

# QUIZIZZ

## Evolution & Transitional Fossils

13 Questions

NAME : \_\_\_\_\_

CLASS : \_\_\_\_\_

DATE : \_\_\_\_\_

1.

| Name          | Scales | Gills | Lungs | Humans | Wing | Pinna | Diets | Ribcage | Neck | Instal |
|---------------|--------|-------|-------|--------|------|-------|-------|---------|------|--------|
| Coelacanth    | ✓      | ✓     | ✓     |        |      |       |       |         |      |        |
| Pederpes      |        |       | ✓     | ✓      | ✓    | ✓     | BS    | ✓       | ✓    |        |
| Tulerpon      |        |       | ✓     | ✓      | ✓    | ✓     | 6     | ✓       | ✓    | 100    |
| Ichthyostega  | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | 7     | ✓       | ✓    | 100    |
| Acanthostega  | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | 8     | ✓       | ✓    | 100    |
| Tiktaalik     | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | ✓     | ✓       | ✓    | 100    |
| Panderichthys | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     |       | ✓       | ✓    | 100    |
| Eoanthracodon | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     |       |         |      | 100    |

The organism that most resembles modern day tetrapods from the transitional fossils in the graphic is

- a) Coelacanth
- b) Pederpes
- c) Ichthyostega
- d) Acanthostega

2.

| Name          | Scales | Gills | Lungs | Humans | Wing | Pinna | Diets | Ribcage | Neck | Instal |
|---------------|--------|-------|-------|--------|------|-------|-------|---------|------|--------|
| Coelacanth    | ✓      | ✓     | ✓     |        |      |       |       |         |      |        |
| Pederpes      |        |       | ✓     | ✓      | ✓    | ✓     | BS    | ✓       | ✓    |        |
| Tulerpon      |        |       | ✓     | ✓      | ✓    | ✓     | 6     | ✓       | ✓    | 100    |
| Ichthyostega  | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | 7     | ✓       | ✓    | 100    |
| Acanthostega  | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | 8     | ✓       | ✓    | 100    |
| Tiktaalik     | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | ✓     | ✓       | ✓    | 100    |
| Panderichthys | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     |       | ✓       | ✓    | 100    |
| Eoanthracodon | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     |       |         |      | 100    |

Which is a reason Tiktaalik could not permanently invade land?

- a) It did not yet have bones in its front limb to support its weight
- b) It did not have lungs yet to breath gaseous air
- c) It did not have developed ribs yet to support lungs on land
- d) Hind limbs were not developed

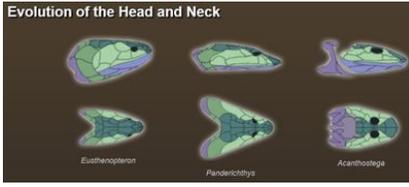
3.

| Name          | Scales | Gills | Lungs | Humans | Wing | Pinna | Diets | Ribcage | Neck | Instal |
|---------------|--------|-------|-------|--------|------|-------|-------|---------|------|--------|
| Coelacanth    | ✓      | ✓     | ✓     |        |      |       |       |         |      |        |
| Pederpes      |        |       | ✓     | ✓      | ✓    | ✓     | BS    | ✓       | ✓    |        |
| Tulerpon      |        |       | ✓     | ✓      | ✓    | ✓     | 6     | ✓       | ✓    | 100    |
| Ichthyostega  | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | 7     | ✓       | ✓    | 100    |
| Acanthostega  | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | 8     | ✓       | ✓    | 100    |
| Tiktaalik     | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     | ✓     | ✓       | ✓    | 100    |
| Panderichthys | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     |       | ✓       | ✓    | 100    |
| Eoanthracodon | ✓      | ✓     | ✓     | ✓      | ✓    | ✓     |       |         |      | 100    |

What is true about the development of limbs in tetrapods?

- a) bony fish fins and tetrapod walking limbs were homologous structures
- b) the radius and the ulna at the base of the fin set the stage for limb evolution
- c) the humerus was a vestigial structure in bony fish
- d) bony fish fins developed after tetrapod walking limbs

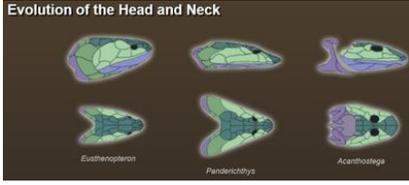
4.



In the transition from water to land, the most tetrapod head shape would be in which Genus from the diagram

- a) Eusthenopteron
- b) Panderichthyes
- c) Acanthostega
- d) all of the above

5.



