**CP Biology Semester 1 Final Review**

**Unit 1: The Scientific Method**

1. How do living things change during their lives?
2. What is the if\_\_\_\_\_, then \_\_\_\_\_ statement in a formal lab report called?
3. What is the difference between quantitative and qualitative data?
4. All living things \_\_\_\_\_\_\_\_\_\_ to make more living things.
5. If a hypothesis is supported many times, it becomes a \_\_\_\_\_\_\_\_\_\_\_.
6. The information gathered from experiments is the \_\_\_\_\_\_\_\_\_\_.
7. Explain the difference between independent and dependent variables.
8. What is the difference between a control group and an experimental group?
9. What is a scientific theory?

**Unit 2: Biochemistry**

1. What is an enzyme?
2. How do enzymes function?
3. What conditions affect the performance of an enzyme?
4. What is in the nucleus of an atom?
5. Explain the difference between a covalent bond and an ionic bond.
6. What is a polymer?
7. How many atoms are in glucose C6H12O6 ?

**Unit 3: Cells**

1. What does the term semipermeable mean?
2. What is the function of the plasma membrane?
3. What is the function of the proteins embedded in the plasma membrane?
4. Explain the terms active transport and passive transport.
5. Describe what would happen to a plant cell placed in hypotonic and hypertonic solutions. What would happen to an animal cell?
6. Compare and contrast prokaryotic and eukaryotic cells.
7. Compare and contrast plant and animals cells.
8. What are organelles?
9. What is the function of the golgi apparatus?
10. Explain the difference between rough endoplasmic reticulum and smooth endoplasmic reticulum.
11. Why is the cell theory considered a scientific theory?

**Unit 4: Cell Energy**

1. What is the function of the mitochondria?
2. What is the function of the chloroplast?
3. Where does the Kreb’s Cycle (citric acid cycle) take place?
4. What molecule first captures energy from the sun?
5. What type of cells have mitochondria?
6. What type of cells have chloroplasts?
7. Write the chemical equation for photosynthesis.
8. Write the chemical equation for aerobic respiration.
9. What are the products of photosynthesis?
10. What are the products of aerobic respiration?

**Unit 5 DNA:**

1. What are the four nucleotides in DNA? Which goes with which?
2. The backbone (side) of a DNA molecule is made of which two components?
3. If a DNA molecule has the sequence TACGAACCC, what would be the complimentary mRNA sequence?
4. The process by which a DNA molecule is copied is called \_\_\_\_\_.
5. What are the parts of a DNA nucleotide?
6. What are the types of RNA?
7. Messenger RNA is formed in the process of \_\_\_\_\_.
8. What happens during translation and transcription? What happens first?
9. Where does translation take place?
10. Use your genetic code chart to translate the mRNA into amino acids:

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1. What are the steps of replication?
2. Why is tRNA important in translation?
3. What is the difference between DNA and RNA?
4. How many amino acids does this DNA sequence represent: TAAAGGCCC?
5. How can only 20 amino acids make thousands of proteins?
6. What is the ratio of A:T and C:G?
7. Why is DNA replication called semiconservative?
8. What molecules carry genetic info from the nucleus to the ribosome?