

Theories on the Origin of Life



Theory

- an idea or set of ideas that is intended to explain facts or events
- an idea that is suggested or presented as possibly true but that is not known or proven to be true

(Merriam-Webster Dictionary)

Theory of Evolution by Natural Selection

- Developed by Charles Darwin-mid 1800s
- **Naturalist**- person who studies plants and animals by observing them
- **Biological Evolution**- the change over time in populations of related organisms



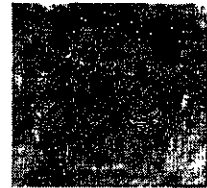
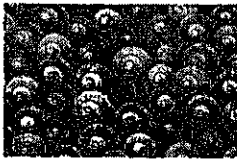
Theory of Evolution by Natural Selection

- Served as a naturalist aboard a ship that sailed to the Galapagos Islands.
- He studied tortoises, mockingbirds, and finches because they looked different on each island.



Theory of Evolution by Natural Selection

- Darwin knew that different organisms of a species displayed **variations** (slight differences in inherited traits).
- Variations arise naturally for different reasons:
 - Genetic variation by sexual reproduction
 - Random mutations

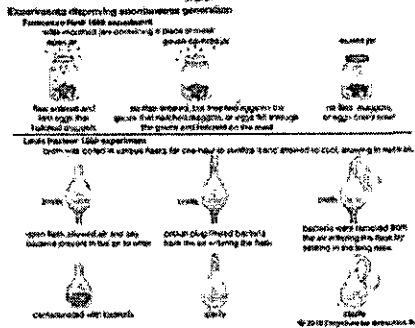


Theory of Evolution by Natural Selection

- **Natural Selection**- can explain how populations change over time
 - Process by which populations of organisms with variations that help them survive in their environments live longer, compete better, and reproduce more than those that do not have the variation
- This is Darwin's Theory of Evolution by Natural Selection.

Theory of Spontaneous Generation

o **Spontaneous generation** - the hypothetical process by which living organisms develop from nonliving matter...this theory has since been disproven.



<http://www.britannica.com/EBchecked/topic/560859/spontaneous-generation>

Primordial Soup Theory

o Chemical reactions in early Earth's atmosphere produced small organic molecules (prebiotic compounds) that accumulated in oceans to form the "primordial soup."



<http://www.sciencemag.org/content/300/5620/745.full>

Primordial Soup Theory

o Miller's Spark Experiment:

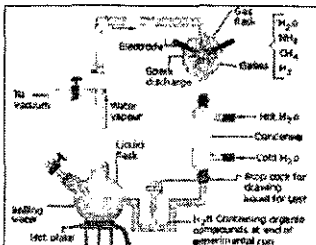
- o The experiment used water, methane, ammonia and hydrogen. The chemicals were all sealed inside a sterile array of glass tubes and flasks connected together in a loop, with one flask half-full of liquid water and another flask containing a pair of electrodes. The liquid water was heated to induce evaporation, sparks were fired through the atmosphere and water vapor to simulate lightning, and then the atmosphere was cooled again so that the water could condense and trickle back into the first flask in a continuous cycle.
- o At the end of one week of continuous operation, Urey and Miller observed that as much as 10-15% of the carbon within the system was now in the form of organic compounds. Two percent of the carbon had formed some of the amino acids which are used to make proteins in living cells.

<http://www.sciencemag.org/content/300/5620/745.full>

Primordial Soup Theory

o Miller's Spark Experiment:

- o Now believed to be inaccurate for several reasons.
 - o Atmosphere is believed to have actually been made up of a mixture of H_2O , CO , CO_2 , N_2 , H_2S , CH_4 , NH_3 and possible traces of hydrogen.
 - o Lightning was not believed to have been as strong as the lightning produced by the experiment.
 - o When oxygen was added to any of the compounds formed in the experiment, no organic molecules formed.



http://encyclopedia.kids.net.au/page/ml/Miller_experiment

<http://www.sciencemag.org/content/300/5620/745.full>

Creationism (Intelligent Design)

- o A doctrine or theory holding that matter, the various forms of life, and the world were created by God out of nothing and usually in the way described in Genesis (Merriam Webster Dictionary)
- o **Creationism** relies on the claim that there is a "purpose" to all creation known only to the creator.
- o Basis for creationism is founded in Genesis of the Bible.
 - o **Old Earth Creationism**- various aspects of living things were created by special supernatural intervention; believe in the scientific geological age of the earth
 - o **Young Earth Creationism**- Earth can be no more than 10,000 years old
 - o **Intelligent Design**- the design of living systems—and even the nonliving elements of the universe—suggest a Designer.

<http://ncse.com/creationism>

<http://rationalwiki.org/wiki/Creationism>

<https://answersingenesis.org/creationism/>

Subject: 7th Life Science
Topic: iLEAP

Date:
April 13-17

Teacher:
Stagg

KEY: PP= Power Point, TB= textbook, WB=workbook, WS= worksheet, TLW= the learner will, TW= teacher will, SW= student will, HW= homework, ?= question, DEB = dry erase board, CCWB= CommonCore Workbook
***Accommodations located in front of plan book**
Assessment Key: (1) Teacher Observation (2) Student Participation (3) Work Sample (4) Rubric (5) Teacher Made Quiz (6) Teacher Made Test (7) Project

Benchmarks: ALL BENCHMARKS

Vocabulary Words: Vocabulary for all of Life Science

GLEs: ALL GLEs

Objectives: TLW differentiate between the theories of how the earth began and evolution

| Monday: | Tuesday: iLEAP Testing | Wednesday: iLEAP Testing | Thursday: | Friday: |
|--|-------------------------------|---------------------------------|---|--|
| <p>Bell Ringer: iLEAP Bellringers Lesson: iLEAP Review Guided Practice: Vocabulary review/ constructed response review Independent Activity: Review questions Small/Coop. Groups: whole group discussion Homework: none Materials: practice test Re-teaching: Vocabulary Enrichment: iLEAP review Assessment: 1,2,3 Sample Assessment Item/Critical Thinking Question: See iLEAP review book.</p> | | | <p>Bell Ringer: Think About it: how do you think the world began? Lesson: Theories Guided Practice: TW lead discussion on what a theory is; TW present different theories about the origins of life Independent Activity: In your science journal, write a reflection of this discussion Small/Coop. Groups: discussion Homework: none Materials: PPT Re-teaching: n/a Enrichment: discussion Assessment: 1,2,3 Sample Assessment Item/Critical Thinking Question: Explain one problem with one of these theories.</p> | <p>Bell Ringer: Think About it: Can theories be proven or disproven? Lesson: Theories Guided Practice: TW lead discussion on what a theory is; TW present different theories about the origins of life Independent Activity: In your science journal, write a reflection of this discussion Small/Coop. Groups: discussion Homework: none Materials: PPT Re-teaching: n/a Enrichment: discussion Assessment: 1,2,3 Sample Assessment Item/Critical Thinking Question: Explain one problem with one of these theories.</p> |