

Core Science Concepts

	Weight	Volume	Material	Matter
Grade 3	The weight of objects can be compared using a pan balance and standard (gram) units.	Two solid objects cannot occupy the same space. The amount of 3D space that objects occupy can be compared.	<p>Objects can be described in terms of their weight and volume and the materials they are made of (clay, cloth, paper, etc.).</p> <p>Materials have observable physical properties such as color, size, texture, flexibility, etc.</p> <p>Same size objects can have different weights when they are made of different materials.</p>	Materials can be subdivided into small pieces and the pieces still have weight.
Grade 4	<p>The weight of solids and/or liquids can be compared using a digital scale and can be represented on a weight line or a table.</p> <p>Weight is conserved during crushing and reshaping</p>	<p>Liquid and solid volumes can be measured in cubic centimeters.</p> <p>When immersed, a solid displaces a liquid volume equal to the solid volume.</p>	The relationship between weight and volume (i.e. density) is a property of solid and liquid materials.	Matter can be divided into tiny pieces, and even the tiniest pieces have weight and take up space.
Grade 5	Weight is conserved during dissolving, freezing, melting, evaporation and condensation.	Volume may not be conserved in phase change.	<p>Air is a mixture of gaseous materials composed of particles too small and spread apart to see.</p> <p>Melting, freezing, evaporation and condensation change the form of matter but do not change the material.</p>	<p>Matter is composed of particles that have weight, occupy space, and are too small to see.</p> <p>Gases, liquids and solids are all forms of matter and have weight and take up space.</p>

A carefully constructed sequence of curriculum progressively builds student understanding about a network of core science concepts across a three-year period. These concepts—weight, volume, material including the material property of density, and matter— provide an important foundation for understanding science in secondary school.