

# Welcome to Biology

# Wednesday

# 9/15/21

Phones away and things  
out of ears please -  
Masks covering face  
holes  
Thank you!!

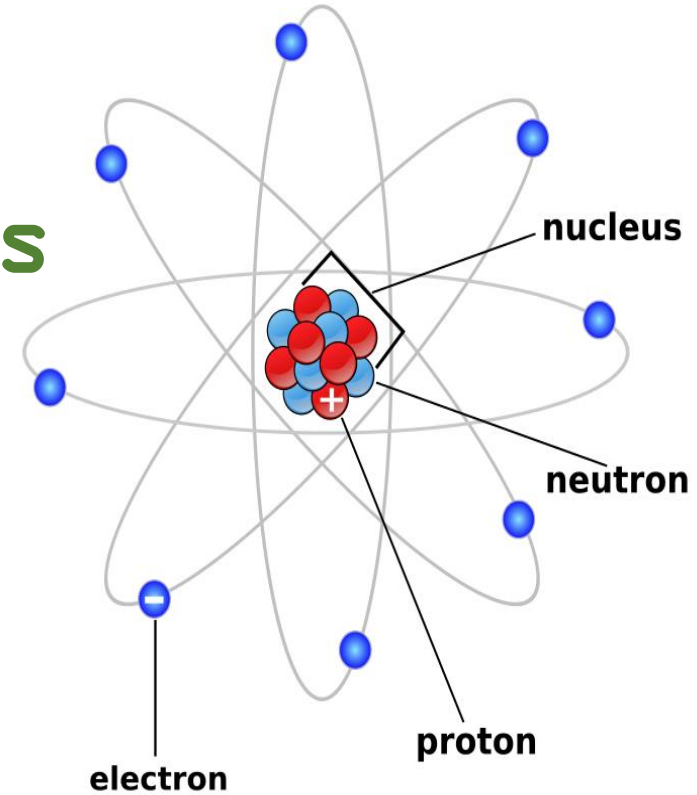


# Daily Agenda

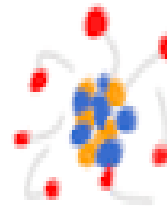
1. Unit 3: The Biomolecules  
Atoms, Elements and Molecules

2. Review Worksheet

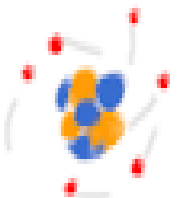
## Atomic Structure



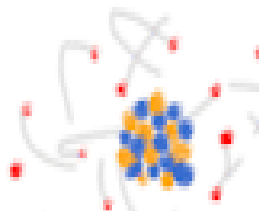
HYDROGEN (H)



NITROGEN (N)



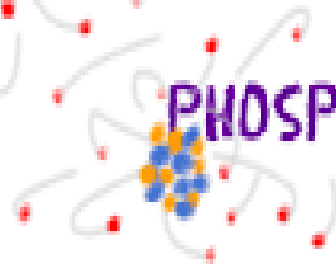
CARBON (C)



CALCIUM (Ca)



OXYGEN (O)



PHOSPHORUS (P)

