Assignment

To do before the field trip in class

1. **Students will read “Watersheds and Plants”.** The reading is available in this guide and online at oceanconnectors.org/resources.

The reading contains new vocabulary, so it is best if teachers read the material in advance and prepare to work through it with the children. A glossary of terms that may be unfamiliar to students is contained at the end of the reading. It may be helpful to review these terms together in advance and to write a summary of the most important details.

2. **Students respond to reading follow-up questions inside their journals** using complete sentences.
3. Please review the answers together in class.
4. This lesson covers 3rd grade Common Core State Standards in ELA/Literacy, and Next Generation Science Standards 3-LS4-2, 3-LS4-3, and 3-LS4-4.
5. **Critical Thinking Extension: Have students pair up and discuss the following questions with a classmate.**
 - Why do we need habitats like Paradise Creek? What do you think would happen to the organisms in this habitat if Paradise Creek disappeared?
 - How might our environment change in the future, and how might the plants and animals also change?
 - Whose responsibility is it to keep our watershed clean? What evidence do you have that supports this?

Creek to Coast Reading Assignment

Answer in your journal with complete sentences.

1. What is a watershed?
2. Why are plants important in the environment?
3. What do plants need in order to survive?
4. Explain why littering is a problem. Be sure to include where it will travel and what affects it could have on the environment and organisms.
5. What do you think can be done to fix a dirty watershed?
6. Think back to your Ocean Connectors presentation: What are the steps to planting a plant and what gear is important for planting?

Creek to Coast Reading Assignment

Answer Key

1. What is a watershed?

A watershed is an area of land where all of the water that is under it, or drains off of it, collects into the same place. We all live in a watershed.

2. Why are plants important in the environment?

Plants release oxygen into the air for humans and animals to breathe, they remove carbon dioxide from our atmosphere, provide food and shelter for many animals and insects, and help prevent soil from washing away (eroding).

3. What do plants need in order to survive?

Plants need sunlight, carbon dioxide, nutrients, and water to survive.

4. Explain why littering is a problem. Be sure to include where it will travel and what affects it could have on the environment and organisms.

Pollution that collects on the ground gets washed away when it rains. Then it travels through the watershed into larger bodies of water, such as the ocean, where it can become dangerous to animals who might eat it. Some types of litter can even pollute our drinking water. Humans and all animals need clean, sanitary water in order to survive.

5. What do you think can be done to fix a dirty watershed?

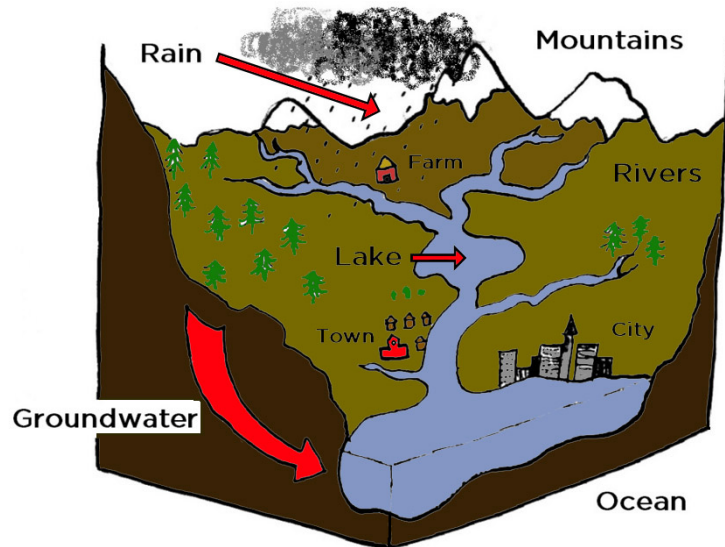
People can help clean up their watershed by planting native plants, picking up trash, and not littering or dumping anything into the environment. It is also important to stay on designated walking paths, so that you don't contribute to erosion and avoid stepping on any native plants that are trying to grow.

