



Prairie Dog And Habitat Activity

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Grade Level:
High School

Prairie Dog and Habitat Activity

Purpose:

Allow students to make critical observations on free-ranging, feral animals and investigate their characteristics and habitat. This activity can be adapted to other forms of wildlife.

Objectives:

Students will observe, record observations, categorize observations, key out plants, use sampling techniques, follow and devise a protocol, hypothesize, design experiments, conduct experiments, analyze data, and draw conclusions.

Materials:

- 100 m tape
- plastic bags
- marking flags or stakes
- binoculars (bring from home)
- clip boards
- lab notebooks (per student or group)
- grass identification key or book
- wildflower identification key or book
- plant/shrub key or identification book

Preparation:

Before beginning this activity, scout out the area for prairie dog towns. You may want to contact the local wildlife agency in your area; they should have ideas for where to look. Be sure to start looking early so that if you need permission (private land or public reserves) to bring students in an area you can have arrangements already made. You should also contact the local university or city officials who know what plants are protected in the area you will be working in. It is very important that students know ahead of time what plants they should **not** sample. Students will be sampling various plants on a prairie dog town and identifying them using dichotomous keys; therefore, they should have a good understanding of how to use them before starting this activity.

If students will keep a field notebook, the following items could be included:

- date
- time (beginning and ending)
- location (be specific-- could include a map)
- weather (temperature, cloud covering, precipitation, wind speed, etc.)
- purpose of the trip
- people (name of individuals in your group)
- procedure or protocol followed
- species encountered
- data

Procedure:

Observations:

Before arriving at the site a protocol for the observation session should be determined.

Two possible methods:

Determine the amount of time you will have to spend observing; then determine how much time you want to spend observing each individual prairie dog.

Example One:

”We will observe for 45 minutes, watching nine prairie dogs for five minutes each.” During the observation session, one student will need to watch one prairie dog (they should try to describe the dog or look for any distinguishing markings or features); one student should keep track of the time; and the third student should record all the activities of the prairie dog seen by the observing student.

Students should rotate so that all get exposure to each job. Students will want to know and record how much time the prairie dog spent doing every activity (e.g., “Ate for 2.5 minutes”).

Example Two:

Again, there will be three jobs: observer, timer and recorder. During the five-minute observation of a particular prairie dog, the observer will tell the recorder what activity the prairie dog is doing every 20 seconds as kept by the timer (i.e., 15 recordings per prairie dog).

For each of these observation protocols, it is useful to have a data table or chart handy with activity categories already established. Major categories could include, for example: running; interacting with other prairie dogs; barking; eating; and time spent in the burrow.

Example:

	<i>Prairie Dog #</i>	<i>Physical Features</i>	<i>Running (sec)</i>	<i>Digging (sec)</i>	<i>Eating (sec)</i>	<i>Other (sec)</i>
(type A)	1	black spot on back	15 sec.	20 sec.	180 sec.	In burrow: 85 sec
(type B)	2	white face	2/15	0/15	8/15	Barking: 5/15

Observations: (continued)

From the prairie dog observations collected, the students should formulate an activity budget for the prairie dogs.

Example:

<i>Individual #</i>	<i>Time Spent</i>	<i>Keeping Watch</i>	<i>Staying In Burrow</i>	<i>Eating</i>	<i>Other</i>
1		2 min.		10 min.	
2				12 min.	
3				12 min.	Short play with other dog.
4				12 min.	
5		4 min.	6 min.	2 min.	
6		6 min.	6 min.		
7		10 min.			2 min.: Digging
8		12 min.			
9		8 min.	1 min.	3 min.	1 min.: yawning
10			3 min.	9 min.	
11		12 min.			
12		7 min.		5 min.	
13		2 min.		10 min.	
Total		65 min.	16 min.	75 min.	3 min.
% Time		41%	10%	47%	2%

Part of the observations should include descriptions of the area that the prairie dog is on. To make critical and accurate descriptions, the students will need to do some vegetative sampling on the prairie dog town using the Point Sampling method.

Point Sampling (Data is collected at a series of points.)

1. Stretch a measuring tape between stakes that are 30 m apart.
2. At points that are at 50 cm intervals along the tape, record the presence of one of the categories listed below (for a total of 60 points). Repeat for three different 30-m transects.
3. Calculate the frequency of occurrence: Number of hits/number of sampling points for each category of plants along the transect. Then take an average for your three transects.
4. After all the group calculations have been made, take a class average for all groups combined.

Note: Vegetation categories can include grass, shrubs, bare ground, rock, and other abundant plant species, such as goldenrod.

Students should also have plastic bags with them during this process so that if they encounter any plant species they do not know (which could be nearly all of them), they can collect one sample of it as they proceed through the sampling procedure. Upon returning to the classroom students should use dichotomous keys to identify species of vegetation on the prairie dog town. You could start a class herbarium this way.

Experimentation:

Using the data collected during the observation and sampling sessions, students should design and conduct an experiment on a prairie dog topic.

Ideas

- vegetation the prairie dogs are and are not eating
- mound relationships (proximity, grouping, density, and temperature)
- reaction to predators (proximity, and different reaction to different predators)
- comparison of plants on and off the town
- comparison of plant variety on and off the town
- biodiversity on and off the town
- calorie content of plants eaten (compare with not eaten)
- fiber content of plants eaten (compare with not eaten)
- lipid, fatty acid, nitrogen, water content of plants eaten (compare with not eaten)

Students should pick a topic in which they are interested and then ask a specific question that can be tested. They should use the scientific method as a guideline.

Teachers:

Once students have designed their experiments check them before allowing them to continue; make sure they are feasible and needed equipment is on hand, giving them ample time to make adjustments if necessary.

The class can revisit the prairie dog town as needed, but for practicality, be sure all students are ready to conduct experiments and/or collect needed samples, measurements and information in one trip.

Suggestions for Assessment:

Student groups should present their findings to the class, via poster presentations, demos, or speeches. **All** students should hand-in a scientifically written paper with bibliography.

Where To Go From Here:

The entire class could combine the groups' info into a pamphlet, video, presentation for a larger group (e.g., Teacher Conferences).