**Check Grades!!!**

YOU ARE MADE UP OF DIFFERENT TYPES OF ATOMS

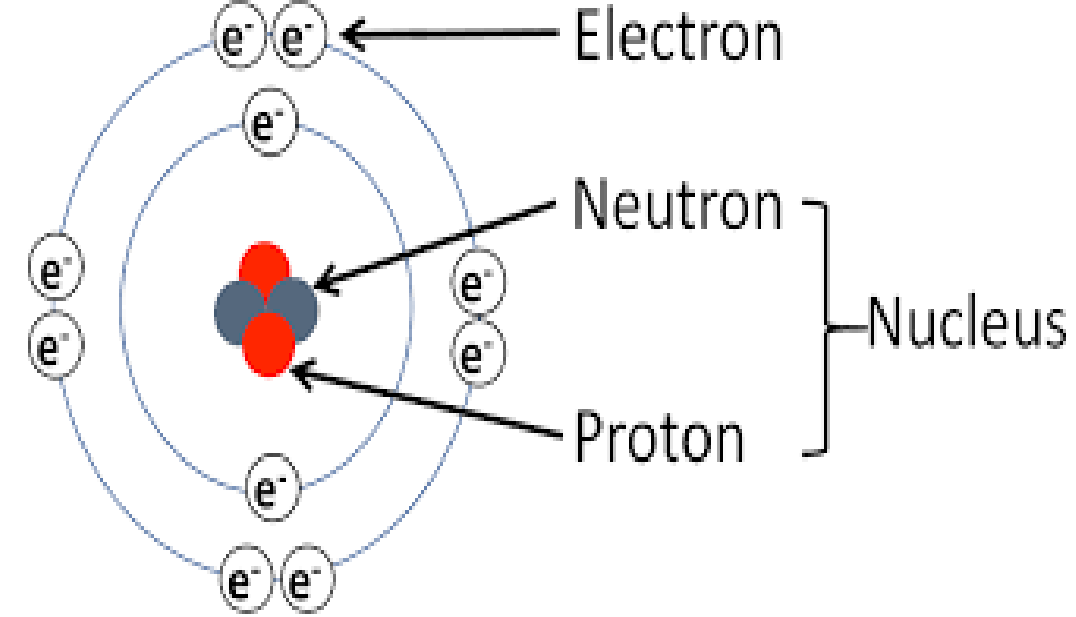
# Unit 3: The Biomolecules 9/15/21

Living things are primarily made of water but also lots of other stuff.

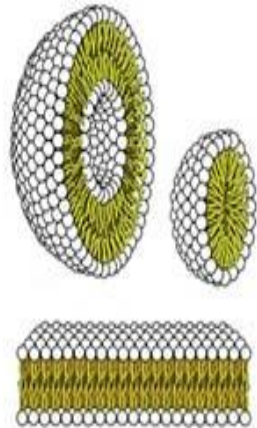
The bulk of that other stuff is made up of four major categories of biomolecules. (See below)

Molecules are combinations of elements joined by chemical bonds (energy that holds the atoms together).

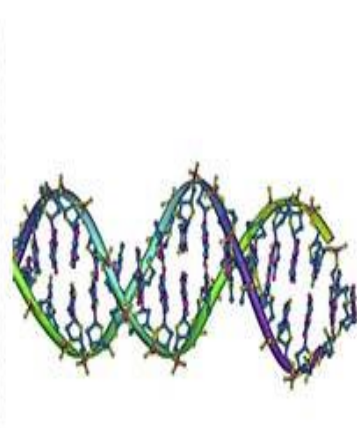
Elements are simply different kinds of atoms.



