

## Size Differences

**Objective:** Students will recognize how the mass of large animals can lead to human injury.

**Concept:** Animals of all sizes are tempting to approach and touch. Large animals are especially dangerous to small children because of the size difference.

**Targeted Age:** Preschool to elementary

**Materials:**

- ▶ Curved board
- ▶ Four marbles (two different sizes)

### ACTIVITY 1

**Mass/Force demonstration** (actually mass/momentum, but students may have trouble with this term) Construct a model of curved, flexible wood or paneling with a plywood base. Construct pieces similar to the picture. The curved piece needs a groove cut in the middle.



Obtain four marbles (two large marbles to represent animals and two small marbles to represent children)

Using the two small marbles, demonstrate what happens when two like-sized objects collide. Explain that this represents two children running into each other. Both marbles should roll up the curved wood at about the same distance. Do the same thing with the two larger marbles. Explain this represents two large animals. Use a marble of each size to show what happens when very different sized objects collide. This represents the results of a large animal colliding with a small child.

Emphasize the direction of each of the marbles and the distance they are thrown when impact takes place. Explain the size relationship and the resulting force when two very different sized objects collide. Also, stress the resulting injuries that could occur from an animal impact or from an animal falling on a person.

**Q: What precautions should children take when they are around large animals?**

**A:** Stay outside the fence. Have an adult present. Keep your eyes on the animals at all times. Approach large livestock at their shoulder area.



(this activity is continued on the next page)



## Size Differences (continued)

**Materials:**

5-8 pound object  
25-35 pound object

### ACTIVITY 2

Activity 1 shows two different sized objects colliding as they are moving. Large animal's body parts (tails, feet, heads) can also be dangerous when the animal is standing. (Example: a cow, horse, hog, etc. raises its head unexpectedly or steps on a foot).

Show this by comparing the weight of a 5-8 pound melon (bowling ball) with a 25-35 pound watermelon (or other large object). The two melons represent the comparison between human and large animal heads. Have the students pick up each separately and think about the weight of an animal's head hitting them. Discuss how swishing or wagging tails can also hit people and hurt them or knock down a child.

### ACTIVITY 3

Another way to emphasize this concept is to push a small object against a large one. Have one of the smallest students in the class volunteer. As a larger person/leader, see who can push the hardest. Discuss the differences in size and strength.

Make the analogy of a large animal and a small child in size and strength.

**Q: Which animals have appendages (tails, legs, heads) that are large enough to hurt a person.**

**A:** All animals larger than a person hold potential for danger (cattle, horses, pigs, ostriches, etc.). Because dogs are often in close proximity to children, even their wagging tails can cause pain, especially if a child is hit in the face.

**Q: Do only large animals cause injury to children?**

**A:** No, smaller animals, such as baby animals and pets can cause injuries, especially when they are scared and try to fight. They can bite and scratch even though they are small.

