

**Western Literature Association and Charles Redd Center  
Teaching Western American Literature K-12 Teaching Prize  
Instructional Plan Format**

Instructional plan title: Letters from Yellowstone:  
Stories of Women Scientists in Yellowstone National Park

Duration, Grade Level, Number of Students	This cross-curricular unit is designed for tenth grade students in Biology and English 10 and will require 4 weeks to complete, based upon a 4-day school week with 60 minute class periods. The oral history component may take longer, depending on the number of interviews you choose to conduct. Approximately 20 students will take part.
Instructional Materials	Copies of <i>Letters from Yellowstone</i> by Diane Smith Handout: Discussion, journal, quiz questions for book Various popular novels using the epistolary form PowerPoint including images from 19 <sup>th</sup> century Yellowstone Field Journal Handouts Oral History Handouts Recording Device: ex. digital recorder, tape recorder, cell phone, tablet, or video recorder. Individual Student Journals and various art supplies: pencils, colored pencils, watercolor paints. Yellowstone National Park Heritage and Research Center <a href="https://www.nps.gov/yell/learn/historyculture/collections.htm">https://www.nps.gov/yell/learn/historyculture/collections.htm</a>
Key Vocabulary and Concepts	Scientific Terms: Latin and common names for plants and animals discussed in novel. Variations of Journals: Personal, Creative, Field, Personal Field, Scientific Field journal Literary Terms: Archetype, foil, juxtaposition, motif, epistolary novel (polylogic form) among others. Oral History Terms: Primary Source, open questions, closed questions, funnel-shaped questioning (inverted funnel-shaped), probes (silence, encouragement, immediate/retrospective elaboration, immediate/retrospective clarification, mutation).
Enduring Understanding	To be fully engaged in the world, one must closely observe it and its inhabitants. Making connections with one's "place" through literature is the life-blood of this process.
Essential Question(s)	<ul style="list-style-type: none"> <li>• What value does science have in our everyday lives?</li> <li>• How are we connected to the plants and animals in our bioregion?</li> <li>• The <b>National park Service Mission</b> "preserves unimpaired the natural and cultural resources and values of the <b>national park</b> system for the enjoyment, education, and inspiration of this and future generations." How can the Park Service fulfill this mission for generations to come?</li> <li>• How can we make meaning from the experiences of the people in our</li> </ul>

	community?
Learning Objectives	<p>At the completion of this unit, students will be able to</p> <ul style="list-style-type: none"> <li>Analyze themes of gender and racial discrimination from the novel <i>Letters from Yellowstone</i> and make connections with society today.</li> <li>Analyze Smith's use of the epistolary form in her novel, focusing on audience, purpose, and tone</li> <li>Present information regarding indigenous use of astrology and botany through a poster presentation.</li> <li>Use observation, description, and personal reflection in constructing personal field journals</li> <li>Identify, contact, and schedule interviews with women scientists in Yellowstone National Park</li> <li>Conduct oral history interviews using a variety of questioning techniques, transcribe those interviews, and publish in the class collection</li> <li>Use primary documents and artifacts from the Yellowstone Heritage and Research Center's databases and library to construct an oral presentation to the community at large.</li> </ul>
Standards	<p><b>Montana Common Core Standards for English Language Arts 9-10</b>  Literature: 1, 2, 3, 4, 5. Language: 4, 5, 6. Writing: 2, 3, 4, 5, 6, 8, 9, 10.  Speaking &amp; Listening: 1, 4, 5.</p>
Background	<p>Teachers looking to incorporate oral histories into their curriculum should utilize the handouts I have provided, especially the one titled "Oral History Teacher planner". I also think it would be beneficial to contact your local historical society or library for examples of oral history projects in your area.</p>
Suggested Procedure	<ol style="list-style-type: none"> <li>1) Introduce various kinds of journals. Use a variety of examples to show students there are many ways to construct a journal. Get students practicing their skills in observation and description immediately. Journal writing should be on-going throughout the unit.</li> <li>2) Discuss the purpose and structures of letter writing and compare with diaries, blogs, journals.</li> <li>3) Begin reading <i>Letters from Yellowstone</i> and discuss the structure and style Smith uses to develop characters and create tension in her novel</li> <li>4) Give students opportunities to write their own letters and analyze the structure and style they employed to reach their audience</li> <li>5) Have students identify potential research topics as they are reading the novel.</li> <li>6) Define oral history and discuss as a group the project on Women Scientists in Yellowstone past and present.</li> <li>7) Visit the Research and Heritage Center to tour the herbarium, the archives, and library. Have students continue to discuss areas of interest for a small research project</li> <li>8) Read some sample oral histories from previous years' projects. What is the value in collecting these histories? What are some potential drawbacks to oral histories? How can we work to eliminate the</li> </ol>

