

Earth's scientists have announced that they have made radio contact with intelligent life on a distant planet. One of this alien planet's languages has 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 alien scientists 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 inner transition elements on the alien planet, only main group elements.

The chemical makeup of the alien planet's oceans seems to be about the same as the Earth's oceans. When sea water is distilled, the liquid is boiled off. This liquid was shown to consist of two atoms of **Pfsst (Pf)** and one atom of **Nuutye (Nu)**, ( $\text{Pf}_2\text{Nu}$ ). The solid left behind after the distillation consists mainly of a crystal made of the elements **Byyou (By)** and **Kratt (Kt)**. ( $\text{ByKt}$ )

The Nobel gases are **Bombal (Bo)**, **Wobble (Wo)**, **Jeptum (J)**, and **Logon (L)**. **Bo Wo J L**

**Bombal (Bo)** is a noble gas but does not have 8 valence electrons. The outside energy level of **Logon (L)** is energy level two. Of these noble gases, **Wobble (Wo)** has the greatest atomic mass.

The alkali metals are **Xtalt (X)**, **Byyou (By)**, **Chow (Ch)**, and **Quackzil (Q)**. **X By Ch Q**

Of these alkali metals, **Chow (Ch)** has the lowest atomic mass. **Quackzil (Q)** is in the same period as **Wobble (W)**.

The halogens are **Apstrom (A)**, **Vulcania (V)**, and **Kratt (Kt)**. **A V Kt**

The most chemically active nonmetal on the planet is called **Apstrom (A)**.

**Vulcania (V)** is in the same period as **Quackzil (Q)** and **Wobble (W)**.

The metalloids are **Ernst (E)**, **Highbo (Hi)**, **Terriblum (T)**, and **Sississ (Ss)**. **E Hi T Ss**

**Sississ (Ss)** is the metalloid with the highest atomic mass. **Ernst (E)** is the metalloid with the lowest atomic mass. **Highbo (Hi)** and **Terriblum (T)** are in Group 4.

**Terriblum (T)** has more protons than **Highbo (Hi)**.

The element called **Yazzer (Yz)** is a metalloid by location but has properties that suggest it is a light metal. **Yz**

The most metallic element on the planet is called **Xtalt (X)**.

The lightest element on the planet is called **Pfsst (Pf)**. The heaviest element on the planet is **Elrado (El)**, it is highly radioactive. **Pf El**

The element called **Doggone (D)** has only 4 protons in its nucleus. **D**

The elements **Zapper (Z)** and **Pie (Pi)** both lose 2 electrons. **Z Pi**

**Pie (Pi)** loses them from the 5<sup>th</sup> energy level, while **Zapper** loses them from the third.

The elements **Anatom (An)** tends to lose 3 electrons from the 5<sup>th</sup> energy level. **An**

**Magnificon (M)**, **Goldy (G)**, and **Sississ (Ss)** are all members of group 5. **M G**

**Goldy (G)** has fewer total electrons than **Magnificon (M)**.

**Urrp (Up)**, **Oz (Oz)**, and **Nuutye (Nu)** all gain 2 electrons. **Up Oz Nu**

**Nuutye (Nu)** is diatomic, all living things need to breath this gas ( $\text{Nu}_2$ ). **Oz (Oz)** has a lower atomic number than **Urrp (Up)**.

**Floxxit (Fx)** is found in all living things and forms a black crystal that has 4 electrons in its outermost energy level. Both **Rhaatrap (R)** and **Doadeer (Do)** have atoms with four energy levels, but **Rhaatrap (R)** is less metallic than **Doadeer (Do)**. **Fx R Do**