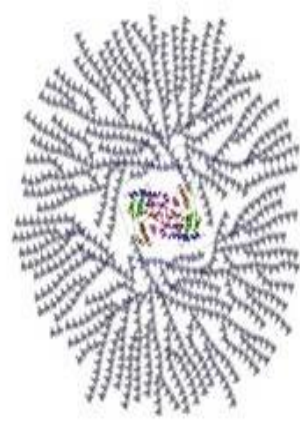
## BIOMOLECULES



LIPIDS



NUCLEIC ACIDS

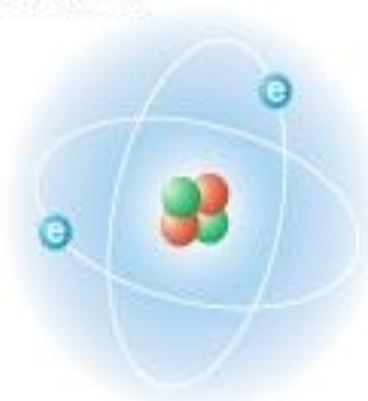


CARBOHYDRATES

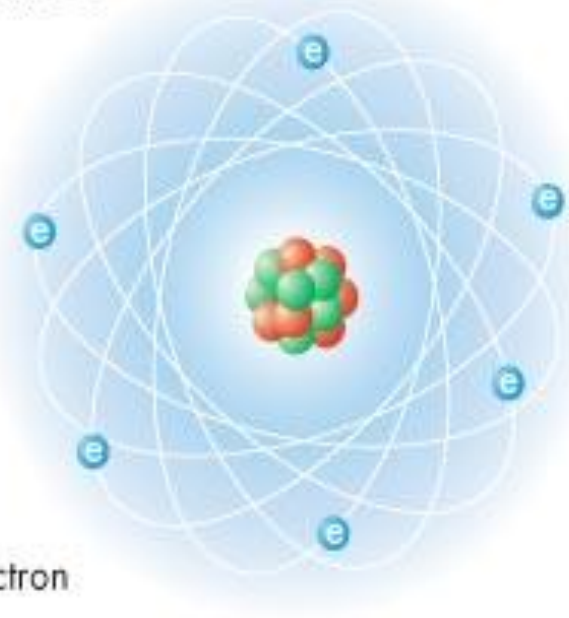


PROTEINS

Helium



Carbon



nucleus  
proton neutron electron  
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Organisms use approximately 20+ elements

Carbon (C), hydrogen (H) and oxygen (O) are found in all biomolecules. H and O also make water, so C, H and O are very common in cells.

**In the cell, nitrogen and phosphorous are the next most represented**

- Essential for humans
- Suggested to be essential for humans
- Nonessential for humans