	<p>drawbacks?</p> <ol style="list-style-type: none"> <li>9) Identify women scientists as potential interview subjects and construct pre-interview letters. Send consent form with letter.</li> <li>10) Schedule, conduct and transcribe interviews. Send thank you note, along with copy of transcription to interviewee for approval.</li> <li>11) Return to Heritage Center to finish research on self-selected topic</li> <li>12) Edit transcriptions. Begin constructing poster of interviewee for community night.</li> <li>13) Prepare oral presentation on self-selected topic researched at the Heritage Center.</li> </ol>
Evaluations (Assessment)	<ul style="list-style-type: none"> <li>• Student Journal incorporating field journals, personal journals, short analyses of novel, oral history process, research questions and notes, personal reflections on project as a whole.</li> <li>• Pre-interview letter</li> <li>• Oral history interview questions</li> <li>• Transcriptions</li> <li>• Thank you letter to interviewee</li> <li>• Poster Presentation</li> <li>• Class Presentation</li> <li>• Final Essay tying oral history interview and outside evidence to support a student's argument on a topic centered in or around Yellowstone.</li> </ul>
Extension	<p>To complete a full oral history project, where students interview, transcribe, and then use the class-set of interviews to construct an essay of place takes longer than 4 weeks. I highly recommend taking the oral histories to the next level by asking students to use the interviews as evidence in an essay contextualized in a local issue. For instance, the interview with a Park fisheries biologist could be a catalyst for an essay on invasive species or the use of poisons to kill non-native fish. Ultimately, that is the goal of the oral history project. But like anything good. It takes time.</p>
Resources	<p><i>Crow Star Stories</i>. Montana OPI Indian Education Div., n.d. Web. 20 June 2016. &lt;<a href="https://itunes.apple.com/us/itunes-u/crow-star-stories/id428375006">https://itunes.apple.com/us/itunes-u/crow-star-stories/id428375006</a>&gt;.</p> <p>Duckworth, Carolyn. "Field Journals: Connecting People with Place." 5 Dec. 1994. MS.</p> <p>"Montana Skies: Crow Astronomy." <i>Montana Office of Public Instruction</i>. Montana.gov, n.d. Web. 15 July 2016. &lt;<a href="http://opi.mt.gov/pdf/IndianEd/Search/Science/G3_6Star_stories_crow.pdf">http://opi.mt.gov/pdf/IndianEd/Search/Science/G3_6Star_stories_crow.pdf</a>&gt;.</p> <p>"Science Model Teaching Unit: Bitterroot Adaptations and Salish Traditions." <i>Montana Office of Public Instruction</i>. Montana.gov, 28 June 2016. Web. 15 June 2016. &lt;<a href="http://opi.mt.gov/pdf/IndianEd/Search/Science/G4_Bitterroot_Adaptations.pdf">http://opi.mt.gov/pdf/IndianEd/Search/Science/G4_Bitterroot_Adaptations.pdf</a>&gt;.</p> <p>Smith, Diane. <i>Letters from Yellowstone</i>. New York: Penguin, 1999. Print.</p>

# Handouts

## Letters from Yellowstone Flora and Fauna Latin and Common Names List

A. Schoenoprasum: Prairie onion  
Achillea lanulosa: western yarrow  
Allium cernuum: nodding onion  
Antilocapra Americana (American Pronghorn)  
Aquila chrysaetos (Golden Eagle)  
Artemisia tridentata: Big Sagebrush  
Aster conspicuus: western showy aster  
Bison-bison  
Calypso Bulbosa: Fairy Slipper  
Campanula: Bellflower  
Castilleja miniata (Indian Paintbrush)  
Cervus elaphus (elk)  
Clarkia pulchella: evening primrose  
Corvus Corax: Raven  
Cypripedium: Lady Slipper  
Dendroica petechia: Yellow Warbler  
Dryas octopetala: White flower with yellow center  
Epilobium angustifolium: fireweed  
Gentiana detonsa: fringed gentiana  
Geranium viscosissimum: sticky geranium  
Haliaeetus leucocephalus (Bald Eagle)  
Haplopappus (ask Heidi)  
Lewisia rediviva: Bitterroot  
Lilium: Lily  
Lupinus argenteus: Silvery Lupine  
Mimulus guttatus: yellow monkeyflower  
Mimulus Lewisii: Purple Monkey flower  
Myosotis: forget me not  
Orthocarpus tenuifolius: thin-leaved owl's cover  
Ovis Canadensis: Big Horn Sheep  
Pandion Haliaeetus (osprey?)  
Pelecanus erythrorhynchos: White Pelican  
Pentstemon caeruleus (Ask Heidi)  
Perideridia gairdneri: yampah  
Picea: spruce  
Polyphylla decemlineata: Ten-lined June Beetle  
Populus angustifolia: Narrowleaf cottonwood  
Rosa woodsii: wild rose  
Salvelinus: trout  
Sialia  
Ursus Americanus (black bear)  
Ursus cinnamomeus (cinnamon black bear)

Ursus horribilis (grizzly bear)

### **Additional Terms and Potentially Helpful Websites:**

Weltanschauung: German for world-view

Coupon Tours

“The Sensitive Plant” by Shelley [poem](#)

“Turkey in the Straw” [song](#)

Phenologist: the study of cyclic and seasonal natural phenomena, especially in relation to climate and plant and animal life.

Constellation “Goose Above”

Epistolary Novel; polylogic form; Epistolary works do not have a narrator or stable setting, but rather present the story line and hints of setting through description in the letters. The exclusivity of narration through letters allows for a deeper and more personal characterization, as the reader is able to see the character’s most intimate thoughts and personal views (and who doesn’t like reading someone’s personal reflections?). And for the author, this form creates an opportunity to play with an unreliable narration in the letters, as they are the only narration available to the reader.

[Top 11 Epistolary novels](#)

[Popular Epistolary Novels](#)

[Tips for writing an epistolary novel](#)

[Brief histories of Yellowstone Expeditions](#)

[Yellowstone Science Issue On Heritage center and Botany](#)

[What is Oral History?](#)

[How to conduct an Oral History?](#)

[Guide to Conducting Oral Histories](#)

[Example of Field Journals](#)

More Resources (Jones list)

[Using Field Notebooks for Biodiversity study \(AAAS\)](#)

## **During Reading Discussion and Journal Questions for Letters from Yellowstone**

The following is a list of questions and topics related to the teaching of this unit. These are my thoughts as I begin to construct this unit, so understand this is not a polished list of discussion or journal questions, but a collection of thoughts as I read the book and imagine what I might cover. Do with it what you wish.

