



Evidence of Evolution Lesson 1: *The Solve* Student Handout

I. Read/Watch the Mosa Mack Mystery

Either on your own, in a small group, or as a class (your teacher will let you know), read/watch Mosa Mack's Comic Mystery on Evolution. Then, fill out the questions below. Include a page number/time code in your answer as evidence of where you found your answer.

Name: _____

Date: _____

Episode Questions

1. At the beginning of this comic, what are Evie's animals arguing about?
2. Why does Evie state that P-Jon (bird), Pongo (orangutan), and Lil' Swimmy (fish) are family?
3. Why does the lawyer believe that he will inherit Evie's fortune?
4. What three pieces of evidence does Evie want Mosa and her team to explore?
5. How did studying the embryos of Pongo, P-Jon, and Lil' Swimmy reveal that they may be related?



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6. Describe the fossil record uncovered by Mosa and her crew from the simplest form of life to the most complex.

7. When Mosa and her crew were studying the fossil record, there was a period of time when there was a massive extinction. As explained by Evie Loo's Robotic Fossil Expert, what were the factors that led to a large extinction of life?

8. How are mutations essential to the process of evolution?

9. Based on the fossil record, place the following categories of animals in order from oldest to youngest: Amphibians, Birds, Reptiles, Fish, Mammals

10. What clues in the anatomy of species help to prove that all species evolved from a common ancestor?

11. What did Mosa figure out in order to prove that all species are related? *Hint: What three pieces of information did she use to support her conclusion?*



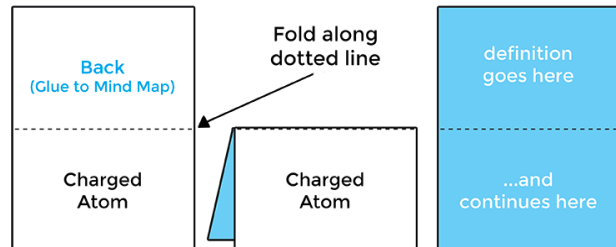
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II. Vocabulary Activity

Note: Your teacher will tell you whether you will complete this activity [online here](#), or offline by following the instructions below.

1. Using the materials at your table, cut out your vocabulary cards along the **solid lines**. Note: Do not cut the cards at the dotted lines.
2. Fold the cards at the dotted lines.



3. Write the definition of the term on the inside of the card using the definitions below.
4. Use the clues from the Mind Map images, definitions, and vocabulary terms to place the cards in the correct location on the Mind Map, explaining your thinking to group members as you go.
5. When you're ready to glue or tape, raise your hand so you can check your Mind Map with your teacher.
6. Use glue or double-sided tape to connect the back of the vocabulary card to the correct place on the Mind Map.
7. Use your completed Mind Map to discuss these questions with your group:
 - a. What similarities do you notice between the embryos shown in the embryo exhibit?
 - b. View the Horse Development exhibit on your Mind Map.
What can we learn about an organism by examining its fossil record?
 - c. What can we learn by examining and comparing the anatomy between a human arm, cat leg, and bat wing?

