**7th Grade Unit 5: Life over Time**

*Lesson 2: What is the theory of evolution by natural selection?*

**Evolution-** the process by which populations or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change over time

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is all of the individuals of a species that live in an area at one time
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a group of closely related organisms that can mate to produce fertile (able to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) offspring

Jean-Baptiste \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Proposed the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ theory of evolution called the transmutation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Additional \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ showed this idea was\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Said that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which occur during an organism’s life are

passed on to their\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if they are favorable

* We now know traits can only be passed on through \_\_\_\_\_\_\_\_\_\_

Charles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Graduated college with a degree in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a social science studying \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Very interested in plants and animals and took a job as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (a person that studies nature) on the H.M.S. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Took a \_\_\_\_\_\_ year journey \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the world
* His most important observations were made on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ islands with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (a type of bird)
* Created the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for a mechanism, or cause, of evolution called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Saw that birds on the islands were slightly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than those on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of South America and that birds on each island were different than the birds on other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Suggested that these birds may have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_ species of finch
* With more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scientists confirmed the differences in \_\_\_\_\_\_\_\_\_\_\_ shape that Darwin saw were related to their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What other ideas influenced Darwin?

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the best explanation for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gained by observations and experiments
* Darwin collected evidence for other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on Earth’s history, population growth, and passing traits through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Organisms pass on \_\_\_\_\_\_\_\_\_\_\_\_ to their offspring
  + Humans have been selecting and breeding for desirable traits in plants and animals (called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of years (ex. Corn, meater cows, watermelon, etc.)
  + Artificial selection show that the gene pool and traits in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can change
  + Favorable traits help an organism \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Organisms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ traits during their life
  + Study of genetics show that only genetic traits are passed on
* Earth changes over time
  + Evidence supports the idea that Earth is \_\_\_\_\_\_\_ billion years old
  + Gave enough time for small changes to add up (we now know that some changes in the gene pool happen very \_\_\_\_\_\_\_\_\_\_\_\_ like in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ resistant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* The struggle for survival exists
  + The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ decides which organisms survive
  + Populations \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ include:
    - Limited amounts of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Disease
    - Predation
  + “Survival of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”

What is natural selection? (use this list for your project)

**Natural selection-** process by which organisms that inherit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ traits tend to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ more successfully than other

1. Without \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_ like predators, populations would grow out of control (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ growth)
   * More offspring are created than the environment can support
   * The individuals best suited to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ survive to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will “select” the best traits

2. Most populations are stable in size except for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changes

* + Allows more offspring to survive

3. Natural resources are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. No two individuals are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + **Variation-** naturally occuring \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ within a species
  + One type of variation is **mutation** (change in the \_\_\_\_\_\_\_\_\_\_\_\_\_ material)
  + Mutations can be \_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will decide
  + Diversity in a population \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the possibility of traits suited to the current \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Variation is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (passed through DNA)

* + **Adaptation-** an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ trait that helps an organism survive and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in its environment
  + An adaptation becomes more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as natural selection continues and the gene pool changes
  + Could be a structure like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or a behavior like\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + If a species does not have favorable adaptations it may go \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Extinction-**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the change in the gene pool overtime.

Gene Pools can change when…(the 5 fingers of evolution)

–Populations can \_\_\_\_\_\_\_\_\_\_\_\_

•Diseases, extinctions, introduction of new better adapted species, predators.

–Non-\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mating

•Organisms choose strongest mate, ones in similar boundaries,

–Mutations in the \_\_\_\_\_\_\_\_\_\_\_\_\_

•Genes can change. Some are good, some are bad.

•The environment will decide.

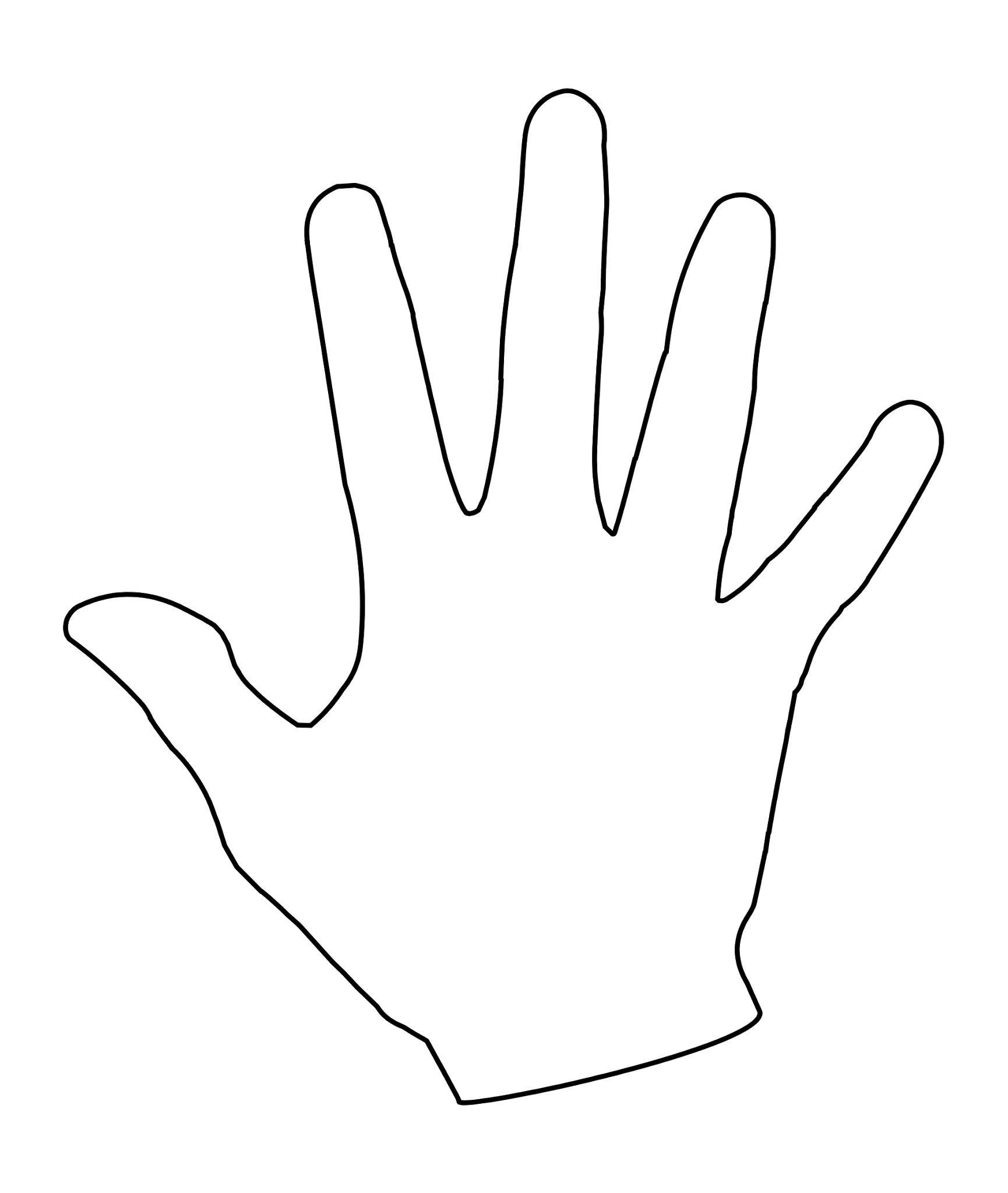
–Movement \_\_\_\_\_ and \_\_\_\_\_\_ of the population

•Immigration, gene flow.

–Natural \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

•Adaptations to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that do well replace poor ones.

(Usually an advancement)

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