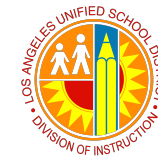


## Fifth Grade: FOSS

### Physical Science - Mixtures and Solutions



Investigation Title and Synopsis	Concepts	Assessments and TE Page Numbers
<p><b>1. Separating Mixtures</b>            Students make mixtures of water and solid materials (salt, gravel, and diatomaceous earth) and separate the mixtures with screens and filters. They find that water and salt make a special kind of mixture, a solution, that cannot be separated with a filter but only through evaporation.</p>	<ul style="list-style-type: none"> <li>• A mixture combines two or more materials that retain their own properties</li> <li>• A solution forms when a material dissolves in a liquid (solvent) and can not be retrieved with a filter</li> <li>• All mixtures can be separated based on the properties of the constituent substances</li> <li>• Evaporation can separate a liquid from a solid in solution</li> <li>• Crystal form can be used to identify substances</li> </ul>	<ul style="list-style-type: none"> <li>• Pretest (pages 333-339)</li> <li>• Part 1 Embedded Assessment: (pages 266-267)/ Science Notebook Sheet 2 <i>Thinking About Mixtures</i> (page 204)</li> <li>• Part 2 Embedded Assessment: (pages 268-269)/ Science Notebook Sheet 5 <i>Response Sheet- Separating Mixtures</i> (page 207)</li> <li>• Part 3 Embedded Assessment: (pages 270-271)/ Teacher Observation: /Science Notebook Sheet 6 <i>Separating a Dry Mixture</i> (page 208)</li> <li>• Benchmark Assessment I-Check 1 (pages 340-341)</li> </ul>
<p><b>2. Reaching Saturation</b>            Students make a saturated solution by adding salt to water until no more salt will dissolve. They also make a saturated Epsom-salts solution. Using a balance, they compare the solubility of the two solid materials by comparing the mass of the salt and Epsom-salts dissolved in saturated solutions. They use the property of solubility to identify an unknown material.</p>	<ul style="list-style-type: none"> <li>• Solubility is the property that substances have of dissolving in solvents</li> <li>• Solubility is different for different materials and can change with temperature and solvent</li> <li>• Solubility can be used to differentiate and identify substances</li> <li>• A solution is saturated when a solvent has dissolved as much solute as possible</li> <li>• Decompression sickness is caused by supersaturation of the gas nitrogen in blood</li> </ul>	<ul style="list-style-type: none"> <li>• Part 1 Embedded Assessment: (page 272)/ Teacher Observation: <i>Gather and Interpret Data</i></li> <li>• Part 2 Embedded Assessment: (pages 273-274) Science Notebook <i>Response Sheet Reaching Saturation</i> (page 210)</li> <li>• Part 3 Embedded Assessment: (page 275) Teacher Observation: <i>Apply Collected Data</i></li> <li>• Benchmark Assessment I-Check 2 (pages 342-344)</li> </ul>

Investigation Title and Synopsis	Concepts	Assessments and TE page numbers
<p><b>3. Fizz Quiz</b> Students systematically mix combinations of solid materials (calcium chloride, baking soda, and citric acid) with water and observe changes that occur. The changes (formation of a gas and a white precipitate) are identified as evidence of a chemical reaction. Students investigate these reactions and the chemicals they produce.</p>	<ul style="list-style-type: none"> <li>• When a change results from mixing two or more materials, that change is a chemical reaction, which can be represented with chemical formulas and chemical equations</li> <li>• Atoms are the fundamental building blocks of matter; all substances are composed of atoms</li> <li>• Atoms in reactants rearrange during reactions to form new substances</li> <li>• Atoms combine to form molecules</li> <li>• Molecules are the fundamental units of substances</li> </ul>	<ul style="list-style-type: none"> <li>• Part 1 Embedded Assessment: (pages 276-277)/ Science Notebook Sheet 10 <i>Fizz Quiz Observations</i> (page 212)</li> <li>• Part 2 Embedded Assessment: (pages 278-279)/ Science Notebook Sheet 11 <i>Reaction Analysis</i> (page 213)</li> <li>• Part 3 Embedded Assessment: (pages 280-281)/ Science Notebook Sheet 13 <i>Response Sheet-Fizz Quiz</i> (page 215)</li> <li>• Part 4 Embedded Assessment: (page 282)/ Teacher Observation: <i>Understand Results of Chemical Reaction</i></li> <li>• Benchmark Assessment I-Check 3 (pages 345-348)</li> </ul>
<p><b>4. Elements</b> Students are introduced to the periodic table as a as a graphic display of the elements showing increasing atomic number in rows and and similar chemical properties in columns. They learn about metals and alloys and that most matter on Earth is made from a small number of elements.</p>	<ul style="list-style-type: none"> <li>• Earth has 90 naturally occurring elements, each defined by a unique atom</li> <li>• Most matter on Earth is made from only a few elements</li> <li>• Most elements on Earth are metals; metals share properties of malleability and conduction of heat and electricity</li> <li>• The periodic table provides information about the composition of an element's atom and the elements chemical properties</li> <li>• Atoms and molecules can be imaged with scanning tunneling microscopes</li> </ul>	<ul style="list-style-type: none"> <li>• Part 1 Embedded Assessment: (page 282) Teacher Observation: <i>Know Difference Between Element and Compound</i></li> <li>• Part 2 Embedded Assessment: (pages 284-285) Science Notebook Sheet 15 <i>Proerties of Materials</i> (page 217)</li> <li>• Part 3 Embedded Assessment: (page 286) Teacher Observation: <i>Ability to Analyze Products based on Their Elements</i></li> <li>• Benchmark Assessment I-Check 4 (pages 349-353)</li> <li>• Posttest (pages 333-339)</li> </ul>