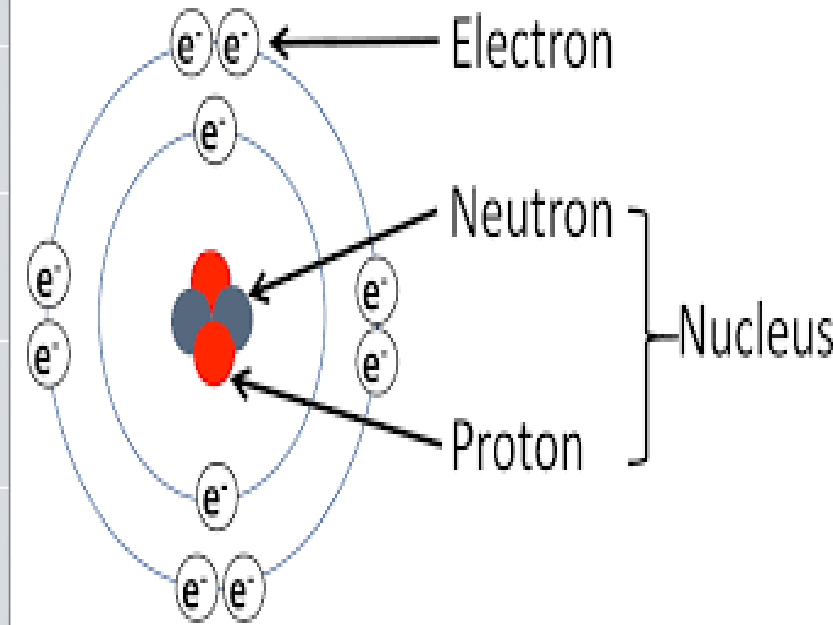
**The Periodic Table of the Elements**

1	1 <b>H</b>																	18 2 <b>He</b>
2	3 <b>Li</b>	4 <b>Be</b>											5 <b>B</b>	6 <b>C</b>	7 <b>N</b>	8 <b>O</b>	9 <b>F</b>	10 <b>Ne</b>
3	11 <b>Na</b>	12 <b>Mg</b>											13 <b>Al</b>	14 <b>Si</b>	15 <b>P</b>	16 <b>S</b>	17 <b>Cl</b>	18 <b>Ar</b>
4	19 <b>K</b>	20 <b>Ca</b>	21 <b>Sc</b>	22 <b>Ti</b>	23 <b>V</b>	24 <b>Cr</b>	25 <b>Mn</b>	26 <b>Fe</b>	27 <b>Co</b>	28 <b>Ni</b>	29 <b>Cu</b>	30 <b>Zn</b>	31 <b>Ga</b>	32 <b>Ge</b>	33 <b>As</b>	34 <b>Se</b>	35 <b>Br</b>	36 <b>Kr</b>
5	37 <b>Rb</b>	38 <b>Sr</b>	39 <b>Y</b>	40 <b>Zr</b>	41 <b>Nb</b>	42 <b>Mo</b>	43 <b>Tc</b>	44 <b>Ru</b>	45 <b>Rh</b>	46 <b>Pd</b>	47 <b>Ag</b>	48 <b>Cd</b>	49 <b>In</b>	50 <b>Sn</b>	51 <b>Sb</b>	52 <b>Te</b>	53 <b>I</b>	54 <b>Xe</b>
6	55 <b>Cs</b>	56 <b>Ba</b>	57 <b>La</b>	72 <b>Hf</b>	73 <b>Ta</b>	74 <b>W</b>	75 <b>Re</b>	76 <b>Os</b>	77 <b>Ir</b>	78 <b>Pt</b>	79 <b>Au</b>	80 <b>Hg</b>	81 <b>Tl</b>	82 <b>Pb</b>	83 <b>Bi</b>	84 <b>Po</b>	85 <b>At</b>	86 <b>Rn</b>
7	87 <b>Fr</b>	88 <b>Ra</b>	89 <b>Ac</b>	104 <b>Rf</b>	105 <b>Db</b>	106 <b>Sg</b>	107 <b>Bh</b>	108 <b>Hs</b>	109 <b>Mt</b>	110 <b>Ds</b>	111 <b>Rg</b>	112 <b>Uub</b>	113 <b>Uut</b>	114 <b>Uuq</b>	115 <b>Uup</b>			

