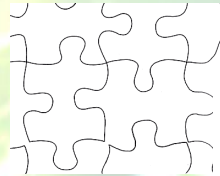


# Chapter 1 Lesson 1 Notes

# Characteristics of Life

- All organisms have common characteristics such as:

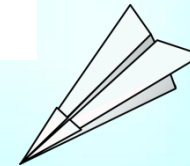
- organization



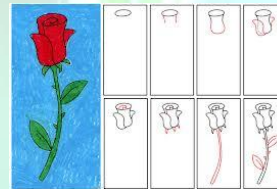
- responses



- growth and development



- reproduction



- maintain **homeostasis**



- use energy



# Video

- BBC Secret Universe—The Hidden Life of a Cell



# Cell Theory

- All organisms are made of cells.
- The cell is the smallest unit of life.
- All new cells come from pre-existing cells.



# Chemistry of a Cell

- The molecules in living things are made from:
  - Carbon
  - Potassium
  - Hydrogen
  - Nitrogen
  - Sulfur
  - Oxygen

Periodic Table of the Elements

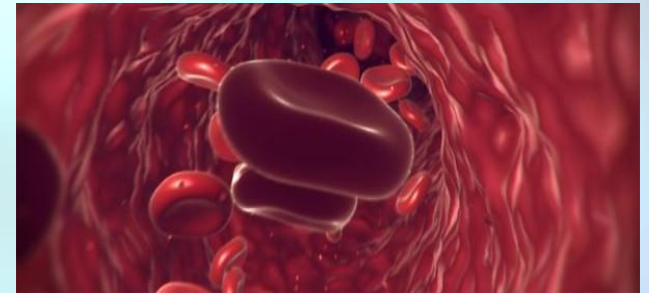
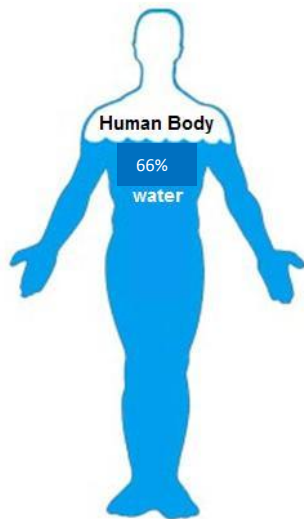
1 1H H Hydrogen	2 IIA 2A Be Beryllium	3 IIIB 3B Li Lithium	4 IVB 4B Be Beryllium	5 VB 5B B Boron	6 VIB 6B C Carbon	7 VIIB 7B N Nitrogen	8 VIII 8 O Oxygen	9 VIII 9 F Fluorine	10 VIII 10 Ne Neon	11 IB 11 Na Sodium	12 IIB 12 Mg Magnesium	13 IIIA 13A Al Aluminum	14 IVA 4A Si Silicon	15 VA 5A P Phosphorus	16 VIA 6A S Sulfur	17 VIIA 7A Cl Chlorine	18 VIIIA 8A Ar Argon	19 IIB 19 K Potassium	20 IIB 20 Ca Calcium	21 IIIB 21 Sc Scandium	22 IIIB 22 Ti Titanium	23 IIIB 23 V Vanadium	24 IIIB 24 Cr Chromium	25 IIIB 25 Mn Manganese	26 IIIB 26 Fe Iron	27 IIIB 27 Co Cobalt	28 IIIB 28 Ni Nickel	29 IIIB 29 Cu Copper	30 IIIB 30 Zn Zinc	31 IIIB 31 Ga Gallium	32 IIIB 32 Ge Germanium	33 IIIB 33 As Arsenic	34 IIIB 34 Se Selenium	35 IIIB 35 Br Bromine	36 IIIB 36 Kr Krypton	37 IIB 37 Rb Rubidium	38 IIB 38 Sr Strontium	39 IIB 39 Y Yttrium	40 IIB 40 Zr Zirconium	41 IIB 41 Nb Niobium	42 IIB 42 Mo Molybdenum	43 IIB 43 Tc Technetium	44 IIB 44 Ru Ruthenium	45 IIB 45 Rh Rhodium	46 IIB 46 Pd Palladium	47 IIB 47 Ag Silver	48 IIB 48 Cd Cadmium	49 IIB 49 In Indium	50 IIB 50 Sn Tin	51 IIB 51 Sb Antimony	52 IIB 52 Te Tellurium	53 IIB 53 I Iodine	54 IIB 54 Xe Xenon	55 IIB 55 Cs Cesium	56 IIB 56 Ba Barium	57-71 Lanthanide Series 57 La Lanthanum 58 Ce Cerium 59 Pr Praseodymium 60 Nd Neodymium 61 Pm Promethium 62 Sm Samarium 63 Eu Europium 64 Gd Gadolinium 65 Tb Terbium 66 Dy Dysprosium 67 Ho Holmium 68 Er Erbium 69 Tm Thulium 70 Yb Ytterbium 71 Lu Lutetium	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon	87 Fr Francium	88 Ra Radium	89-103 Actinide Series 89 Ac Actinium 90 Th Thorium 91 Pa Protactinium 92 U Uranium 93 Np Neptunium 94 Pu Plutonium 95 Am Americium 96 Cm Curium 97 Bk Berkelium 98 Cf Californium 99 Es Einsteinium 100 Fm Fermium 101 Md Mendelevium 102 No Nihonium 103 Lr Lawrencium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Uut Ununtrium	114 Uuq Ununquadium	115 Uup Ununpentium	116 Uuh Ununhexium	117 Uus Ununseptium	118 Uuo Ununoctium
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Legend:

