

**Answer the following questions using information from your notes as well as info from Pg. 349-357**

1. How does the discovery of so-called missing links in the fossil record help us to understand evolutionary events of the past?

**While many of the fossils that we find are ancient organisms that are nothing like we see in the modern world, there are many relatively recent fossils that are similar enough to be ancestors to creatures that we see living today. We have also unearthed transitional fossils which show the intermediate links between groups of organisms.**

2. Describe how the anatomy of animals is used to explain evolution.

**We see all sorts of evidence in the structure of animals**

- **Fossil records show that the anatomy of animals has changed over time**
- **homologous structures show that over time organisms can evolve into new species, yet retain many of the structures that they originally had – decent with modification.**

3. Baleen whales, such as grey and humpback whales, have teeth and body hair while they are embryos, but they lack these features as adults. What does this tell us about the evolutionary history of these animals?

**It tells us that they are likely related to, and come from the same origins as other mammals that also have teeth and hair! These are unnecessary structures for the whales, so over time they have lost them.**

4. Explain how the differences in the sequence of amino acids that make up cytochrome c in different kinds of organisms help us understand evolution.

**All organisms that have a mitochondria will contain some form of the protein cytochrome c. Organisms that are very closely related (like chimpanzees and monkeys) have very similar cytochrome c proteins. They differ by only 1 amino acid. However, if you take the chimpanzee and compare it to a dogfish, they differ by 24 amino acids. The more closely related 2 organisms are, the more in common their protein molecules will be.**

5. If you teach children to look both ways before they cross the street, this action will help them survive. Do you believe this an example of natural selection at work? Explain your answer.

**I'm looking for your opinion here! State your opinion and explain! We'll discuss this further another day.**

6. How might the colour of a field mouse affect its survival?

**Depending on it's colour, a field mouse may be more or less camouflaged from predators. If its colouration makes it blend in better with its environment, then it is far more likely to survive and pass on those genes to offspring.**

7. How do vestigial structures provide evidence for evolution?

**Vestigial organs show that an organism had a need for a certain structure at one point in the past, but it no longer needs it due to changes over time. This is great evidence that organisms change and evolve over time.**

8. How does the study of embryology support evolution?

**Embryology has shown that all vertebrate embryos (including humans) go through a stage in which they have gill pouches, and many mammals also grow tails as embryos. Most of them don't end up with these structures as a full grown organisms, so why would they form them at all? The best explanation is that they are all related and show similarities in the way that their embryos grow.**