**BIOLOGY EOC FINAL REVIEW NAME .**

**Concept #1: Data Analysis and Life Characteristics**

1A) Which “Things” are biotic (organisms)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1B) Match each “Thing” number with the item below:

\_\_\_ Oak tree  
\_\_\_ HIV   
\_\_\_ Earthworm  
\_\_\_ Diamond  
\_\_\_ Atmosphere

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Thing 1 | Thing 2 | Thing 3 | Thing 4 | Thing 5 |
| Composed of cells | No | Yes | No | Yes | No |
| Maintains   homeostasis | No | Yes | No | Yes | No |
| Moves on   its own | Yes | No | No | Yes | No |
| Acquires energy (respiration) | No | Yes | No | Yes | No |
| Can reproduce | No | Yes | No | Yes | Yes |
| Has DNA | No | Yes | No | Yes | Yes |

**Concept #2: Macromolecules (organic molecules)**

**FUNCTIONS – Use word bank**2E) Long term energy \_\_\_\_\_\_\_\_\_\_\_2F) Daily energy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2G) Workers of the cell \_\_\_\_\_\_\_\_\_

2H) Genetics   
 and heredity \_\_\_\_\_\_\_\_\_\_\_\_

**Subunits – Use word bank**2I) Nucleotides \_\_\_\_\_\_\_\_\_\_\_\_\_   
2J) Amino Acids \_\_\_\_\_\_\_\_\_\_\_\_

2K) Simple sugars \_\_\_\_\_\_\_\_\_\_\_   
2L) Fatty acids \_\_\_\_\_\_\_\_\_\_\_\_\_\_

*EXAMPLES of;  
W*ORD BANK: ***Proteins, Carbohydrates,   
 Lipids, Nucleic Acids***

2A) \_\_\_\_\_\_\_\_\_\_\_ - fats, oils, waxes

2B) \_\_\_\_\_\_\_\_\_\_\_ - glucose, starch, saccharide

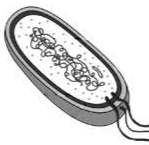
2C) \_\_\_\_\_\_\_\_\_\_\_ - DNA & RNA

2D) \_\_\_\_\_\_\_\_\_\_\_ - Lipase, Insulin, hemoglobin

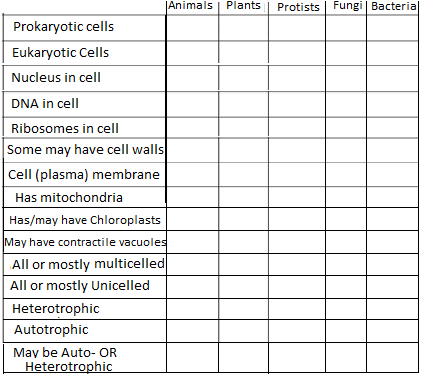
**Concept #3: Cells composition and type comparison**Place a check in the appropriate boxes indicating the type and presence of each.

**Draw a line connecting word to place in picture.**  
Ribosomes   
DNA  
Cell Wall

3A) CELL TYPE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



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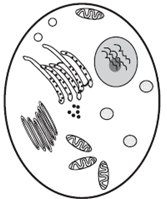


**Draw a line connecting word to picture.**  
Nucleus  
Cell wall  
Mitochondria  
Ribosomes

Chloroplast

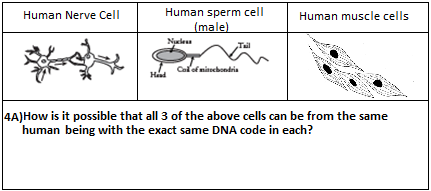
**Draw a line connecting word to picture.**  
Nucleus  
Cell membrane  
Mitochondria  
Ribosomes

3B) CELL TYPE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

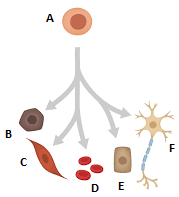


3C) CELL TYPE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Concept #4 Cell Specialization and Differentiation**

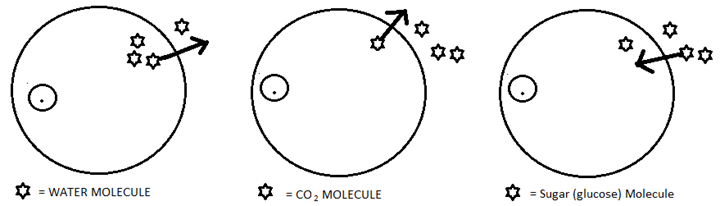
4B) Which of the labeled cells would be considered a   
stem cell? \_\_\_\_\_



4C) Cells B-E could best be described as   
 A) Stem cells B) Specialized Cells ?