- Alkali Metal
- Alkaline Earth
- Transition Metal
- Basic Metal
- Semimetals
- Nonmetals
- Halogens
- Noble Gas
- Lanthanides
- Actinides

# Water—The Main Ingredient

- 2/3 of our body mass
- Inside cells and surrounds cells
- Allows transport of substances in blood



# Basic Substances in Cells

- Macromolecules:
  - Proteins
  - Nucleic acids
  - Lipids
  - Carbohydrates



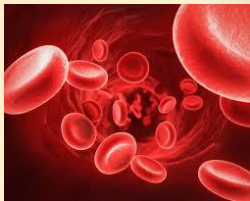


# Proteins

- Folded chains or groups of folded chains of amino acids

**Table 1** Types of Proteins

Name	Function
Keratin (KEH rih tihn)	Provides structural support for hair, horns, and feathers
Hemoglobin (HEE muh gloh bun)	Transports oxygen in the blood of animals with backbones
Casein (KAY seen)	Found in milk; a source of amino acids, phosphorus, and calcium when digested
Insulin (IHN suh lun)	Regulates the amount of sugar in the blood of animals with backbones
Amylase (AM uh lays)	Found in saliva; speeds up the breakdown of starch molecules





# Nucleic Acids

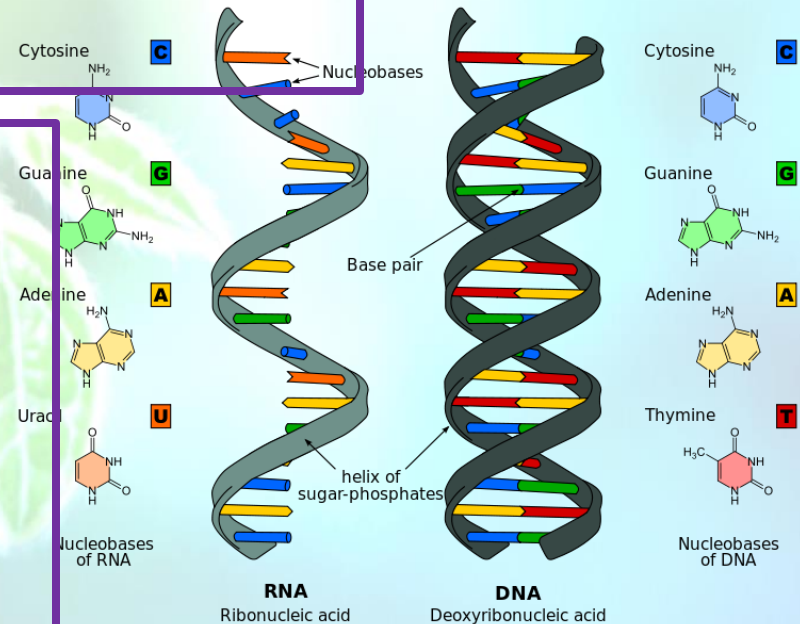
- Long chains of molecules called nucleotides

