1 | **Biology Day 1**

1. What characteristics unite all life on earth (plants, animals, fungi, bacteria (and archaea))? Describe these characteristics **in terms of the biological macromolecules** you learned about in the fall.

All life forms contain at least one cell that includes genomic information stored as DNA — a compound formed by nucleic acids, a form of seperation from the outside — through the use of a phosolipid layer, and other constituent ”cellular machinary” aimed at synthesizing proteans — created by synthesizing amino acids by the ribosome— for their functions; the functional proteins are all coded using three-letter codons that code for specific amino acids to create the proteins in question.

Each living cell metabolizes, and they all synthesize ATP, a large molecule, used by all for energy to drive cellurar processses. All cells reproduce to share their DNA.

1. The video revealed that all living things share a core set of 200-300 genes that have important functions in organisms (although the sequences of the genes vary somewhat from organism to organism). Based on what you learned in the fall, *predict what kinds of proteins might be encoded by these core genes and share the reasoning behind your ideas*.

Such shared genes would probably drive the actions mentioned in question 1 — especially on the front of DNA translation, transcription which would synthesize proteins that then helps to create the specialised parts of the cell.

Furthermore, the production of energy, with ATP being the shared molecular storage thereof, will probably involve a similar pathway.

Hence, the genes perhaps encode the creation of mitocondria (for energy), ribosomes and the basic machinary of creating m+tRNA (RNA polymerease), and the foundations of cell wall/membranes (the orientation of phospholipids) which are fundimentally common to all cells.