Matter – 2.1 Notes

Elements and the Periodic Table

- An _____________ is a substance that cannot be _____________ __________ into simpler substances by _____________ or _____________ means.
- The _____________ have been _____________ by their _____________ in a document called the _____________ _____________.
- The ___________ in the periodic table are called ____________.
- The ___________ in the periodic table are called ____________.
  - ___________ within a group have similar ____________.
- ___________ are the building block of ____________.

Atoms

- An ____________ is the smallest particle of ____________ that contains the _____________ of an ____________.
- The ____________, or central region, of an atom contains ____________ and ____________. Surrounding the atom’s nucleus are ____________.
  - ____________ have a ____________ charge.
  - ____________ have a ____________ charge.
  - ____________ have a ____________ charge.
- ____________ ____________ is the one to three letters representing the ____________.
• ____________ ____________ = the number of ____________ ____________ = the number of ____________ ____________

• ____________ ____________ = the number of ____________ ____________ + the number of ____________ ____________

• ____________ ____________ are located in regions called ____________ ____________ or ____________.

• Each ____________ ____________ contains a ____________ ____________ number of ____________ ____________.

• ____________ ____________ are one way to represent energy levels.

• Another way to represent the energy levels of an atom is with an ____________ ____________ ____________ or ____________ ____________.

• In an ____________ ____________ ____________, each dot represents an ____________ ____________ in the atom's ____________ ____________ ____________.

• These electrons are sometimes called ____________ ____________.

<table>
<thead>
<tr>
<th>TABLE 7-1 Lewis Dot Formulas for Representative Elements</th>
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<tbody>
<tr>
<td>Group</td>
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<tr>
<td>----------------</td>
</tr>
<tr>
<td>Number of</td>
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<td>electrons in</td>
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<td>valence shell</td>
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<td>Period 1</td>
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<td>Period 2</td>
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<td>Period 3</td>
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<td>Period 4</td>
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<td>Period 6</td>
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<td>Period 7</td>
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</tbody>
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• Atoms with the ____________ ____________ number of ____________ ____________ but ____________ ____________ number of ____________ ____________ are called ____________ ____________.
  ○ Have different ____________ ____________ numbers
  ○ Many isotopes are ____________ ____________ and emit ____________ ____________ and ____________ ____________

• A ____________ ____________ is a substance that ____________ ____________ of two or more ____________ ____________ that are chemically ____________ ____________ in specific proportions.
• When an atom's _______________ energy level does not contain the _______________ number of electrons, the atom is likely to form a _______________ ________ with one or more other atoms.

**Types of Chemical Bonds**

An atom that has an _______________ _______________ because of a ________ or ________ of one or more electrons is called an ________.

_____________ _______________ form between positive and negative ions.

Example: ________________

_____________ _______________ form when atoms ____________ electrons.

Example: ________________

_____________ _______________ form when electrons are shared by metal ions.