6. Think back to your Ocean Connectors presentation: What are the steps to planting a plant and what gear is important for planting?

The first step is to have the right safety equipment for planting. You will need sunscreen, gloves, closed-toed shoes, and shovels to dig. Next you need to survey the land to pick a good spot and the right plant to put in that area. Some plants are suited for being close to saltwater, while others may need to be away from the salt and on higher ground. Once the perfect location is chosen, a hole needs to be dug as deep as the pot of the plant you will be putting in the ground. Then add mulch to the bottom of the hole, press firmly on the sides of the pot to help remove the plant, and then carefully catch the plant as it slides out of the pot. Place the plant in the hole and carefully fill the rest of the hole with dirt. Press down around the base of the plant and make a "donut" (a berm) around the base of the plant to help it trap water. Finally put mulch inside the "donut" and water the plant.

Watersheds and Plants

Do you enjoy spending your weekend at the beach playing in the waves? Or do you like fishing along the river? Perhaps you prefer hanging out by the lake skipping rocks. Regardless of your water-related weekend activities, they are all connected! All of the bodies of water in certain areas are connected and we are directly affected by how we treat the water in our watershed. But what is a watershed?

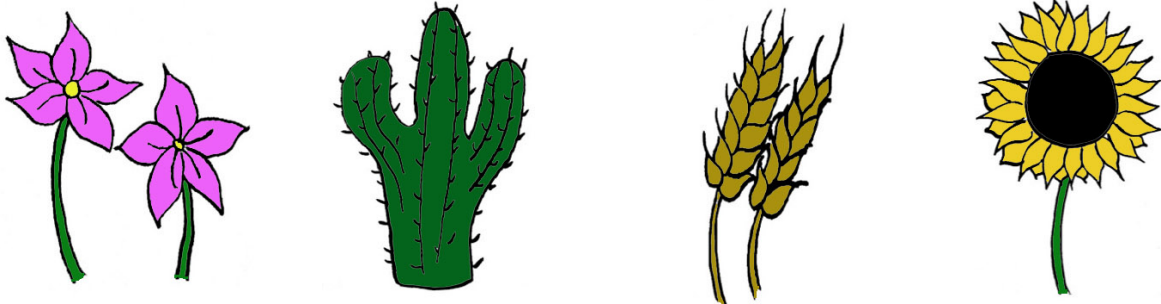


A **watershed** is an area of land where all of the water that is under it, or drains off of it, collects into the same place. You live in a watershed—so does every single person on Earth! Your school is located in the Sweetwater River Watershed, which includes National City, San Diego, La Mesa, and eastern communities like Alpine and Pine Valley. All of the water on the ground (streams, lakes, rivers) and even below ground are part of the Sweetwater River Watershed. This means if you drop a piece of trash while you're camping in Alpine, the water can carry that trash all the way back here to National City and eventually to the ocean!

As you can see from the traveling trash in this diagram, we are all connected—our actions can affect a whole watershed or even other watersheds! If we don't take care of it, our water won't be clean and **sanitary**. When we litter, let oil drip from our cars, let excess fertilizer runoff of our lawns, or leave our dog poop on the ground, it can make our water dirty and undrinkable, for us and for wildlife.



Now that you know about the bad things that can dirty our water, let's learn about how our water can remain clean. One of the biggest players in this process are plants! Look outside and see all the plants—trees, grass, bushes, flowers—there are so many different kinds of plants!



What are plants and how do they help our watershed? Plants are living things that absorb sunlight as their main food source. They also produce oxygen for us to breathe, filter the water in our watersheds, help stabilize the soil and prevent it from **eroding**, and supply food for humans. Plants can have leaves (like trees), blades (like grass), spines (like a cactus), colorful flowers (like sunflowers), or a combination of all of these!

Even though plants come in all shapes and sizes they still have a few things in common.

