

**Evolution: Great Transformations
Video Worksheet**

Name: _____

1. According to the video, if the Earth's 4.6 billion year history was compressed into a single hour, then how much of that hour would have included humans?
2. Dr. Phil Gingerich found a unique fossilized skull fragment in Pakistan. It was the size and shape of a modern-day wolf's skull, but contained the unmistakable ear bones found only in _____.
3. Dr. Gingerich found another important fossil finding in the "Valley of the Whales" in Africa. His *Basilosaurus* skeleton had unmistakable _____ bones. *Basilosaurus*, *Abulocetus*, *Rodhocetus* and *Dorudon* are all proposed transitional fossils linking land mammals to modern _____.
4. Fossils are not the only evidence linking marine mammals to a terrestrial ancestor. Whereas fish swim by flexing their spines from side to side, otters (and whales and dolphins) undulate their spines _____ and _____, which is similar to what land mammals spines do as they are _____.
5. It was previously thought that fish first crawled out of the water and then developed legs. But according to Dr. Jenny Clack at Cambridge, it is now thought that

_____.
6. In what ways are a fish fin and the arm of a human similar in terms of their skeletal components?
7. The abrupt and sudden appearance of early animal fossils around 570 million years ago is known as the _____. Darwin himself noted that this punctuated appearance of fossils was a problem for his theory, one which today is not completely understood.

8. Dr. Mike Levine (UC Berkeley) studies fruit flies, especially their _____, because he and others think that they may hold the clues to how animals evolve.
9. Dr. Ed Lewis at Cal Tech proposed a controversial but simple model from embryo shaping: that there was one _____ controlling each body _____ (e.g. head, thorax, abdomen...) during development.
10. Swiss scientists in 1994 made a profound advancement in showing commonality across diverse groups of the animal kingdom. They took a _____ from a mouse and placed it into a fruit fly that could not make an eye. The resulting fruit fly developed a normal insect eye.
11. According to Sean Carroll at UW-Madison (<http://www.molbio.wisc.edu/carroll/>), does evolution use packets of information (genes) in new combinations to create new forms, or are they reinvented every time? (circle one)
12. Dr. Liza Shapiro studies modern primates (such as lemurs) in order to better understand how walking upright may have evolved. TRUE or FALSE:
 According to the theory of evolution, humans evolved from lemurs.
 According to the theory of evolution, humans evolved from chimpanzees.

If you answered false to the above statements (hint hint), then complete the following statement:

One of the conclusions from evolutionary theory, based mainly on fossil and molecular evidence, is that modern humans share a recent _____ with modern chimpanzees and other primates.

13. _____, which is how chimpanzees move around on the ground, is as valid of a way of moving around as walking on two legs.