

Thursday, Jan 11, 2018

Pick up: none



Today you will:

- Review Early Ideas of Scientists
- Learn about Darwin's Theory of Natural Selection & Adaptation
- Stated Clearly-Natural Selection
- A Sisters Natural Selection & Bacterial Resistance

Homework/Planner:

Study

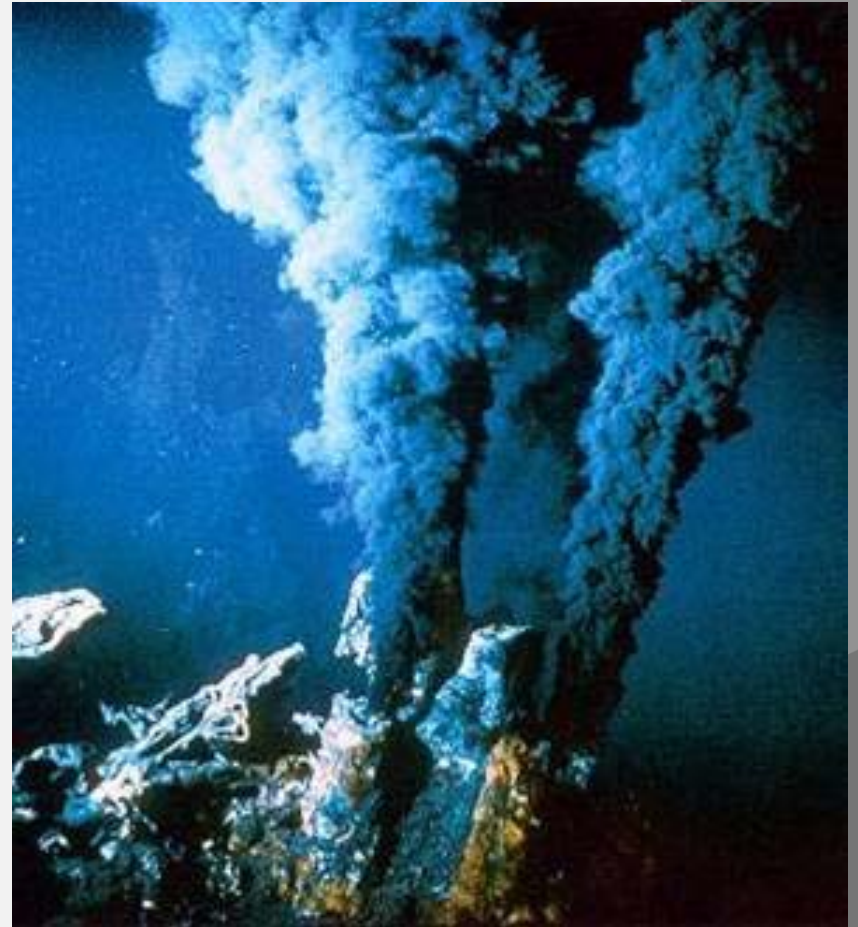
The Origin of Cells

Cell Structure Hypothesis

How 1st cells formed

Iron Sulfide Bubble Hypothesis

1. Biological molecules combined forming hydro-thermal vents on ocean floor →
2. These acted as the first cell membranes



CONT... The Origin of Cells

Cell Structure Hypothesis

How 1st cells formed

Lipid Membrane Hypothesis

1. IMPORTANT BECAUSE cells have a lipid bilayer....
2. Maybe those membranes came from **liposomes** → have membranes similar to cells
3. → which could then form around organic molecules (a.a., nucleotides, sugars)

The Origin of RNA

Ribozyme Hypothesis

How RNA formed

1. Ribozymes are RNA molecules that can start chemical reactions
2. They can replicate themselves and do NOT need other enzymes to do so... like DNA does
- 3. *So maybe RNA came first!***



EOC Review Questions

- ◎ Origin of Life

- ◎ <http://ecsd-fl.schoolloop.com/L.15.8>

So What is Evolution?

ISN pg 145

- ⦿ The change in the **INHERITED traits of** a population of organisms thru the generations
- ⦿ Over time, those **INHERITED traits** become more, or less, common.

