Review for 18 week Honors Biology

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mods:\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MP1

1. Describe all the steps in the scientific method. (problem, Hypothesis, design (independent variable, dependent variable, control group) Data collection (qualitative vs. quantitative) Conclusion, repeat, publish)
2. What common elements make up life? What are the trace elements?
3. Describe the pH scale.
4. Macromolecules:
   1. Carbs:
      1. Function:
      2. Monomer:
   2. Lipid:
      1. Function:
      2. Examples: list and describe
         1. \_
         2. \_
         3. \_
         4. \_
   3. Proteins:
      1. Monomer:
      2. Functions:
      3. Discuss enzyme structure and function
   4. Nucleic acid:
      1. Monomer:
      2. Function:
5. Describe the differences between a light and electron microscope
6. Draw, label and describe a prokaryotic cell, do they have membrane bound organelles?
7. What is the cell theory?
8. Describe the differences between plant and animal cells.
9. Organelles:
   1. Nucleus:
   2. Nucleolus:
   3. Mitochondria:
   4. Chloroplast
   5. Cell Wall:
   6. Cell Membrane:
   7. Golgi Apparatus:
   8. Ribosome:
10. What type of light is used in photosynthesis? What type is not?
11. Define osmosis
12. Why is sexual reproduction better than asexual?
13. What types of cells are created by mitosis? How do they compare to the parent cell? Genetic material?
14. What types of cells are created in meiosis? How do they compare to the parent cell? Genetic material?

MP2

**Mendelian Genetics**

1. What type of organisms was Mendel famous for experimenting with?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. For the trait for eye color, brown is dominant over blue.
   1. BB is homozygous dominant and will have \_\_\_\_\_\_\_\_eyes
   2. Bb is \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and will have \_\_\_\_\_\_\_\_eyes
   3. Bb is \_\_\_\_\_\_\_\_\_\_\_ recessive and will have blue eyes
3. Eye color is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ whereas BB, Bb, or bb are all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. What is meant by carrier of a disease?
5. Can two carriers of sickle cell have a child with sickle cell? \_\_\_\_\_\_\_ Show the Punnett square, phenotypic ratio and genotypic ratio.

|  |  |
| --- | --- |
|  |  |
|  |  |

1. What are the sex chromosomes for males?\_\_\_\_\_\_\_\_\_ what are the sex chromosomes for females?\_\_\_\_\_\_

**Structure and Function of DNA**

1. What is Chargaff’s rule?
2. Compare and contrast DNA and RNA

|  |  |  |
| --- | --- | --- |
|  | DNA | RNA |
| Location: |  |  |
| Structure: |  |  |
| Function: |  |  |

1. If one strand of DNA had a sequence AATTCGG, the complementary strand would be\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. \_\_\_\_\_\_\_\_\_\_\_is transcribed into \_\_\_\_\_\_\_\_\_\_ which is translated into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Genetic Technology**

1. Describe the steps in reproductive cloning.

1. What cell did the nucleus come from? Why is this significant?
2. Describe the steps in gel electrophoresis.
3. How does a piece of DNA at the negative end of the gel compare to a piece of DNA at the positive end of the gel?

**Evolution:**

1. How does evolution account for similarities between organism and also differences between them?
2. What is the cause variation within a population?
3. Describe the pre-zygotic barriers. Describe the post zygotic barriers
4. Define the following terms
   1. Population
   2. Allopatric speciation
   3. Gradualism
   4. Adaptive radiation
   5. Punctuated equilibrium