

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Lesson 12: Home-Learning

Scientists often compare models and evaluate the strengths and weaknesses of each. We have spent some time developing a model for how bacteria populations have changed over time to become more resistant to antibiotics and it is time to compare our model to that of two scientists before-Charles Darwin and Jean Baptiste de Lamarck.

**Procedure:** Complete the first column of the table filling in each item from your classes Gotta-have-it checklist from Lesson 12. Then, read the article on the next page summarizing Darwin and Lamarck’s theories and complete the other two columns.

Our Model	Lamarck’s Theory	Darwin’s Theory



## Two Other Models: Jean Baptiste de Lamarck's vs. Charles Darwin's

Jean Baptiste de Lamarck (1744-1829) and Charles Darwin (1809-1882) both developed theories over their careers. They both had theories to explain the variation of life on Earth. Their theories had similarities and differences. Both Darwin and Lamarck believed that life on Earth changed over time and was still changing. They both believed that populations adapted become more suited for survival in their environments and that life on Earth started with fewer, more simple organisms and has developed into many more complex organisms.

Lamarck published his theory to explain the similarities and differences of life on Earth in the book, *Theory of Inheritance of Acquired Characteristics* in 1801. In this, Lamarck said that if an organism changes during its lifetime in order to adapt to its environment, those changes are then passed on to its offspring. He said that change is driven by what organisms want or need. For example, Lamarck believed that elephants all used to have short trunks. When there was no food or water that they could reach with their short trunks, some elephants stretched their trunks to reach the water and branches. Then because they now had developed a little bit longer trunk through stretching than other elephants, their offspring would inherit long trunks. Lamarck also said that body parts that are not being used, such as the human appendix and little toes are gradually disappearing. He claimed that eventually, people will be born without these parts.

Darwin, on the other hand, published his theory in *On the Origin of Species* in 1859. In his theory, he said that the desires of animals have nothing to do with how they evolve, and that changes in an organism during its lifetime do not affect the traits it passes on to its offspring, and do not affect the evolution of a species. He said that organisms, even of the same species, are all different and that some will happen to have heritable variations that give them a competitive advantage in their environments to survive more often and have more offspring. The offspring then are born with these trait variations that give them a competitive advantage for survival and reproduction. As more and more of them survive and reproduce, individuals with that trait makeup more and more of the population. Other individuals, that are not so well adapted to this environment, die off. Most elephants used to have short trunks, but some few had longer trunks. When there was no food or water that they could reach with their short trunks, the ones with short trunks died off, and the ones with long trunks survived and reproduced. Eventually, most of the elephants alive today have long trunks.

**Making Sense:** Which model is more similar to ours (Lamarck's or Darwin's )? Explain

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