## – DNA

- Deoxyribonucleic Acid
- Only 4 types of nucleotides BUT
- There are BILLIONS!

## – RNA

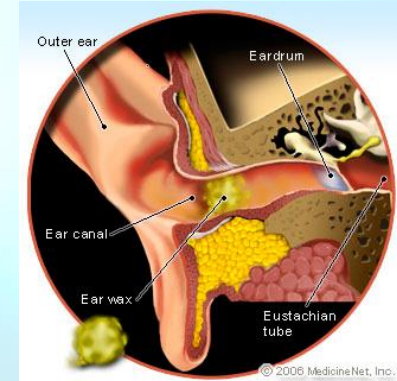
- Used to make proteins.





# Lipids

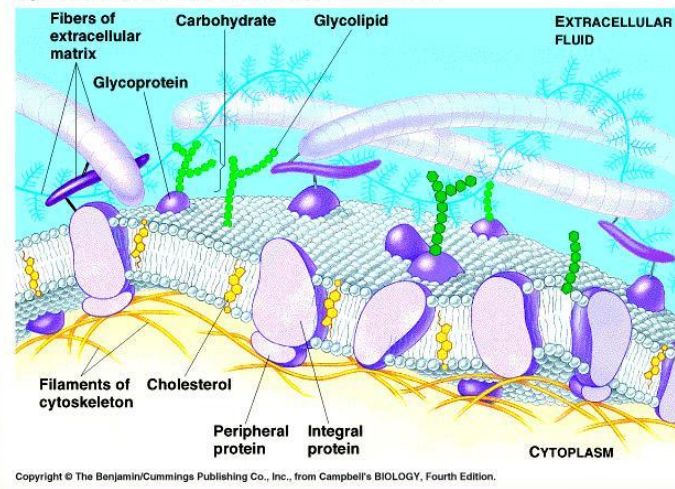
- Lipids do not dissolve in water.
- The main kinds include:
  - Fats—store large amounts of chemical energy
  - phospholipids
  - steroids
  - Waxes—Reduce water loss and can form a barrier to invaders.



# Carbohydrates

- Made of one or more sugar molecule
- Store energy
- Make up the structural parts of cells

Figure 8.5 Structure of an animal cell's plasma membrane

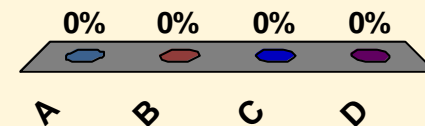


## LESSON 1 Review



## Where do new cells come from?

- A the food we eat
- B our parents
- C** preexisting cells
- D carbohydrates

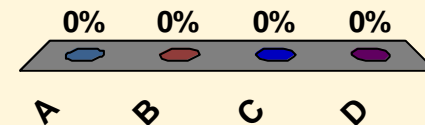


## LESSON 1 Review



Which is a characteristic of organisms?

- A birth
- B death
- C respiration
- D organization**



## LESSON 1 Review



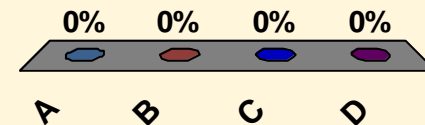
How much of our body mass is water?

A 90%

B 75%

**C** 66%

D 30%



Begin Chapter 1 Lesson 1 Notebook Pages  
(1-5) Due tomorrow!!!