

Note: Some of you have asked about the Standards for California Public Schools, so we have comprised a list of the standards that Forest Conservation Days (FCD) covers for fifth graders. For those of you who have attended FCD please feel free to comment on this list to Don or Diane Dukleth at 559-841-3309 or fcdschool@netptc.net.

History and Geography:

5.1 Students describe the major pre-Columbian settlements, including the cliff dwellers and pueblo people of the desert Southwest, the American Indians of the Pacific Northwest, the nomadic nations of the Great Plains, and the woodland peoples east of the Mississippi River.

1. Describe how geography and climate influenced the way various nations lived and adjusted to the natural environment, including locations of villages, the distinct structures that they built, and how they obtained food, clothing, tools, and utensils. Students can see some of the tools used by the Indians and even try some of them out in the Youth Science Institute at FCD. We point out wildlife to the students many plant species some of which our edible and we take them out into the forest to see what obstacles lie in the forest and how they can be advantageous or a hindrance.

5.8 Students trace the colonization, immigration, and settlement patterns of the American people from 1789 to the mid-1800s, with emphasis on the role of economic incentives, effects of the physical and political geography, and transportation systems.

4. Discuss the experiences of settlers on the overland trails to the West (e.g., location of the routes; purpose of the journeys; the influence of the terrain, rivers, vegetation, and climate; life in the territories at the end of these trails). Terrain was a huge influence in where migration routes and trails were. They didn't have bridges like we have to span a valley. Many followed the wild herds and seasonal weather. Just imagine trying to travel through a redwood forest with a wagon when you have trees that have fallen down that are over three hundred feet long? This is just one of the many questions we ask of the students throughout the day.

Listening and Speaking Strategies:

Students deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience. They evaluate the content of oral communication.

Comprehension

- 1.1 Ask questions that seek information not already discussed.
- 1.2 Interpret a speaker's verbal and nonverbal messages, purposes, and perspectives.
- 1.3 Make inferences or draw conclusions based on an oral report.

Organization and Delivery of Oral Communication

- 1.4 Select a focus, organizational structure, and point of view for an oral presentation.
- 1.5 Clarify and support spoken ideas with evidence and examples.
- 1.6 Engage the audience with appropriate verbal cues, facial expressions, and gestures.

Analysis and Evaluation of Oral and Media Communications

- 1.7 Identify, analyze, and critique persuasive techniques (e.g., promises, dares, flattery, glittering generalities); identify logical fallacies used in oral presentations and media messages.
- 1.8 Analyze media as sources for information, entertainment, persuasion, interpretation of events, and transmission of culture. We take the students on a nature walk through a Redwood forest and point out many things to them on a variety of topics relating to forest management, and all the aspects influencing decision making. We ask the students to make observations to see if they can discover some of the past land management and natural changes to the forest. There are signs of wildlife everywhere, which we want the students to learn to recognize. Sanborn park also has a rich background of people who have lived there which is harder to discover but is evident to a keen observer. We encourage students to ask questions. Half of the day is spent looking at displays that we set up at the park. Many of which are hands on. We encourage the students to touch the soil to feel what it is made from and discuss how long it takes for a rock to become dirt. One question that is asked of every student is "Is it ok to cut trees?" We present the facts and allow the students to come to their own conclusions. Many look at things differently by the end of the day. Many of the students write us thank you letters and essays on what was the favorite part of FCD. We share these with the volunteers and supporters of this event.

1.0 Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents.

They understand the relative magnitudes of numbers:

- 1.1 Estimate, round, and manipulate very large (e.g., millions) and very small (e.g., thousandths) numbers.

1.0 Students understand and compute the volumes and areas of simple objects:

- 1.1 Derive and use the formula for the area of a triangle and of a parallelogram by comparing it with the formula for the area of a rectangle (i.e., two of the same triangles make a parallelogram with twice the area; a parallelogram is compared with a rectangle of the same area by cutting and pasting a right triangle on the parallelogram). Students count tree rings at different parts of a tree and come up with an answer as to how old the tree is. Today so much our lives and jobs revolve around

computers and mathematics. To get the height of a tree we use a relascope or clinometer, which measure the angle, it is basically figuring out the side a triangle.

Physical Sciences:

1. Elements and their combinations account for all the varied types of matter in the world.

As a basis for understanding this concept:

- a. *Students know* that during chemical reactions the atoms in the reactants rearrange to form products with different properties.
- b. *Students know* properties of solid, liquid, and gaseous substances, such as sugar ($C_6H_{12}O_6$), water (H_2O), helium (He), oxygen (O_2), nitrogen (N_2), and carbon dioxide (CO_2).

We discuss the nutrient cycle and photosynthesis as part of an exercise called the web of life that shows how all life is dependent on all other life and where our place in this web is. We assign the students parts like “plants or carnivores” and will ask them questions throughout the day as if they were a plant or an animal. They learn how soil is formed and what elements make up soil.

Life Sciences:

2. Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials. As a basis for understanding this concept:
 - a. *Students know* many multicellular organisms have specialized structures to support the transport of materials.
 - b. *Students know* how blood circulates through the heart chambers, lungs, and body and how carbon dioxide (CO_2) and oxygen (O_2) are exchanged in the lungs and tissues.
 - c. *Students know* the sequential steps of digestion and the roles of teeth and the mouth, esophagus, stomach, small intestine, large intestine, and colon in the function of the digestive system.
 - d. *Students know* the role of the kidney in removing cellular waste from blood and converting it into urine, which is stored in the bladder.
 - e. *Students know* how sugar, water, and minerals are transported in a vascular plant.
 - f. *Students know* plants use carbon dioxide (CO_2) and energy from sunlight to build molecules of sugar and release oxygen.
 - g. *Students know* plant and animal cells break down sugar to obtain energy, a process resulting in carbon dioxide (CO_2) and water (respiration).

We have a fisheries display, which has, live trout and samples of the food they feed on

for students to see up close. We have skeletons and antlers that they can examine. We look at the cambium layer of a tree and explain how what and sugars are transported. As part of the web of life we discuss the roles of plants and animals in nature. What different animals eat or what kind of habitat makes their home range is also discussed.

Earth Sciences:

3. Water on Earth moves between the oceans and land through the processes of evaporation and condensation. As a basis for understanding this concept:
 - a. *Students know* most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.
 - b. *Students know* when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.
 - c. *Students know* water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.
 - d. *Students know* that the amount of fresh water located in rivers, lakes, underground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.
4. Energy from the Sun heats Earth unevenly, causing air movements that result in changing weather patterns. As a basis for understanding this concept:
 - a. *Students know* uneven heating of Earth causes air movements (convection currents).
 - b. *Students know* the influence that the ocean has on the weather and the role that the water cycle plays in weather patterns.

As part of the soil and fisheries display we look at streams. We see signs of water eroding away stream banks and moving rocks and soil down to the oceans. The water cycle is a very important aspect in a forest and must be maintained and kept functioning. Fog is a key to the survival of the redwoods. It is part of why redwoods grow where they do. Healthy streams and lakes are indicators of healthy forests and foresters protect bodies of water during any management in the forest.

Investigation and Experimentation:

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
 - a. Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria. We give each student a tree and plant key. Throughout the day we point out plant and

animal species to them and ask them to identify them for us later. They learn that growth form and adaptations have a purpose. They might not be able to name all of the plants in the forest but they will be able to recognize similarities and differences among species.