Science Learning Packet
Grade 8:
Evolutionary History, Lesson 5

science learning activities for SPS students during the COVID-19 school closure.

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While Seattle Public Schools endeavors to only post documents optimized for accessibility, due to the nature and complexity of some documents, an accessible version of the document may not be available. In these limited circumstances, the District will provide equally effective alternate access.

Due to the COVID-19 closure, teachers were asked to provide packets of home activities. This is not intended to take the place of regular classroom instruction but will help supplement student learning and provide opportunities for student learning while they are absent from school. Assignments are not required or graded. Because of the unprecedented nature of this health crisis and the District's swift closure, some home activities may not be accessible.

If you have difficulty accessing the material or have any questions, please contact your student's teacher.

Grade 8 Science

Evolutionary History Unit Instructional Materials

Lesson 5 (Amplify Chapter 2, Lesson 2.1)

AmplifyScience

If you have access to an internet device at home, you can also watch the accompanying lesson video at https://youtu.be/zEkNJSGNsFM

Student Name: _____

School: _____

Grade Level: _____

Science Teacher: _____

Hello Families,

We hope you and your family are well and safe during this time. During this unprecedented out-of-school time, the SPS middle school science team will be offering instructional opportunities for students that align with the district's adopted middle school science instructional materials.

This investigation packet is part of a series of district-aligned lessons for middle school **science developed by AmplifyScience** and adopted by SPS in 2019. While Amplify Science lessons are designed to be done in the classroom with peers, there are some activities that students can complete at home. In this packet you will find activities to accompany lessons in the unit. **Accompanying lesson videos are posted on the SPS Science webpage under their corresponding grade level.** These lesson videos, developed in collaboration between SPS teachers, Denver Public Schools teachers, and Amplify Science, feature teachers going through the information in the lessons. **The work in this packet is intended to be completed alongside the viewing of the video of the corresponding videos. To find the correct lesson videos** go to **SPS Science webpage,** scroll to your grade level, find the unit you are looking for, and select the video that matches the lesson you are completing that day.

For students who have access to the internet and the following devices and browsers **may wish to log-in to their AmplifyScience account from home are welcome to do so**. Chrome and Safari are the recommended browsers to use for full functionality of the Amplify digital tools and features.

Sincerely,

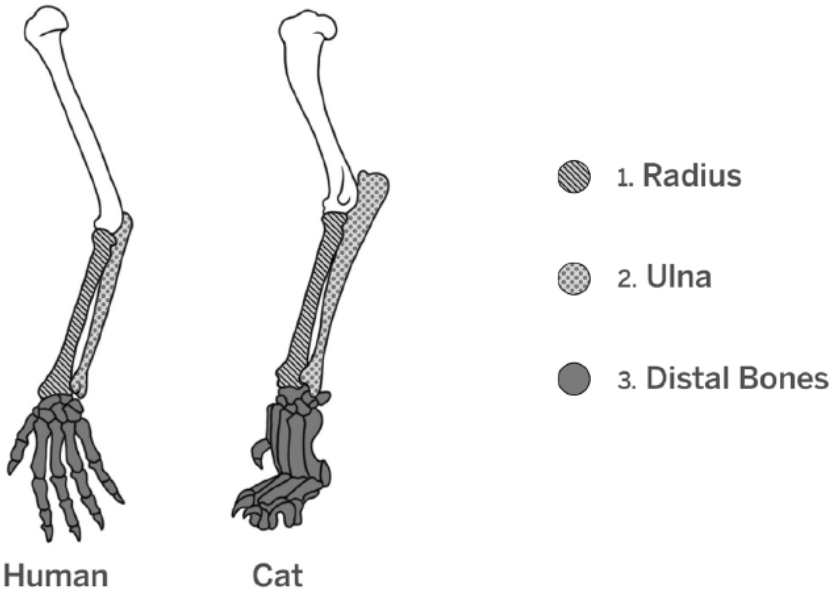
The Seattle Public Schools Science Department

Unit Question: Why do species, both living and extinct, share similarities and have differences?

Chapter 2: Investigating Body Structure Differences

Now you know about how paleontologists use similarities to explain common ancestry between different species. Another question is WHY did different species (that share a common ancestor) evolve to be so different? Why is a bat's wing so different from a dog's foot? Why is the skull of a giraffe so different from the skull of a crocodile? This chapter will focus on understanding different bone structures. By the end you should be able to explain:

- why structures shared between species can look so different, and
- why the mystery fossil looks different from whales and wolves, even if these organisms are related.



1. Using careful observation, describe at least two differences between these two limbs. Start with the hand bones.

Difference 1: _____

_____

Difference 2: _____

Part 1: Observing species front limbs

Record your observations about the front limb of the dire wolf.

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Record your observations about the front limb of the fruit bat.

