

Home School Family Series

September: Our Iowa Prairies

- Start Up:** (5-10 min) Prairie Posters, skulls, furs, mounts & pictures of prairie creatures
Wordsearch or puzzle on prairies, prairie coloring sheets
Ask family members to make **nametags** as they arrive.
- Welcome/Introduction:** 5 min. Staff/Volunteer Names
Give a brief overview of your nature center or park.
Today's Topic-Our Iowa Prairies
Question: Why are prairies important?
- Opener:** 10 min. **Prairie Introduction**-Families take turns introducing their members who each share one thing they know or like about the prairie
- Background/Exploration:** 30 min. Show a prairie/grassland map and point out the range of the tallgrass area.
Mention the three major types of prairie-tallgrass, mixed grass, and short grass.
Define **Ecosystem**-A self-sustaining community of living creatures relating to each other and their environment. Examples are prairie, oak woodland, wetland.
Define **Adaptation**-A feature of a creature that helps it succeed in its life.
Give a brief overview of some prairie posters, animal mounts, skulls & furs.
Ask families to help brainstorm adaptations that help animals survive on the prairie:
 - Large animals (bison) can travel long distances for food and shelter, and to avoid danger.
 - Some live in groups/herds for protection from predators (bison).
 - Small animals nest near ground (mice) or live in cool underground burrows (gopher).
 - Mammals' or birds' coloring camouflages them from predators.
 - Birds build nests on the ground or attached to grass & shrub stems.
 - Eat & move about in morning or evening, & rest during hot middle of the day.
 - Have good sense of smell or sight to find their way through the sea of grass.Show some examples of these adaptations on the prairie animal mounts or pictures.
Highlight the importance of prairie insects and their adaptations:
 - Exoskeleton keeps them from drying out.
 - Wings help them travel to food and shelter.
 - Reproduce in large numbers so the population survives when some are eaten.
 - Compound eyes detect motion and help avoid danger.
 - Camouflage or mimicry hides them from predators.
 - Bodies, mouthparts, or legs shaped to help catch prey.
 - Active part of life cycle occurs during times of good weather (spring to fall).Show some examples of these adaptations on plastic insect models or pictures.
- Activity:** 10 min. **Bison Metaphors** (see below)-Let volunteers take turns drawing each item out of the bag and guessing what it represents (as a group).
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Prepare to go Outside:
10 min.

Restroom break.

Bring: Water bottles Apply: Sunscreen, Bug Repellant (if necessary)

Trail Rules (see The First Program).

What we will do/What to look for-Explore the prairie for plants and animals.

Predictions-What animals, plants will we find? What will it be like?

OUTDOOR EXPLORATION:
75-85 min.

Go to an open play area.

Another animal that used to live on Iowa's prairies is the Elk. Show a picture.

Briefly describe some features unique to Elk. They are numerous out west.

Game:

Elk Migration Headache (*Wild About Elk*)-

Have family members role-play elk migrating between summer and winter ranges.

- Each time they migrate, they must put a foot on a paper plate (suitable habitat).
- Plates get taken away each time, representing hazards faced with ranges and migration.
- Hazards include drought, urban expansion, water pollution, poaching, highways, heavy snow, wet & cold weather during calving, loss of habitat, & human disturbance.
- Play several round, taking away plates each time, noting the number of survivors.
- Ask family members to comment on the difficulties of migrating Elk.

Hike to a lovely spot on a prairie.

Give a brief history of the prairie's development (see *HS-1: 3-5 Tallgrass Prairie*).

What was the prairie like before settlement?

Give a brief Native American history of your area. Tell how they used the prairie.

What was the prairie like for the first settlers?

Activity:
10 min.

Have parents and older students take turns reading some pioneer accounts of the prairie.

Let them dress up in pioneer clothes if they wish.

Some pioneers thought prairie was scary, too open, harsh, or beautiful.

At first many figured that soil that couldn't support trees wasn't fertile enough for crops.

Pioneers in Eastern Iowa could easily drive their wagons through areas dotted w/trees.

Activity:

Prairie Plant Adaptation Clue Bag (*Project Bluestem*-see below)-

Ask families to look at the clue items and help them discover prairie plant adaptations.

Look around the prairie for real examples of these and other adaptations.