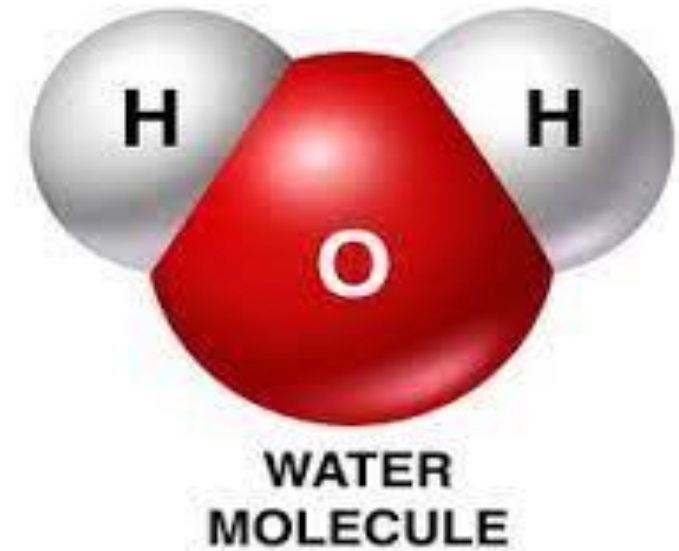
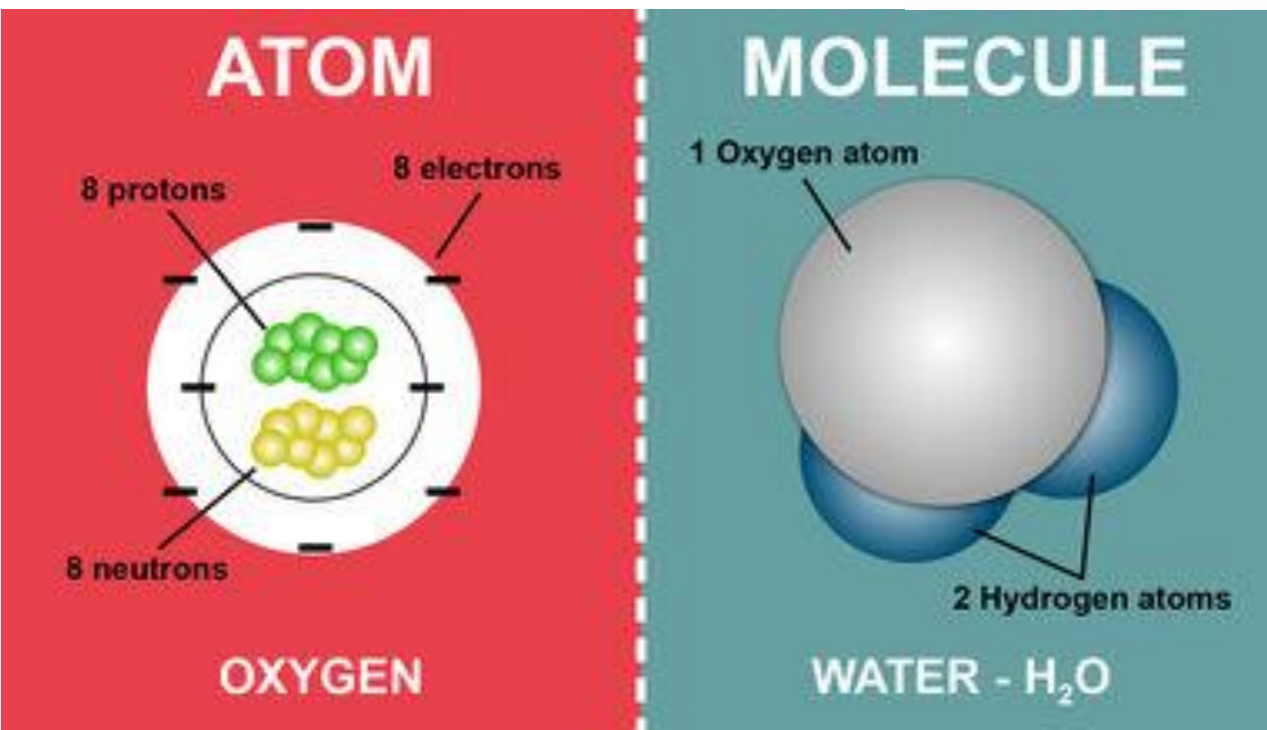
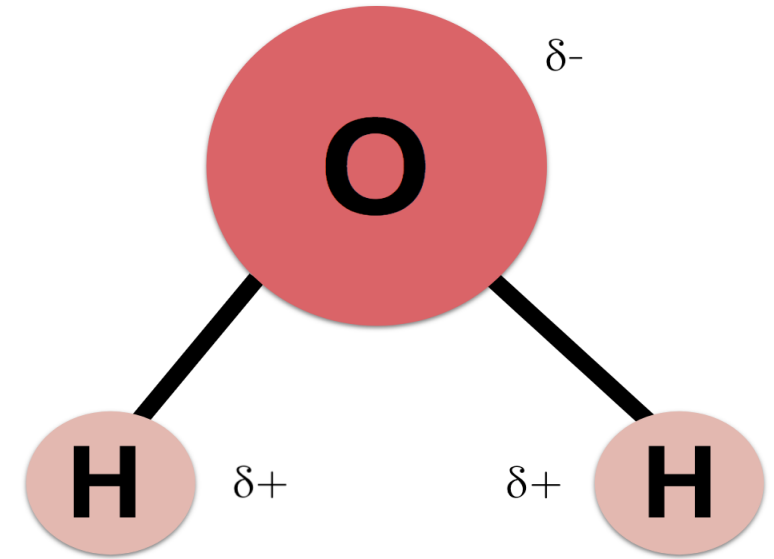
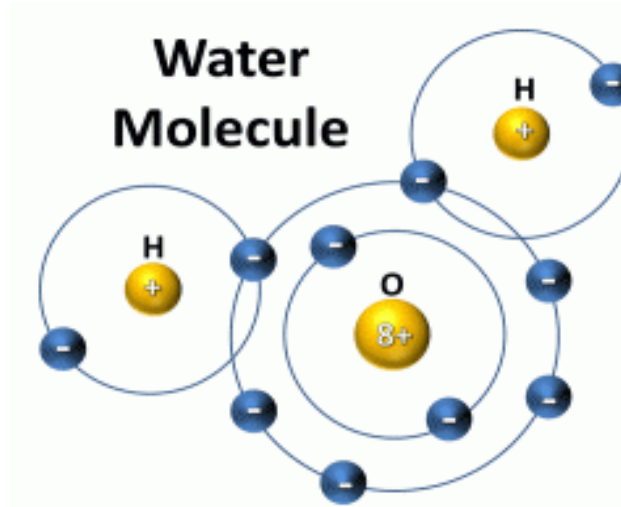
As you move across and down the periodic table you are adding electrons, protons and neutrons, so elements get heavier, and their chemical behaviors change.

