



From the:

Science Content Standards for California Public Schools.

Kindergarten to Third Grade

Physical Sciences & Investigation and Experimentation

The following is a list of the Science Content Standards for California Public Schools – Kindergarten, 1st, 2nd, and 3rd grade, and the chapters in Exploration Education's Elementary Physical Science curriculum that support these standards.



Covered in Exploration Education's ELEMENTARY Physical Science Curriculum Version: 3.1.0

Physical Sciences

KINDERGARTEN: 1. Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:

- a. Students know objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight, texture, flexibility, attraction to magnets, floating, sinking).
- b. Students know water can be a liquid or a solid and can be made to change back and forth from one form to the other.
- c. Students know water left in an open container evaporates (goes into the air) but water in a closed container does not.

GRADE ONE: 1. Materials come in different forms (states), including solids, liquids, and gases. As a basis for understanding this concept:

- a. Students know solids, liquids, and gases have different properties.
- b. Students know the properties of substances can change when the substances are mixed, cooled, or heated.

GRADE TWO: 1. The motion of objects can be observed and measured. As a basis for understanding this concept:

- a. Students know the position of an object can be described by locating it in relation to another object or to the background.
- b. Students know an object's motion can be described by recording the change in position of the object over time.
- c. Students know the way to change how something is moving is by giving it a push or a pull. The size of the change is related to the strength, or the amount of force, of the push or pull.
- d. Students know tools and machines are used to apply pushes and pulls (forces) to make things move.
- e. Students know objects fall to the ground unless something holds them up.
- f. Students know magnets can be used to make some objects move without being touched.
- g. Students know sound is made by vibrating objects and can be described by its pitch and volume.

GRADE THREE: 1. Energy and matter have multiple forms and can be changed from one form to another. As a basis for understanding this concept:

- a. Students know energy comes from the Sun to Earth in the form of light.
- b. Students know sources of stored energy take many forms, such as food, fuel, and batteries.
- c. Students know machines and living things convert stored energy to motion and heat.
- 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.
- e. Students know matter has three forms: solid, liquid, and gas.
- f. Students know evaporation and melting are changes that occur when the objects are heated.

	<i>Covered in EE's Curriculum</i>
3.2	
3.6, 3.7	
3.7	
3.2, 3.6	
3.1, 3.7, 3.8	
1.4	
1.4	
1.2	
1.7	
1.3	
2.1, 2.2, 2.3, 2.4	
4.7, 4.8, 4.9	
4.1	
1.5, 2.6	
1.5, 2.6	
1.5, 2.6, 2.8, 2.9 4.7, 4.8	
3.1, 3.2, 3.6, 3.7	
3.7, 3.8	

<p>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.</p>	3.7
<p>h. Students know all matter is made of small particles called atoms, too small to see with the naked eye.</p>	3.9
<p>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.</p>	3.9
<h2>Investigation and Experimentation</h2> <p>KINDERGARTEN: 4. 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:</p>	Covered in EE's Curriculum
<p>a. Observe common objects by using the five senses.</p>	
<p>b. Describe the properties of common objects.</p>	3.2
<p>c. Describe the relative position of objects by using one reference (e.g., above or below).</p>	3.2, 3.5
<p>GRADE ONE: 4. 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:</p>	1.4
<p>a. Draw pictures that portray some features of the thing being described.</p>	
<p>b. Record observations and data with pictures, numbers, or written statements. Chapters: 1.2, 1.3 1.5, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.7, 2.9, 3.1, 3.5, 3.7, 3.8, 4.2, 4.3, 4.4, 4.1, 4.2, 4.4, 4.6, 4.7, 4.8, 4.9</p>	1.4, 1.7, 2.1, 3.6, 3.7
<p>c. Record observations on a bar graph.</p>	See list to left
<p>d. Describe the relative position of objects by using two references (e.g., above and next to, below and left of).</p>	4.8
<p>e. Make new observations when discrepancies exist between two descriptions of the same object or phenomenon.</p>	1.4
<p>GRADE TWO: 4. 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:</p>	4.8
<p>a. Make predictions based on observed patterns and not random guessing. Chapters: 1.2, 1.3 1.5, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.7, 2.9, 3.1, 3.5, 3.7, 3.8, 4.2, 4.3, 4.4, 4.1, 4.2, 4.4, 4.6, 4.7, 4.8, 4.9</p>	
<p>b. Measure length, weight, temperature, and liquid volume with appropriate tools and express those measurements in standard metric system units.</p>	1.4, 1.7, 2.1, 3.6, 3.7
<p>c. Compare and sort common objects according to two or more physical attributes (e.g., color, shape, texture, size, weight).</p>	See list to left
<p>d. Write or draw descriptions of a sequence of steps, events, and observations.</p>	3.2, 3.3, 3.4, 3.8
<p>e. Construct bar graphs to record data, using appropriately labeled axes.</p>	3.5
<p>f. Use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects.</p>	1.3, 1.5, 1.7, 1.8, 2.7, 3.5, 3.7, 4.1, 4.2, 4.4, 4.9
<p>g. Follow oral instructions for a scientific investigation. Chapters: 1.2, 1.3 1.5, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.7, 2.9, 3.1, 3.5, 3.7, 3.8, 4.2, 4.3, 4.4, 4.1, 4.2, 4.4, 4.6, 4.7, 4.8, 4.9</p>	4.8
<p>GRADE THREE: 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:</p>	See list to left
<p>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.</p>	
<p>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.</p>	2.1
<p>c. Use numerical data in describing and comparing objects, events, and measurements.</p>	4.6
<p>d. Predict the outcome of a simple investigation and compare the result with the prediction. Chapters: 1.2, 1.3 1.5, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.7, 2.9, 3.1, 3.5, 3.7, 3.8, 4.2, 4.3, 4.4, 4.1, 4.2, 4.4, 4.6, 4.7, 4.8, 4.9</p>	1.6, 2.1, 3.5, 4.6, 4.8
<p>e. Collect data in an investigation and analyze those data to develop a logical conclusion.</p>	See list to left