Discuss the importance of prairie in soil building and habitat.

Look for mole tunnels and gopher mounds.

Look for birds flying on and above the prairie

Savanna-Describe its differences from prairie and oak adaptations for fire.

Savanna has no shrub layer, with dotted trees. Oaks have corky thick bark.

Walk through some savanna if available.

Fire-Briefly explain how fire helps the prairie (see below).

- Activity:** **Prairie Food Web** (*Project Bluestem*)-Show a diagram of a food web and/or ask families to suggest animal and plant relationships on the prairie.
10 min.
- Assign creatures or plants to each person.
 - Connect them with string according to the relationships of their assigned prairie creature.
 - Use tugs on the string to illustrate how factors affecting one creature affect the web.

Conservation Prairie Seed Collection-Let families help in prairie restoration by collecting prairie seed.

- Activity:** Run hands through ripe seed heads.
Let 1/3 of seeds fall back on ground.
Place what is collected in brown paper bags to dry.
Use a separate bag for each species.
Let families see and smell the seeds!

Closing: Planting and maintaining your own prairie (see below).
2 min.

Send Off: Goodbye!
1 min. **Next Time-Enjoying Winter Birds**

Take Home: Prairie planting tip sheets
IRVM posters
Color sheets, word search

Vocabulary

Producer, consumer, decomposer, herbivore, carnivore, omnivore, prairie, savanna, ecosystem, adaptation

References for Naturalists and Families

- Home School EE Program Series: Year 1*. 2005. Indian Creek Nature Center, Cedar Rapids, IA.
3-5: *More Mammals*-background on Bison and Elk
- Iowa's Biological Communities*. 1993. Iowa Association of Naturalists Booklet Series. ISU Press, Ames, IA.
Includes: *Biological Communities, Woodlands, Prairies, Wetlands, Waterways* (IAN-201--205).
Iowa Prairies P. 17 Prairie ecosystem illustration, good for coloring; pp. 23-24 Summary
- Iowa's Plants*. 1994. Iowa Association of Naturalists Booklet Series. ISU Press, Ames, IA. (IAN-301--307)
- Iowa Wildlife and People Series*. 1995. Iowa Association of Naturalists. ISU Press, Ames, IA.
(IAN-401—408). *Iowa Food Webs and Other Interrelationships* (IAN-405). P. 4 Food web illustration.
- Iowa's Prairie: Where the Prairie Meets the Trees*. Tip Sheets by Trees Forever, Living Roadway Trust Fund, & Iowa Department of Transportation, Ames. (515) 239-1768
- Kurtz, Carl. 2001. *A Practical Guide to Prairie Reconstruction*. University of Iowa Press, Iowa City.
- Madson, John. 1982. *Where the Sky Began: Land of the Tallgrass Prairie*. Houghton Mifflin, Boston.
Good history prairie development and early explorer & settler accounts.
- Lang, Susan S. 1995. *Nature in Your Backyard: Simple Activities for Children*. The Millbrook Press
Brookfield, CN. Pp. 30-31 Hitchhiking Seeds sock study
- Project Bluestem: A Curriculum on Prairies and Savannas*. 1995. Walnut Creek National Wildlife
Refuge and Prairie Learning Center. P. 9-10 Sticky Situations seed collection activity;
p. 44 Bison & Elk activity; Prairie Plant Adaptation Clue bag;
Appendix A has pioneer accounts of the prairie; Prairie Food Web; Native American legends
- Project Wild: Activity Guide*. 1992. Western Regional Environmental Education Council, Inc., Bethesda, MD.
P. 147 Oh, Deer!
- Shirley, Shirley. 1994. *Restoring the Tallgrass Prairie: An Illustrated Manual for Iowa and the Upper
Midwest*.
University of Iowa Press, Iowa City. Over 200 pages of illustrated plant descriptions.
- Wild About Elk*. Council for Environmental Education and Rocky Mountain Elk Foundation. Pp. 49-53 Antler
measurement info. and activity; pp. 54-56 Elk Migration Headache; Build an elk activity
- Wilder, Laura Ingalls. 1974. *Little House on the Prairie*. Scholastic Book Services, NY.

