



Short Film

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Great Transitions: The Origins of Tetrapods

Student Quiz

NAME _____

DATE _____

1. When Charles Darwin considered some of the unique structures found in modern animals, like the feathered wings of birds, he famously proposed that modern animals must have evolved from earlier forms that lacked those structures. He also predicted _____. (Fill in the blank with one of the statements below.)
 - a. that it would be impossible to find fossil evidence for this idea because the fossil record is so incomplete.
 - b. that genetic evidence would show that all organisms share a common ancestor.
 - c. that fossils would be found with structures that are intermediate between early and modern forms.
 - d. that fossil evidence would instead show that all modern animals have always existed in their present form.

2. Which of the following features describe *Tiktaalik*?
 - i. Neck
 - ii. Lungs
 - iii. Round head
 - iv. Fins
 - a. ii and iv only
 - b. i, ii, and iv
 - c. i, iii, and iv
 - d. i, ii, iii, and iv

3. Examine the table below and select the row that best describes the setting, resources, and scientific processes used during the *Tiktaalik* expeditions.

	Location	Maps/Photos	Scientific Process
a.	Canadian Arctic	Geological maps	Hypotheses testing
b.	Iceland	Road maps	Predicting
c.	Alaska	Aerial photos	Questioning
d.	Arctic Circle	Animal track maps	Developing explanations



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4. Which statement below is evidence that all tetrapods shared a single common ancestor?
 - a. All tetrapods live partly in water and partly on land.
 - b. All tetrapods are warm-blooded.
 - c. All tetrapod limbs consist of rearranged fish fin rays.
 - d. All tetrapod limbs have a common pattern of one bone, two bones, many bones, then digits.

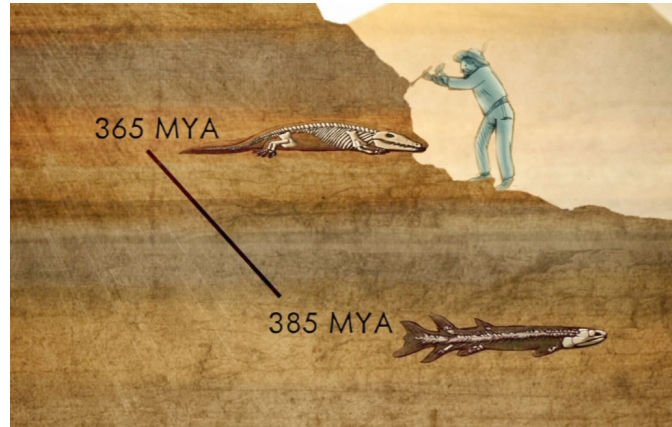
5. The transition from fish to tetrapods is best described as:
 - a. Like most of the great transitions in evolutionary history, it happened in very few big steps so that there are very few intermediate forms.
 - b. Like most of the great transitions in evolutionary history, it happened in many small steps leading to many intermediate forms.
 - c. Like no other transition in evolutionary history, it happened in many steps, so there are many intermediate forms.
 - d. Like most of the great transitions in evolutionary history, it happened in a single step with no intermediate forms.

6. Which evidence supports the fact that tetrapods and fish are closely related?
 - i. The embryos of modern fish and tetrapod look similar.
 - ii. Both modern fish and tetrapods can swim.
 - iii. Both modern fish and tetrapods are vertebrates.
 - iv. The DNA of modern fish and tetrapods suggests that they have a common ancestor.
 - v. Modern fish have limb bones that support their bodies.
 - a. i, ii, and v only
 - b. i, iii, and iv only
 - c. iii and v only
 - d. i to v are all supporting evidence

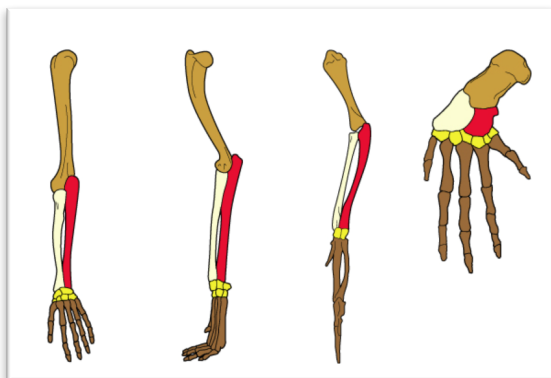
7. True or False. "Transitional organisms are not actual species." Justify your answer in one or two sentences.



8. Study the graphic below of rock layers with fossils in them. Explain how Neil Shubin and his team predicted that they would find a fossil animal like *Tiktaalik* in rocks around 375 million years old.



9. The diagrams below illustrate the bones in the forelimbs of four different organisms. Although these limbs all look different, they share some common patterns. These common patterns suggest that



- These organisms are members of the same species.
- The organisms existed at about the same point in time.
- These organisms share a common ancestor.
- These organisms have exactly the same genes.

