**Periodic Table Practice Problems**

1. What two things do elements in the same columns of the periodic table have in common with each other?
2. What’s the electron configuration of potassium?
3. What’s the abbreviated electron configuration of potassium?
4. In your own words, what’s a good way of describing what an electron configuration is?
5. Which elements on the table are:

* In the “d-block”?
* Have two valence electrons?
* Mostly radioactive?
* Mostly unreactive?
* Good conductors of heat and electricity?
* Most likely to be a gas?
* Conductors of electricity only at increased temperatures and/or under high voltage?

1. If two elements have the same number of valence electrons, will they have identical properties? Why or why not?
2. If two elements have different numbers of valence electrons, is it possible for them to have very similar properties? Why or why not?

**Periodic Table Practice Problems – ANSWERS!**

1. What two things do elements in the same columns of the periodic table have in common with each other? **They have the same number of valence electrons (can also be phrased as saying they have very similar electron configurations) and they tend to have similar properties.**
2. What’s the electron configuration of potassium? **1s22s22p63s23p64s1**
3. What’s the abbreviated electron configuration of potassium? **[Ar]4s1**
4. In your own words, what’s a good way of describing what an electron configuration is? **The electron configuration of an element is a list of where all the electrons in the atom can be found.**
5. Which elements on the table are:

* In the “d-block”? **Transition metals**
* Have two valence electrons? **Alkaline earth metals**
* Mostly radioactive? **Actinides (called “actinoids” in some locales)**
* Mostly unreactive? **Noble gases**
* Good conductors of heat and electricity? **Metals**
* Most likely to be a gas? **Nonmetals**
* Conductors of electricity only at increased temperatures and/or under high voltage? **Metalloids (also sometimes called semi-metals)**

1. If two elements have the same number of valence electrons, will they have identical properties? Why or why not? **No. There are factors that determine elemental properties that don’t include the number of valence electrons, such as the element’s mass, nuclear charge, overall number of electrons, periodic trends, and so forth. However, the properties of elements with the same number of valence electrons are likely to be very similar.**
2. If two elements have different numbers of valence electrons, is it possible for them to have very similar properties? Why or why not? **Sure. However, it’s *generally* the case that the closer the electron configurations are, the more similar the properties will be.**