

**Grade 3: Earth Sciences, Physical Sciences,
Life Sciences, Investigation and Experimentation
Energy and Matter**

California State Science Content Standards

Covered in:

**Hands-on science labs, demonstrations, & activities.
Investigation and Experimentation. Lesson Plans.**

Presented by Climate Change Education .org during

Mobile Climate Science Labs

- Professional development for teachers
 - In school presentations
- Climate science and hands-on education *specialists* presenting alongside teachers and teaching assistants
- Presentations at CSTA, NSTA, AAAS conferences
- For school field trips, as presented at local science museums

As aligned with existing science content standards, adopted 1997

Referencing: *Science Framework for California Public Schools*

<http://www.cde.ca.gov/ci/sc/cf/documents/scienceframework.pdf>

Adopted by the California State Board of Education

Published by the California Department of Education

Enabling teachers and schools to provide outstanding education called for in the standards under *Investigation and Experimentation* sections. Requirements for a minimum of 20-25% hands-on education in science.

Index of Standards Alignment—other grades, courses and standards:

http://climatechangeeducation.org/labs/k12_standards/index.html

Themes: <http://climatechangeeducation.org/labs/themes/index.html>

In the following, sections of standards noted are part of one or more lab theme.

Sections highlighted in **green** are a *primary focus* of one or more hands-on science lab.

Updated April 27, 2011

3rd Grade (Energy and Matter)

Standard Set -- 1 Physical Sciences

1. **Energy and matter have multiple forms and can be changed from one form to another. As a basis for understanding this concept:**
 1. a. *Students know* **energy comes from the Sun to Earth in the form of light.**
 1. b. *Students know* sources of **stored energy take many forms, such as food, fuel, and batteries.**
 1. c. *Students know* **machines and living things convert stored energy to motion and heat.**
 1. d. *Students know* **energy can be carried from one place to another by waves, such as water waves and sound waves, by electric current, and by moving objects.**
 1. e. *Students know* matter has **three forms: solid, liquid, and gas.**
 1. f. *Students know* **evaporation and melting are changes that occur when the objects are heated.**
 1. g. *Students know* that when **two or more substances are combined, a new substance may be formed with properties that are different from those of the original materials.**
 1. h. *Students know* **all matter is made of small particles called atoms, too small to see with the naked eye.**
 1. i. *Students know* people once thought that earth, wind, fire, and water were the basic elements that made up all matter. **Science experiments show that there are more than 100 different types of atoms, which are presented on the periodic table of the elements.**

Standard Set 2 -- Physical Sciences (Light)

2. **Light has a source and travels in a direction. As a basis for understanding this concept:**
 2. a. *Students know* **sunlight can be blocked to create shadows.**
 2. b. *Students know* **light is reflected from mirrors and other surfaces.**
 2. c. *Students know* the **color of light striking an object affects the way the object is seen.**

2. d. *Students know* an object is seen when **light traveling from the object enters the eye.**

Standard Set 3 -- Life Sciences

3. c. *Students know* **living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.**

3.d. *Students know* **when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.**

Standard Set 4 -- Earth Sciences

4. Objects in the sky move in regular and predictable patterns. As a basis for understanding this concept:

4. b. *Students know* the way in which the **Moon's appearance changes** during the four-week lunar cycle.

4. d. *Students know* that **Earth is one of several planets that orbit the Sun and that the Moon orbits Earth.**

Standard Set 5 -- Investigation and Experimentation

5. 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:

5. a. **Repeat observations to improve accuracy and know that the results of similar scientific investigations seldom turn out exactly the same because of differences in the things being investigated, methods being used, or uncertainty in the observation.**

5. b. **Differentiate evidence from opinion and know that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.**

5. c. **Use numerical data in describing and comparing objects, events, and measurements.**

5. d. Predict the outcome of a simple investigation and compare the result with the prediction.

5. e. Collect data in an investigation and analyze those data to develop a logical conclusion.