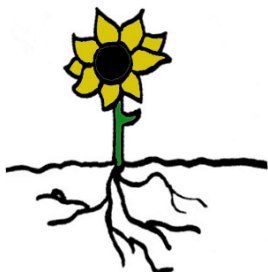
1. All plants take in sunlight as their food source.



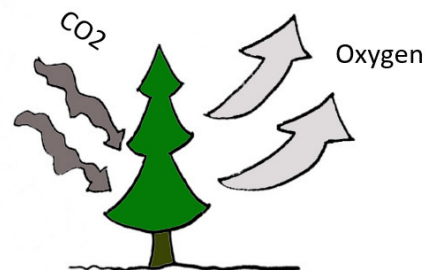
2. All plants need water to live.



3. All plants need different types of nutrients to grow.



4. All plants need carbon dioxide (what we breathe out).



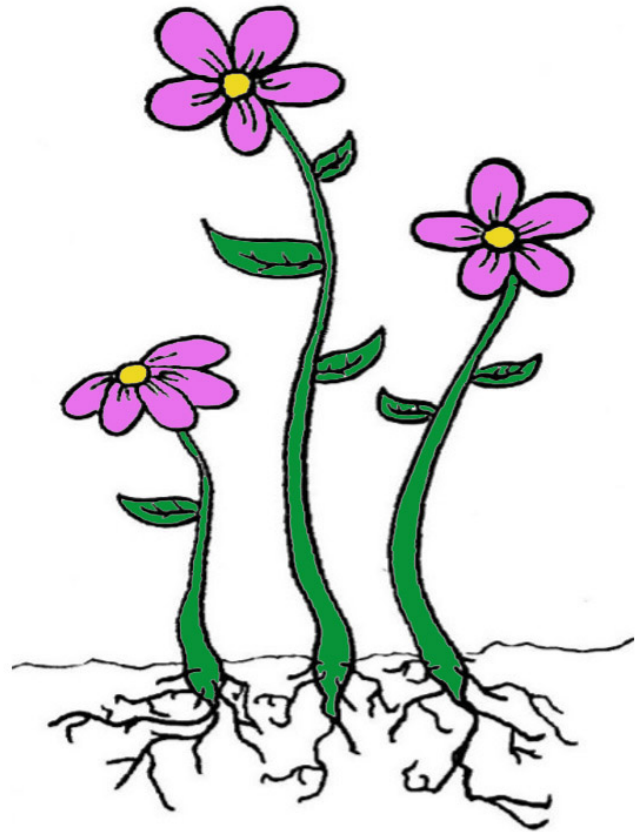
Let's see how plants work by learning about their different parts. See the diagram below to learn how plants live and grow.

Flowers: these parts of the plant are usually colorful and fragrant to attract pollinators (bees, butterflies, moths, etc.) to assist in plant reproduction.

Leaves: these parts of the plant collect and convert (change) sunlight into energy for the plant to use. They then send that energy to the rest of the plant to help it grow.

Stem: this serves as the support of the plant and helps keep it upright. It helps the energy and nutrients travel around the plant.

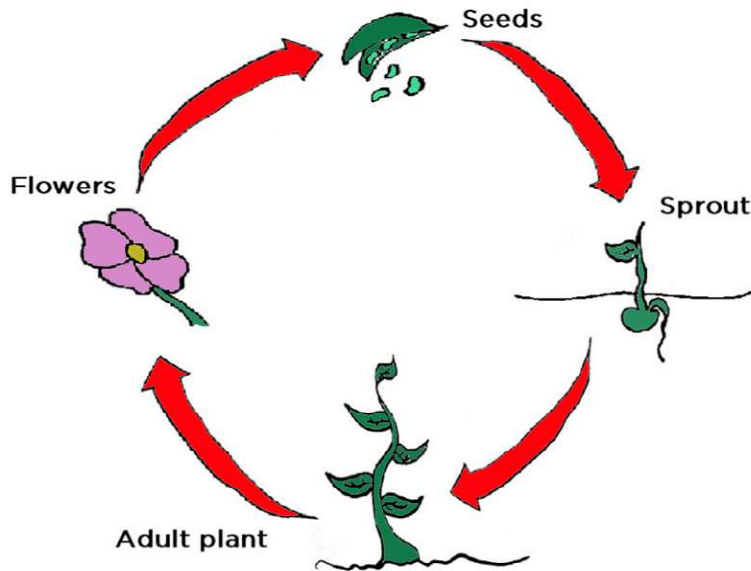
Roots: these allow the plant to take up nutrients in the ground and help keep the plant in place. They are like an anchor for the plant so it doesn't get blown away by strong winds or washed away by rain.



