



How Do You Measure Up?

Lesson at a glance:

Students will measure out the maximum lengths of a variety of zoo animals.

Materials:

- Two 60-foot lengths of clothesline
- Cable ties
- Laminating materials
- Permanent markers
- A measuring tape for each small group of students
- Two copies of the attached animal pictures with their lengths

Background:

Sonoran Desert Toad	7 ½ inches
Chuckwalla	12 inches
Burrowing Owl (wingspan)	24 inches
Black-footed Cat (including tail)	25 inches
Dusky Pygmy Rattlesnake	30 inches
Crested Porcupine	34 inches
Eastern Black & White Colobus Monkey (including tail)	58 inches
California King Snake	6 feet
Amur Leopard	7 feet
American White Pelican (wingspan)	10 feet
African Elephant	12 feet
White Rhinoceros	13 feet

Activity:

1. Before class, cut apart the pictures, laminate them (this should prevent them from tearing when they are attached to the rope), and punch a hole near the top for attachment to the rope.
2. Divide your class in half (each half will be working with a separate rope).
3. Divide the students from each half into groups of two or three.
4. Give each small group a laminated, punched picture and a marking pen.
5. Ask each small group of students to measure out the length of their animal, all using the same end of the clothesline as a starting point.
6. When they reach their point on the clothesline, have them mark it with permanent marker and then attach their picture with a cable tie.
7. Ask each small group of students to stand at the length of their animal.

Summary

- Have the students share with their classmates the name of their animal and how long it is.
- Did the two sets of measurements match? Why or why not? Relate this question to why scientists do the same experiment many times before they are satisfied that their results are accurate
- Have the students record how many of their footsteps equal the various lengths.
- Have your students design a bar graph with all of the animals.



Extensions:

- Have the students write a research report on their animal. Have them include where the animal lives, what and how it eats and other interesting information. Have them share it with the class.
- Once the animals are researched, have the students create a mural showing where their animals live. Use the pictures again and create food chain based on the research your students completed on food choices.
- Have your students measure their height. How many of them does it take to equal the length of an Amur leopard, a white rhinoceros, a California king snake or a crested porcupine? How many Sonoran desert toads would it take to equal their height?

Utah Content Standards Addressed:

Math Core Benchmarks

Standard 4: Students will understand and use measurement tools and techniques.

- **Objective 2:** Use appropriate techniques and tools to determine measurement

Biology Core Science Benchmark

Ecosystems are shaped by interactions among living organisms and their physical environment. Ecosystems change constantly, either staying in a state of dynamic balance or shifting to a new state of balance. Matter cycles in ecosystems, and energy flows from outside sources through the system. Humans are part of ecosystems and can deliberately or inadvertently alter an ecosystem.

Standard 1: Students will understand that living organisms interact with one another and their environment.

- **Objective 1:** Summarize how energy flows through an ecosystem.
- **Objective 2:** Explain relationships between matter cycles and organisms.
- **Objective 3:** Describe how interactions among organisms and their environment help shape ecosystems.

Science Core Benchmarks

Grade 3 Science Benchmark

For any particular environment, some types of plants and animals survive well, some survive less well and some cannot survive at all. Organisms in an environment interact with their environment. Models can be used to investigate these interactions.

Standard 2: Students will understand that organism depend on living and nonliving things within their environment.

- **Objective 1:** Classify living and nonliving things in an environment
- **Objective 2:** Describe the interaction between living and nonliving things in a small environment.



Sonoran Desert Toad
7 ½ inches



Chuckwalla
12 inches



Burrowing Owl
24-inch wingspan



Black-footed Cat
25 inches (including tail)



Dusky Pygmy Rattlesnake
30 inches



Crested Porcupine
34 inches



**Eastern Black & White
Colobus Monkey
58 inches including tail**



**California King Snake
6 feet**



**Amur Leopard
7 feet including tail**



**American White Pelican
10-foot wingspan**



**White Rhinoceros
13 feet**



**African Elephant
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