

## Section 15.1

- **Evolution** – change over \_\_\_\_\_
- **Theory** – well-supported \_\_\_\_\_ of phenomena that have occurred in \_\_\_\_\_
- Charles Darwin traveled on the H.M.S. \_\_\_\_\_ from \_\_\_\_\_
- He made many \_\_\_\_\_ and collected \_\_\_\_\_ around the globe
  - These led him to develop a hypothesis about \_\_\_\_\_
- Patterns of Diversity:
  - Animals were well adapted \_\_\_\_\_
  - Certain species were not found in \_\_\_\_\_ around the globe
- Living Organisms and Fossils:
  - Fossils – remains of \_\_\_\_\_
  - Some looked \_\_\_\_\_ to living species, some looked \_\_\_\_\_
- The Galapagos Islands
  - 1000 km west of \_\_\_\_\_
  - Each island had \_\_\_\_\_
  - Similar species from each island had \_\_\_\_\_
- Birds that Darwin thought were \_\_\_\_\_ were actually various species of \_\_\_\_\_
- The characteristics of \_\_\_\_\_ varied among the islands
- Darwin wondered if the animals from the different islands came \_\_\_\_\_

## Section 15.2

- **James Hutton** – rocks form very slowly from \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, etc.
  - Most of these processes happen \_\_\_\_\_ of years
- **Charles Lyell** – past events should be explained in terms of \_\_\_\_\_
  - What is happening now happened \_\_\_\_\_
- If the earth has changed this way, \_\_\_\_\_?
- **Lamarck** – proposed a hypothesis for \_\_\_\_\_ before \_\_\_\_\_
  - Tendency Toward Perfection – all organisms have innate urges to \_\_\_\_\_
  - Use and Disuse – parts of the body that are used become \_\_\_\_\_, non-used \_\_\_\_\_
  - Inheritance of Acquired Traits – offspring receive traits that parents acquired \_\_\_\_\_
- **Malthus** – if the human population continued to grow unchecked, there would be \_\_\_\_\_
- Populations grow \_\_\_\_\_
- Food source grow \_\_\_\_\_

### Section 15.3

- Darwin did not want his work published until \_\_\_\_\_
- \_\_\_\_\_ sent Darwin an essay that had the \_\_\_\_\_ as Darwin's work
- The two \_\_\_\_\_ an article
- A few months later Darwin \_\_\_\_\_
- **Inherited Variation** – \_\_\_\_\_ passed from parents to \_\_\_\_\_
- **Artificial Selection** – nature provides the variation but \_\_\_\_\_ the variation they found most \_\_\_\_\_
- **Struggle for Existence** – members of each species \_\_\_\_\_ regularly to \_\_\_\_\_
- **Fitness** – the ability of an individual to \_\_\_\_\_ and \_\_\_\_\_
- **Adaptation** – an inherited trait that \_\_\_\_\_ an organism's chance for \_\_\_\_\_
- **Survival of the Fittest** – those with adaptations that increase \_\_\_\_\_ and \_\_\_\_\_
- **Natural Selection** – survival of the fittest by \_\_\_\_\_
- Natural selection leads to changes as \_\_\_\_\_
- **Descent with Modification** – Each living species has descended with changes \_\_\_\_\_
- **Common Descent** – all species, living and dead, were derived from \_\_\_\_\_
- **Fossil Record** – show \_\_\_\_\_ stages of life
- **Geographic Distribution of Living Species** – species across a large area share \_\_\_\_\_
- **Homologous Body Structures** – structures that have \_\_\_\_\_ but develop from the same \_\_\_\_\_ form
  - **Vestigial Organs** – traces of organs that \_\_\_\_\_
- **Similarities in Embryology** – embryos of different species look similar \_\_\_\_\_ in development

### Section 16.1

- **Gene Pool** – Consists of all genes, including all the \_\_\_\_\_, that are present in a \_\_\_\_\_
- **Relative Frequency** – The number of times that \_\_\_\_\_ in a gene pool, compared with the number of times \_\_\_\_\_ for the \_\_\_\_\_ occur.
- **Evolution is any change in the \_\_\_\_\_ in a population**
- Two main sources of \_\_\_\_\_:
  - \_\_\_\_\_ – any change in the DNA.
  - **Gene Shuffling** – \_\_\_\_\_ and mixing of genes due to \_\_\_\_\_.
- The number of phenotypes produced for a given trait depends on \_\_\_\_\_
- **Single Gene Trait** – controlled by a single gene that has \_\_\_\_\_
  - Ex. – \_\_\_\_\_, \_\_\_\_\_, etc.

- **Polygenic Trait** – controlled by \_\_\_\_\_.
- Ex. – \_\_\_\_\_, \_\_\_\_\_, etc.

### Section 16.2

- Natural selection can affect \_\_\_\_\_ in three ways:
  - **Directional Selection** – individuals at \_\_\_\_\_ have higher fitness
  - **Stabilizing Selection** – individuals near \_\_\_\_\_ have higher fitness
  - **Disruptive Selection** – individuals at \_\_\_\_\_ of curve have higher fitness
- **Genetic Drift** – a \_\_\_\_\_ change in allele \_\_\_\_\_
- **Founder Effect** – Allele frequencies change as a result of the \_\_\_\_\_ of a small subgroup of a population
- **Hardy-Weinberg Principle** – allele frequencies in a population will remain constant unless \_\_\_\_\_
- **Genetic Equilibrium** – \_\_\_\_\_ will occur if all of the following happen:
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

### Section 16.3

- **Speciation** – changes that lead to \_\_\_\_\_
- **Reproductive Isolation** – members of \_\_\_\_\_ cannot \_\_\_\_\_ and produce \_\_\_\_\_
  - **Behavioral Isolation** – capable of interbreeding but differ in \_\_\_\_\_
  - **Geographic Isolation** – separated by \_\_\_\_\_, etc.
  - **Temporal Isolation** – reproduction occurs at \_\_\_\_\_
- Peter and Rosemary Grant studied the \_\_\_\_\_ from the \_\_\_\_\_
- In harsh times certain finches \_\_\_\_\_ than others and evolution \_\_\_\_\_.
- The \_\_\_\_\_ is what made a difference and changed over time.
- Speciation in the \_\_\_\_\_ occurred by:
  - \_\_\_\_\_ of a new population,
  - geographic \_\_\_\_\_,
  - changes in the new population's \_\_\_\_\_,
  - \_\_\_\_\_ isolation, and
  - ecological \_\_\_\_\_
- Research is limited by the fact that we can only observe \_\_\_\_\_
- Many evolutionary processes \_\_\_\_\_
- Evolution is important in understanding \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and many other things.