For each type of plant, some of these features may look different and that's because plants have **adaptations** (changes) to help them survive in nature. Some trees are very thin and only have leaves at the top (like palm trees), while some trees are thick and have leaves (or pines) all over (like pines trees). Some plants are able to tolerate saltwater, while others can't. Plants change themselves over many years to fit their environment.

Do we get a lot of rain in Southern California? No, we don't, and when we have not had rain in a long time, it is called a **drought**. Because we only get a little bit of water here, "drought tolerant" plants have adapted so that they only need a little bit of water to survive. Many other desert plants (like cactus, succulents, and Joshua trees) have also adapted over time to help them do well in dry environments.

Since we do not always have an abundance of water in San Diego, it is important that we help **conserve** water when we can. Turning off the water when you brush your teeth, taking shorter showers (around 5 minutes), or even using a broom instead of a hose to clean your driveway are all great ways to help save water.



As plants get the sunlight, water, nutrients, and space they need to grow, they are able to provide more clean water, air, shelter, and food for animals and humans. When plants get big enough, they are able to reproduce. Plants get a lot of help from **pollinators** and weather when it is time for them to spread their seeds. The seeds will then grow into baby plants called sprouts or seedlings. The seedlings grow into adult plants over time and start their life cycle all over again.

You're probably thinking, this is great! More plants mean more clean water, clean air, and food! But plants and their **habitats** are in trouble and need our help.

Here are two problems happening to our plants and things that YOU can do to help!

Losing pollinators: many different types of plants need pollinators to reproduce. Pollinators are animals like bees, butterflies, hummingbirds, moths, and even some beetles! Some farmers use sprays called pesticides to kill the insects that eat their crops, but the pesticides can also kill or harm the pollinators.



How YOU can help:

- Start a home garden with native flowers to give pollinators more food options.
- Be kind to bees – they are important for our ecosystem and they only sting when they feel threatened.



Plastic pollution: many different types of plastics get into the environment and can do a lot of damage to plants and animals. Food wrappers, bottle caps, to-go containers, and other plastics break down into small pieces which many animals eat by mistake. Plastics can break down even further into tiny pieces which float through our watershed and end up in rivers, streams, lakes, and eventually the ocean.

How YOU can help:

- Use a reusable lunchbox instead of disposable plastic materials
- Use a reusable water bottle
- Pick up litter, especially plastic (with gloves)

Glossary

Adaptation: a change or the process of change by which an organism or species becomes better suited to survive in its environment.

Conserve: to save or protect something for future use (when talking about water it means to “use less”).

Drought: a prolonged period of unusually low rainfall, leading to a shortage of freshwater.

Eroding: the process of something being gradually worn away, deteriorated, or destroyed.

Habitat: the natural home or environment of an animal, plant, or other organism.

Pollinator: an animal (such as insects, birds and bats) that helps plants make fruit or seeds by distributing pollen. They do this by moving pollen from one part of the plant to another part of the same plant or another plant of the same species.

Sanitary: hygienic, clean, and germ-free.

Watershed: an area of land where all of the water that is under it, or drains off of it, collects into the same place, such as rivers, basins, or seas.