Yesterday's Notes on ISBN pg 143

A. Origin of Earth →

A. Nebula Hypothesis

B. Origin of Life →

A. Miller-Urey

B. Meteorite Hypothesis

C. Origin of Cells →

A. Endosymbiont Hypothesis

On a new page outline this:

Darwin & The Theory of Natural Selection

- Early Ideas
- Artificial vs. Natural Selection:
- Four Main Principles
 1. Variation-
 2. Overproduction-
 3. Adaptation-
 4. Decent with modification-

You read about Early **Ideas About Evolution**

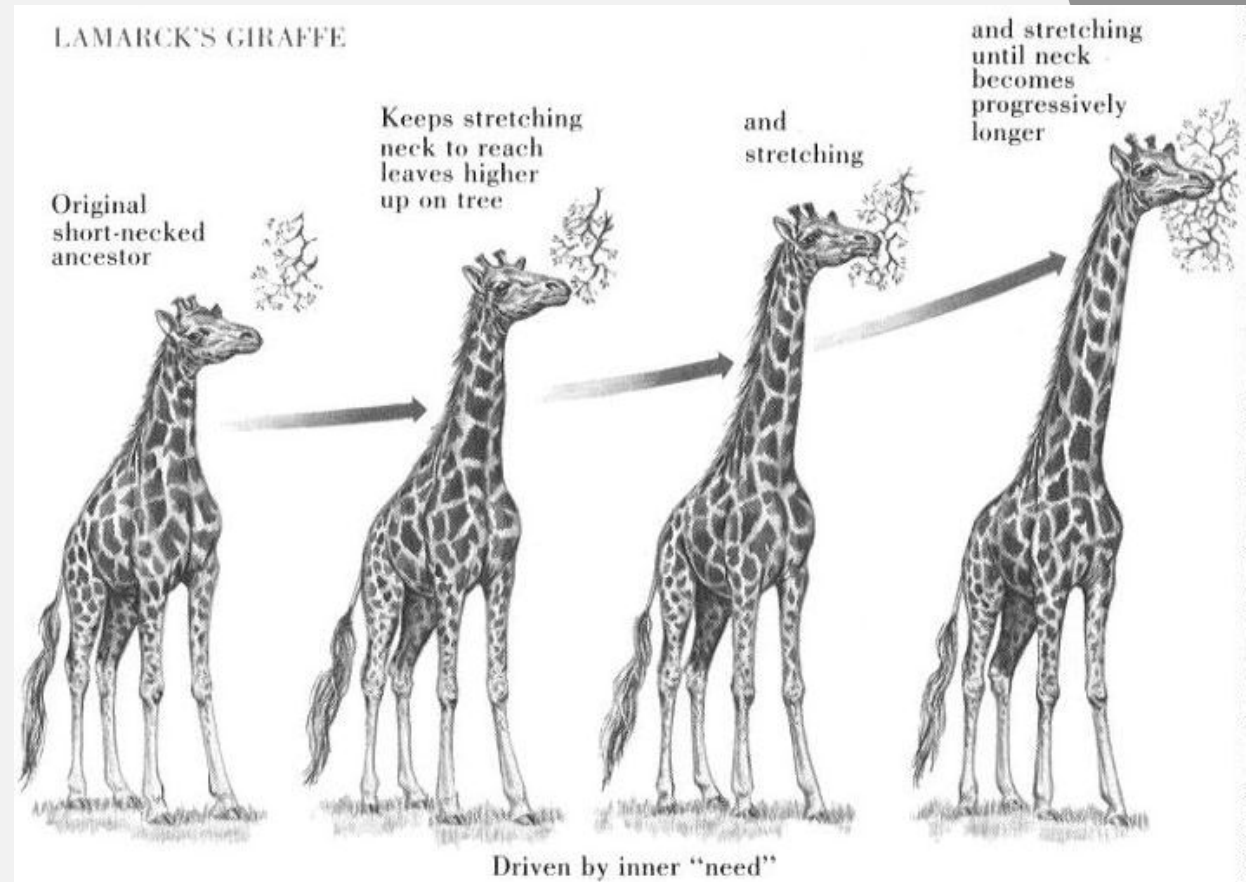
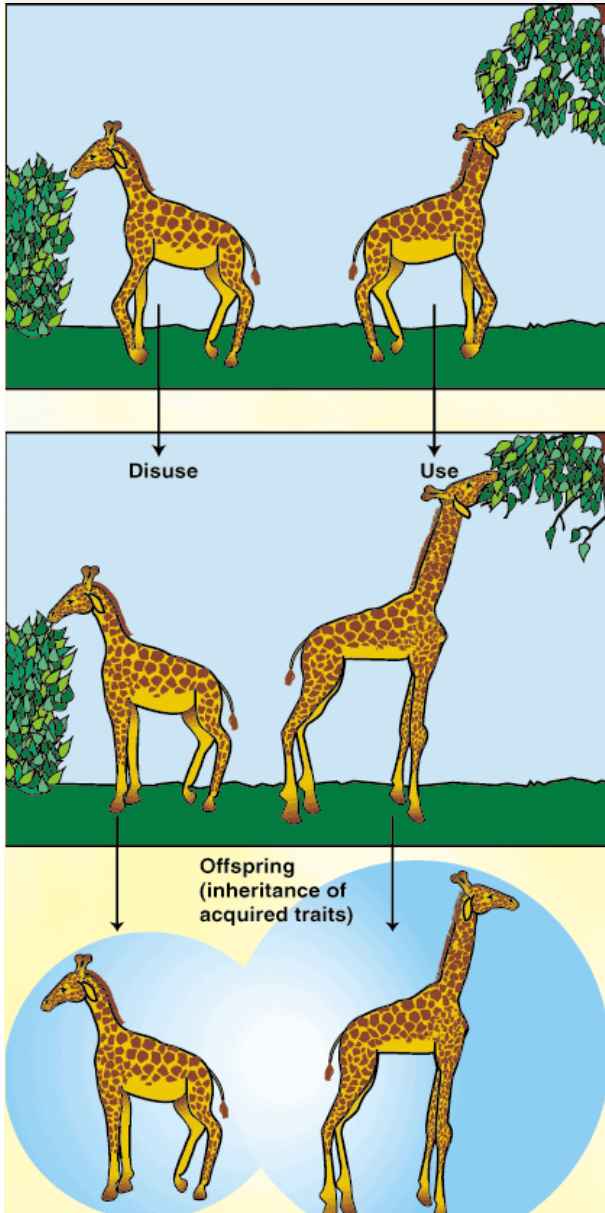
How life changed over time

