***Speciation and Population Genetics PowerPoint***



1. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is interbreeding populations of organisms that can produce healthy, fertile offspring**. Two examples of a species are \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_**

**2.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the evolution of one or more species from a single ancestor species.

**Two examples of speciation are:**

1. Finches with their different shaped \_\_\_\_\_\_\_\_\_\_\_\_\_
2. Lizards with their different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.** There are **TWO** types **of SPECIATION:**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** In **allopatric speciation**, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ divides one population into two or more populations. The separate populations eventually will no longer be able to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ successfully with one another.

**5.** What are the PowerPoint examples for allopatric speciation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6.** In **sympatric speciation**, a species evolves into a new \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ without a physical barrier. The ancestor species and the new species live side by side during the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**7.** Since speciation can take a long time, we may need to look at patterns of evolution that indicate how speciation has occurred. One example is:

 **Adaptive radiation (also called divergent evolution) when:**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

An example of this is a brown bear and a polar bear, they are related, however are adapted for different environments and conditions.

1. Another example of adaptive radiation is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where many species adapted to different niches on the Galapagos Islands.
2. **Convergent Evolution** is another pattern of evolution that can give us information about how speciation can occur. In Convergent evolution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

An example of this is a maned wolf and a serval cat, they both have large ears to hear prey and very long legs even though they are not related

1. **Coevolution** is another evolutionary pattern that can occur. It is when: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

An example of this is the Madagascar orchid and the sphinx moth, draw their relationship below.

**Evolution results from disruptions in genetic equilibrium. To understand this concept, we need to know:**

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ =** Combined genetic

 material of all the members of a given population.

1. (All \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 involve changes in the gene pool).

**14.** In any gene pool, the number of each allele is a fraction of all the genes for a particular trait is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**15**. (Remember that genes often have two or more different forms, called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**16**. The hardy Weinberg principal states that: under certain conditions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**17.** (**Conditions of the Hardy Weinberg Principal**

On the left side of the table, write what the condition in, on the right side, draw a picture illustrating that condition. :

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**18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**is Random change in allele frequencies in a population due to chance events. **3 examples of events that can cause Genetic Drift:**

 **1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**In Summary:**

**19.** Similar traits can develop in unrelated species occupying comparable \_\_\_\_\_\_\_\_\_

**20. Power Point Example:**

**21.** Interactions with other organisms affect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**22. Power Point Example:**

**23.** Many \_\_\_\_\_\_\_\_\_\_\_\_\_\_ species can evolve from one \_\_\_\_\_\_\_\_\_\_\_\_ species.

**24.** Evolution results from disruptions in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**25.** The normal distribution of variations in a population can be changed by \_\_\_\_\_\_\_\_