1. Introduce the concept of journaling. Break down the four different journal styles we will use during this unit: personal journal, field journal, personal field journal, and scientific journal.
  - a. Personal journal reflects one's interior life more than one's external observations.
  - b. Field journal emphasizes what you observe in the natural world around you.
  - c. Personal field journal contains interior reflections and connections with the natural world, but little information recorded in a systematic way.
  - d. Scientific journal contains little interior reflection and is maintained in a systematic format for the easy retrieval.
2. Compare the structure and purpose of journals and letters?
3. Show student and professional examples. Give students time to examine examples and make observations and ask questions. Take students outside to work on an individual field journal focusing on a single observation from nature. For homework, ask students to conduct a second field journal, following the protocol covered in class.
4. In the classroom, construct a field journal observing and illustrating a plant sample provided by the teacher and compare it with your experience observing and illustrating a plant sample in the field (3). Introduce the book *Letters from Yellowstone* by Diane Smith and discuss the structure of an epistolary novel and show students examples of epistolary novels they have already read. What does the epistolary structure provide the reader that a traditional novel does not? What are the limitations of the epistolary structure? Before reading, ask students to think about and write a response in their journal regarding this series of questions: When was the last time you wrote a letter? To whom did you write it? What was the occasion? If you do not recall writing anyone a letter, can you recall the last time someone wrote a letter to you? Who wrote it? What was the occasion? If you have neither written nor received a letter, how do you correspond with people living far from you? Consider the same questions as I posed for letter writing, but also analyze the method of correspondence and how that method compares with traditional letter writing. Make clear to students that each journal must have the date and question posed, followed by a minimum of a ½ page response.

### **5. Chapter 1 (3-19): *Mimulus Lewisii*: Purple Monkey Flower**

6. **Key Vocabulary and Allusions:** Classification, *Lupinus argenteus*, *Linum Lewisii*, *Clarkia pulchella*, *Lewisia rediviva*, enumeration, lilt, devoted, remiss, expenditure, botany, herbarium, calamity, befall, cartographer, highwaymen, Smithsonian, crack shot, ally, champion, ire, meagre, *Sialia*, John Bartram, Kew Gardens, enigma, James Hill, benefactor, New Century Campaign, Anaconda Company, fin de siècle, Lewis and Clark, Standard Oil, cavorting, skirting, stoloniferous, wanton, *Artemisia tridentata*, *Populus angustifolia*, devoid, *Haliaeetus leucocephalus*, *Aquila chrysaetos*, *Antilocapra americana*, evocative, symbiotic, harbinger, flora, fauna, respite, ruffians, primordial, cesspool, allay.
7. How does A.E. Bertram attempt to convince Dr. Merriam that that she is a worthy candidate for the job? (3).
8. Dr. Merriam makes the claim that Yellowstone Park “could very well be the last uniquely wild place in America” (4). What evidence does he give to support this claim? Does this surprise you considering the time period? What would Dr. Merriam say about Yellowstone National Park today?
9. In Dr. Merriam’s first letter to A.E. Bertram, what tensions are you noticing between the University President, Dr. Healey? (6).
10. What are telegrams? How do they work? What is a telegram’s primary purpose? How would you describe the first telegram from A.E. Bertram? How does she structure the telegram and what information does she provide?
11. Based upon the way Dr. Merriam talks about his colleagues (Dr. Gleick & Dr. Rutherford) in his first letter, how would you describe them?
12. After reading A.E. Bartram’s first letter to Dr. Merriam, write a description of A.E. based on that letter. Do the same with her letter to her friend Jess. What is revealed about A.E.’s character in this letter, compared with what she reveals in her earlier letter to Dr. Merriam?
13. Compare Merriam’s first letter to his friend and colleague Dr. Gleick with his previous letters written to Bartram and his mother. What personal characteristics does he reveal in each of these letters? Analyze Dr. Merriam’s audience, purpose, and tone. What similarities and differences between these three letters do you notice? (12-14).
14. Do you agree with A.E. Bertram’s claim about Easterners: “We are indeed prisoners of our ignorance and our urban eyes” (16)
15. How does A.E. use the following metaphors to describe the train: “Stoloniferous organism” and “Mechanical Messiah” (15).
16. A.E. writes to her friend Lester back at Cornell University. How would you compare her character, as it is revealed in this letter, with the character we were introduced to in previous letters? What does she share with him? What does she leave out? (15-17).
17. At the end of Chpt. 1, we meet Dr. Andrew Rutherford through his letter to president of Montana College Dr. Healey. Based upon a comparison between Dr. Merriam’s letter describing

Rutherford and the manner in which Rutherford writes this letter to President Healey, how would you describe Rutherford? (18-19).

18. What tensions or possible conflicts do you see developing at this time in the novel?

### **19. Chapter 2 (pgs. 23-58): *Lewisia Rediviva*: Bitteroot**

20. **Key Vocabulary and Allusions:** Rigor, virulent, demurred, cavorting, ill disposed, diminished, fetid, elusive, contemptuously, incredulous, vague, laggard, miscreant, impeccable, androgynous, vacuous, degenerative, curative, skeptical, bleak, imply, forsaken, monopolized, verandah, *Cervus elaphus*, Linnaeanized, *Ursus americanus*, *Ursus cinnamomeus*, *Ursus horribilis*, louts, ensconced, conviviality, villain, vagaries, entomologist, *Allium cernuum*, *A. Schoenoprasum*, fare, percolate, phallus, *Ovis Canadensis*, *Alces alces*, civility, volition, *Myosotis*, *Pelecanus erythrorhynchos*, rapture, deference, constitution, *Picea*, morosely, immodestly.
21. Chpt. 2 opens with a letter from A.E. to Jess, where A.E. finally discloses to the reader that she is a female doctor. She says, after the comedy of errors at the train station, "It turns out however, that I am not the real Dr. Bartram" (25). What is the connotation of the word "real" in this quote and what is its significance? (25)
22. What presumptions have been made by Dr. Merriam regarding A.E. Bartram (Alexandria)? And what presumptions were made by Miss Bartram when she says, after meeting the driver Jake Packard, "I was met by yet another telephone message from the 'real' Professor Merriam" (24). What is the connotation of the word "real" in these instances?
23. What is Alex able to share with her friend Jess that she chooses not to share through her other correspondences? (25-26).
24. In Dr. Merriam's letter to his mother on page 27, he shares his misfortune in hiring A.E. Bertram. What words or phrases in his letter indicate society's view of women at this time? (27).
25. Alex writes to her family for the first time on page 29. What is the purpose of this letter? How does she carefully construct her experience for her parents? What details is she careful to include and which details is she careful to leave out?
26. Dr. Rutherford writes a letter to President Healey. Based on its format, what would you say is Rutherford's purpose with this letter? (33-34). Which new characters are we introduced to in this letter?
27. In Dr. Merriam's letter to his mother written 3 days after Alex's arrival in Yellowstone, he has made some predictions about Alex's length of stay with the expedition. What evidence do you see that supports his claim? If you disagree with him, what evidence would you give to support your claim?
28. He also says in this letter to his mother, "I will keep your advice about Miss Bertram in mind". The author, Diane Smith has not provided the reader the specifics regarding his mother's advice. What advice do you think she gives him? Smith's technique of disclosing his mother's opinion is interesting. What purpose do you think it serves? (35-37).
29. In Alex's letter to Jess she describes each member of her study team. What additional characteristics have you noted about these men from her descriptions? (38-42). We also get to see more of Alex's humor through this letter. Recall her humorous descriptions in this letter.



