**Notes – Speciation and Evolution**



1. **Species Defined**
	1. Morphological Species Concept: the idea that organisms can be classified by differences in their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	2. Biological Species Concept: the idea that organisms can be classified by their ability to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with one another.
	3. Scientists use both to define species.
2. **Species**: A group of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that look similar and whose members are capable of producing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ offspring in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ environment
3. **Variation within a population**
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: all the members of a species that live in the same area and make up a breeding group
	2. Within a population, individuals \_\_\_\_\_\_\_\_\_\_\_\_ in many observable traits.
4. **Natural Selection**
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an ongoing process in nature, and is the single most significant factor disrupting genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. **4 Types of Natural Selection**
	1.
	2.
	3.
	4.
6. **Stabilizing Selection**
	1. Stabilizing Selection: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form of a trait is an advantage
	2. The extreme forms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Stabilizing selection is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ type of NS.
7. **Directional Selection**
	1. Directional Selection: the distribution of a trait is shifted toward one of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. **Disruptive Selection**
	1. Disruptive Selection: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the extreme forms is advantage in terms of survival and reproduction
		1. The average trait is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
9. **Sexual Selection:**
	1. the preferential choice of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on the presence of a specific trait
		1. Sexual selection may be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. **Speciation**
	1. Speciation: the formation of a new \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. **Isolated Populations**
	1. For speciation to occur populations must stop \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	2. Three Forms of Reproductive Isolation:
		1.
		2.
		3.
12. **Geographic Isolation:**
	1. Physical separation of populations
		1. Examples: population becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_by land or water barrier, colonization of new island, river changes course, highway built across field, etc.
	2. Also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ speciation.
13. **Speciation Causes Diversity**
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or biological diversity is the sum total of the variety of all the organisms in the biosphere
		1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - process in which a single species evolves into several different forms that live in different ways
		2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - process in which unrelated organisms evolve to resemble one another
14. **Adaptive Radiation**
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can occur when an organism occupies a new environment with unoccupied niches.
	2. The colonizing population may diversify rapidly to take advantage of all possible \_\_\_\_\_\_\_\_\_\_\_\_\_.
	3. Adaptive radiation can cause:
		1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (a)common ancestor trait changes over time with different species
		2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (b) occurs when similar environments cause species to resemble each other
		3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (c) occurs with closely connected organisms that evolve together
15. **Reproductive Isolation**
	1. Inability of formerly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms to produce offspring.
16. **Rates of Speciation**
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: brief periods of rapid genetic change
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: gradual change of adaptations
	3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: the state of a species that no longer exists
		1. For a species to continue to exist, some members must have \_\_\_\_\_\_\_\_\_\_\_\_that allow them to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and pass their genes on to the next \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_