Internet Assignment 16: Evolution HHMI

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

<http://www.hhmi.org/biointeractive/evolution/animations.html>

Watch the fossil record of stickleback evolution and answer the following questions

1. What kind of organism are we following the evolution for?
2. What are the 3 types of stickleback they follow and what are the defi9ning characteristics of each
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What sequence did the stickle back follow during its evolution

Watch the Gene switch animation for a review, then watch the stickleback CT scan, and finally watch Pitx1 animation and answer the following questions

1. What is the PitX1 Locus responsible for?
2. What are the 3 locations the PitX1 gene may be switched “on”
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. How are the Paxton Lake population different from the marine population of stickleback?
4. What is the result of these differences

Watch Paintbrush genes

1. What accounts for the one species of fly having spots on its wings but not the other

## Watch Pocket Mouse and Predation and Pocket Mouse Evolution

## Using the terms natural selection, survival of the fittest, allele frequency, and mutation describe what is happening to the mouse population and how, why the population is evolving.

Evolution of Homologous Genes

<http://highered.mcgraw-hill.com/sites/9834092339/student_view0/chapter24/evolution_of_homologous_genes.html>

1. Why are gene duplications important in evolution?
2. What is one type of abnormal genetic event that can produce gene duplications and deletions?
3. How is it that a duplication, specifically, can lead to the evolution of a new trait?
4. What are homologous genes?
5. What are paralogs?
6. How do the sequence differences between gene family members provide raw material for evolution?