

# Protective Equipment

**Objective:** Students will wear a helmet when riding a horse.

**Concept:** The human brain is a fragile organ and must be protected.

## ACTIVITY 1

### Materials:

- ▶ Brain gelatin mold (1/2 gallon ice cream or whipped topping container or an old riding helmet)
- ▶ Macaroni
- ▶ Packaged peach-flavored gelatin mix
- ▶ Tape

The human brain weighs approximately three pounds. Prepare 7 ounces of macaroni by cooking twice as long as suggested to soften the starch. Drain the macaroni but do not rinse. Place in the brain gelatin mold. Prepare a 6 ounce package of peach gelatin using 3 cups hot water. Pour over macaroni and chill in refrigerator for several hours.

Discuss the size, shape and fragile condition of the brain without its mold, making the correlation between the skull and the plastic gelatin mold. Unmold the gelatin and drop on a plastic lined floor. Explain the force of the fall is much less than what would be experienced if a person fell from a galloping horse. You may want to do two demonstrations, one with the gelatin mixture inside the plastic container with the cover taped shut and one without the container. Talk about the skull's importance, then discuss the importance of protecting the skull.

### **Q: How fast might you travel when riding a horse?**

**A:** A galloping horse travels about 15-20 mph. A running horse travels about 40-45 mph. Imagine what would happen if you fell out of a car traveling that fast.

### **Q: What protection should be used when traveling on a horse or in a moving vehicle?**

**A:** We use seat belts and air bags in cars. We use helmets for protection when riding horses.

## ACTIVITY 2

### Materials:

- ▶ Eggs
- ▶ Ziploc plastic bags
- ▶ Bubble wrap
- ▶ Styrofoam-lined cardboard box
- ▶ Packing tape

Place a raw egg in a plastic bag and close securely. Throw the egg in the air. The egg will break when dropped to the ground. Compare the dropped egg to a rider who falls off a spooked horse.

Wrap another raw egg in several layers of bubble wrap and securely tape inside a padded box. Drop from the same distance as the first egg. Compare the dropped egg to a rider that falls from a bucking horse. Practice before conducting the experiment in front of your audience. The box and padding represent a horse helmet. Show an actual helmet and its construction. Explain the difference in the two experiments and the protection a helmet gives a rider on a horse.

### **Q: How are helmets different for different types of travel (horse, bike, ATV, etc)**

**A:** Each helmet has its own requirements dependent upon speed and the size of the traveling object.

### **Q: Why are there different styles of horse riding helmets?**

**A:** Some helmets are different in appearance, such as English and Western riding helmets. Other helmets used for jumping and riding events provide more protection due to the speed and height of different events.

(this activity is contuned on the next page)



## Protective Equipment (continued)

### ACTIVITY 3

**Materials:**

- ▶ Melon
- ▶ Plastic container
- ▶ Bricks

Purchase a ripe canteloupe or honeydew melon. Draw a face on the melon with a marker. Drop the melon from a distance of 6-8 feet into a plastic container lined with bricks in the bottom. Explain that the split melon represents a child's head hitting the ground.

**Q: What other parts of the body can be injured by falling off an animal?**

**A:** Arms, shoulders, legs, hands and other body parts can be broken by falling from an animal.

**Q: What type of clothing should be worn when riding?**

**A:** Hard toed shoes, long pants and shirt sleeves and gloves should be worn to protect the body.

### HORSE HELMET FIT

Measure the head using a cloth measuring tape, or a piece of string that you can measure with a ruler afterwards. Place the measuring tape approximately one inch above the eyebrows around the full circumference of the head. Use this measurement, along with the manufacturer's sizing guide, to identify the appropriate size.

**Fit:** The helmet should feel snug around the entire head without pressure points. Always wear a helmet low in the front to protect the forehead.

**Position:** The helmet should sit level on the head and the forehead is covered within two fingers width of the eyebrows.

**Side Straps:** The side straps should form a "V" shape under and slightly in front of the ears.

**Chin Strap:** Buckle the chin strap. No more than one or two fingers should fit under the tightened chin strap.

### HELMET FITTESTS

Open your mouth in a big yawn. The helmet should pull down on the head. If it does not, tighten the chin strap. Does your helmet rock back more than two fingers above the eyebrows, or does your helmet rock forward into you eyes? If so, the helmet is too loose and may not fit.

Information taken from Toxel and International Riding Helmets.

