

Lesson Plan: Prairie Dog

Summary

In this episode of Sketch and Coffee Live at 5:30am Texas time, Blade sketches a prairie dog figurine while discussing their evolutionary history, ecological role, species diversity, reproduction, and relationship with agriculture. The talk covers why some species are endangered, how prairie dogs build and live in complex burrows, and the tensions between their ecosystem benefits and farming challenges.

Watch the episode here:

https://www.youtube.com/live/mVNjs2Biruk?si=pWI8MNmJTS_JsOd2

Lesson Plan

Objective:

Students will learn about prairie dog species, habitats, social structures, reproduction, and their ecological impact, as well as the conflicts and coexistence strategies between prairie dogs and human agriculture.

Standards:

NGSS MS-LS2-1

NGSS MS-LS2-4

Materials:

- Prairie dog fact sheet (9 fun facts)
- Access to video clip or transcript excerpts
- Map of prairie dog species distribution
- Chart paper and markers

Procedure:

1. Warm-up discussion: "What comes to mind when you hear prairie dog?"
2. Present the five prairie dog species and ranges.
3. Examine prairie dog burrow diagrams.
4. Discuss benefits vs. challenges.
5. Explore reproduction and mortality rates.
6. Wrap-up with coexistence strategies.

Assessment:

T-chart comparing "Benefits to Ecosystem" vs. "Challenges to Humans."

Extension:

Research a local keystone species and present findings.

Rubric

Criteria	4	3	2	1
Ecology understanding			Thorough and accurate	Mostly accurate
Minimal				Some errors
Species/ranges	All correct	Most correct	Some correct	Few correct
Discussion participation	Active and insightful	Participates	Limited	None
T-chart detail	Detailed and balanced	Adequate	Limited detail	Minimal effort

9 Fun Facts About Prairie Dogs

1. Prairie Dogs Have Ancient Roots

Prairie dogs evolved during the Late Pliocene Epoch, approximately 2 to 3 million years ago, and have lived in the grasslands of North America ever since.

Source: https://www.cdri.org/uploads/3/1/7/8/31783917/final_chapter_13_truett.pdf

2. There Are Five Distinct Species

The five prairie dog species are black-tailed, white-tailed, Gunnison's, Utah, and Mexican prairie dogs. Each is adapted to a different regional environment.

Source: <https://www.fws.gov/species/utah-prairie-dog-cynomys-parvidens>

3. Some Species Are Threatened

The Utah and Mexican prairie dogs are listed as threatened or endangered, largely due to habitat loss and disease.

Source: <https://wildlife.utah.gov/utah-prairie-dogs.html>

4. Their Burrows Are Complex Architecture

Prairie dog towns include sleeping areas, nurseries, and ventilation shafts, sometimes stretching over 100 feet underground.

Source: <https://www.nps.gov/articles/prairie-dogs-introduction.htm>

5. Prairie Dogs Are Keystone Species

Their digging helps aerate soil, promotes plant diversity, and creates habitat for animals like burrowing owls and snakes.

Source: <https://ecos.fws.gov/ecp/species/5517>

6. They Use Sophisticated Alarm Calls

Prairie dogs communicate predator type, size, speed, and even color using detailed vocalizations.

Source: <https://pubmed.ncbi.nlm.nih.gov/19116730>

7. Other Animals Eavesdrop on Their Warnings

Birds like the long-billed curlew use prairie dog alarm calls to hide from predators, showing interspecies communication.

Source: <https://apnews.com/article/0430300793f1f0e267e07e9942fad2e9>

8. They Live in Family Units Called Coteries

Prairie dogs form stable family groups that cooperate in raising young and guarding burrows.

Source: <https://nationalzoo.si.edu/animals/black-tailed-prairie-dog>

9. Their Mating Season Is Brief and Competitive

Each spring, males compete for access to females, and females may mate with multiple partners within a narrow fertility window.

Source: <https://sites.warnercnr.colostate.edu/wp-content/uploads/sites/146/2020/11/Ethology2019.pdf>

Worksheet – Prairie Dogs

Name: _____ **Date:** _____

Review Questions

1. List the five species of prairie dogs and match each to its primary geographic range.
2. Which two species are currently listed as threatened or endangered?
3. What is one way prairie dogs help maintain healthy prairie ecosystems?

Discussion Prompts

4. Why do some farmers and ranchers see prairie dogs as pests?
5. How might historical farming practices, like letting fields lie fallow, reduce conflict with prairie dogs?

Data Analysis

6. A colony starts with 100 prairie dogs. If the population grows by 20% per year and half of each year's new pups survive, how many prairie dogs would be in the colony after three years? Show your work.

Reflection

7. Do you think prairie dogs should be protected, controlled, or both? Write 3 to 4 sentences explaining your opinion, using at least two facts from today's lesson.