

CA Content Standards

Elements of Waste

Fourth Grade

Investigation and Experimentation – 6b. Measure and estimate the weight, length, or volume of objects.

Students determine a bag of waste's circumference (implied volume) and mass using tape measure and platform scale.

Students will compare the relative volume and weight of objects and the ramifications the objects have on the environment. For example,

Styrofoam packaging is lightweight but takes up an inordinate amount of volume to store in a landfill.

Fifth Grade

Physical Science 1a. Students know all matter is made of atoms, which may combine to form molecules.

Waste Elements multimedia slideshow demonstrates how each element cannot be split into a simpler substance.

Waste Guide catalog describes the primary element(s) in each.

Physical Science 1c. Students know metals have properties in common, such as high electrical and thermal conductivity. Some metals, such as aluminum (Al), iron (Fe), nickel (Ni), copper (Cu), silver (Ag), and gold (Au), are pure elements; others, such as steel and brass, are composed of a combination of elemental metals.

Students compare the atomic weight of toxic and non-toxic elements such as mercury, lead, carbon, oxygen, hydrogen, and aluminum.

Students will note that the vast majority of waste items contain hydrogen and carbon, two of the more abundant elements in the universe.

Physical Science 1d. Students know that each element is made of one kind of atom and that the elements are organized in the periodic table by their chemical properties.

Students categorize waste items according to elements and use the periodic table to classify waste items as toxic or non-toxic.

Sixth Grade

Resources – 6b. Students know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable.

Students work with the Waste Guide catalog to determine what materials make up each item of waste.

Students understand which materials enable items to be recycled, composted, and which materials must be treated as hazardous.

Resources – 6c. Students know the natural origin of the materials used to make common objects.

Students work with the Waste Guide catalog to determine which materials make up each item of waste.

Investigation and Experimentation – 7b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Students work with the Waste Guide catalog to collect and analyze the impact disposal choices have on the environment.