

# Unit 3: Atomic Structure and Periodic Properties

Name \_\_\_\_\_

## Section 1: Atoms

<p>Topic(s): <b>Elements</b></p>	<p>Details:</p> <ul style="list-style-type: none"> <li>● Substances that cannot be broken down by _____ or physical means. <ul style="list-style-type: none"> <li>○ It consists of atoms that have the same number of _____.</li> <li>○ Organized on the periodic table.</li> </ul> </li> </ul>
<p><b>The Periodic Table</b></p>	<ul style="list-style-type: none"> <li>● Table that organizes the different _____.</li> <li>● Organized by _____ and properties of elements.</li> </ul>
<p><b>Elements (continued)</b></p>	<ul style="list-style-type: none"> <li>● An element's name can be abbreviated using its _____.</li> <li>○</li> <li>○</li> <li>○</li> <li>○</li> </ul>
<p><b>The Atom</b></p>	<ul style="list-style-type: none"> <li>● All _____ is made up of atoms. <ul style="list-style-type: none"> <li>○ Basic unit of matter</li> </ul> </li> </ul>
<p><b>Parts of an Atom</b></p>	<ul style="list-style-type: none"> <li>● <b><u>Nucleus:</u></b></li> <li>● <b><u>Energy Levels/Electron Cloud:</u></b></li> </ul> <div> <p>The diagram shows a central nucleus containing 3 protons (purple) and 3 neutrons (green). Three electrons (red) are distributed in a blue electron cloud around the nucleus. A legend on the left identifies the particles: Proton (purple dot), Neutron (green dot), and Electron (red dot). The element symbol 'Li' is written below the diagram.</p> </div>
<p><b>Nucleus</b></p>	<ul style="list-style-type: none"> <li>● Centermost part of the atom. <ul style="list-style-type: none"> <li>○ Made up of _____ and _____.</li> <li>○ Dense, _____ charged area of the atom.</li> </ul> </li> </ul>
<p><b>Subatomic particles -</b> particles that make up the atom.</p>	<p>Draw chart here:</p>

<p><b>Valence Electrons</b></p> <p><b>Mass vs. Size</b></p>	<ul style="list-style-type: none"> <li>• Found in the _____ energy level of an atom.</li> <li>• Electrons that the atoms uses when forming _____.</li> <li>• Also, electrons lost or gained when forming _____.</li> </ul>
<p><b>Reading the Periodic Table</b></p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p><b>Atomic number</b></p> <p>The number of protons in the nucleus of the atom.</p> </div> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>CARBON</b></p> <p>6</p> <p><b>C</b></p> <p>12.01</p> </div> <div style="text-align: center;"> <p><b>Element name</b></p> <p>Usually from a Greek or Latin word for the element or a substance containing the element.</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p><b>Atomic mass</b></p> <p>The average mass of the atoms in an element.</p> </div> <div style="text-align: center;"> <p><b>Symbol</b></p> <p>Short-hand abbreviation for the element name.</p> </div> </div>
<p><b>Calculating P<sup>+</sup>, N, and E<sup>-</sup></b></p> <div style="border: 1px solid black; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> <p style="font-size: 2em;">54</p> <p style="font-size: 4em; font-weight: bold;">Xe</p> <p style="font-size: 1.2em;">xenon</p> <p style="font-size: 1.2em;">131.293</p> </div>	<p><b>Atomic Number:</b></p> <p><b>Average Atomic Mass:</b></p> <p><b>Protons</b> = Atomic Number</p> <p>- Protons in Xenon: _____</p> <p><b>Electrons</b> = Should be same as atomic number unless told otherwise</p> <p>- Electrons in Xenon: _____</p> <p><b>Neutrons</b>: = Rounded average atomic mass (aka mass of nucleus) <b>minus protons</b></p> <p>- Neutrons in Xenon: _____</p>
<p><b>Reflection:</b></p>	<p><i>In the space below (or attach a separate sheet), write a reflection that summarizes and discusses what you learned about elements and atoms:</i></p>