1. Linnaeus = classification system to name and categorize species

2. Buffon = said species shared ancestors instead of arising separately!

3. LaMarck = changes in organism's environment caused an organism to change its body = inheritance of acquired traits...!

Lamarck's Ideas of Acquired Traits being passed on to the offspring....!



Stop **T**hink **A**nd **R**evise

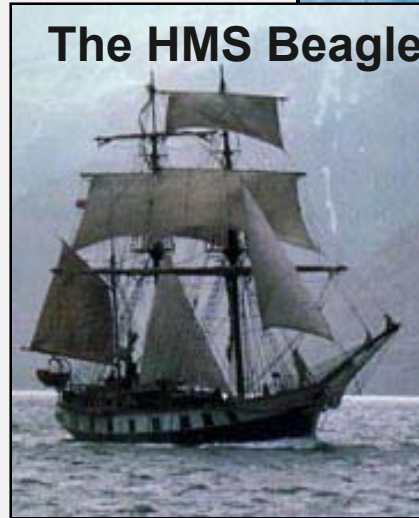
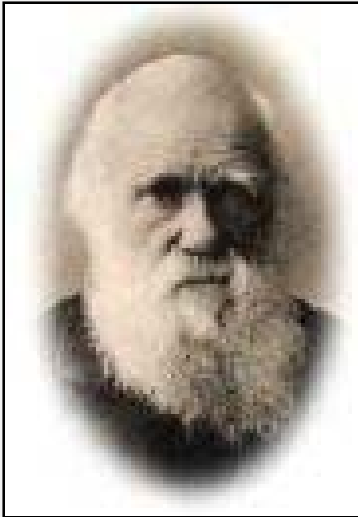
Evolution

*It is a scientific theory, but we are
not trying to change your
personal beliefs...*

<https://www.youtube.com/watch?v=mZt1Gn>

OR22Q

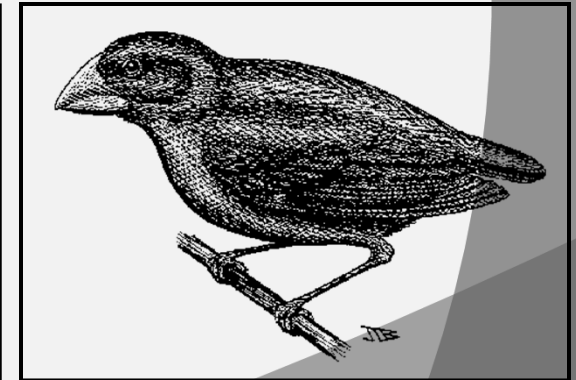
Charles Darwin



- He tried to explain natural selection and how living things gradually change, adapt, survive, & reproduce....