30. Dr. Phillip Aber writes to his wife on pages 43-45. What is the purpose of his letter? How does he use style and tone to achieve said purpose? How is this letter different from the friendly letters written by other characters? What does his language tell you about his audience and the relationship they have with each other?
31. For the first time, Dr. Rutherford has included weather patterns in the heading of his letter to President Healey. Why do you suppose he has made this change? What drama does Rutherford disclose in his letter? How would you describe the tone of this letter? How does his tone impact the way the reader takes in this information? (45-46).
32. What is Alex's "Pelican epiphany" as she refers to it on pages 48-49? In what ways do you agree with her claim and in what ways do you disagree?
33. Alex writes an extensive letter to her friend Jess on May 31<sup>st</sup>, just over ten days since arriving in Yellowstone, about her adventure locating bitterroot. Of course, the events and details provided come from Alex along. Dr. Merriam never writes of this incident to anyone. Draft a letter from Dr. Merriam's point of view and tell the story the way you think he would have shared it with his mother, Dr. Gleick, Dr. Rutherford, the driver from Butte, Dr. Aber, President Healey, or Captain Craighead. Each person in your group must choose a different recipient for the letter. (46-58).

### **34. Chapter 3 (61-145): Calypso Bulbosa: Fairy Slipper**

35. **Key Vocabulary and Allusions:** Begrudgingly, *Pentstemon caeruleus*, *Castilleja miniata*, vigilante, alleged, canaille, decorous, fledgling, discreetly, veracity, revelers, appease, anemometer, diminutive, *Dendroica petechia*, dabbler, didactic, guise, ubiquitous, oxymoron, Mr. Grinnell, Boone and Crocket club, Audubon Society, lucrative, dispatches, salutation, *Salvelinus*, gilded, thwarted, purported, sauntered, cache, feigned, burgeoning, laden, loathsome, perilous, queried, sinewy, gossamer, voyeur, resolute, buoyed, insatiable, ardor, trifles, genteel, consternation, scion, ebullient, *Pandion haliaetus*, unduly, disheveled, eccentric, lassitude, disparate, postulations, wanton, *Polyphylla decemlineata*, *Corvus Corax*.
36. The chapter opens with a letter from Alex to her family, dated June 20<sup>th</sup>, three weeks after her last letter, which is to Jess. How would you describe the rhetorical strategies Alex is using to continue to assuage her mother's uneasiness about her trip out west? How is she building her case?
37. In this letter, Alex poses several big questions: What is science? Who should be working in the name of science? What is the value of the use of common terms instead of scientific names?
38. Dr. Aber writes to Dr. Gleick on the same day Alex writes to her family (June 20<sup>th</sup>) nearly a month since his last letter to his wife. After his highly critical rant about Dr. Merriam and the expedition, Dr. Aber confides in Dr. Gleick and asks him to do what?
39. Dr. Merriam's letter to Dr. Gleick on June 22<sup>nd</sup> echoes Dr. Aber's feelings about the expedition and the qualifications of Merriam, but now that we are reading Merriam's' point of view, what similarities and differences do you recognize in these two accounts? (69-70).
40. How is Dr. Aber portrayed from Merriam's perspective? List evidence from the text to support your claims.

41. This is the first letter to employ extensive dialogue. What effect does the dialogue have on the reader?
42. In this letter, Merriam states, "As you can see, it is the human dilemmas, not the field work or science, which puts me at a real disadvantage here" (78). What human dilemmas does he speak of and what advice would you give him?(71-78).
43. What does it mean to be "real"?
44. Rutherford writes to Pres. Healey once again and reveals a little more clearly his purpose for the expedition. What do you believe his purpose to be? How would you describe the style of Rutherford's letters in comparison with the other characters' letters? What suppositionstyle choices can you make for his style choices? Or the style choices of the others?
45. Alex writes to Jessie recounting an encounter with a woman she describes in bird-like terms— Mrs. Eversman. Like Merriam's letter just prior to this one, the letter includes an unusual amount of dialogue. What purpose does this new character, Mrs. Eversman serve in the story? What larger questions about science does she engage the reader in?
46. What larger question is the writer, Mr. Wylloe asking the reader to consider when he criticizes the editor George Bird Grinnell, the editor of *Field and Stream*? (85). Or, when he urges her not to collect the lady slipper orchid as a specimen?
47. Several instances in chapter 3 have revealed Alex's internal conflicts. What is she struggling with/or against most? (92).
48. June 28<sup>th</sup> we hear for the first time from Alex's friend from Cornell, Lester King. In this letter he discusses the balance of wildness and civility that Yellowstone maintains. He also discusses the "long arm of government regulation" as necessary in saving the wonders from the foolish tourists (93). As evidence of this, Lester recalls an encounter he has had with a foreign earl when he first arrived in Yellowstone. Summarize this story.
49. What is the purpose of Lester's letter to Alex's parents? What is the tone? (96).
50. On July 3<sup>rd</sup>, Dr. Merriam writes to his mother about the arrival of Lester and Lester's intentions of taking Alex back to New York with him. What reasons does Merriam give for wanting Alex to stay? (97).
51. Merriam also laments about the potential exploits of easterners and fellow Montanan's in the Park. Make a list of these ventures. Which one seems the most damaging—or would have the greatest impact on the way the park is enjoyed today? (98-100).
52. On July 4<sup>th</sup>, Lester writes a long, very personal letter to Jessie, Alex's friend, discussing Alex's Yellowstone transformation. What do you believe to be the relationship between Alex and Lester? What discoveries does he make about her and what are his fears?
53. Analyze Lester's description of Alex's hair throughout his letter. What might the various conditions of her hair come to symbolize? (101-107).
54. Dr. Merriam is a scientist, a trained observer, yet he doesn't seem too skilled in the observation of those around him or those he is associated with. He even seems to struggle knowing his own intentions. Are there things that we the readers know about other characters' intentions or actions that he does not? How does Dramatic Irony make for a more compelling story? (107-110)

