

HOMEWORK #10

This assignment is due at the start of the class band on _____.

- A. Watch the following online video: “BrainPOP: Natural Selection” (see your teachers for password)
<https://www.brainpop.com/science/cellularlifeandgenetics/naturalselection>
- B. Read Miller & Levine (textbook) pp. 388–391 and answer the following questions in **complete sentences** on a **separate sheet of paper**. You may type or neatly handwrite your answers.
1. A population of owls hunts for prey at night. Some of the owls have a gene that gives them better night vision than other owls in the population. Explain how this gene could lead to evolutionary changes within this population of owls. In your answer, be sure to include an explanation of:
 - variation within the owl population
 - competition within the owl population
 - survival of various individual owls within the population
 - reproduction and inheritance of the gene
 - how the frequency of owls with good night vision in the population would change over time
 2. Water birds have evolved webbed feet which make it easier for them to swim. Explain how the evolution of webbed feet occurred. In your answer:
 - identify the original event that resulted in some water birds having webbed feet
 - explain why the percentage of water birds with webbed feet has increased over time

HOMEWORK #11

This assignment is due at the start of the class band on _____.

- A. Watch the following online video: “BrainPOP: Human Evolution” (see your teachers for password)
<https://www.brainpop.com/science/ecologyandbehavior/humanevolution>
- B. Read Miller & Levine (textbook) pp. 392–397 and answer the following question in **complete sentences** on a **separate sheet of paper**. You may type or neatly handwrite your answers.

Over the last few decades, a growing number of bacteria have become resistant to the antibiotic drugs that are used to kill these bacteria (that is, these bacteria are no longer killed by these drugs). Explain how bacteria evolve resistance to drugs. In your answer:

- describe the role of genetic variation among bacteria that allowed evolution to take place
- explain which bacteria have a higher adaptive value in a person taking antibiotic drugs
- describe how survival of the fittest will occur in the case of these bacteria
- describe the role of reproduction in the evolution of bacteria to become resistant to antibiotic drugs
- explain how the frequency of antibiotic-resistant bacteria in the population changes over time

HOMEWORK #12

This assignment is due at the start of the class band on _____.

- A. Reread all of your class notes from February through April.
- B. Answer the following questions in **complete sentences** on a **separate sheet of paper**. You may type or neatly handwrite your answers.
1. State *one* reason why the individual cells in a human's body must perform mitosis even though humans reproduce sexually.
 2. State *two* ways that cells produced by mitosis are different from cells produced by meiosis.
 3. When you get an x-ray, the doctor usually provides a lead shield to protect your gonads from radiation. Why is it more important for the doctor to protect your gonads than to protect other body parts like your brain or heart?
 4. The cells in your eyes have the ability to detect light and produce a pigment that creates your eye color. The cells in your pancreas produce insulin. Explain how these two cells in your body are able to perform completely different jobs even though they have the same exact DNA.
 5. Explain how your DNA gives you traits that make you a unique individual (such as your skin color and height).
 6. In a population of crickets that hide in green grass, some crickets are green and some are brown. Explain why there are differences in the colors of the crickets to begin with and describe why the frequency of green crickets in the population would increase over several generations.