The Galapagos tortoise - largest living tortoise....weight over 500 pounds; measures 6 feet from head to tail; slow-moving animal - 0.16 mph - large shell made of bone.



Galapagos Finch

Today you will also read about **ADAPTATIONS**

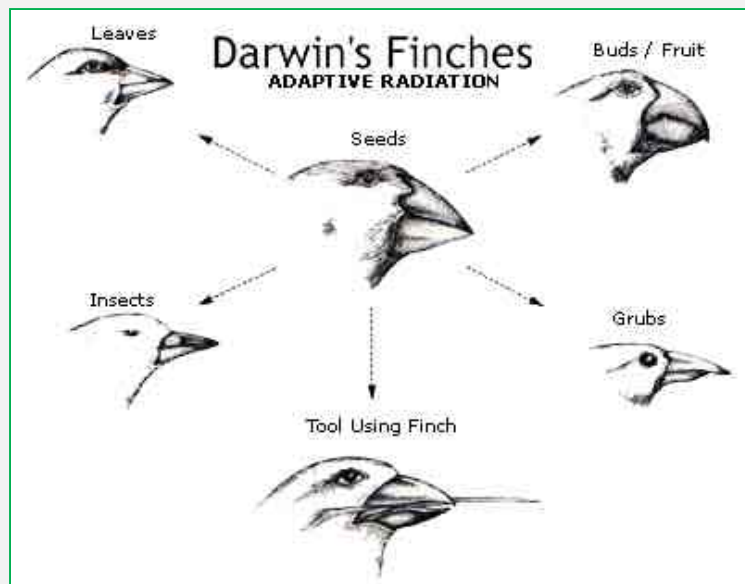
*The everyday meaning of ‘adaptation’
differs from its scientific meaning:*

1. For example, a new student may **adapt** to an unfamiliar school by joining clubs or sports → in this sense, **ADAPT** is something one does **KNOWINGLY**.

2. In **NATURE**, **ADAPTATIONS** are traits or behaviors that are **GENETICALLY DETERMINED** → no bird can choose to grow its beak longer!

Darwin did NOT
believe...

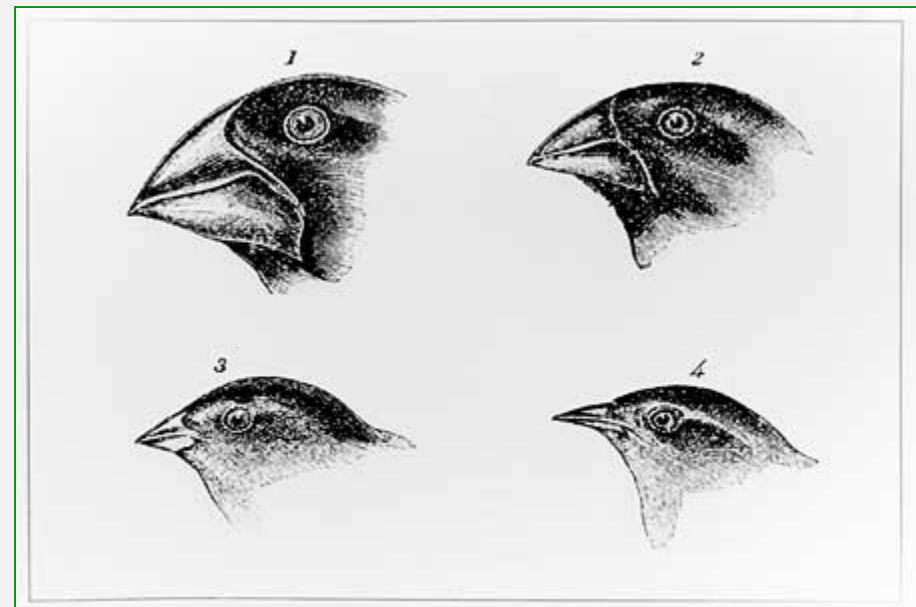
... that the environment
produced the
variation in the
finches!



