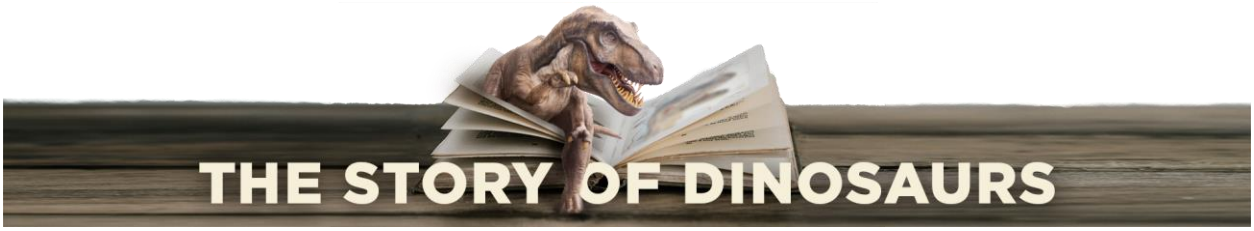
Oklahoma State University
Dr. Ashley M. Burkett
A&S 2000:



Notes with Gaps

Week 5: Dinosaur Movement

How to Animal and Dinosaurs Make Tracks?

Define each of the following terms:

- Bipedal
- Quadrupedal
- Stride Length
- Foot Length

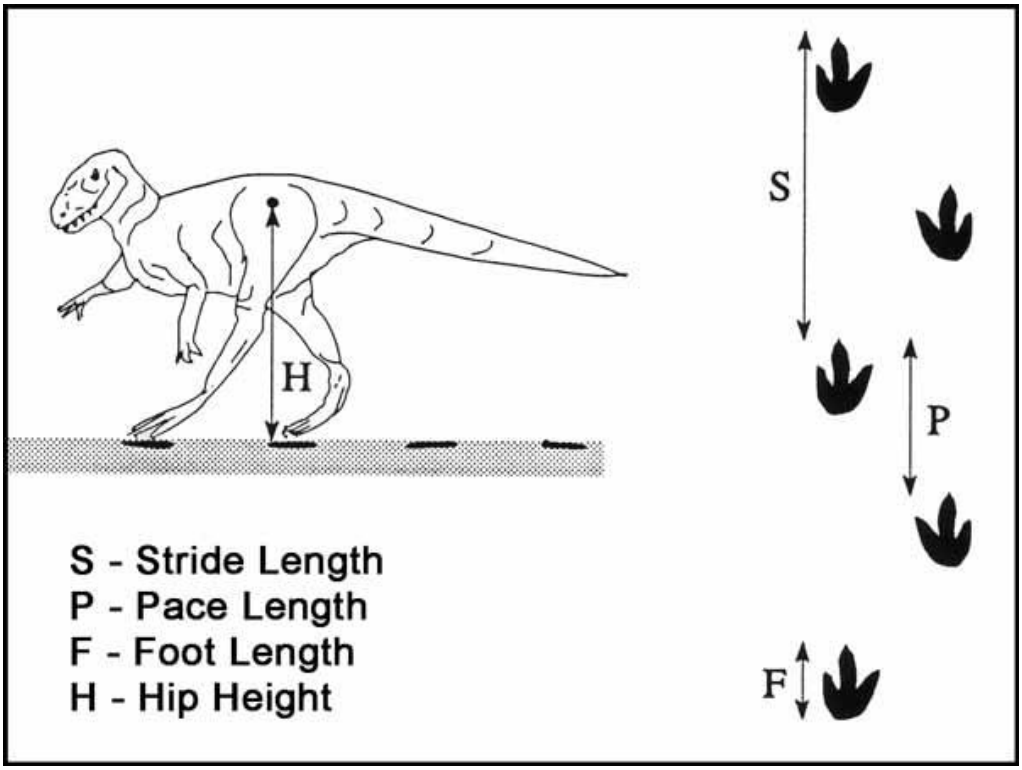
Describe the track patterns left by each type of Dinosaur listed below

- Theropods
- Sauropods
- Ornithopods
- Ceratopsians
- Ankylosaurus
- Stegosauria
- Pachycephalosaurus

Hands-on Activity

Part 1: Looking at the Tracks

Today we will be looking at three trackways of T-rex and calculating the movement of the dinosaur in each set. You will then be comparing your speed vs that of a T-rex.



Using the excel file embedded on the Canvas Assignment, plug in the numbers I have provided to you for Foot Length and Stride Length to calculate the speed of the dinosaur using the final column.

You don't have to use this table below, but if it is helpful to record your data here, please do so.

A	B	**C**	D	**E**	F	G
Station	Animal Name	**Measured** Foot/Track Length (FL) in cm	Estimated Hip Height =Col Cx4	**Measured** Stride Length (S) in cm	Relative Stride Length (RSL) =Col E/D	Speed <2.0=Walk 2.0-2.9=Trot >2.9=Run
1	T-rex					
2	T-rex					
3	T-rex					
4	Human					
5	Human					

Part 2: Can you outrun it?

To complete this exercise you will need:

- a tape measure

- a long flat place where you can mark distances (like a sidewalk)
- a way to mark a start and end point (like chalk or flags)

Instructions:

1. Measure out 5m (~16.4ft)
2. Mark the start and finish lines of your 5m (~16.4ft)
3. Walk the 5m (~16.4ft) length and count every time your lead foot (the one you took your first step with) hits the ground. Note: you should only be counting either your right foot or your left. Do not count them both.
4. Record the number of times your lead foot hit the ground.
5. Run the 5m (~16.4ft) length and count every time your lead foot (the one you took your first step with) hits the ground. Note: you should only be counting either your right foot or your left. Do not count them both.
6. Record the number of times your lead foot hit the ground.
7. Use the Stride Length formula to determine your stride length for walking and running.
8. Plug your stride length into the equation to calculate your speeds in MPH.
9. Compare these with the speeds T-rex can walk and run (based on the information provided above) using Can You Outrun a T-rex_.xlsxPreview the document.

Questions

1. How fast can T-rex run?

2. Can you outrun T-rex when it is walking? Jogging? Running?

3. The scooters many people use on campus have 2 speeds, the highest of which is 15mph. If you encountered a T-rex running after you could you escape on a scooter?

4. Assume the same as the previous question. Could you jump in your car and escape?

5. Triceratops was possibly the meal of choice for T-rex in the Cretaceous, but Triceratops had a max speed of 20mph while the T-rex was closer to 17mph. What are some factors that would have allowed T-rex to successfully hunt Triceratops, if it could not outrun it?