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Record your observations about the front limb of *Titanotylopus*.

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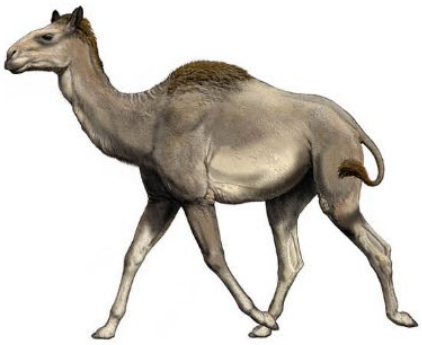
Part 2: Gathering Evidence from Species Cards

For each species, write information about the species environment and how they survived. Use this information to help explain why bones for each species are shaped the way they are.

Next, we will investigate differences in the bone structures of the three animals below to answer the question: ***What might explain differences in shape for the bones of the front limbs in these three animals?***

dire wolf

fruit bat



Titanotylopus

Dire Wolf: Information about their environment and how they survived.

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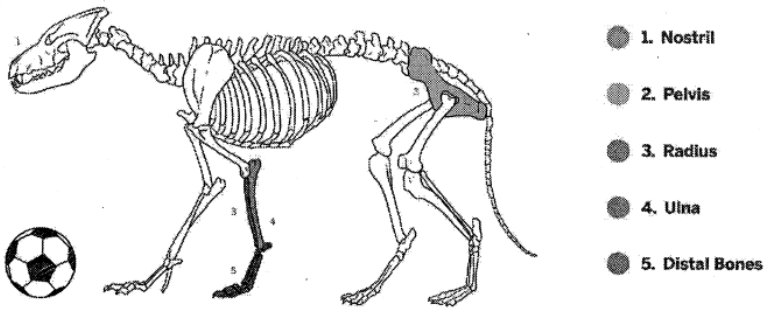
Dire Wolf

The dire wolf is an ancient species that went extinct approximately 10,000 years ago. It lived on land. Paleontologists used many kinds of evidence, including the size and shape of its bones, to determine that it was a predator that needed to run and attack large organisms for food.



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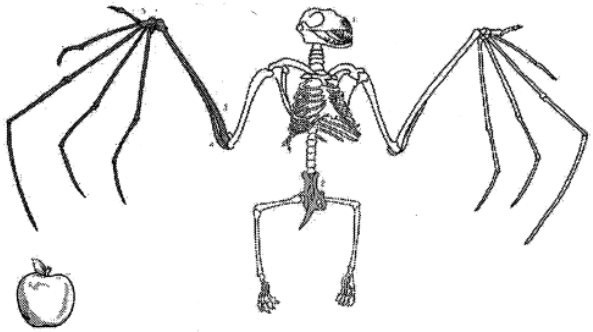
Fruit Bat

This bat species is alive today. These organisms fly from their homes in caves and trees to catch their prey of insects, which they either grab with their feet or in their mouths. Long, thin bones in their front limbs make it possible for them to fly.



1. Nostril
2. Pelvis
3. Radius
4. Ulna
5. Distal Bones

Fruit Bat: Information about their environment and how they survived.

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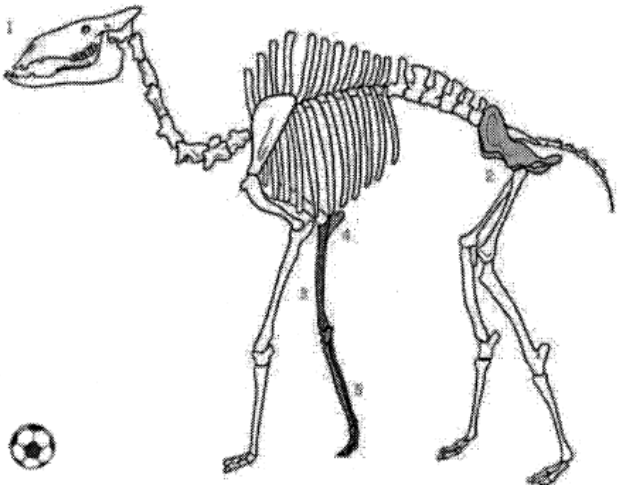
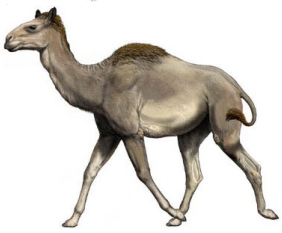
Titanotylopus

This plant-eating animal was a type of giant camel—3.5 meters tall! The oldest fossil is about 10 million years old. *Titanotylopus* went extinct about 300,000 years ago. It walked on four legs on land and could store fat in its hump. *Titanotylopus* often had to walk long distances in search of food. Its environment varied but could include rocks, mountains, and flat, grassy areas. This animal's feet were a lot like the feet of the camels that are alive today.



