

How do structural and behavioral adaptations increase the chances for organisms to survive in their environments?

- Evolution occurs in populations or species
- Organisms able to produce fertile offspring make up a species
- Isolation can lead to speciation
- Variations in species arise from many sources
- Organism who survive pass their genes on to the next generation

Key Vocabulary	Assignments
Adaptation	
Biogenesis	1. Review the three experiments that disproved spontaneous generation of life pages 261 to 263
Comparative anatomy	a. Explain the difference between biogenesis and spontaneous generation.
Comparative embryology	b. In conducting his experiment, Spallanzani demonstrated a technique that would become used in the preservation of food. What was this technique?
Competition	c. What objection to Spallanzani's experiment was solved by Pasteur's flasks?
Evolution	
Extinct	2. Begin reading on page 266 at "The first organic Compounds" to 268.
Fossil	a. What properties do microspheres and coacervates share with cells?
Homologous	b. Why do Biologists who study the early history of life on Earth care so much about organic compounds?
Mutation	c. How did Miller and Urey's apparatus create a model for the atmospheric and temperature conditions thought to exist on Earth?
Natural selection	
Organic compound	3. Read 279 to 281
Population	a. How does the law of superposition allow paleontologists to assign relative ages to fossils?
Random	b. How do biogeographic observations suggest that a modification process caused new species to arise?
Species	c. What role do mass extinctions play in the succession of forms?
Survival of the fittest	
Variation	4. Read 283 then skip ahead to page 286 and read to 288.
Vestigial	a. What is an acquired characteristic? Do acquired characteristics change the genotype of an organism?
	b. If a favorable trait increases the life span of an organism without affecting reproductive success, does it contribute to evolution?
	c. Write a haiku with the title "Descent with Modification"

Evolution

<p>Aristotle (350 BC) Placed all of life into a “scala naturae” or a ladder of complexity. Organisms were placed in order of complexity and fulfill a permanent and unchanging role.</p>	<p>Natural selection The mechanism for creating new species based on individual variation within a species.</p>	<p>Adaptation</p>
<p>James Hutton (1795) Gradualism: the features on Earth are changing (ex. canyons are formed by the flow of water).</p>	<p>Sedimentary Rock Made from layers of silt and sand Lower layers of rock are from earlier in the earth’s history</p>	<p>Survival of the Fittest</p>
<p>Lamarck (1809) Early theory of biological evolution. All life on earth came from lines of decent of abiotically generated microbes. Evolution could create complexity via two methods 1. Use and disuse of structures 2. Inheritance of acquired characteristics Even if his reasons for evolution are flawed his ideas are important because it established that evolution was a response of an organism to its environment</p>	<p>Darwin’s Evolution: Decent with modification</p> <ol style="list-style-type: none"> 1. Competition 2. Over production 3. Variation 4. Adaptation 5. Natural Selection 6. Speciation 	<p>Evidence of Evolution</p> <p>Fossils</p> <p>Homologous Structures</p> <p>Vestigial Structures</p> <p>Comparative Embryology</p> <p>Comparative Biochemistry</p> <p>Biogeography</p>
<p>Darwin (1859) Took a trip to the Galapagos Islands Observed diversity of species Eventually wrote the book: On the Origin of Species by Means of Natural Selection.</p>		
<p>Mutations</p>		
<p>Darwin did not know about DNA</p>		<p>Niche</p>