the Periodic Table Review Sheet

element - a substance that can not be broken down into other substances by chemical or physical means

atom - the smallest particles of an element

atomic number - the number of protons in the nucleus of an atom

How is this shown on a periodic table? the number at the top of the element box

The number of protons and the number of electrons are equal in an atom making the atom neutral.

atomic mass - the average mass of one atom of an element

How is this shown on a periodic table? the number at the bottom of the element box

valence electron - the electrons that are farthest away from the nucleus of an atom and can form chemical bonds

How is this shown on a periodic table? the group number

What is the maximum number of electrons in the 1st energy level? 2
the 2nd? 8 the 3rd? 8

How are the number of energy levels shown on a periodic table? the period number

chemical bond - force that holds atoms together

Why do substances react (chemically bond)? To have atoms with an outermost energy level filled with electrons. This is done by gaining, losing or sharing electrons.
What determines if an atom will lose, gain or share electrons?

- *electrons take the easiest path to filling an energy level*
  - few electrons = loses
  - many valence electrons = gains
  - same number of valence electrons = share
  - full energy level = stable; does not gain, lose or share electrons

Who published the first periodic table of elements? *Mendeleev*

He arranged his elements on the periodic table according to what physical property? *increasing atomic mass*

Vertical columns of the periodic table are called **group**.

There are **18** groups in the periodic table.

The elements in a **group** have similar **properties**.

Groups are given a family name based on _the first element in the column_.

Horizontal rows of the periodic table are called **periods**.

There are **7** periods on the periodic table.

An element’s **physical and chemical properties** can be predicted from its location in the periodic table.

Why is Group 18 called the Noble Family? *they are all odorless, colorless gases that are generally unreactive*

- **metal** - an element that is hard, shiny, a good conductor of heat and electricity, can be hammered into thin sheets or pulled into thin strands

- **nonmetal** - an element that lacks most of the properties of metals

- **metalloid** - an element that has some of the characteristics of both metals and nonmetals
<table>
<thead>
<tr>
<th>Element Symbol and Name</th>
<th>Bohr Model</th>
<th>Group</th>
<th>Period</th>
<th># of valence electrons</th>
<th># of energy levels</th>
<th>metal, nonmetal, metalloid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na Sodium</td>
<td><img src="image" alt="Bohr Model" /></td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>metal</td>
</tr>
</tbody>
</table>

Be able to locate metals, nonmetals and metalloids on the periodic table of elements.