Which head feature was most well-suited for life on land of the Genuses in the diagram? (check all that apply)

- a) eyes on lateral aspects of the head for peripheral vision
- b) eyes were located on the top of the head for shallow water life
- c) shoulders were separated from the skull, allowing separate head movement
- d) none of the above

6. The evolution of lungs in the early development of the structures were in response to

- a) high levels of dissolved oxygen in the water
- b) low oxygen in the water demanded an alternative source
- c) lung development was unrelated to oxygen levels
- d) lungs only developed when rib cages were substantial

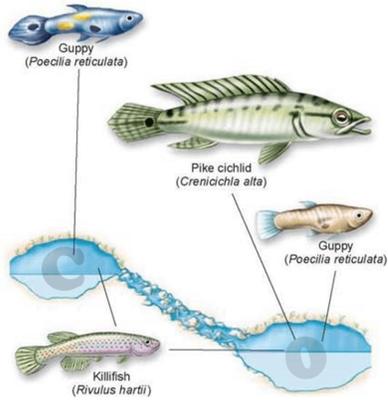
7.

| Name           | Scales | Gills | Lungs | Humeral | Wrist | Palms | Claws | Elaborate | Neck | Hand |
|----------------|--------|-------|-------|---------|-------|-------|-------|-----------|------|------|
| Coelacanth     | ✓      | ✓     | ✓     | ✓       |       |       |       |           |      |      |
| Panderichthys  | ✓      | ✓     | ✓     | ✓       | ✓     | ✓     | ✓     | ✓         | ✓    | ✓    |
| Tetraplan      | ✓      | ✓     | ✓     | ✓       | ✓     | ✓     | ✓     | ✓         | ✓    | ✓    |
| Ichthyostega   | ✓      | ✓     | ✓     | ✓       | ✓     | ✓     | ✓     | ✓         | ✓    | ✓    |
| Acanthostega   | ✓      | ✓     | ✓     | ✓       | ✓     | ✓     | ✓     | ✓         | ✓    | ✓    |
| Tetrapl        | ✓      | ✓     | ✓     | ✓       | ✓     | ✓     | ✓     | ✓         | ✓    | ✓    |
| Panderichthys  | ✓      | ✓     | ✓     | ✓       | ✓     | ✓     | ✓     | ✓         | ✓    | ✓    |
| Eusthenopteron | ✓      | ✓     | ✓     | ✓       | ✓     | ✓     | ✓     | ✓         | ✓    | ✓    |

The bony fish Genus that took the step of having a single bone at the base of the fin was

- a) Coelacanth
- b) Acanthostega
- c) Ichthyostega
- d) Eusthenopteron

8.



Which statement below is correct from the setup of Endler's guppy experiment?

- a) Pike cichlid preyed only on juvenile and/or small guppies
- b) Killifish preferred guppies with large spots
- c) Pike cichlid preferred guppies with large spots
- d) Pike cichlids preyed upon conspicuously spotted guppies

9. What was the selection pressure present in the absence of predators in Endler's study?

- a) pressure to blend in with the substrate to avoid predation
- b) pressure to compete for food
- c) pressure to become brightly colored to attract female mates
- d) both pressure to blend in and to attract females

10. What was the selection pressure when predators were present with guppies in Endler's study?

- a) pressure to blend in with the substrate to avoid predation
- b) pressure to compete for food
- c) pressure to become brightly colored to attract female mates
- d) both pressure to blend in and to attract females

11. What would the control group for Endler's study be?

- a) guppies in ponds with killifish
- b) guppies in ponds with pike cichlids
- c) guppies in ponds with no predators
- d) only male guppies in a pond with no predators

12. The conclusion of Endler's study can best be stated as (select all that apply)
- a) In the absence of predation pressure, sexual selection had no impact on male guppy spot density
- b) In the absence of predation pressure, sexual selection solely influenced male guppy spot density
- c) Frequency of the most camouflaged spot size and density phenotype was observed with pike cichlids present
- d) In the absence of predation pressure, male guppies became more easily observed
13. What can be said about transitional forms in fossils in the evolution of land-dwelling tetrapods? (check all that apply)
- a) shoulder girdle separation from the skull allowed skull articulation
- b) retaining a triangular head and laterally set eyes benefited shallow water transitional state
- c) development of sturdier rib cage allowed for lungs that can function without the support of water
- d) presence of a single bone at the base of the front limbs supported the paired radius and ulna bones

**Answer Key**

1. b
2. c
3. a
4. c

5. b,c
6. b
7. d
8. d

9. c
10. a
11. d
12. b,c,d

13. a,c,d