**Concept #5 Cell Transport (active vs. passive transport, diffusion and osmosis) & Homeostasis**

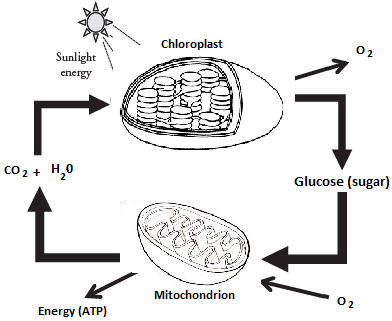
**Complete the rows below by circling the correct answer in boxes A, B, C, D, F.  Fill in the blank for box E.**



|  |  |  |
| --- | --- | --- |
| **A)    5A) PASSIVE** or **ACTIVE**                   transport | **5C)  PASSIVE** or **ACTIVE**  Transport? | **5E)  PASSIVE** or **ACTIVE**  Transport? |
| **5B) OSMOSIS** or **DIFFUSION** | **5D)**   This will require \_\_\_\_\_\_\_ | **5F) OSMOSIS** or **DIFFUSION** |

**Concept #6 Energy Flow**

6A) The top half of the diagram to the left shows the process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  
  
6B) The bottom half of the diagram to the left shows the process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  
  
6C) If an organism is only obtaining 2 ATP from sugar **without** oxygen present, then that is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



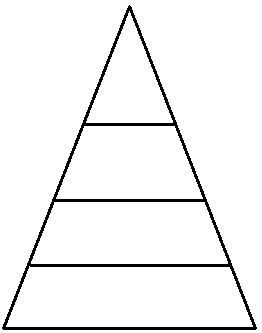
**6D) Write the words below in their likely place in the pyramid.**

*Autotrophs, Carnivores,*

*Omnivores, Herbivores.*

**6E)** Place an asterisk (**\***) in the rows of the pyramid where organisms would do

***cellular respiration.***

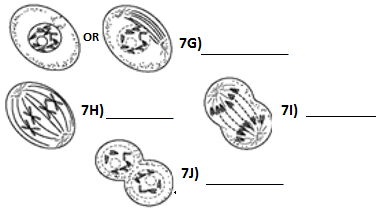


**Concept #7 DNA, DNA replication, and the Cell Cycle**

7F) Cell division (of body cells) is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

*This is how you have grown and healed (tissue repair).*

**Name the correct phase of mitosis pictured.**

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7B) How many total nucleotides make up the DNA section to the left? \_\_\_

7C) A DNA section that codes for a protein is a \_\_\_\_\_

7D) DNA replication (DNA synthesis) MUST occur before the cell divides. That phase of the cell cycle is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

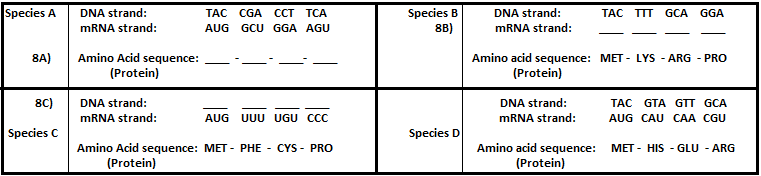
7E) Complete DNA replication below by writing the correct bases below the line.

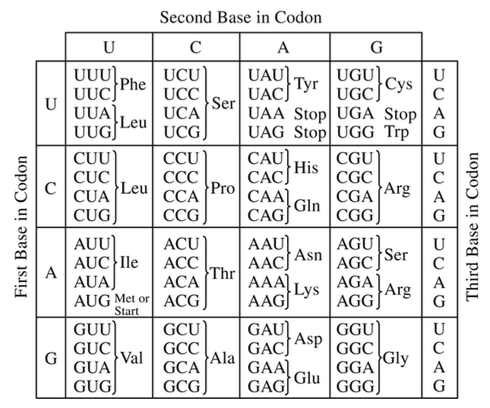


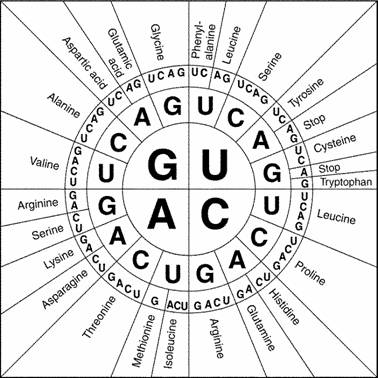
7A) Complete the other half of the DNA strand below by writing in the nitrogen bases.



**Concept #8 Protein Synthesis**Complete 8A\*, 8B, and 8C using the given codes and codon charts below. \*You may just write the first 3 letters of the amino acid.

