

# Striking Distance

**Method:** Students play a game of tag that simulates a rattlesnakes striking distance.

**Objectives:** Students will understand the predator prey relationships of prairie rattlesnakes.

**Background:** The Prairie Rattlesnake or (*Crotalus viridus*) are North Dakota's only venomous snakes. Their color varies from greenish-gray, brown or red, to all brown. They have dark, oval blotches surrounded by white markings. Rattlesnakes are found in grasslands and sagebrush areas, as well as high rocky ledges of buttes. They are primarily found in southwestern North Dakota, but have been observed in counties bordering the Missouri River on the east.

In early spring and late fall, prairie rattlesnakes hunt for food during the day. In summer months, they take shelter from the heat by finding a shaded area or rocky outcrops. There they stay until evening when they begin their nightly wait to ambush small mammals. Their diet includes, small mammals, amphibians, other reptiles and birds. In winter, these snakes hibernate together in prairie dog burrows or rocky crevices.

Females mate in March to May, and in the early fall give birth to live young. An average litter contains about 12 young, but this can vary from 4-25. Young are able to fend for themselves and no parental care is given by the mother.

The unique feature that gives rattlesnakes their name is the rattle. These rattles are shaken by snakes to scare and warn potential predators. The number of rattle segments increases each time snakes shed their skin, about 1-2 times per year. Because of this you can only approximate the age of rattlesnakes by the number of segments on the rattle. Rattlesnakes are pit

vipers. They use specialized organs to detect heat. These pits, found below and in front of the eye, are placed at different positions on either side of the snake's head. This makes it possible for snakes to line up prey in total darkness. They can sense warm-blooded prey in complete darkness up to 2 feet away. These thermoreceptor organs contain nerves that are sensitive to heat or warmth and can detect temperature differences within several thousandths of a degree. All snakes are predators and must locate their prey before they seize it. A snake's vision can detect movement out to about 40 feet; closer objects are seen more sharply.

Fangs are covered by a protective sheath of tissue, and are normally folded back against the roof of the mouth. Rattlesnake fangs are hollow and connected to a venom gland, which lies behind the eye. Fangs are replaced at regular intervals.

Most snakes are normally timid and secretive. When approached, they usually remain quiet to avoid detection. They may try to escape if given an opportunity. When frightened, cornered, or

**Setting:** Indoors or Outside

**Materials:** Soft items such as bean bags or foam blocks

**Vocabulary:** predator, prey, striking distance, short grass prairie, pit viper

**Subject Areas:** Science, Environmental Science, Physical Education

**Standards:**

**Reference Pages:** Badlands 39-44

attacked, snakes will stand their ground and may attempt to strike at or even bite their intruder.

As a rule of thumb, rattlesnakes can, at best, strike a distance of two-thirds their total body length. For example, a three foot long snake may be able to strike a distance of two feet. Always keep a safe distance from any snake.

### Procedure:

Provide the background information to your students. Make sure they have an understanding of rattlesnake striking distance.

To play the game, *Striking Distance* you will need an area free of obstacles. Designate a safe area for prey. Have one student become the rattlesnake. Everyone else is prey. Remember, rattlesnakes can strike at something about two-thirds their total body length away, so if the snake is three feet long, the snake can “strike” when prey is two feet away. The teacher will tell the students length of the rattlesnake for this game so they can determine their “striking distance”.

For the snake to strike it will need a soft object (foam blocks work well).

The snake will strike at the prey by hitting them on the legs with the soft object.

When prey has been struck, it must stop where it is and freeze.

For a prey animal to heal, 2 untagged prey link arms around the bitten prey and escort them to a designated safe area where the snake cannot go. The injured prey will count out loud to 5 and then can get back into the game.

The game ends when all the prey have been bitten.

A few things to note:

\*Prey escorting another prey animal cannot be tagged.

\*No prey animal can hide out in the safe area.

### Game Extensions:

\*Add more rattlesnakes to the game.

\*Have students decide what type of prey animal they are and have them move like the prey animal.

\*Play 3 rounds of *Striking Distance*. At the beginning or each round, decrease the size of the game area.

### Evaluation

1. Students should be able to list the foods that rattlesnakes eat
2. Students should explain how rattlesnakes determine if prey is nearby.
3. Given different snake lengths, students should be able to determine striking distance.

