

## Macroevolution Study Guide

What is speciation?

Differentiate between sympatric and allopatric speciation.

What role does isolation play in the development of new species?

Using Darwin's Finches as an example, explain speciation.

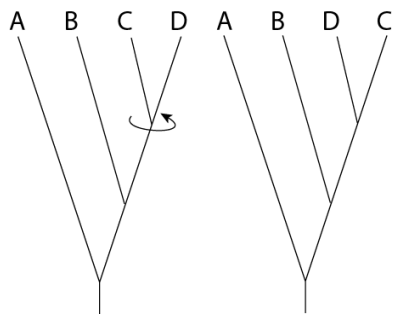
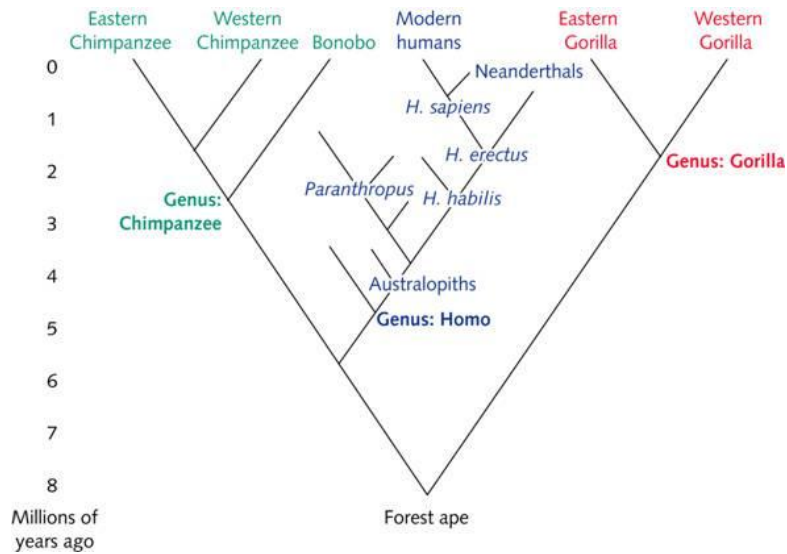
What is the endosymbiotic theory?

Explain punctuated equilibrium. Give an example.

Explain gradualism. Give an example.

Using the phylogenetic tree below, determine when the genus *Homo* branched from the tree. \_\_\_\_\_

When did *Homo habilis* branch? \_\_\_\_\_



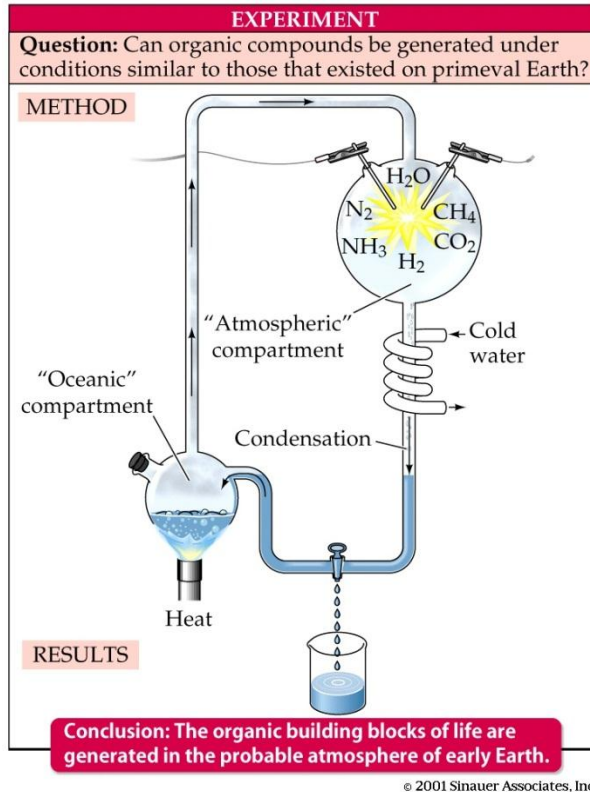
Explain the difference (if any) in the two cladograms shown.

Explain why glycolysis is considered a “conserved core process” – look up glycolysis, why is this OLD process still around.

Explain nurture versus nature. (Which traits/abilities are inherited which are learned? Are learned traits passed on to future generations – if so HOW?)

Review the Miller-Urey experiment. What were they trying to accomplish?

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Explain prezygotic and postzygotic reproduction isolation.

Explain coevolution.

Explain adaptive radiation.

What are the traits of ALL cells (prokaryotic and eukaryotic)?

Describe some methods of investigating phylogeny. What are the strengths and weaknesses?

As oxygen became more prevalent in the Earth's atmosphere, it affected life. What affects did increased oxygen concentration have on life? What were some benefits and detriments?

If the mutation rate is 5 mutations every million years and there are 25 mutations in your DNA sequence. How many years ago did the sequences diverge?

Cross goat grass ( $2N=14$ ) and Emmer grass ( $2N=28$ ) = Common Wheat ( $2N=$  \_\_\_\_\_) and ( $N=$  \_\_\_\_\_)

Using the chart below, determine the average time difference between M18-24 group and the M65-69 group. (Easiest thing to do would be convert times to seconds).

Race	M18-24	M25-29	M30-34	M35-39	M40-44	M45-49	M50-54	M55-59	M60-64	M65-69
Arizona	12:33	12:23	12:14	12:09	12:27	12:33	13:02	14:06	13:38	14:47
Australia	11:50	11:25	11:30	11:54	12:06	12:19	12:59	13:21	14:26	13:44
Austria	11:05	11:12	11:20	11:26	11:47	12:03	12:13	12:44	13:28	13:20
Brazil	12:30	11:31	11:46	11:50	11:59	12:08	12:29	13:02	13:48	14:13
Canada	13:43	12:05	12:31	12:29	12:41	12:59	13:15	13:51	14:40	14:02
China	15:09	13:56	13:14	12:26	13:00	14:04	14:14	13:51	15:18	14:37
Coeur d'Alene	12:35	12:40	12:25	12:58	12:44	12:58	13:42	14:15	14:32	15:33
Cozumel	12:39	12:56	12:43	13:05	12:58	13:14	13:45	13:27	14:21	13:50