

**Building Blocks of life: Episode 1. What are proteins?**

Name \_\_\_\_\_ per. \_\_\_\_

**The Miller-Urey experiment.**

What was the experiment trying to accomplish?

What were the results of their experiments?

What were the primary gasses of Earth's early atmosphere? (*write down the names and the formulas*).

**Amino Acids: The building blocks of Life.**

- Using the molecular model kits, build TWO copies of a basic Amino Acid, leaving the bottom 'bond' unattached for now.. (place a 'flag' marked R on a long dowel for now).

Use this space below to draw the 'Structural Diagram' of a generic Amino Acid.

**Key:**

- Hydrogen atoms. (1 bond) Small, white spheres
- Carbon Atoms (4 bonds) Black spheres
- Oxygen Atoms (2 bonds) Red Spheres
- Nitrogen Atoms (3 bonds) Blue Spheres.

- Now, starting with ONE of your 'generic' Amino Acid models, take out the R-peg and replace it with a single Hydrogen Atom to create a **Glycine**.

*Use this space to draw the structural diagram AND a 3-d model of the atom. (using colored pencils)*

- Now, starting with ONE of your 'generic' Amino Acid models, take out the R-peg and replace it with an single Carbon Atom, with three additional Hydrogen atoms to make **Alanine**

*Use this space to draw the structural diagram AND a 3-d model of the atom. (using colored pencils)*

***On the back side: What is a peptide bond? (draw the molecular diagram showing how a peptide bond is formed). What is a di-peptide? Tri-Peptide? Poly-peptide?***

***Now join your two molecules together forming a peptide bond and a water molecule. Now join your molecule with the molecule from a neighboring with another Peptide bond. What are you making?***