1																	18
1																	2
1	2											13	14	15	16	17	18
1	2											5	6	7	8	9	10
3	4											13	14	15	16	17	18
11	12											31	32	33	34	35	36
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115			
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Uub	Uut	Uuq	Uup			

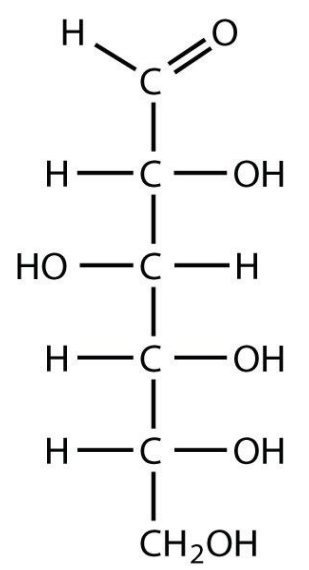
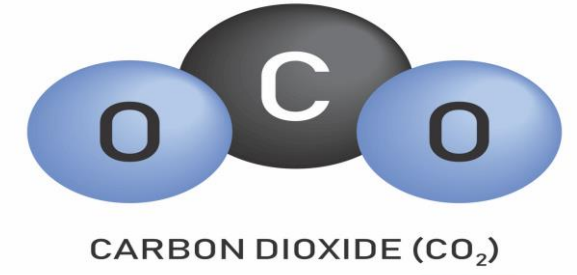
- Essential for humans
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- Nonessential for humans



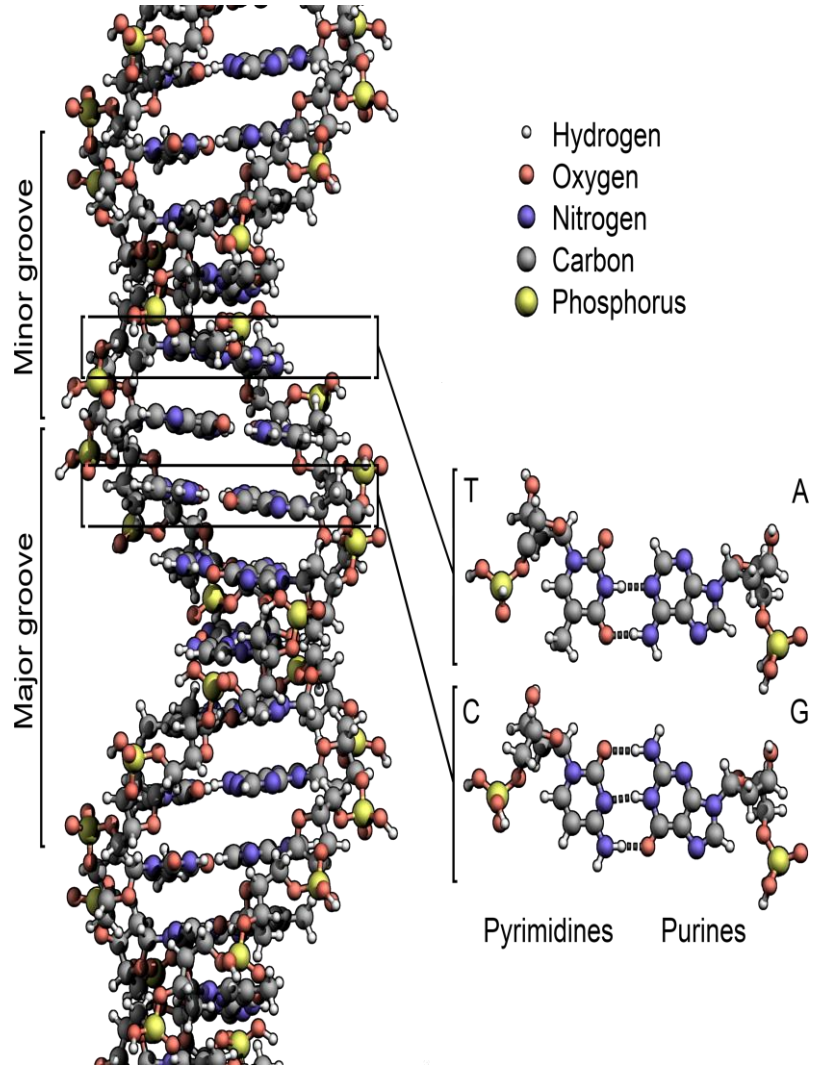
Most atoms do not like to exist alone but instead share electrons to form chemical bonds that will join them to other atoms. When 2 or more atoms join together it is called a molecule.



