

## Activity 7-3. Story Time

### Grade levels:

- Primary
- Elementary

### What's the Point?

Missouri River Country is a vast, complex land containing many different kinds of plant and animal communities. Most of the area is covered by one kind of prairie or another. These are usually classified in a general way as shortgrass, tallgrass, and mixed-grass prairie. In moist draws and river bottoms, you will find woodlands and wetlands. In the west are hills and mountainsides covered by pine forest.

All of these plant communities change over time, and the animals that use them may change as well, in a process called *succession*. Fire is a dramatic force of change, but change occurs even without fire. Some plants need sunny openings to grow well, and some animals thrive on the plants that live there. These organisms often live in places recently burned. Other plants reproduce almost anywhere, even in deep shade. They may thrive in places not burned for a long time. Some plants and animals can live almost anywhere, regardless of when a fire occurred or how the forest changes.

This activity introduces a map of Missouri River Country and then uses feltboard materials (fig. 24) to tell the story of fire and succession in Missouri River Country. You may want to spread this activity out over several days, presenting one chapter of the 3-chapter feltboard story each day. **Primary** students help assemble the feltboard as the teacher or other adult reads the story. **Elementary** students may be able to read the narrative themselves; then they can practice working with the feltboard materials and present the story to their class or other students. If *FireWorks* is being used in the upper grades of your school, use it to have older students present the story to younger classes.

This activity can stand alone, but the learning will be richer if you combine it with Activity 7-1, in which each student adopts an organism, learns about it, and explains it to the class.

At some time during the week you're doing this activity, use Smokeygram #2 in your class (fig. 25).



Fire approaches a cluster of whitebark pine trees in a feltboard story in *FireWorks* featuring *Ponderosa*, *Lodgepole*, and *Whitebark Pine Forests*.

### Teacher's Map:

**Objective:** Given materials and a narrative for storytelling, students can describe fire ecology and succession in a forest ecosystem.

**Subjects:** Science, Reading, Speaking and Listening, Workplace Competencies

**Duration:** 15 minutes to prepare, 15 minutes to present, 15 minutes to put away

## Links to Standards<sup>1</sup>:

### ***National Science Teachers' Association—Grades K-4:***

- C1) Identify needs of various organisms
- C2) Identify structures of various organisms and the needs they serve
- F4) Understand that changes in environments can be natural or influenced by people
- F5) Understand that changes in environments can be slow or rapid; rate has consequences

### ***National Science Teachers' Association—Grades 5-8:***

- C4) Recognize abilities to obtain and use resources, grow, reproduce are essential for life
- C7) Recognize nature of energy and food webs
- C8) Recognize that population size depends on resources
- F3) Recognize sources and challenges of natural and human-induced hazards

### ***North American Association for Environmental Education—Grades K-4:***

- 0A) Identify basic kinds of habitat and plants and animals living there
- 0B) Produce images of the area at the beginning of European settlement
- 0C) Describe aspects that change on temporal basis
- 2.1A) Identify changes in physical environment
- 2.2A) Understand similarities and differences among variety of organisms, habitat
- 2.2C) Understand basic ways organisms are related to environment and other organisms

### ***North American Association for Environmental Education—Grades 5-8:***

- 0A) Classify local ecosystems. Create food webs
- 0B) Describe habitat needs of species that are locally declining
- 2.2A) Understand biotic communities and adaptations
- 2.2C) Understand interactions among organisms and populations
- 2.2D) Understand how energy and matter flow in environment
- C2) Identify structures of various organisms and the needs they serve
- F4) Understand that changes in environments can be natural or influenced by people
- F5) Understand that changes in environments can be slow or rapid; rate has consequences

### ***National Science Teachers' Association—Grades 5-8:***

- C4) Recognize abilities to obtain and use resources, grow, reproduce are essential for life
- C7) Recognize nature of energy and food webs
- C8) Recognize that population size depends on resources
- F3) Recognize sources and challenges of natural and human-induced hazards

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- 0A) Identify basic kinds of habitat and plants and animals living there
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<sup>1</sup> See Appendix 4 of Smith and McMurray (2000) for links to Montana educational standards, grades K-4, 5-8.



-----**Smokeygram #2**

Dear Class,

I'm glad you are learning about my homeland. I'm glad you are learning about how fires work, and how plants and animals live in wildlands that burn. As you get smarter about fire, I hope you learn to be even more careful about preventing wildland fires!

Sincerely yours,



Figure 25--"Smokeygram" to be used in Activity 7-3.

