Vocabulary: Biology Unit: **10-evolution** Date:

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| **Picture** | **Word** | **Definition** |
|  | Evolution | Change over time  --applies to a population, not individuals  -A theory that explains a process by which modern organisms descended from ancient organisms. |
|  | Fitness | The ability of an individual to survive and reproduce in its specific environment.  --The more fit an organism is, the more offspring it will have and therefore be able to pass on more of its genes. |
|  | Adaptation | Any inherited characteristic (trait) that an organism **is born with** that increases their chance of survival.  --Ex: webbed feet help you swim vs claws on hands help you climb in trees. |
|  | Survival of the Fittest | Individuals that are best suited (most fit) for their environment, will survive and reproduce more successfully.  --Those born with the best adaptations get to pass on their genes. Those that aren’t, die before they can pass them on. |
|  | Natural Selection | “Nature” selects which traits/adaptations are best for an environment and allows for those individuals exhibiting those traits to reproduce.  --Nature chooses who lives and who dies. |
|  | Homologous structures | Structures that have different mature forms even though they develop from the same embryonic tissue. May have different functions. Shows evolutionary relationship.  --Ex: arm/hand bones of mammals, reptiles, and birds. |
|  | Analogous structures | Structures that develop similar features because they perform the same job. Doesn’t show an evolutionary relationship.  --Ex: butterfly wing, bat wing  Dolphin and fish fins |
|  | Vestigial organs | Organs that are so reduced in size that they are just traces of homologous structures in another species. No longer functional.  --Ex: Pelvic bone in whales and other land mammals. |
|  | Biogeography | The geographical distribution of organisms across the planet.  --Shows evolutionary relationships as well as migration patterns, environmental and topographical changes. |

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| **Picture** | **Word** | **Definition** |
|  | Fossil Record | The use of fossils to provide evidence about the history of life on Earth.  --It shows how different groups of organisms have changed over time.  --It also shows evidence of climate change and other cataclysmic events. |
|  | Relative dating | The age of a fossil is determined by comparing its placement with that of other fossils (like index fossils) in surrounding rock layers.  --Index fossils: easily recognizable, existed for a short time and over a wide range.  --oldest are deepest, younger are higher up. |
|  | Genetic drift | In a small population, individuals with a particular genotype (alleles) may leave, by chance, more offspring than others. Over time, this allele would become more common in the populations gene pool. |
|  | Gene pool | Consists of all genes, including all of the different alleles, that are present in a population. |
|  | Founder effect | When allele frequencies change as a result of the migration of a small subgroup of a population.  --only the alleles present can be passed on. |
|  | Directional selection | When individuals at one end of the curve (polygenic trait bell curve) have a higher fitness than individuals in the middle or at the other end.  --Range of phenotypes shift in favor of one extreme. |
|  | Stabilizing selection | When individuals near the center (polygenic trait bell curve) have a higher fitness than individuals at each end.  --Range of phenotypes shift in favor of the average. |
|  | Disruptive selection | When individuals at both ends of the curve (polygenic trait bell curve) have a higher fitness than individuals in the middle.  --Range of phenotypes shift in favor of both extremes. |
|  | Reproductive Isolation | When individuals of two populations cannot interbreed and produce fertile offspring.  --Can be behavioral, geographical, or temporal. |
| **Picture** | **Word** | **Definition** |
|  | Adaptive radiation | A single species or a small group of species evolves, through natural selection and other processes, into diverse forms that live in different ways.  --Darwin’s finches  --Occurs when new niches open up.  --Leads to homologous structures |
|  | Convergent evolution | The process by which unrelated organisms come to resemble each other due to the fact that they live in similar environments or they occupy the same niche.  Ex: sharks and dolphins  --Analogous structures |
|  | Coevolution | When organisms that are closely connected to one another by ecological interactions will evolve together.  --As one changes, so will the other  --Ex: flowers and insects  --Often a specialist |
|  | Endosymbiotic theory | A theory that proposes that eukaryotic cells arose from living communities formed by prokaryotic organisms.  --ancient aerobic/photosynthetic bacteria became mitochondria/chloroplasts by entering another prokaryotic cell and remaining inside as an organelle. |
|  | Extinction | When the last of a species dies.  --A result of not being able to compete for resources, environmental changes, cataclysmic events.  --Nature selected against them |
|  | Species | A group of organisms that breed with one another and produce fertile offspring that look like the parents.  --Speciation: process by which a new species is formed. |
|  | Cladogram | A chart that is used to show evolutionary relationships (like a family tree).  --Each split represents the appearance of a new trait (like claws, wings, bones, jaws, flowers, etc)  -- The genetic line of an organism (without the trait) splits off prior to appearance of trait.  --Each intersection represents a common ancestor to all after split. |