**Living Environment Chapter 2- THE CHEMISTRY OF LIFE**

**DO NOW: Read**

Life depends on chemistry. When you eat food or inhale oxygen, your body uses these materials in chemical reactions that keep you alive. Just as buildings are made from bricks, steel, glass, and wood, living things are made from chemical compounds and elements. If the first task of an architect is to understand building materials, then the first task of a biologist is to understand chemistry. In our second chapter of science, we will be learning about the building materials that make up living things and the chemical reactions that maintain life.

**Atoms:**

* Atoms- the smallest unit of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  1. The smallest unit, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of any “thing”
  2. “Atomos” – Greek for “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* There are different types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that make up different types of things.

**Elements:**

* Different types of atoms make up different the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Gold, silver, calcium, aluminum, oxygen, carbon, titanium, nitrogen, and potassium are all examples of elements.
* Each element is made from it’s own \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a pure substance made from 1 type of atom.
* Gold, an element, is made from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Oxygen, an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, is made from 100% oxygen atoms.
* Most “things” are made from combinations of many different elements.

**Chemical Bonds:**

* Atoms can join together by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A chemical bond is formed when 2 or more atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Atoms can join together in different ways
* When atoms join together, the number of atoms and the types of bonds that form determine the “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” of that substance.

**Compounds and Molecules:**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_types of atoms bond together
  1. When different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bond to together.

There are 3 **elements** that you must know:

|  |  |
| --- | --- |
| **Element Name** | **Element Symbol** |
| Carbon |  |
| Hydrogen |  |
| Oxygen |  |

There are 4 important **molecules** (compounds) that you must know:

|  |  |
| --- | --- |
| **Molecule Name** | **Chemical Formula** |
| Oxygen |  |
| Carbon Dioxide |  |
| Water |  |
| Glucose |  |

**CLASSWORK / HOMEWORK:**

1. What is the chemical formula for **water**?

2. How many ATOMS are in a water molecule?

3. How many different ELEMENTS make up water?

4. A molecule of water is made from 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms bonded to 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atom.

5. What is the chemical formula for **oxygen**?

6. How many ATOMS are in an oxygen molecule?

7. How many ELEMENTS make up oxygen?

8. A molecule of oxygen is made from 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms bonded together.

9. What is the chemical formula for **glucose**?

10. How many ATOMS are in a molecule of glucose?

11. How many ELEMENTS make up glucose?

12. A molecule of glucose is made from 6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms, 12 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms, and 6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms bonded together.