



## PRINTABLE SUPPLY LIST FOR

## Integrated Physics and Chemistry

**Note:** Simulations are available for all projects in this course, meaning that the supplies below are optional.

UNIT	PROJECT	BOOK / ITEM	NOTES
		<ul style="list-style-type: none"><li>• Access to research materials (internet, local library, etc.)</li><li>• A metric ruler and a meter stick</li><li>• Measuring tape</li><li>• Scissors and tape</li><li>• A scientific calculator</li><li>• A centigram balance (centigram scale can be used as alternative)</li><li>• Graphing paper</li><li>• A stopwatch and a timer (smartphone app is OK)</li><li>• Test tubes</li><li>• 90% isopropyl alcohol</li><li>• A graduated cylinder</li><li>• A pair of goggles</li></ul>	General purchases.
1. <i>Explorations in Physical Science</i>	<b>Making Observations</b>	<ul style="list-style-type: none"><li>• A bowl of peanuts in their shells (Note: if allergic to peanuts substitute with another nut such as pistachios, walnuts, or almonds)</li><li>• Various measuring tools (metric rulers, string, etc.)</li><li>• Paper and pencil</li></ul>	
1. <i>Explorations in Physical Science</i>	<b>Determining Density</b>	<ul style="list-style-type: none"><li>• A few coins (pennies, nickels, and quarters work best)</li></ul>	
2. <i>The Structure of Matter</i>	<b>Atomic Structure</b>	<ul style="list-style-type: none"><li>• A large box (at least 40 to 50 cm along all sides)</li><li>• A small block of wood (around 6 to 8 cm along all sides)</li><li>• 100 marbles or pellets (airsoft pellets work well)</li></ul>	

<p><b>2.</b> <i>The Structure of Matter</i></p>	<p><b>Separating a Mixture</b></p>	<ul style="list-style-type: none"> <li>• A mixture containing salt, iron filings, sand, gravel, and raisins</li> <li>• Screens</li> <li>• A funnel</li> <li>• Filter paper</li> <li>• Beakers</li> <li>• A ring stand and a ring</li> <li>• A magnet</li> </ul>	
<p><b>3.</b> <i>Matter and Change</i></p>	<p><b>Chemical Changes</b></p>	<ul style="list-style-type: none"> <li>• Small utility candle and holder</li> <li>• Matches</li> <li>• Three small sheets of paper</li> <li>• A watch glass or crucible</li> <li>• Three test tubes</li> <li>• Table salt (NaCl)</li> <li>• Calcium chloride (CaCl<sub>2</sub>)</li> <li>• Baking soda (NaHCO<sub>3</sub>)</li> <li>• Vinegar (HC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)</li> </ul>	
<p><b>3.</b> <i>Matter and Change</i></p>	<p><b>Half-Life</b></p>	<ul style="list-style-type: none"> <li>• 100 pennies</li> <li>• A resealable plastic bag or clean plastic box with lid</li> <li>• A sheet of wax paper, approximately 30 cm x 30 cm</li> <li>• A plastic knife</li> <li>• Cup</li> <li>• Graph paper</li> </ul>	
<p><b>4.</b> <i>States of Matter</i></p>	<p><b>Viscosity</b></p>	<ul style="list-style-type: none"> <li>• Four 100 mL graduated cylinders or 4 small clear glass or plastic cups</li> <li>• At least four identical marbles.</li> <li>• Stopwatch or watch with second hand</li> <li>• Marker to mark the cylinders or cups</li> <li>• Spoon or forceps to retrieve marbles</li> <li>• Several test liquids (e.g., water, ketchup, honey, olive oil, molasses, syrup, heavy cream, vegetable oil)</li> <li>• Microwave</li> <li>• Thermometer</li> <li>• Beaker or measuring cup</li> </ul>	
<p><b>5.</b> <i>Motion and Forces</i></p>	<p><b>Motion Graphs</b></p>	<ul style="list-style-type: none"> <li>• A battery-powered toy car</li> <li>• Meter stick or tape measure</li> <li>• Masking or duct tape</li> </ul>	

<p><b>6.</b> <i>Work and Energy</i></p>	<p><b>Potential and Kinetic Energy</b></p>	<ul style="list-style-type: none"> <li>• Cardboard tube split in half lengthwise</li> <li>• Box</li> <li>• Four marbles of different masses</li> <li>• Book</li> </ul>	
<p><b>6.</b> <i>Work and Energy</i></p>	<p><b>Inclines Planes</b></p>	<ul style="list-style-type: none"> <li>• A smooth board</li> <li>• A smooth block or other object to drag up the plane (approximately 200 to 500 grams)</li> <li>• A spring scale (calibrated in newtons)</li> <li>• String</li> <li>• Books or blocks to support the inclined plane</li> </ul>	
<p><b>6.</b> <i>Heat Flow</i></p>	<p><b>Insulators</b></p>	<ul style="list-style-type: none"> <li>• A large Styrofoam cup</li> <li>• A small Styrofoam cup</li> <li>• A flat piece of Styrofoam</li> <li>• A thermometer</li> <li>• Hot water</li> <li>• Heat source for heating water</li> <li>• At least two insulating materials (shredded newspaper, sheets of newspaper, bits of cloth, small Styrofoam peanuts, bubble wrap, feathers, aluminum foil, saw dust, etc.)</li> </ul>	
<p><b>6.</b> <i>Heat Flow</i></p>	<p><b>Heat and Expansion</b></p>	<ul style="list-style-type: none"> <li>• Clear plastic bottle with screw-top cap</li> <li>• Clear drinking straw</li> <li>• Putty or caulk</li> <li>• Grease pencil</li> <li>• Food coloring</li> <li>• Metric ruler with millimeter divisions</li> <li>• Lamp with no shade and an incandescent light bulb</li> </ul>	