

# Evolution: Study guides (100 pts)

Articles from Scientific American , Vol 300 #1 January 2009.

Read [Canine evolution](#) (5 pts)

Answer the following in complete sentences:

Most domestic animals were domesticated by artificial selection.. Summarize the evidence given in the article that this is not how dogs became domesticated.

**Ch 14 Study Guide:** (20 pts) Answer the following questions in complete sentences on your own paper.

Complete # 1-7 Thinking through the concepts p 293 text.

**Ch 15 Study Guide:** (20 pts) Answer the following questions in complete sentences on your own paper. <http://nhscience.lonestar.edu/bioL/hwe.html> can help with the H-W questions.

- 1) By the 1940's the whooping crane population had been reduced to fewer than 50 individuals. Thanks to conservation measures, their numbers are now increasing.  
But what special evolutionary problems do whooping cranes have now that they have passed through a population bottleneck?
- 2) What is polymorphism? Give an example in humans. How is balanced polymorphism maintained in a population?
- 3) In a population of England the frequency of the i in the ABO system is 0.6. What do you know about the frequency of IA & IB
- 4) In the year 2468, 2 male colonists and 3 female space colonists settle on an uninhabited planet in the Andromeda galaxy. All 5 of the original settlers were PTC tasters (2 were hybrid). After many generations, the population of the planet reaches 10,000. Assuming Hardy-Weinberg conditions existed, how many people will be non-tasters.

( Which H-W conditions couldn't possibly have been met!)

**What Will Become of *Homo Sapiens*? Ch 16 Study Guide (20 pts)(Speciation on CD)**

1. What is the biological basis for assigning all human populations to a single species? Explain why it is unlikely that a second human population could arise in the future?
2. Why is rare to find fossilized humans?
3. How did speciation of early humans occur?
4. In what ways are 'unnatural selection' occurring in Humans?
5. Do you think humans should try to direct their own evolution? Explain your answer.

**Evolution in the Everyday World (20 pts)**

1. What are molecular clocks and how are they used?
2. What is evolutionary medicine and how can it help?
3. How are researchers using evolution to enhance proteins.?
4. What is genetic programming?
5. What is metagenomics ?

**Ch 17 SG:** (15 pts)

**Answer the following questions in complete sentences on your own paper.**

1. Why do some scientists believe that RNA was probably the first genetic material?
2. Scientists have evidence that life developed from non-living chemicals over 3 billion years ago (spontaneous generation). Define spontaneous generation and explain why scientists assert that it cannot happen today. How were conditions different long ago?
3. Arrange the following in order of their appearance in the evolution of life. (10 pts)

A. formation of the earth
B. protein-lipid microspheres enclosing RNA molecules
C. hydrogen-rich atmosphere around earth
D. Multicellular organisms evolved
E. primitive prokaryotic (anaerobic) cell- feeds by absorbing organic molecules synthesized by the environment.
F. lightning UV light and heat forms organic molecules( nucleic acids, amino acids, short proteins and lipids)..
G. O <sub>2</sub> revolution- significant amounts of free oxygen in the atmosphere
H. eukaryotic cells evolved as a result of symbiotic cells and predatory bacteria
I. photosynthesis evolves (ancestors of cyanobacteria)
J. aerobic metabolism evolves