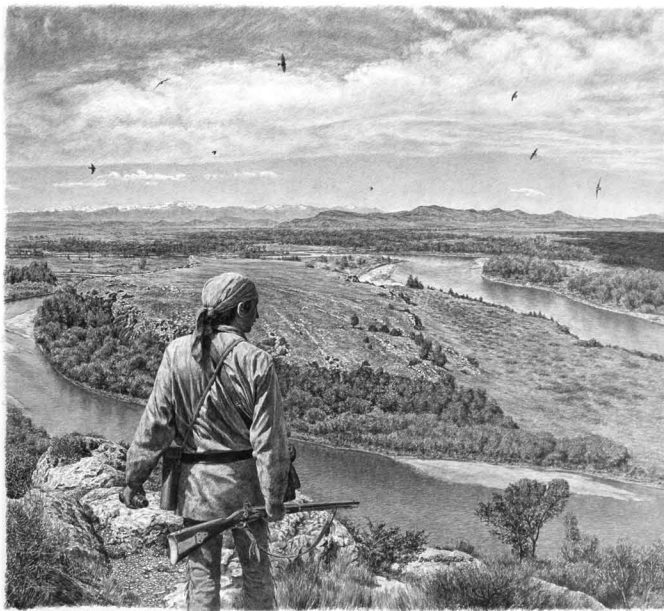


Changing Landscapes

This activity is directly tied to the second spread, pages 3 and 4, in the *What's In Your World?* publication located inside the back pocket of the activity tool kit.



*Have weeds always been here?
Has the landscape changed over time?
How did the weeds get here?*

Journey back to the time of Lewis and Clark and investigate how landscapes can change over time. In this lesson, students will use naturalist skills of drawing and mapping to explore landscapes from the past to the future.

Levels

Grades 4-8

Subjects - History, Science, Art, Language Arts

Skills - Discussing, Comparing and Contrasting, Mapping, Drawing

Concepts

Interactions of living things and environments;
observation; inquiry process;
interactions among technology, science and society

Objectives

Students will learn that landscapes change over time at different rates. Students will learn that many factors influence the changing of landscapes. Students will examine Lewis and Clark perspectives of the landscapes to create drawings and understand how landscapes can change. Students create maps to demonstrate the effects of noxious weeds over time.

Materials (20 student class-size)

What's in Your World? booklets (pp. 3-4) - 1 per student
Lewis and Clark journals
journal or notebook -1 per student
large pieces of paper (~11" x 17") - 1 per student
pencil - 1 per student

Time Considerations

Preparation - 5 minutes
Activity - 80 minutes

Lesson Overview

- Landscape of Lewis and Clark - Discussion and drawing (40 minutes)
- Present and Future Landscapes Map (40 minutes)

Background

Most noxious weeds in North America came from other parts of the world, mostly Europe, Asia, and the Middle East. Many came here 100 years ago or more as stowaways in shipments of grain, hidden in a ship's ballast, or were introduced as ornamental plants. For these invading weeds, North America is the "land of opportunity" because they've left their enemies behind. Most of our native animals and bugs aren't interested in eating the newcomers, and our native plants fall behind in the race for food, water, and sunlight. So these weeds sprout and grow like...well, weeds!

More than 4,378 non-native plant species have been introduced into the United States. About 50 of these are considered major ecological and economic pests (noxious weeds.) In the American West, the 16 worst noxious weeds infest more than 100 million acres of land.

You may not notice it, but the place where you live is always changing. Sometimes the changes are small--a tree branch falls down in a windstorm. Sometimes the changes are big--a wildfire scorches an entire forest. Over a long time--years or even hundreds of years--these changes form patterns. Chances are, the place you live has many more homes, buildings, roads and parking lots than it did just 20 years ago. Look around you and imagine the landscape as it might have been 50 years ago, 100 years ago, or before settlers cleared the land.

*Was there a forest where your school now stands?
Or did prairie grasslands stretch to the horizon?*

Landscape of Lewis and Clark: Discussion and Drawing

(40 minutes)

STEP ONE. Begin the activity by discussing the Lewis and Clark Expedition. *Who were Lewis and Clark? What did they do?* Discuss that the purpose of their Expedition was to explore the Louisiana Purchase and find a water route to the Pacific. Along their journey they were responsible for “painting a picture” of the land for people back east by recording their observations with writing, sketching, and mapping. Review the 5 senses with the students and mention that Lewis and Clark used all of their senses to learn about the places they traveled.

STEP TWO. Read the attached journals of Lewis and Clark to the students.

STEP THREE. Next, have students read pages 3 and 4 in the *What’s in Your World?* booklet.

STEP FOUR. Ask students to think about what their local landscape looked like in the time of Lewis and Clark.

Is it the same as today?