Darwin DID
believe...

... that the variation
ALREADY EXISTED!

& that NATURE SELECTED
FOR the MOST SUITABLE
TRAIT & AGAINST the less
useful ones!!!



Adaptation ISN pg 188

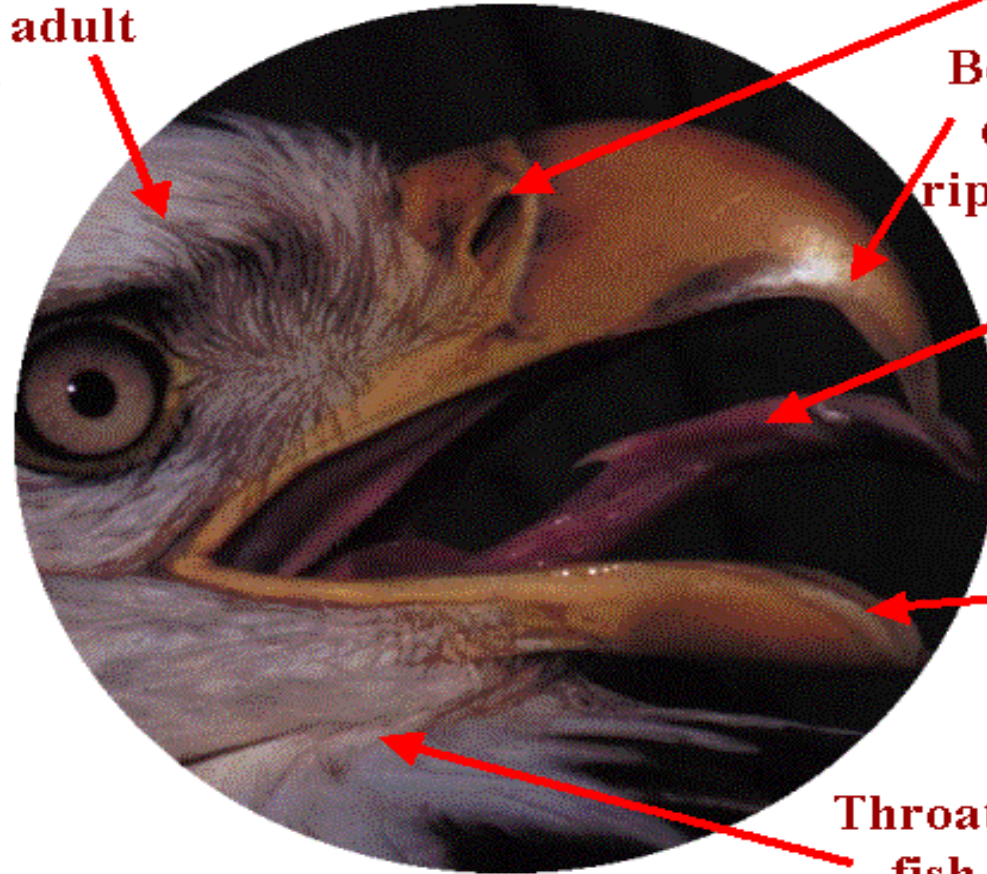
- ◎ Anything that enables a living thing to survive & reproduce → Variation is ALREADY present!!!



- The creosote bush is a desert-dwelling plant that produces toxins that prevent other plants from growing nearby...
- thus reducing competition for nutrients and water.

Adaptation

White head feathers show other eagles that this one is a mature adult



Nostrils for breathing

Beak's tip strong and sharp, designed for piercing and ripping apart the toughest fish

Tongue thick and strong for pushing big chunks of fish down the throat

Lower beak blunt and short to brace against upper beak

Throat stretchy so big chunks of fish can go down the hatch!

Structural Adaptations

PHYSICAL – changes in structure of body parts

Examples...



Plants have adaptations, too!



