

<p>Important Concepts for Physical Science</p> <p>Grades K-2</p> <p>Properties of Matter</p>	<p>Alaska Science Content Standard B1: Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.</p> <p>Alaska Science Content Standard B3: Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems. (partially addressed)</p>
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There are no state grade level expectations (GLEs) for science for students in Grades K-2. Students at this age should be given a foundation for the concepts that they will need to master by grades 3 and 4, as follows:

Grade Level Expectations:

The student demonstrates an understanding of the structure and properties of matter by:

[3] SB1.1 classifying matter according to physical properties (i.e., color, size, shape, weight, texture, flexibility)

[4] SB1.1 identifying and comparing the characteristics of gases, liquids, and solids

The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by:

[3] **SB3.1** recognizing that temperature changes cause changes in phases of substances (e.g., ice changing to

liquid, water changing to water vapor, and vice versa)

[4] **SB3.1** explaining that temperature changes cause changes in phases of substances (e.g., ice changing to

liquid water and liquid water to water vapor)

According to AAAS's Benchmarks for Science Literacy*, some of the things that students should know and understand by the end of second grade are:

- Objects can be described in terms of their properties. Some properties, such as hardness and flexibility, depend upon what material the object is made of, and some properties, such as size and shape, do not.
- Things can be done to materials to change some of their properties, but not all materials respond the same way to what is done to them.
Most things are made of parts.
- Water can be a liquid or a solid and can go back and forth from one form to the other. If water is turned into ice and then the ice is allowed to melt, the amount of water is the same as it was before freezing.
- Water left in an open container disappears, but water in a closed container does not disappear.

*Project 2061, American Association for the Advancement of Science, Benchmarks for Science Literacy. New York: Oxford University Press, 1993.