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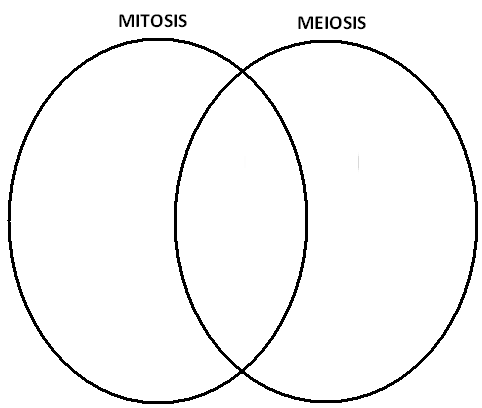
8D) The more similar the amino acid sequences (proteins), the more similar the species.  
 Of the 4 species above, which two species are most closely related? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Concept #9 Cell Division**

**-4 cells produced  
-2 cells produced  
-Genetically identical  
-Genetically different  
-Asexual  
-Cloned cells produced**

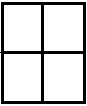
9A) Write the following terms in the correct place within the Venn Diagram;

**-Cell Division  
-Gametes  
-Somatic  
-Diploid  
-Haploid  
-Crossing over**



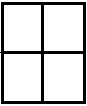
10h. Is it possible for two parents with   
Type-A blood to have a child with Type-O?   
CIRLCE ONE: **Yes / No**

10i. Using a Punnett square, prove your circled answer above.



**Concept #10 Genetics**

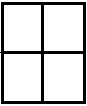
10f. Cross a purebred free ear-lobed man with an attached ear-lobed woman.



10g. What are their odds of having an attached ear-lobed child? \_\_\_\_\_\_%

10. **Genetics Vocabulary**Write down;  
a) A Homozygous Recessive Genotype \_\_\_\_\_\_  
b) A Homozygous Dominant Genotype \_\_\_\_\_\_  
c) A Heterozygous Genotype \_\_\_\_\_\_  
d) A human phenotype \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
e) MATCHING: Draw lines connecting “like” concepts.  
**HOMOZYGOUS HYBRID  
HETEROZYGOUS PUREBRED**

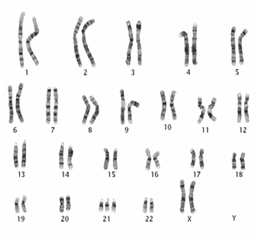
10J. For hemophilia (sex-linked), cross a normal male with a carrier female.



10k. What are their odds of having hemophiliac child? \_\_\_\_\_\_%

10L. Assume the parents in question 10J have 4 children, 2 boys and 2 girls, that match the probabilities of hemophilia as shown in the Punnett square.  
DRAW the pedigree below of the 6 person family in #10J.

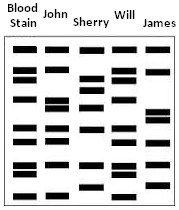
10m) The image below is a \_\_\_\_\_\_\_\_\_\_.  
10n)The disorder shown is \_\_\_\_\_\_\_\_\_\_.  
10o)The sex of the individual is \_\_\_\_\_\_\_.

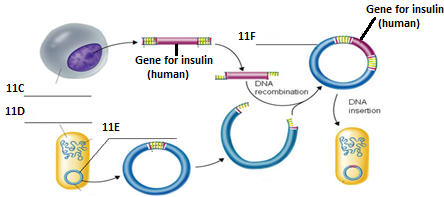
  
 monashultrasound.com

**Concept #11: Biotechnology**

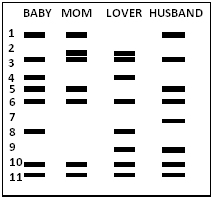
11a. **Gel Electrophoresis**

Circle the suspect whose   
DNA was left at the crime scene.



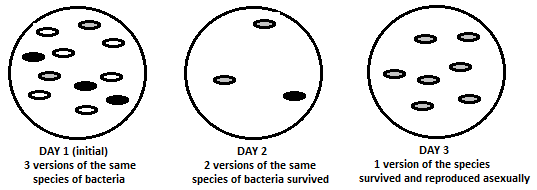
**11C**: **TRANSFORMATION Label 11C-11E**.   
Word bank: **PLASMID, RECOMBINANT DNA, HUMAN CELL, BACTERIAL CELL  
 pmgbiology.wordpress.com**

11b) Who is the BABY’s biological father?



**Concept #12: Natural Selection and Evolution**12a) Endosymbiosis is a theory that \_\_\_\_\_\_\_\_\_\_\_ cells were on the Earth first and through “absorbing” other cells, became a cell with functioning organelles and a nucleus…which would be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cell.

