NSDL/NSTA Web Seminar:

Studying Genomes: From the Lab to the Classroom

Tuesday, November 13, 2007
Dr. Rob DeSalle,
Author and Curator in the Sackler Institute for Comparative Genomics,
American Museum of Natural History
• What do evolutionary trees tell us?
• How are evolutionary trees built from genomic information?
• Some neat things about the trunk of the tree of life
• Some even neater things about the tips of the tree of life where we humans reside
vertebrae

4 limbs

watertight

eggs

hole in hip socket
Some tree terminology

BRANCH

NODE

ROOT

http://nsdl.org
Cast of Characters

If we have these four taxa and F is the root, how many possible trees are there?

Write your answer in the chat
Where would you attach these species on the tree? (Bonobo, Marsupial, Bear) Stamp your answer

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>Not marked</th>
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Which of these trees is not like the others?

http://nsdl.org
A good root for the tree above would be:

a. Orangutan  
b. Tiger  
c. Snake  
d. Sea urchin
“This is a dinosaur DNA sequence.”

Dr. Wu, Ingen

Search For Eminem
Building a Bikini Bottom Phylogeny

http://nsdl.org
<table>
<thead>
<tr>
<th></th>
<th>spongebob</th>
<th>Mr. Krabs</th>
<th>Patrick</th>
<th>Squidward</th>
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True or False:
There are 5 major kingdoms of life

Stamp your answer

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<th>True</th>
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http://nsdl.org
3 Super-domains: YES
- Eukaryota
- Bacteria
- Archaea

6 Kingdoms: YES... well maybe
- Bacteria
- Archaea
- Fungi
- Plants
- Animals
- PROTISTA (darn)
Fungi are closer to us beyond just being between our toes.
MEET YOUR RELATIVES
Learn how you are like—and different from—a Neanderthal and a chimpanzee!

Chimpanzees are more closely related to humans than any other living species. Among the extinct human-like species, Neanderthals were our closest cousins.

USE THESE BUTTONS to explore how humans, Neanderthals and chimpanzees are similar in their bones, brains and DNA—and what makes humans unique.
When a genetic testing company tells you that you are Yugoslavian, are you?
mtDNA

Y-DNA

X-DNA
WE ARE ALL AFRICAN

TO HELP VISIT ONE.ORG
THANK YOU!

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http://amnh.org

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- Utilize our blog featuring our presenters for the Fall Series sharing their insights on careers in science and science education:

http://expertvoices.nsdl.org/2007fall-nsta-sems/
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- Over 1,000 NSTA Journal articles (230 of them available FREE of charge)—many containing high-quality lesson plans.
- More than 35 FREE Science Objects (one- to two-hour interactive simulation-based learning experiences).
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