

Planet 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 levels.
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 _____.

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 *not* 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