55. Second telegram: from Capt. Craighead to Col. Bradshaw. What purpose does this telegram serve within the novel? What do you remember of Capt. Craighead's appointment to Yellowstone? (110).
56. On July 4<sup>th</sup>, Lester writes to Jessie to explain Alex's transformation in a negative light and his desire to take her back to civilization. On the same day, Merriam writes to his mother and somewhat reveals that he might actually "like" Alex. Also on July 4<sup>th</sup>, Alex writes a long letter to Jessie about a cryptic conversation she has had with Miss Swinger. Why do you suppose the author places this telegram in between the very personal letters? What role is the telegram playing?
57. (Really investigate this letter (110-122). More to be discovered.
58. "Where there is work, there is hope" (Merriam 129)
59. Dr. Merriam's recollection of a semi-romantic evening with Alex is the subject of his next letter. When he is about to disclose to Alex that he indeed would like her to stay, Mrs. Eversman interrupts him with an exclamation about the geese flying overhead. A clever interruption by the author. The letter ends its attention to relationships and moves on to the poisoning of Dr. Rutherford. (129).
60. In saving Dr. Rutherford, how does Joseph Not Afraid challenge Alex's notions about plants and science? (131).
61. In Alex's letter to Jessie on July 5<sup>th</sup>, she discloses Mr. Aber is missing and she also hints at a possible relationship between Mrs. Aber and Mr. Gleick. She also states that Mr. Wylloe, the writer, "tells me I need to dedicate more time and observation [to these kinds of questions]. What exactly is Mr. Wylloe suggesting? Why would he suggest that? Do you think he is right about Alex? (134).
62. In the same letter, Alex says, "The sheer ruggedness of the Park roadways keeps travel to a minimum, and forces those of us with a sincere desire to partake of the Park's beauties and wonders to leave the wagons behind and travel on our own volition. It is only on foot that you can see, hear, smell, and touch the wonders that are all around us here. Otherwise, you miss too much. In fact, I would argue that miss it all" (136). Do you agree or disagree with Alex on this topic? Based upon your opinion, what changes in infrastructure should the Park Service make to create the ultimate tourist experience? To best preserve and protect the wildlife and natural wonders?
63. Writing Prompt: Recall a time when you explored the Park by foot, even if you drove a car to get to your hiking destination. Tell this story.
64. Look at the bottom of page 137 for Alex's explanation for her departure from her relationship with Lester. What do you make of her decision?
65. Imagine a modern-day breakup, compare it with to Alex's. Do we ever get Lester's perspective on the breakup?
66. Were holdups of "highwaymen" a common occurrence in Yellowstone at this time?
67. How would the telling of the story change if we were to see return letters from Jessie, Merriam's mother, or Alex's parents?
68. Writing Prompt: Choose a key moment in one of the character's letters and write a letter in response from the characters whose voices we never hear.

69. Why do you suppose Dr. Peacock is even in the story?

## **70. Chapter 4: *Epilobium Angustifolium* (fireweed)**

### **71. Key Vocabulary and Allusions:**

72. Compare the characters of Dr. Merriam and Alex at this point in the story. What do you see as their strengths and weaknesses? In what ways have you seen them change throughout the story?

73. What criticisms have characters expressed about the two of them throughout the story?

74. My criticism of Alex comes from her attitude toward Joseph. Her contempt for his “common” use of plants and his world view on how people, animals, and the universe are intertwined. See the critical language she uses on page 159 in her letter to Jessie.

75. The first time Alex openly questions men’s view of women in general is at the top of page 161. What does she question and what is significant about her questions not coming until chapter 4?

76. In Merriam’s letter to Gleick on Aug. 14<sup>th</sup>, he is quite apparent in his interest in Alex. He even shares a moment of jealousy when the rancher brings gifts to her: “As for me, I felt I had been transported back to the Crow reservation where wives are exchanged for what appear to be mere trifles” (164). What is he implying?

77. In her letter to Jessie on August 14<sup>th</sup>, Alex recalls taking shelter w/Joseph’s wife in the tipi. She also explains why Joseph and Sara have come to Yellowstone. What is their reasoning? According to Alex, how are Miss Zwinger’s group of young ladies similar to the young women on the Crow reservation?

78. Look for courtship and marriage laws of this time

79. How are letters presenting an argument or some sort of desire structured differently than letters that are seeking advice or simply reporting on the events of the expedition? (Merriam’s letter to Gleick Aug. 14<sup>th</sup>).

80. “We must be careful not to assume that we hold the only key to understanding the ways of the world” (181). Who says this, who is being spoken to, and why?

### **Post Reading Questions:**

1. Compare male and female characters, Eastern and Western characters, educated and uneducated characters.
2. Letter study: Family vs colleagues. Students write 2 letters, one to someone of authority or in a power position and one to a friend or close relative. Analyze the difference in purpose, tone, and structure. Consider one being handwritten and one typed. Maybe choose different modes for the letter: persuasive vs explanatory?
3. Role of Native Americans in this story?
4. What makes this novel feel like non-fiction? What about it keeps it in the realm of fiction? What in the end makes it a novel?
5. Groups structured by plants at the beginning of each chapter. Plant posters.

