## Pl anet G Periodic Table

**Pre-lab Questions:** Answer the following questions before proceeding.

1. Periods run	_ (horizontal or vertical).			
2. Groups or families of elements run	(horizontal or vertical).			
3. A period 3 element would have energy le	vels.			
4. Diatomic elements such as oxygen gas have	atoms.			
5. Electrons in the last energy level are called	electrons.			
6. The chemical formula for water is				
7. The chemical formula for sodium chloride (salt) is	<del>.</del>			

## **Background Information:** *Read the following before proceeding.*

The periodic table is one of the most useful tools used by chemists. The first periodic table was arranged by Dmitri Mendeleev according to atomic mass in such a way that elements with similar properties were grouped together. Henry Moseley later arranged the periodic table according to the increasing atomic number. The periodic law is believed to be universal so that it should hold true not only on Earth but also throughout the universe, including the newly discovered planet...Planet G in the Gliese 581 system. (For the sake of this activity we are going to agree that there is intelligent life on Planet G.)

The intelligent life on Planet G has made contact with scientists on Earth; Planet G's languages have been translated, and scientific information has begun to be exchanged. The planet is composed of the same elements as Earth. However, the inhabitants of the planet have different names and symbols for them. Since the scientists on Planet G do not know the names of our elements, they have radioed the following data on the known properties of the elements. Strangely, but luckily, there are no transition or synthetic elements on Planet G. This means that their periodic table consists of 30 elements that belong to Groups 1, 2, 13, 14, 15, 16, 17 and 18.

## The data follows:

- 1. The noble gases are bombal (Bo), wobble (Wo), jeptum (J), and logon (L). Bombal (Bo) is a noble gas but does <u>not</u> have 8 valence electrons. The outside energy level of logon (L) is its second energy level. Of these noble gases, wobble (Wo) has the greatest atomic mass.
- 2. The alkali metals are xtalt (X), byyou (By), chow (Ch), and quackzil (Q). Of these alkali metals, chow (Ch) has the smallest atomic mass. Quackzil (Q) is in the same period as wobble (Wo).
- 3. The halogens are apstrom (A), vulcania (V), and kratt (Kt). Vulcania (V) is in the same period as quackzil (Q) and wobble (Wo).
- 4. The metalloids are ernst (E), highho (Hi), terriblum (T), and sississ (Ss). Sississ (Ss) is the metalloid with the highest atomic mass. Ernst (E) is the metalloid with the largest atomic mass. Highho (Hi) and terriblum

- (T) are in Group 14. Terriblum (T) has more protons than Hi. The element called yazzer (Yz) is a metalloid by location but has properties that suggest it is a light metal.
- 5. The most metallic element on the planet is called xtalt (X). The most chemically active nonmetal on the planet is called apstrom (A). The lightest element on the planet is called pfsst (Pf). The heaviest element on the planet is elrado (El). It is highly radioactive.
- 6. The chemical makeup of the alien planet's oceans seems to be about the same as Earth's oceans. When sea water is distilled, the liquid that is boiled off and then condensed has been shown to have molecules consisting of two atoms of pfsst (Pf) and one atom of nuutye (Nu). The solid left behind after the distillation consists mainly of a crystal made up of the elements byyou (By) and kratt (Kt).
- 7. The element called doggone (D) has only 4 protons in its atom.
- 8. Floxxit (Fx) is a black crystal and has 4 electrons in its outermost energy level. Both rhaatrap (R) and doadeer (Do) have atoms with four energy levels. But rhaatrap is less metallic than doadeer.
- 9. Magnificon (M), goldy (G), and sississ (Ss) are all members of Group 15. Goldy has fewer total electrons than magnificon.
- 10. Urrp (Up), oz (Oz), and nuutye (Nu) all belong to Group 16. Nuutye is diatomic. Oz has a lower atomic number than urrp.
- 11. The element anatom (An) belongs to Group 13. The elements zapper (Z) and pie (Pi) both belong to Group 2. Pie has five energy levels, while zapper has three.

**Procedure:** Refer to your Notes on the Periodic Table and your Notes on the Elements & Properties as you correctly place the unknown Alien elements in a blank periodic table based on the given chemical and physical properties. *Fill in the blank periodic table provided on the other sheet with the correct alien planet symbol for each element. The symbol is given in parentheses after the element.* 

## **Blank Alien Periodic Table:**

	1						_	18
1		2	13	14	15	16	17	
2								
3								
4								
5								