

## Molecule World DNA Binding Lab Glossary

**Groove:** a channel or indented area.

**Residue:** Large molecules such as DNA, RNA, and protein are polymers. That is, these molecules contain smaller building blocks that are joined together. The residues are the building blocks. In DNA or RNA, the residues are the nucleotides. In proteins, the residues are the amino acids.

**Chain or strand:** a single polymer of DNA, RNA, consisting of multiple residues joined together with covalent bonds. Each chain or strand has a beginning and an end and can be considered to be an independent molecule.

**Charge:** the electrical charge on a residue, the charge is either positive, negative, or neutral.

**Hydrophobicity:** a chemical property that prevents molecules from dissolving in water. Amino acids range from extremely hydrophobic to extremely hydrophilic. The nucleotides in bases are hydrophilic.

**Hydrophilicity:** a chemical property where molecules are able to dissolve in water. Amino acids range from extremely hydrophobic to extremely hydrophilic. The nucleotides in bases are hydrophilic.

**Rendering or drawing style:** ways of representing molecular structures.

**Ball and stick:** each atom is shown as a ball and each covalent bond as a stick.

**Tube:** all bonds are shown as sticks and atoms as joints where the sticks meet.

**Space fill:** All the atoms are drawn with sizes that show the relative size of each atom's electron cloud when that atom is covalently bound to another atom.

**Coloring styles:**

**Element** – all the elements are shown with a different color.

**Residue:** each residue is shown with a different color.

**Charge:** All residues are colored according to their chemical charge (positive, negative, neutral).

**Hydrophobicity:** All residues are colored according to their relative hydrophobicity.

**Molecule:** Each molecule is shown with a different color.