- Fire on the Prairie-** Burns out woody invaders-trees & shrubs that shade & crowd prairie plants.
Also burns out alien/exotic plants that don't belong there.
Makes physical space for new growth from leaves and seed sprouting.
Black ash absorbs heat & warms soil earlier in spring.
Releases nutrients for new plant growth.
Stimulates seed growth.
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Extensions/Alternate Activities/Rainy Day

Play “Oh, Bison” or “Oh, Elk” (**Oh, Deer!** *Project Wild*)

Make paper quilt blocks. Have cut squares and triangles available to glue onto larger square “blocks”.

Make a simple apron or bonnet out of calico or gingham fabric.

Read excerpts out of “Little House” books that describe the prairie (for younger students).

Elk-Build a life size Elk w/paper squares (*Wild About Elk*).

Sticky Seed Collection (*Project Bluestem, Nature in Your Backyard*)-

Collect prairie seeds on socks or skins to study.

Prairie Explorer’s Kit activity (*Project Bluestem*)

Be a Bison- Dress a student volunteer up with props that symbolize bison adaptations.

Tough hide brown fabric w/ brown knit socks on hands & arms

Wooly fur dark brown shaggy fur fabric cape or towel over head & shoulders

Hooves stick hands into plastic cups

Tail rope or fabric tube with yarn tuft at end

Horns horn shaped pieces of cardboard or stuffed felt on a headband, visor or hat

Large head piece of foam or small pillow tied to forehead

Share basic prairie burning techniques and show families some of the equipment used.

Prairie establishment/maintenance-**Share what it takes to go from field to reconstructed prairie.**

-clear-trees, sumac, honey locust & thorny shrubs (a problem where over-grazed)

-find native seed to plant from local area

-may need to mow in early stages (first two years) to control annual weeds

-how to burn, when, tools to use

Supplies:	Prairie posters Mounts, skulls, furs of prairie animals Prairie wordsearch or puzzle Nametags Markers Cards for prairie food web String/yarn for food web Burn equipment (set out)	Paper plates for Elk Migration Headache (10-20) Bison costume props Pioneer clothing-bonnets, aprons, hats Crayons, colored pencils Insect nets and keepers Pictures of prairie plants and animals Bags or buckets for seed collection
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Bison Metaphors-Put the following props in a bag.

Plastic sand shovel	huge head can shovel snow to get to winter food
Short flyswatter	tufted tail can swat some insects
Boot with heavy sole	tough hooves protect feet
Running shoe	can run fast from danger
Piece of leather	tough hide resists scratching on tough plants
Piece of fleece or fur	warm, wooly winter fur
Flower scent in film canister	good sense of smell
Boxing/tae kwon do gloves	defends itself with horns
Picture of a family	lives in a herd, sticks together
Dust/Flour in film canister	wallows to cover hide with dust to repel insects

Prairie Plant Adaptation Clues-

Wax paper-waxy leaves retain water
 Piece of fur-leaf hairs reflect sunlight
 Pine needles or ferny plastic leaf-small leaves avoid overheating and evaporation
 Toothpicks-spines or prickly hairs discourage grazing and predation
 Brown or white yarn-massive root system re-grows after fire, drought

Advance Copy some prairie puzzles for students to do as they arrive.

Preparation: Gather props for **Bison Metaphors** or **Be a Bison** (above).

Copy and cut apart some pioneer accounts of the prairie for family members to read aloud.

Make food web cards with names and/or pictures of prairie creatures.

Prairie Word Find

ICNC Home School Series

RETOYO CRWRCE CIDR
SEREDIAEAERKVVFK
THSIXERMXCPLAGS
OEOOFONU YURAGEAD
ORSRPRISLDALSPIS
RBOPTMVNEOIWPVRE
PIIVIGOOARROISEA
EVWGNRCVPIDNEHA
EOREBREAECEAMKGF
DRRWVLS SSDCEYIPP
REGDABUALSHMAGSL
ECOSYSTEMBISONBA
TALLGRASSECCABAN
IANNAVASATKKPDSR
POCKETGOPHERSWE
BOS SAEROVINMOERR

badger	big bluestem	bison
carnivore	consumer	coyote
decomposer	deep roots	divided leaves
ecosystem	elk	fire
herbivore	meadowlark	omnivore
pocket gopher	prairie chicken	producer
savanna	shortgrass	snake
spines	tallgrass	waxy leaves