|  |  |  |
| --- | --- | --- |
| **Cornell Notes** | **Topic/Objective:** | **Name: Ella Herniak** |
| Unit 2 | **Class/Period: 6** |
| Evolution | **Date: 10/2/16** |
| **Essential Question: how does evolution account for the unity and diversity of life? Why do today’s organisms look**  |
| **the way they do?** |
| **Questions:** | **Notes**Species: group of organisms with similar features that can reproduce and create furtive offspringPopulation: Group of individuals from the same species living in same place at a certain time\*evolution is powered by variationMutations, natural selection, heredity, etc.Ex: peppered moths changed color in the industrial revolutionTo be considered as a new species:Enough mutation occurring which a population can no longer mate successfullyEvolution doesn’t need genetic mutationsGenetic driftGenetic equilibrium Hardy Weinberg principle: p2+2pq+q2=1Not a species: Ex: ligers (p squared is the homozygous recessive1. Random mating gene,2pq is heterozygous, and q squared is
2. Large population the homozygous recessive)
3. No migration P=dominant allele frequency
4. No genetic mutations Q=recessive allele frequency
5. No natural selection

Antibiotic resistance:bacteria change in a way that reduces the effectiveness of antibiotics. The bacteria survive and continue to multiply, causing more harm.* Alexander flaming discovered penicillin and changed the medical world
* Genetic mutations in bacteria occur
* Makes then resistant to medicine
 |
| How are organisms  |
| Sorted into a species? |
| ` |
| How does variation  |
| Cause natural selection |
| And evolution? |
|  |
| What do the variables |
| Represent in the |
| Hardy and Weinberg |
| Principle? |
|  |
| Compare and contrast  |
| a species and a  |
| Population. |
|  |
| How do bacteria  |
| Become resistant |
| To antibiotics? |
|  |
|  |
| **Summary: a species is a group of organisms that are similar and cane reproduce creating fertile offspring. when** |
| Variation causes evolution and organisms within a population cannot mate successfully, a new species  |
| has been created. The hardy Weinberg principle is used to estimate the frequency of alleles in an area.  |
| Antibiotic resistance is caused when bacteria evolve to resist antibiotics, making them less effective. |
|  |
| **Questions:** | **Notes**:What is life?* organized as cells
* respond to stimuli
* regulates internal processes
* use energy to grow

Metabolism from photosynthesis and cellular respiration* development

 change & mature within lifetime* reproduce

heredity→ DNA / RNAadaptation & evolutionHow did Life begin? Three main competing hypothesis* special creation-life was created by a supernatural or divine force
* not testable

Ex: religion* extraterrestrial origin: original sources of organic matter from comets and meteors striking the earth
* testable

ex: water molecules in meteors when earth formed* spontaneous abiotic origin: all organic matter was already on or created on earth.

In 1953 two scientist’s miller and Urey tested their hypothesis of how organic matter was produced on earth. They recreated the elements of earth before life began and found that it produced:1. Amino acids (make up living matter)
2. Hydrocarbons
3. Nitrogen bases
4. Other organics

Conditions of early earth:No oxygenWater molecules and other elementsEnergy from light, uv rays, and volcanoesDomain system:Bacteria-prokaryotesArchaea-extremophiles (extreme conditions)Ekarya-eukaryotes |
| What are the  |
| requirements for |
| something to be living? |
|  |
| Compare and contrast |
| The three competing |
| Hypothesis for how life  |
| began |
|  |
| What did miller and  |
| Urey discover in their |
| experiment? |
|  |
| Describe the  |
| conditions of early |
| earth |
|  |
| Summarize the history |
| Of the earth |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
| **Summary: Earth was formed 4.5 billion years ago. There was no oxygen and tons of h2 and co2. Miller and Urey**  |
| Found that amino acids and other organic matter was created on earth. 3.6 billion years ago life began  |
| and after that endosymbiosis occurred creating multi celled organisms. |