**Vocabulary:** riparian, succession, plant community, ecosystem

## Materials

<i>In this trunk...</i>	<i>... where?</i>
Map of Missouri River Country	B (with posters)
Feltboard Background for <i>Dancing Prairie Fires in Missouri River Country</i>	Teacher/C
Two large looseleaf Notebooks for <i>Dancing Prairie Fires in Missouri River Country</i> (Parts 1 & 2)	Teacher/C
Straight pins in small container You may also find 2-sided tape helpful.	<i>Hardware Box, A</i>
Optional: If you wish to incorporate names for plants & animals in a Native language, find the “Plant and Animal Names for Missouri River Country” poster in Box B <u>or</u> use the Excel file Names_spreadsheet.xlsx, in Tables_of_Names on the CD in the Missouri River Box.	

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## Preparation

Display the map in the classroom. Set up your storytelling area. Take the narrative pages out of the feltboard book for the reader (yourself?). Hang up the large blue felt background in a location where students can reach it. Read the Foreword and Introduction to *Dancing Prairie Fires in Missouri River Country* before starting the activity, paying special attention to the “Hints” on the first page.

Have pins and/or tape handy to attach pieces if they fail to “stick” to the background. This is especially helpful for the pink “buried treasures”, which need to stay on the feltboard even when nearby pieces are removed... and for the wide strips of prairie plants, which may be too heavy to stay in place.

If you wish to use Native American names for the plants and animals featured in this activity, the trunk contains two resources that may help:

1. a laminated poster listing a few names in the languages of the Lakota and Pikunii people, with plenty of space to add names and explanations in other languages. Find this in Box B.
2. a file in Microsoft Excel that lists the organism names and has space for names in another language and explanations. Find this file on the CD in the Missouri River Box. The file is called `Names_spreadsheet.xlsx`, and it is in the folder `Tables_of_Names`.

Work with someone who can provide and explain the words for various organisms; if possible, have that person meet with your class to teach them about the language and culture.

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## Procedure

1. Explain: The map shows the enormous size of the Missouri River drainage, where water originates at the Continental Divide in the Rocky Mountains and runs or creeps or seeps downhill through the northern Great Plains toward the Mississippi. (This curriculum does not cover the ecology of the lower Missouri River drainage, which reaches through the tallgrass prairie and into the hardwood forests of the central states.) Now we will listen to a story about the plants and animals in this region. The class will provide dramatic sound effects for the story and illustrate it with felt pieces on this background.
2. If you intend to spread the story out over several days, explain how that will work—and that the feltboard will remain on display throughout that time.
3. Read the story, directing student helpers to illustrate it with felt pieces according to the directions in the narrative. Have the student helpers pat the felt pieces onto the board firmly so they’ll stick. If they won’t stick anyway, attach with pins or tape. It may be especially helpful to attach the pink “buried treasures” with tape, because they stay up while neighboring pieces are removed.
4. When it is time to disassemble the display, remove all pins and tape. Then replace the pieces in appropriate place in the looseleaf notebooks, using the scanned copies of pieces to get them in the right place.

**Evaluation:** Use any or all of the “Closure” questions below.

**Closure:** After reading the feltboard story with the students, have the class compare different kinds of ecosystems that are illustrated. Leading questions:

1. Which plant communities have conifer trees? (ponderosa and lodgepole pine)
2. Which communities are probably the driest, and which the wettest? (Shortgrass prairie is driest; willow-covered wetlands and riparian cottonwoods are wettest.)
3. Which communities are likely to have fires that move very fast but don't heat the soil much? (prairie)
4. How do prairie dogs fit into the prairie story?
5. Clark's nutcrackers fit into the whitebark pine story?
6. How do mountain pine beetles fit into the lodgepole pine story?

## Extensions

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1. Read *Fire in the Forest* (in the *FireWorks Library*) aloud to students. This book uses beautiful graphics to describe the story of fire in lodgepole pine forests. Work in teams to plan and paint such a book for another kind of plant community.
2. Set up an activity station where students can try "Puzzling It Out" (Activity 7-4). If students cannot read the clues on the puzzle pieces, see if older students in your school can help. For Primary-level students, sort the puzzles in one of the envelope kits into four groups—ponderosa pine, lodgepole pine, whitebark pine, and prairie—and have students assemble these puzzles separately.
3. To improve your skill in critical reading, use the "Reporting the Blazes," an activity in the *Fire Ecology Resource Management Education Unit* (U.S. Department of the Interior curriculum) in the *Teacher Box*.
4. Make up verses for the songs "Do you know who lives in my tree?" and "Trees for Lunch" (in *Exploring Wood*, pp. 38 and 81) and sing them for the class.
5. Fire suppression is one of several careers that arise from North America's complicated relationship with wildland fire. Read *Fire—a Force of Nature* (pp. 44-47) and *Yellowstone on Fire* (pp. 57-85), both in the *FireWorks Library*, to learn more about the work and frustrations of fire suppression.