

FOOT OF AN ELEPHANT

Science and Engineering Education Center

The University of Texas at Dallas

Challenge

Using a life-size sketch of a baby elephant's footprint, estimate, measure and record the diameter and circumference of the footprint.

Materials

● Pencil ● Ruler or measuring tape ● Piece of String ● Bingo Chips ● Foot-print handout

Procedure

1. **Examine** the print out of the baby elephant's footprint.
2. **Estimate** how wide you across you think it is. The width is also called the *diameter*.
3. **Use** a ruler or measuring tape to measure it. How big is it really?
4. **Estimate** how long it is around the outside. This is the *circumference*.
5. **Cut** a piece of string to fit around the edge, then measure the string.
6. **Estimate** how many bingo chips you think will fit inside of the baby elephant's footprint. Try it and see. The number it takes depends on the size of the *area* of the footprint.

Experiments to Try

- What do you think would happen if you tried to fill the elephant's footprint with a different size of bingo chips? Would it take more chips or less? Why?
- Do this experiment with your own footprint. Since your footprint is a different shape, you will have to estimate then measure the width and length of your foot. Then you can measure the circumference. How do your footprint measurements compare to that of the baby elephant?

Science Scoop

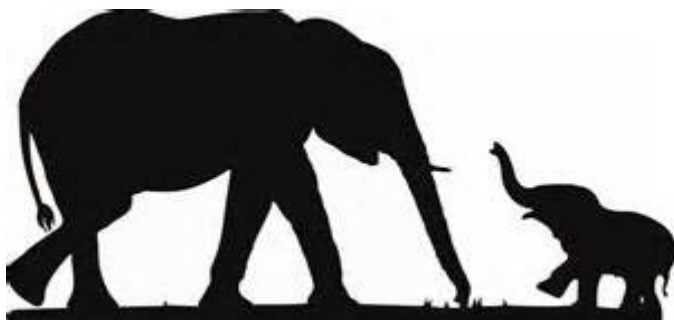
There are two types of elephants, **Asian** and **African**, but the African Elephant is sometimes split into two species, the African Forest Elephant and the African Bush Elephant).

Elephants have large, thin ears. Their ears are made up of a **complex network of blood vessels** which help **regulate** their temperature. Blood is circulated through their ears to help cool them down. Asian elephants have smaller ears than African elephants. Elephants can hear one another's trumpeting calls from up to 5 miles away.

Tusks can weigh up to 440 lbs. Only male Asian elephants have tusks, whereas both female and male African elephants do. Elephants use tusks to **forage** for food; they are herbivores and spend up to 16 hours a day collecting leaves, twigs, bamboo and roots. An elephant can also use its tusks to dig for ground water.

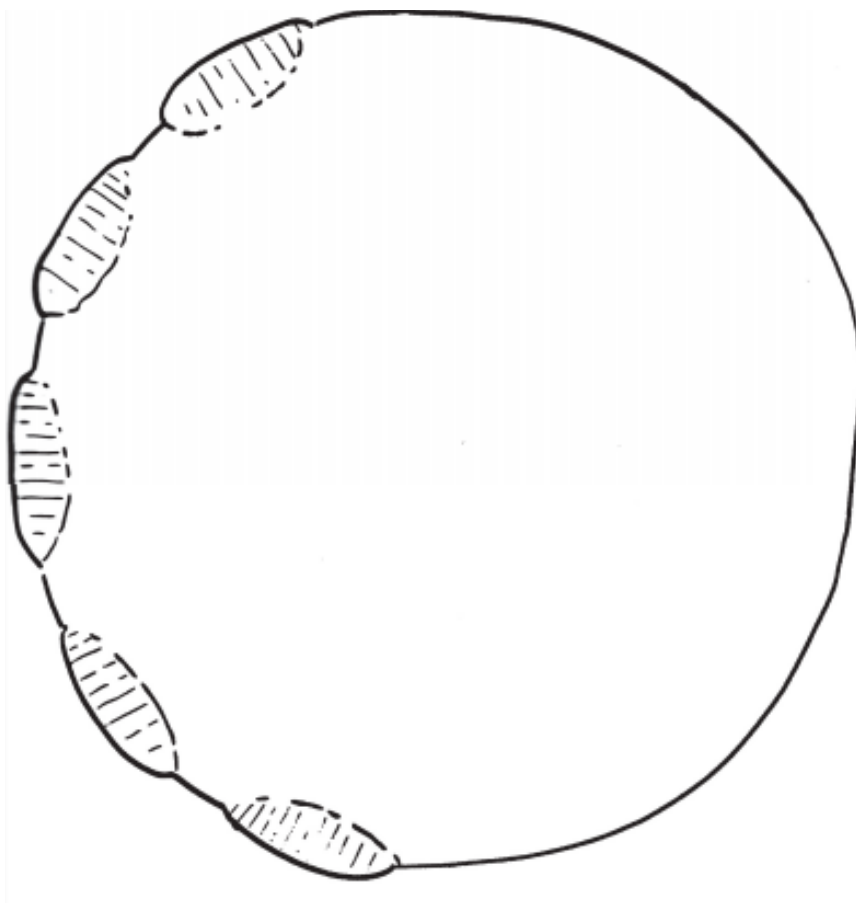
Researchers have discovered that African Elephants have the best sense of smell in the animal kingdom. They can smell water from 12 miles away. At six ft long, their noses are not only the longest, but also the most effective! Like most animals, elephants use their sense of smell to sniff out food, avoid danger, find mates, and locate their young. The elephant's **trunk** is also able to sense the size, shape and temperature of an object. The elephant uses its trunk to lift food and suck up water then pour it into its mouth. Elephants can swim; they use their trunks to breathe like a snorkel in deep water.

Elephants are the **largest land-living mammal** in the world. Adult African elephants weight about 15,400 lbs. The largest elephant on record weighed about 24,000 lbs. When a baby elephant is born, it is almost 3 feet tall (91 cm) and weighs 250 pounds (113 kg). It needs a big foot to support its body. Elephants have 5 toes on each foot, just like humans.



Foot of an Elephant: Investigation Log

This footprint is as big as a real baby elephant's footprint.



Record the results of your investigation below.

	Estimate	Measurement
How wide is the footprint across (the diameter)?		
How long is the outside edge (the perimeter)?		
How many bingo chips can fit in it?		

How do the measurements of the baby elephant's footprint compare to the measurements for your footprint? Measure and find out!