Thorns



Prop roots

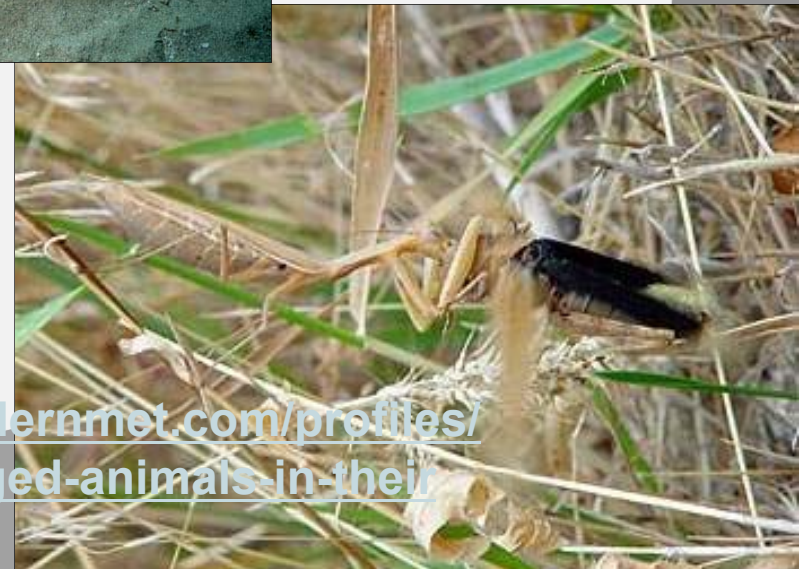
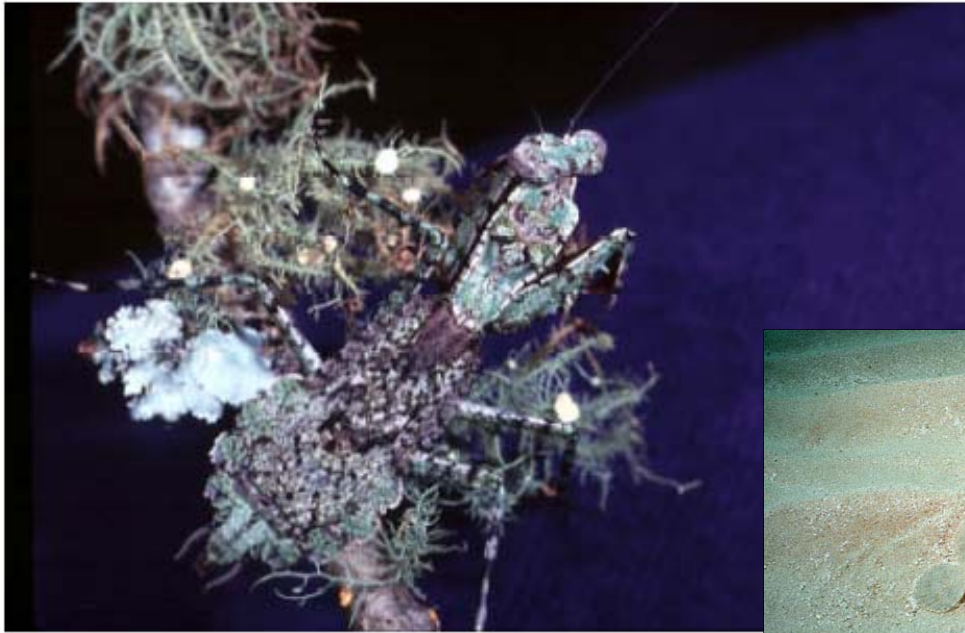


Wide leaves



Thick, waxy cuticle

More *examples* of Structural Adaptations: Camouflage



<http://www.mymodernmet.com/profiles/blogs/camouflaged-animals-in-their>

Physiological Adaptations

Changes in organisms metabolism - Substance...
produced internally



•Use of silk to line burrows or catch prey or to protect delicate baby eggs.



The lateral line contains nerve endings that detects changes in water around fish.



*The Jacobson's organ and the snake's fork shaped tongue allow snake to smell its environment.



COURTESY: NEUROBIOLOGICAL TECHNOLOGIES, INC.

Snake venom

Behavioral Adaptations

Changes in what they do – how they act



More behavioral adaptations...

1. California red squirrels heat up their tails to let rattlesnakes know they are there & ready to defend their babies



2. Other squirrels eat snake skin, rub it on their tails so the rattlesnake thinks it is another snake

