

### Evidence for Evolution Webquest

#### Definition of evolution:

1. Go to [bit.ly/1Lxrer6](http://bit.ly/1Lxrer6). What is **evolution**?

#### Jean-Baptiste Lamarck vs. Charles Darwin: Go to [bit.ly/OXdQSB](http://bit.ly/OXdQSB)

2. What was **Lamarck's** *Theory of Inheritance of Acquired Characteristics*? Use the elephant or giraffe example in your response.
3. What was **Charles Darwin's** *Theory of Evolution*? Why do we believe him and not Lamarck?

#### Much of the evidence for evolution is based on:

- The fossil record
- Studies of embryos of different species (embryo development)
- Homologous structures (structures on living things that have a common origin)
- Similarity in nucleic acid (DNA/RNA) and amino acid (protein) sequences of different species

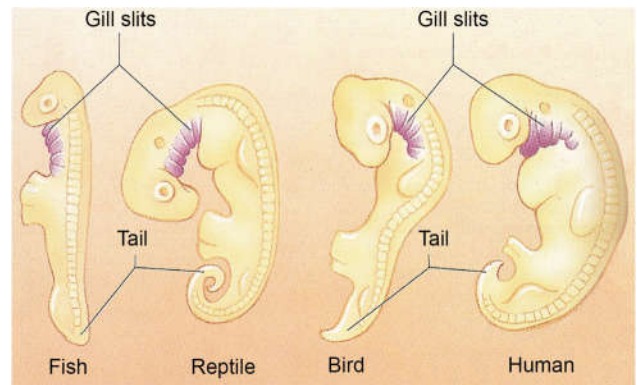
#### A. Fossil Evidence:

4. [bit.ly/1L7srHj](http://bit.ly/1L7srHj): What are fossils? List and describe the four types of fossils.
5. [bit.ly/10cNLUu](http://bit.ly/10cNLUu) (scroll down to "The Fossil Record"): Describe how scientists use fossils to show an evolutionary relationship.

**B. Embryological Evidence:** [bit.ly/1EBcyiy](http://bit.ly/1EBcyiy)

6. What is an embryo?

7. What did the gill slits in a fish embryo develop into? What about in the human?



8. How do similarities in developing embryos provide evidence of Evolution?

**C. Anatomical Evidence:** [bit.ly/1Mbzteq](http://bit.ly/1Mbzteq)

9. What is meant by **homologous structures**? Give an example. What evolutionary information can we determine from homologous structures?

10. What is meant by **analogous structures**? Give an example.

11. [abt.cm/1RRjhvd](http://abt.cm/1RRjhvd): What is the difference between **divergent evolution** and **convergent evolution**?

12. [abt.cm/1MpQrAy](http://abt.cm/1MpQrAy): Define and give an example of a **vestigial structure**. What evolutionary information can we determine from vestigial structures?

**D. Biochemical Evidence:** [bit.ly/10cNLUu](http://bit.ly/10cNLUu) (scroll down to “Chemical and Anatomical Similarities”)

13. All living things on earth share the ability to create complex molecules out of carbon and a few other elements. 99% of the proteins, carbohydrates, fats, and other molecules of living things are made from \_\_\_\_\_

14. What information codes for the production of proteins (through linking of amino acids)?

15. Even though there are tens of thousands of types of proteins in living things, they are all made up of mostly just \_\_\_\_\_ kinds of amino acids.

Despite the great diversity of life on our planet, the simple language of the DNA code is the same for all living things. This is evidence of the fundamental molecular unity of life.

Organism	Amino Acid Differences	Organism	Amino Acid Differences
Human beta chain	0	Mouse	27
Gorilla	1	Kangaroo	38
Rhesus monkey	8	Chicken	45
Dog	15	Frog	67
Cow	25	Soy bean	124

16. The table above shows the number of differences in the amino acid sequences of different organisms compared to humans. According to the table, which organism is most closely related to the human? Which organism is the most distant relative of the human? How do you know?