# **ALERT UNIT PLANNING FOR AUTHENTIC RESEARCH IN THE COMMUNITY**

**Ask:** What guiding questions might shape the overall project or what triggering questions might serve as a beginning point for research?

**Listen:** Identify primary sources, internet materials, and text materials. Refer to state standards or district curricula you wish to meet as you plan how students will use these materials.

**Explore:** List people who can be interviewed, sites to visit, experiments to conduct, data that can be collected. Think about how students can go beyond established knowledge to add original information to the record.

**Reflect:** How will researchers share their notes, questions, thoughts and findings as the project unfolds?

**Transform:** What final product will be created for the historical record? How will they touch the public?

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*umphrey@edheritage.org*

# Oral Histories: An overview

Oral histories can be done in many different ways. However, three important things should be considered when performing an oral history:

- Do the oral history with future generations in mind. Ask questions that you think people in the future might ask. Tape record and/or transcribe the interviews, so that they can be shared with others.
- Ask permission of the interviewee to use the oral history for publication or duplication.
- Ask the person you are interviewing to bring any old photographs, documents, books, or heirlooms.

## Oral History Interviews - Tips

Do not feel you have to ask every question on the list. Go with the flow of the interview.

If possible, record the conversation using a hand held digital recorder, a cell phone, or video camera. Be sure to practice with your recording equipment so you know the sound quality is clear. Bring a watch and moderate the interview so that it lasts for an hour or less.

Be sure to state who the person is being interviewed, your name, date, and place of the interview.

Ask direct, specific questions and let the interviewee do most of the talking. Avoid speaking as much as possible. Nod your head, but avoid saying "uh-huh" or otherwise interrupting the speaker. Every time they start talking, keep quiet until about 3 seconds after they finish talking. Then say "**and**" and stop for 3 seconds again. This way you will get more information and give the interviewee a chance to talk.

Ask the question several different ways, if necessary, to get the answer. Be persistent but gentle. If the person doesn't remember, that's all right. You might try relating the question to something they know. For instance, you might ask what date an event occurred. If the person doesn't remember, ask them how old they were when it occurred. You may be surprised that the person actually does know the answer.

If you find old photographs, get the interviewee to tell you who the people were and take field notes for each picture. Make sure you can tie the field note to the picture at a later date. Try to get the interviewee to tell you the approximate date of the photograph. If the date is a guess, put a question mark next to the date.

## **Oral History Interviews - Documents to ask about**

- 1) Family personal records, letters, etc.
- 2) Family bible
- 3) Wills, Deed, etc.
- 4) Certificates, Diplomas, Awards, etc.
- 5) Photographs
- 6) Books of Remembrance
- 7) Diaries, Family Genealogies, Family Histories, etc.
- 8) Birth, Death, Marriage and Divorce Records
- 9) Newspaper clippings
- 10) Military Records
- 11) Immigration Records
- 12) Passports
- 13) Cemetery and Funeral Home Records
- 14) Court Records

## Analyzing a Primary Document

*Primary documents include published materials (books, pamphlets, posters), unpublished documents (memos, business records, letters, journals, meeting minutes, reports), oral histories, visual materials (drawings, maps, photographs), and artifacts. Every document has a creator and every creator has a point of view. Every document has a context-a reason it was created, a situation it was part of, an audience it was aimed at.*

**Who created the document and why?** What purpose was the creator trying to accomplish? How might that affect what is reported? What qualifications does the creator have?

**When was the document created?** Does it contain conventions, such as flowery language or understatement? Is it a typical document or an unusual one? Is there important knowledge the speaker would not have had at the time and place the document was created?

**How does the creator know what he or she is talking about?** Was he/she there? Is he/she repeating second-hand information, or passing on gossip?

**Does the creator have something to gain** or something to lose in the situation? Is he/she neutral?

**Who is the audience?** Was the document created for a large audience? A boss? A friend? For personal use?

**Was the record intended for the public** or was it meant to be private?

**Was the recorder trying to persuade people?** Did he/she have a reason to be honest or dishonest?

**Was the document created immediately** after the event? Or after a lapse of time? How long?

**Are there other sources that deal with this topic?** How do they compare to this record? Do they corroborate or contradict things in this record?

**Why did the document survive?** Who has handled it? Has it been modified?



## **A Brief History of Field Journals**

Although we could consider petroglyphs and cave paintings as legitimate field journals, the more recent history of field journals can begin with the transcontinental trek of Meriweather Lewis and William Clark (1804-1806). When Thomas Jefferson sent forth Lewis and Clark to survey the lands west of the Mississippi River, he instructed them to record everything they saw or did. Their records described landscapes and wildlife that few European-Americans had seen before. Lewis and Clark's records also serve as base data for current explorers—conservation biologists, ecologists, environmental activists—searching for clues of change and stability in the ensuing years.

Less than 30 years after Lewis and Clark's grand journey, Charles Darwin embarked upon his own immense trip. Beginning on October 24<sup>th</sup>, 1831, he filled his notebooks with observations as he sailed on the HMS Beagle. Darwin rewrote his field notebook entries into journals, which have been widely read since they were published in 1839. These musings formed the beginning of his theory of evolution by natural selection.

Henry David Thoreau recorded what was around him, creating “an exhaustive study of the way things work, the way things move, how they and what they do. His journals spanned his entire adult life (1817-1862). At the end of the 19<sup>th</sup> century, another naturalist, Joseph Grinnell, came of age who would profoundly influence the note-taking of scientists. He began his career as a naturalist while still a teenager, and pursued an academic career that lasted more than 40 years. In 1908, Grinnell became director of the Museum of Vertebrate Zoology at the University of California, Berkley. The first day of his first field trip with the museum, he numbered the first page of a scientific field journal with “1.” Thirty years later, just before he died, he wrote in his field journal one last time. The page number was “3005.” He is the father of the Grinnell System, a system most field scientists use in recording their data.