1. Nostril
2. Pelvis
3. Radius
4. Ulna
5. Distal Bones



Titanotylopus: Information about their environment and how they survived.

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Reflection:

What might explain differences in shape for the bones of the front limbs in these three animals?

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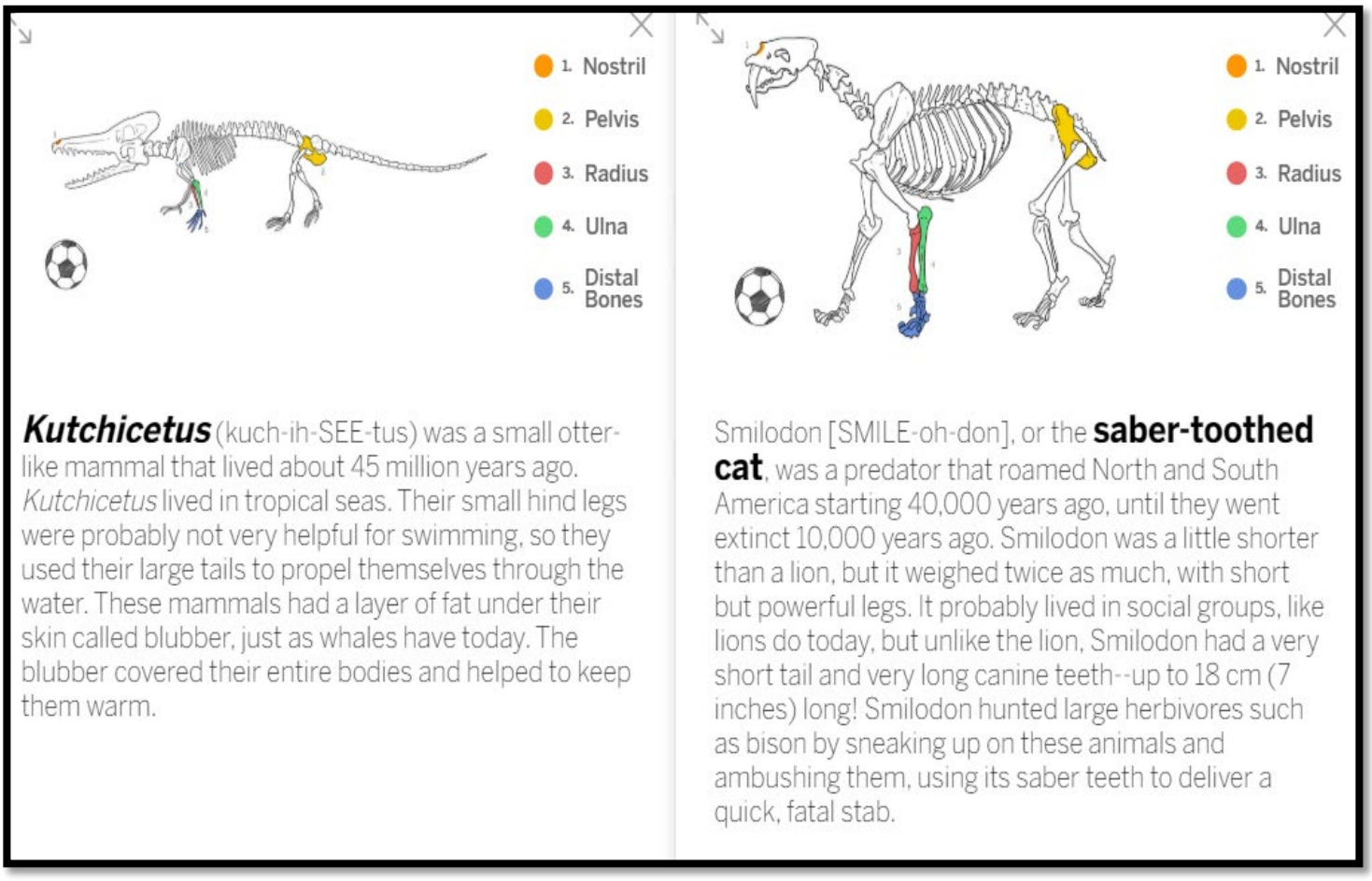
Next, compare the two mammals below : *Kutchicetus* and Saber-Toothed Cat

(***Note****: If you have access to Amplify Science at home, you can do this in the Lesson 1.6 SIM, go into* ***Mammals*** *mode, then* ***select these two species****. Zoom In to help answer questions below*.)



1. Investigate all the *shared* structures you can find (highlighted and not highlighted). What is one shared structure that is very different between the two species? _____

_____

2. Describe the differences in this shared structure.

_____

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_____

3. Read the text to find out the environment of both species. How do you think their environment made this structure different in both species?

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