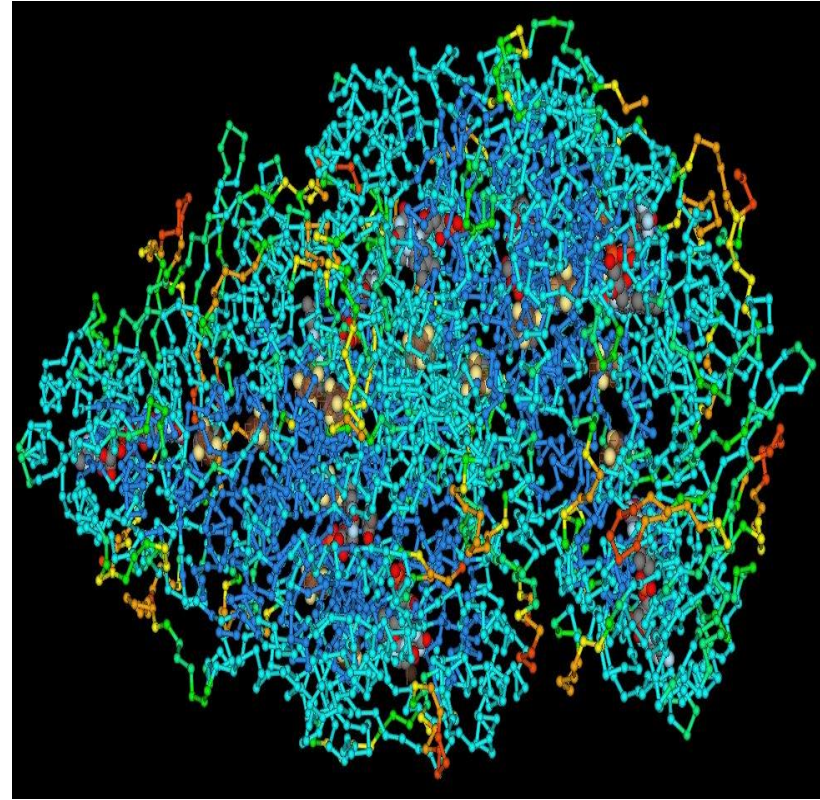
Some molecules are relatively small (2 to 50 atoms) while some can consist of 100's to billions of atoms. Large molecules are referred to as macromolecules.



Glucose



DNA is one of the largest molecules



Proteins can be huge  
(for a molecule)