Duckworth, Carolyn. Field Journals: Connecting People with Place. Professional Paper. 5  
December 1994

## **What are Different Ways of Journaling?**

### **Definitions:**

**A Journal** is a record of occurrences, experiences, and observations.

**A Personal Journal** reflects one's interior life more than one's external observations.

**A Creative Journal** reflects one's interior life and creates connections with one's external life.

**A Field Journal** emphasizes what you observe in the natural world around you.

**A Personal Field Journal** contains interior reflections and connections with the natural world, but little information is recorded in a systematic way.

**A Scientific Field Journal** contains little interior reflection and is maintained in a systematic format for the easy retrieval of data.

### **Journals across the Curriculum**

#### **Art:**

Student can record in their journals their responses to art they were shown in class. The journals allow them to observe art in private, to study processes at their own pace, for their own judgments. The journal can also be used to record and reflect on their own methodology in developing their artwork

#### **Music:**

Students can keep journals as they listen to various types of music. During the second playing, the students could respond to what they were hearing, usually by answering “listening questions” such as, “How does the voice make you feel, do you hear changes in the tone? What is happening? What action is taking place?” The journal can also be used to record and reflect on their own musical journeys, recording and reflecting on their practice and progress as a musician.

### **Mass Communication:**

Students can keep journals recording their evaluations of advertising they see each day. They could answer specific questions such as, “Explain why you react to an ad in a particular way and how would you change the ad?” Using a journal in this way can help students develop habits in critical observation of a variety of media.

### **How to Start Students with Journals**

#### **\*Keep your own journal and share it with students\***

Decide:

- Why you want participants to keep this journal
- What you hope they will get out of the project
- If you want them to keep a particular kind of journal (strictly field, field/creative, personal...)
- If you will be reading all entries or allowing them to choose
- If/how you will guide the journal
- If/how you will grade the journal

Consider:

- Setting journal goals and guidelines with students
- Providing assignments but allowing them to fulfill whatever way they choose
- Encourage, allow drawing and writing

Specifics:

- Keep your own journal, following the guidelines you establish with students
- Experiment with field notes—jotting things down during the day and transferring to main journal at the end of the day
- Be clear about whatever rules you want them to follow; **keep rules to a minimum**
- Do not grade for grammar, spelling, neatness, or artistic ability
- Consider asking them to follow these basics: Title their journal; begin each entry with date, location, environmental observations; include their name.
- Respect their privacy. If you want to see the journals, ask students to mark pages you are not to read, and then respect that absolutely.
- You can guide the journal entries with questions, perhaps one a day or one a week. Allow them to respond in any way they feel appropriate.
- Encourage them to share their journals. Model this by sharing your own at least once a week, leaving it out for them to look through.
- Collect and read journals entries by other people

Duckworth, Carolyn. Field Journals: Connecting People with Place. Professional Paper. 5  
December 1994

OTO  
Field Journal Assignment

Steps

1. Find a comfortable place at least 10 feet from the closest person to write, draw, and paint. Keep in mind ants, rattlesnakes, and sap.
2. Take 3-5 minutes to close your eyes and take in your environment.
  - a. Sounds?
  - b. Smells?
  - c. Touch?
3. Record in your journal a description of these senses. Write quickly. You can list or use short phrases.
4. **MICRO-WORLD**  
Select a space near you that is about the size of your hand. Take 10 minutes to take in and sketch, on the same sheet of paper, what you see in your **Micro-world**. Observe closely.
  - a. a flower, blades of grass, leaf
  - b. insects
  - c. the bark of a tree
5. Sketch this Micro-world. **With as much detail as possible**, describe in writing what is in your micro-world. What were you surprised to find or not find? Feel free to ask yourself questions- you may have more questions than answers. Use some of these guidelines to give scale to your micro-world.
  - a. as long as my thumb or forefinger
  - b. as big as my fingernail
  - c. as thick as my pencil
6. **MACRO-WORLD**
7. Look around you. Select a scene to paint or draw. This scene can be the landscape or an inanimate object like a wagon, building, etc. **After you draw**, record on another piece of computer paper what your senses are experiencing as you look at the big picture. How do you feel in this place? What surprises you? What do you wonder about when looking at your place?
8. Keep in mind you will be incorporating writing with your drawing. You will want to leave space on your paper for your poem. You can leave a spot uncolored, or you can color it lightly so the text can be seen.
9. **All field journals must include: Name, Date, Place, Weather Conditions**

10. Field journals are due tomorrow. Whatever you don't complete, you will need to do for homework.


Samples of student work resulting from this assignment below:


Feel: • a balmy breeze  
• Warmth from grass  
• rocky soil  
• dead pine needles beneath me

Smell: • Pine sap  
• Sweet grass  
• Warm pine grass  
• Smells extra strong w/o wind + extra heat  
• Smells good


Sound: • lightly roaring creek  
• birds calling to each other from tops of trees  
• light call → urgent call  
• Wind traveling through trees + grass


Micro-world: - dozens of thorn bushes  
\* little, with green buds  
- mossy tree trunks + roots  
- large glossy black ants climbing through piles of pine needles  
\* curious, coming toward me until I shift + they run away.  
- Spider webs crossing from thorn bush to thorn bush  
- baby tree saplings all around  
- 1 ft. tall blades of green grass  
\* in clusters  
\* with yellow grass too, curling on ends  
- small red ants unafraid of me.  
- loose clusters of pale green moss  
\* good fire starter!  
- Without the breeze, the smells grow stronger in the head  
- 2 in x 1 in mouse-tail pinecones all around  
\* tips like roses

 Ant

 Pinecone

- rocks like cement  
\* with little rock made inside  
\* Volcanic? or man made?  
- black pinecones with brown cones  
- small pinecones? or pine tree reproducing seeds?  
- yellow moss on bark  
\* dried sap  
\* sweet smelling, strong

