



# INTRODUCTION TO EVOLUTION

## Definition, Biology, & Life Notes



Name: \_\_\_\_\_ Date: \_\_\_\_\_ Block: \_\_\_\_\_

*"Science without religion is lame, religion without science is blind."* – Albert Einstein

- ▶ Indeed, Evolution is **the** \_\_\_\_\_ of Biology.
- ▶ The evolutionary perspective illuminates every subject in biology, from Microbiology to Ecology.

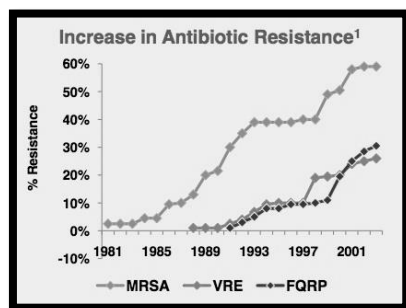
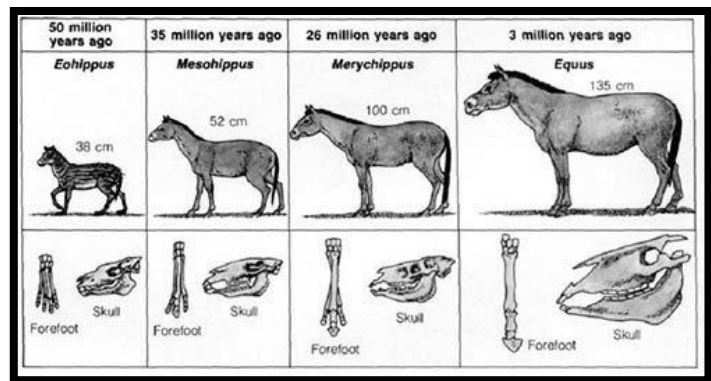
### What is Evolution?

1. Evolution is what?
- ▶ We can talk about the evolution of dance over time, or the adaptation of cell phones.
2. Evolution, generally, is simply what?

### Biological Evolution

3. What is the definition of Biological evolution?

For example: Change in antibiotic resistance of bacteria or change in the physical properties of the horse (and horse-like predecessors).



### Let's Clear the Air-Conflict and Controversy

- ▶ The purpose of education is to promote understanding, not to compel belief. Keep an open mind!
  - ▶ Evolution, if properly taught and properly understood, should not threaten the beliefs of students.
4. Darwin's theory of \_\_\_\_\_  
\_\_\_\_\_ has been described as what?

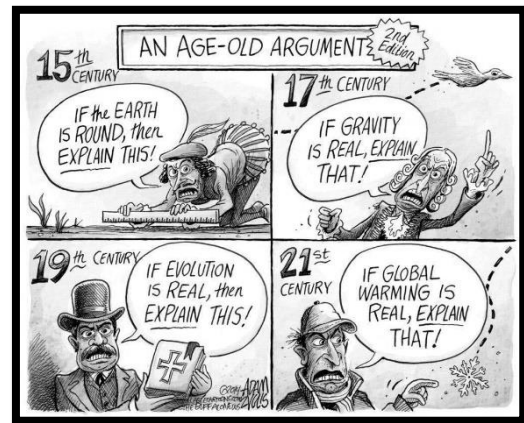
Darwin once wrote, "There is grandeur in this view of life."

## Is Evolution a Theory or Fact?

5. Is evolution a theory or fact?

- ▶ You may have heard someone say, “Evolution is just a theory”, but this statement comes from a misunderstanding about what **THEORY** means in science.

A **theory**: is a well-substantiated explanation or a set of statements that have been confirmed over the course of many independent experiments.



## Other “Theories” in Science

- ▶ **Gravity!**
- ▶ **Cell Theory**- All living things are composed of cells. All cells arise from pre-existing cells.
- ▶ **Heliocentric theory**- The earth and planets in our solar system revolve around the sun.
- ▶ **Electromagnetism**- The interaction of electricity and magnetic forces in predictable ways.
- ▶ **Einstein’s Theory of Relativity**- Mass warps spacetime. Confirmed during a solar eclipse in 1919, but it does not ever get elevated from the status of a theory.
- ▶ **Atomic Theory**- Matter is composed of atoms

Science is very good at answering the “how” questions. How did the universe evolve to the form that we see? But science is woefully inadequate in addressing the “why” questions. Why is there a universe at all?

## Scientific Theory Vs. Laws

6. A theory in science does not ever get \_\_\_\_\_ into a \_\_\_\_\_.
- Something is not a “theory” until proven, and then it is made a “law.”
7. A law does what?
8. A theory explains what?
- Laws are often used as support for theories, but...
9. Either can be what?
10. There is no hierarchy. Both theories and laws can be considered what, under the right conditions?

## Evolution: Theory not a Belief System

11. We accept Evolution as fact, or as a well-supported, well-tested what?
12. Given that Evolution is **NOT** a belief system, it does not do what?