***ASSUME the bacteria below were sprayed with an antibiotic on DAY 1.***

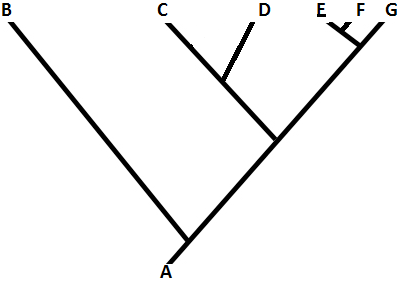


12b) What concept does the above 3 day sequence of a bacteria population demonstrate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  
12c) Which bacteria were most immune/resistant to the antibiotic (circle one)? ***White Grey Black***   
12d) Which bacteria were least immune/resistant to the antibiotic (circle one)? ***White Grey Black***

12e) Bacteria reproducing asexually is known as \_\_\_\_\_\_\_\_\_\_\_\_ and is similar to human cells performing 12f)\_\_\_\_\_\_\_\_\_\_

12g) How is it possible that some bacteria of the same species survived and some did not?

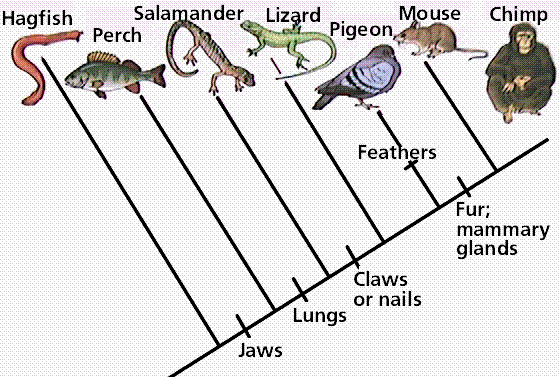
**Concept #13: Classification diagrams (Dichotomous Keys, Cladograms, and Phylogenetic trees)**



13c) Which two species are most closely related? \_\_\_\_

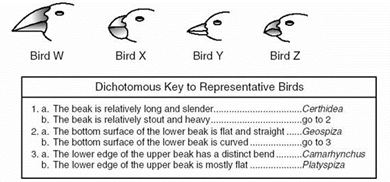
13d) Which Species would be considered the common ancestor? \_\_\_\_\_

**Concept #14: Human Impact**



13b) List the organism(s) that has/have jaws and lungs, no fur, no mammary glands, no feathers.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



13a) What is the Genus name of Bird X?   
 \_\_\_\_\_\_\_\_\_\_\_\_\_

For each action listed (14a-14i), write the potential outcome numbers in the blanks.

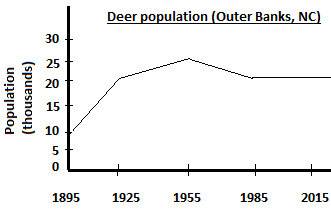
**ACTION**

\_\_\_\_\_\_\_\_\_\_\_\_ 14a) Fertilizing the yard  
\_\_\_\_\_\_\_\_\_\_\_\_ 14b) Driving a vehicle  
\_\_\_\_\_\_\_\_\_\_\_\_ 14c) Eating food you did not grow or raise yourself  
\_\_\_\_\_\_\_\_\_\_\_\_ 14d) Burning trash  
\_\_\_\_\_\_\_\_\_\_\_\_ 14e) Throwing waste in the trashcan  
\_\_\_\_\_\_\_\_\_\_\_\_ 14f) Eating eggs or meat  
\_\_\_\_\_\_\_\_\_\_\_\_ 14g) Building a house  
\_\_\_\_\_\_\_\_\_\_\_\_ 14h) Introducing a non-native (invasive) species  
\_\_\_\_\_\_\_\_\_\_\_\_ 14i) Flushing the toilet

**POTENTIAL OUTCOME/RESULT**

1) Habitat loss  
2) Loss of biodiversity  
3) Acid rain  
4) Greenhouse gasses  
5) Algal blooms

**Concept #15 - Carrying capacity and limiting factors**

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15a) In what year did limiting factors start slowing the deer population growth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

15b) What is the NC Outer Banks likely current carrying capacity for deer? \_\_\_\_\_\_\_\_\_\_\_\_\_

15c) What are some potential causes for the decline in the deer population from 1955-1985?

**Concept #16 – Cycles and tying together concepts**

**16a) Draw and label a diagram below which ultimately will show the following concepts:** Carbon Cycle, Water cycle, Nitrogen Cycle…Cellular Respiration, Photosynthesis, Decomposition, Nitrogen fixation, runoff, and energy movement through a food chain (or web).