 Thorn bush

 grass

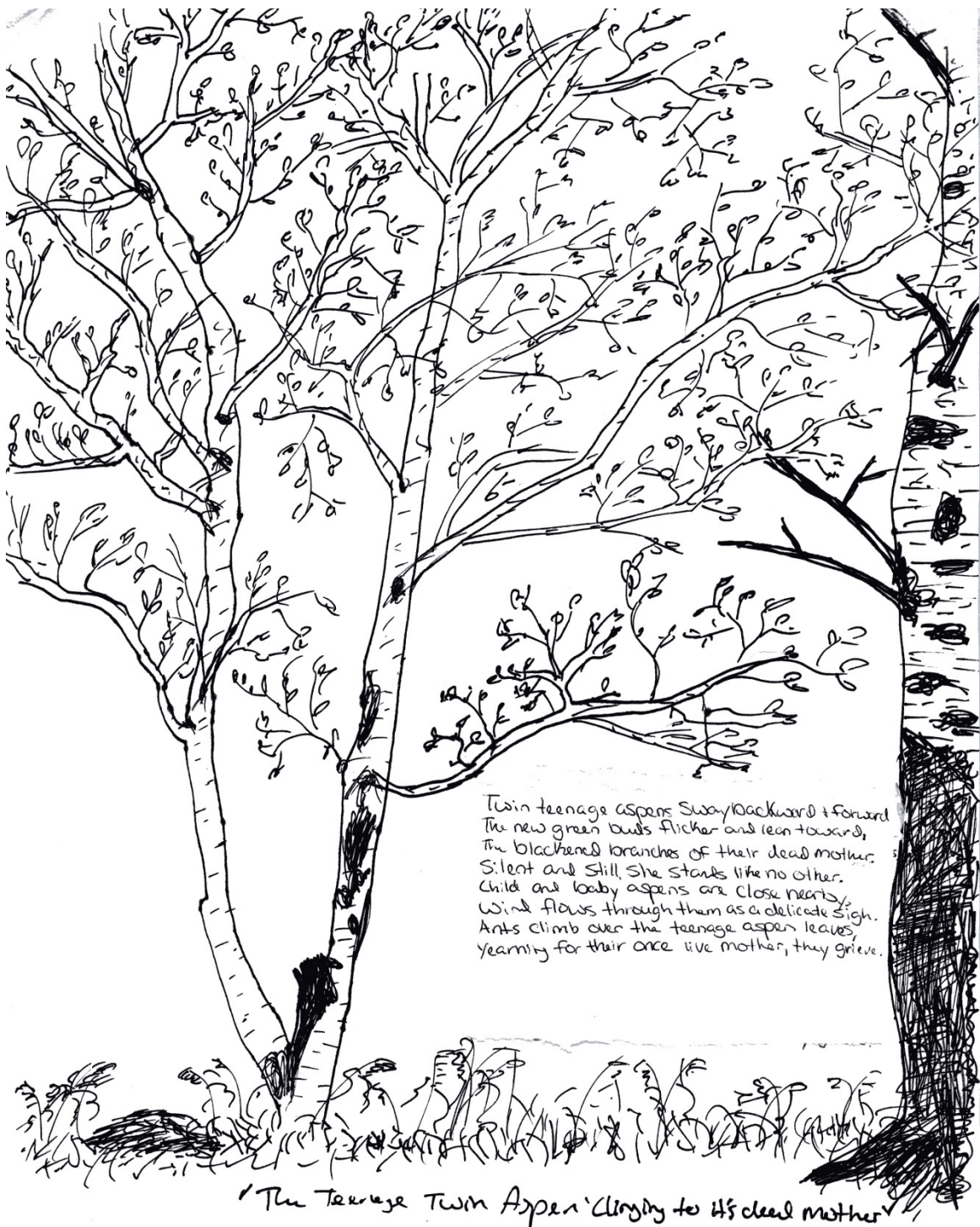
Jetsy Story 5/18/09 Warm + sunny, light wind OTO

Betsy Story 5/18/04  
OTO Ranch  
warm, windy  
Day

## Macro-World: - Bee hovers in midair 5 1/2 ft above

- \*fighting the little breeze...
- teenage Aspen with delicate green leaf buds.  
the flimsy branches sway back and forth.
- the heat radiates from the ground and from the sky. warms my legs.
- need seeps through the soil and through the layer of dead pine needles.  
they range in color from Auburn to black.
- a cluster of green needles lays to my left.
- A tall adult aspen stands beside the teenage Aspen. It's branches do not sway. The bark is black 6 ft up the trunk, and turns pesty white with black notches & stretch marks, like wrinkles.
- The branches are black. There is no new life on this old tree, except new death. The teenage Aspen stands close, as a gaudian, or a weeping child lost from it's mother with it's drooping branches. Reaching out to the dead aspen, to intertwine it's new buds, with the old blackened bark.
- tall yellow grass sprouts from the aspens feet.
- grass leaves split off and form tight curls that hang limp.
- green blades of grass grow beneath the yellow, supporting their elders.
- a row of blue stands out from the green.
- bluebells are in bloom.
- child aspens stand to the left of the dead aspen. even smaller baby aspens stand beside those. Did they all seed from the blackened aspen? Did the old Aspen shade it's young, for them to grow tall & free? How long do they have, until they meet the same fate?
- The great tall pines create the most shade. I see no baby pines.
- Flies also hover in the afternoon sun. What are they doing? Why don't they land? are they looking for a mate? I see no baby flies.
- ants climb up the living aspens. I see no ants on the dead aspen. In respect, they leave her alone, but feed off the children.





Twin teenage aspens sway backward + forward  
The new green buds flicker and lean toward,  
The bleached branches of their dead mother.  
Silent and still, she stands like no other.  
Child and leafy aspens are close nearby,  
Wind flows through them as a delicate sigh.  
Ants climb over the teenage aspen leaves,  
Yearning for their once live mother, they grieve.

'The Teenage Twin Aspen' clinging to it's dead mother

Betsy Story OTO 5/13/09 Afternoon sunny w/ breeze, warm

