

Alignment to Science Standards

Life in Our Watershed: Investigating Streams and Water Quality is aligned with the California State Educational Science Standards listed below.

Grades 9 through 12

Biology/Life Sciences

Ecology

6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept, students know:
 - a. Biodiversity is the sum total of different kinds of organisms, and is affected by alterations of habitats.
 - b. How to analyze changes in an ecosystem as a result of changes in climate, human activity, or introduction of non-native species.
 - f. A vital part of an ecosystem is the stability of its producers and decomposers.
 - g. At each link in a food web, some energy is stored in newly made structures but much is dissipated into the environment as heat. This can be represented in a food pyramid.

California Geology

9. The geology of California underlies the state's wealth of natural resources as well as its natural hazards. As a basis for understanding this concept, students know:
 - c. The importance of water to society, the origins of California's fresh water, and the relationship between supply and need.

Investigation and Experimentation

1. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept, and to address the content of the other four strands, students should develop their own questions and perform investigations. Students will:
 - b. Identify and communicate the sources of error inherent in experimental design.
 - c. Identify discrepant results and identify possible sources of error or uncontrolled conditions.
 - d. Formulate and revise explanations using logic and evidence.
 - m. Investigate a science-based societal issue by researching the literature, analyzing data where appropriate and communicating their findings. Examples include irradiations of food, cloning of animals by somatic cell,

nuclear transfer, choice of energy sources, and land and water use decisions (including California).

Grade 6

Ecology (Life Sciences)

5. Organisms in ecosystems exchange energy and nutrients among themselves and with the environment. As a basis for understanding this concept:
 - a. Students know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.
 - b. Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.

Investigation and Experimentation

7. 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. Develop a hypothesis.
 - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
 - c. Construct appropriate graphs from data and develop qualitative statements about the relationships between variables.
 - d. Communicate the steps and results from an investigation in written reports and oral presentations.
 - e. Recognize whether evidence is consistent with a proposed explanation.

Grade 7

Genetics

2. A typical cell of any organism contains genetic instructions that specify its traits. Those traits may be modified by environmental influences. As a basis for understanding this concept:
 - a. Students know the differences between the life cycles and reproduction methods of sexual and asexual organisms.

Investigation and Experimentation

7. 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. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
- c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.
- e. Communicate the steps and results from an investigation in written reports and oral presentations.

Grade 8

Investigation and Experimentation

9. 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. Plan and conduct a scientific investigation to test a hypothesis.
 - b. Evaluate the accuracy and reproducibility of data.
 - c. Distinguish between variable and controlled parameters in a test.
 - e. Construct appropriate graphs from data and develop quantitative statements about the relationships between variables.