What is the Fossil Record?

Worksheet

Fossils are preserved remains of ancient organisms found in rock layers. The fossil record reveals evolution through transitional forms, shows species have gone extinct, and allows us to date major events in Earth's history using radiometric dating.

Questions

1. Archaeopteryx is evidence of?

A) Bird extinction
B) Reptile-to-bird evolution
C) Feather origin
D) All of these

2. Tiktaalik shows transition from?

A) Reptile to bird
B) Fish to tetrapod
C) Mammal to ape
D) Ape to human

3. What does the fossil record prove?

A) Life is static
B) Evolution has occurred
C) Species never change
D) God exists

4. Why is the fossil record 'incomplete'?

A) Not all organisms fossilize
B) Rocks are destroyed
C) Humans haven't found all fossils
D) All reasons

5. Archaeopteryx (150 million years ago): why is it a key evolutionary fossil?

6. Tiktaalik (375 million years ago): what does it reveal about fish-to-land evolution?

7. Lucy (Australopithecus afarensis, 3.2 million years ago): what does this fossil tell us?

8. Define: What is a fossil?

9. Define: What does 'transitional fossil' mean?

10. Define: How are fossils dated?

Answer Key

1. D) All of these - Archaeopteryx is the famous transitional fossil bridging dinosaurs and birds.

2. B) Fish to tetrapod - Tiktaalik has both aquatic and terrestrial features.

3. B) Evolution has occurred - Fossil sequences show directional change over time.

4. D) All reasons - Fossilization is rare; preservation depends on conditions.

5. Archaeopteryx shows both reptile features (teeth, clawed wings, long tail) and bird features (feathers, wishbone, wing structure). This proves the dinosaur-to-bird evolutionary transition. It's a 'transitional fossil' bridging two major groups.

6. Tiktaalik has fish features: scales, gill slits, fin bones. And tetrapod (land-animal) features: limbs, neck, wrist/finger bones. This shows the intermediate stage of fish acquiring limbs for moving on land.

7. Lucy walked upright on two legs (bipedalism) - a key human trait. But also had a small brain and ape-like features. Shows the evolutionary path from apes to modern humans, starting in Africa.

8. A preserved remain or trace of an ancient organism, typically in rock.

9. A fossil showing features intermediate between two modern groups, evidence of descent with modification.

10. Relative dating (rock layers) or absolute dating (radiometric methods like carbon-14).