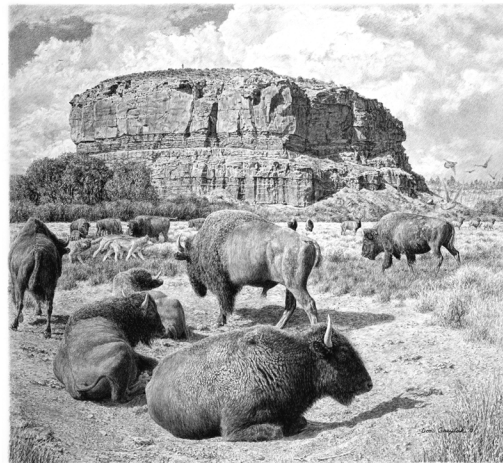
Has it changed?

Why or why not? Was it a forest?

Or did prairie grasslands stretch as far as the eye could see?

STEP FIVE. Tell students that they are going to use their imaginations to re-create their local landscapes in the time of Lewis and Clark. Using journals or notebooks, have students create a drawing of what they think their local landscape would look like back then. Give the students 20 minutes to complete their drawings.

STEP SIX. Once students have completed their drawings, ask for volunteers to share their drawings. Discuss features in drawings that are the same as the current landscape and different than the current landscape.



Present and Future Landscapes Map

(40 minutes)

STEP ONE. Begin by having students brainstorm a list of their favorite outdoor places where they live in their journal or notebook.

STEP TWO. Now, tell the students that as Lewis and Clark did, they are going to make a map with all their favorite places.

What kind of things does a map have?

Discuss all the features of maps including keys, symbols, compass rose, structures, natural features, landmarks, etc. Hand each student a piece of large paper and give them 20 minutes to create a map.

STEP THREE. Once students have finished their maps, ask for volunteers to share their maps with the class.

STEP FOUR. Now, ask the students how some of these places and landscapes might change over time. *Will it look the same? What if noxious weeds invaded the landscape? How might noxious weeds change the landscape?*

STEP FIVE. Ask students to go back to their list of favorite places and write one way each of these places might change. Ask the students to include one way that noxious weeds might change the landscape.

STEP SIX. Wrap up by asking the students to draw some of the changes on their maps of their favorite places. Ask volunteers to share with the class.

How fast do these changes occur?

How fast are the effects of noxious weeds?

CHANGING LANDSCAPES. PRESENT AND FUTURE LANDSCAPE MAP LESSON DETAILS

Lewis and Clark Journal Excerpts:

[Lewis] Thursday July 18th 1805.

Previous to our departure saw a large herd of the Bighorned animals on the immensely high and nearly perpendicular cliff opposite to us; on the face of this cliff they walked and bounded from rock to rock with no apparent unconcern where it appeared to me that no quadruped could have stood, and from which had they made one false step they must have been precipitated at least 500 feet. This animal appears to frequent such precipices and cliffs where in fact they are perfectly secure from the pursuit of the wolf, bear, or even man himself.... (Page 158)

[Clark] Thursday July 18th 1805.

...we camped on a small run of clear cold water, mosquitoes very troublesome the forepart of the evening I saw many fine springs & streams of running water which sink & rise alternately in the valleys the water of those streams are fine, those streams which run off into the river are dammed up by the beaver from near their mouths up as high as I could see up them. (Page 159)

DeVoto, Bernard (1953).
The Journals of Lewis and Clark
The Riverside Press, Cambridge, MA.

[Clark] Saturday July 20th 1805.

...just above our camp the river is again closed in...on both sides. I saw a black woodpecker as black as a crow. I endeavored to get a shot at it but could not. It is a distinct species of woodpecker; it has a long tail and flies a good deal like the jay bird. (Page 12)

Nell, Donald F. & Taylor, John E. (1996).
Lewis & Clark in the Three Rivers Valleys.
Patrice Press, Tucson, AZ.

[Lewis] Sunday July 21st 1805.

...saw several of the large brown or sandhill crane today with their young. The young crane is as large as a turkey and cannot fly they are of a bright red-brown color or that of a common deer at this season. This bird feeds on grass principally and is found in the river bottoms. The grass near the river is lofty and green that of the hill sides and high open grounds is perfectly dry and appears to be scorched by the heat of the sun.... (Page 13)

...We saw a number of trout today since the river has become more shallow; also caught a fish of a white color on the belly and sides and of a bluish cast on the back.... it has a long pointed mouth which opened somewhat like a shad. (Page 15)

Nell, Donald F. & Taylor, John E. (1996).
Lewis & Clark in the Three Rivers Valleys.
Patrice Press, Tucson, AZ.

[Lewis] August 1st 1805-

...the mountains are extremely bare of timber and our route lay through the steep valleys exposed to the heat of the sun without shade and scarcely a breath of air;... (Page 174)

Friday August 2nd 1805.

...The valley along which we passed today, and through which the river winds its meandering course is from 6 to 8 miles wide and consists of a beautiful level plain with but little timber and that confined to the verge of the river; the land is tolerably fertile, and is either black or dark yellow loam, covered with grass from 9 inches to 2 feet high. The plain ascends gradually on either side of the river to the bases of two ranges of high mountains. The tops of these mountains are yet covered partially with snow, while we in the valley are nearly suffocated with the intense heat of the mid-day sun; the nights are so cold that two blankets are not more than sufficient covering. (Page 175)

DeVoto, Bernard (1953).
The Journals of Lewis and Clark
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