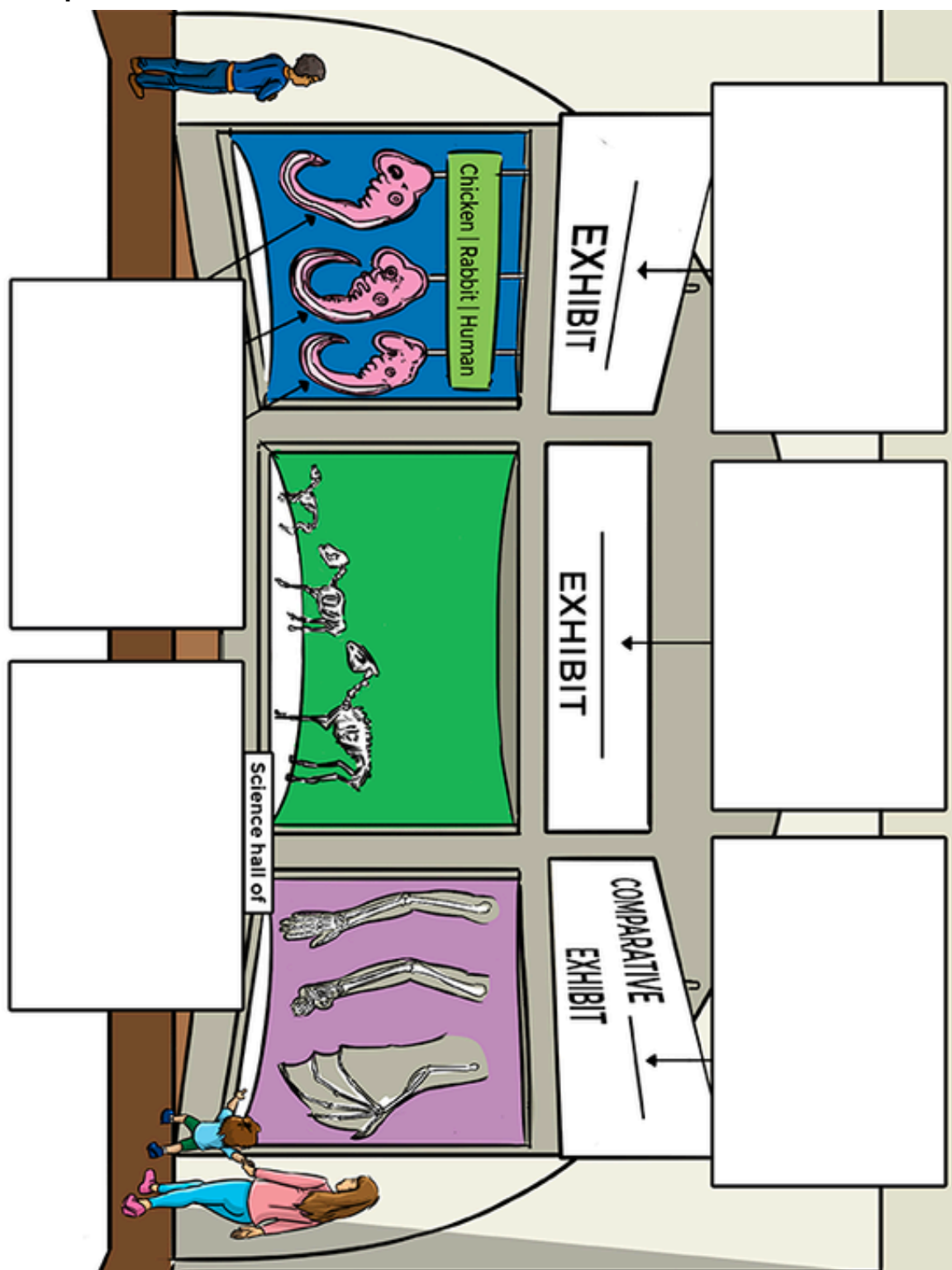




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Mind Map





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Embryology

Fossil Record

Anatomy

Vertebrate

Evolution

Vocabulary

- Evolution: The gradual change and development of a species over time
- Fossil Record: The history of life on Earth documented by fossils
- Embryology: The study of embryos and their development
- Anatomy: The study of the body structures in an organism
- Vertebrate: An animal that has a backbone or spinal column



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III. Exit Ticket: Check for Understanding

Complete the exit ticket below or you can take the [quiz](#) online!

Name: _____

Date: _____

1. Evolution is best described as:
 - a. A sudden and massive loss of species on the planet due to climate change
 - b. A harmful mutation in a species
 - c. The gradual change and development of species over time, arising from a common ancestor
 - d. The fossil record of vertebrate development
2. True or False: Changes in species happen gradually, over millions and millions of years.
 - a. True
 - b. False
3. When comparing the embryos of a bird and a fish, the embryos have similar looking _____ that eventually turn into fins on a fish and wings on a bird.
 - a. Eyes
 - b. Tails
 - c. Backbones
 - d. Limbs
4. When creatures have similar traits, this is a clue that they are _____.
 - a. Related
 - b. Different
 - c. Identical
 - d. Extinct
5. Which of the following statements best describes how the fossil record shows evidence for evolution?
 - a. The fossil record shows the remains or traces of ancient life forms
 - b. Fossils exist all over the world
 - c. When an animal dies, its body can be covered up and preserved by layers of rock and earth, forming a fossil
 - d. By studying, dating, and analyzing fossils, we can learn how living creatures changed over time



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6. When comparing anatomical similarities between species, you would compare which of the following:
- a. Skeletal structures
 - b. Digestive systems
 - c. Fossil records
 - d. Fur thickness and color
7. Which piece of evidence is NOT studied to prove how species evolved over time?
- a. Anatomy
 - b. Fossil record
 - c. Embryology
 - d. Hair color