

Wilderness Investigations

A Subject-Integrated Set of Wilderness Investigations
for Grades 5 - 8



Teacher Toolkit



Arthur Carhart National Wilderness Training Center's

Wilderness Investigations

A Subject-Integrated Curriculum for Grades 5 - 8

INTRODUCTION

*"Is education possibly a process of trading awareness
for things of lesser worth?"*

(from *A Sand County Almanac*; Aldo Leopold)

Overview

The average 5th, 6th, 7th, and 8th grade student spends seven to eight hours at school during a regular school day. If half of that time is spent transitioning, eating, visiting, listening to announcements, and other non-academic endeavors that leaves 4 hours or less each day attending to academic information, skills, and applications. Over the course of a typical school year, that translates to 720 hours of *learning time*. One might echo Leopold by asking, "Is that time spent *raising* or *trading awareness*?" The answer is probably a little of both.

Wilderness Investigations is a **collection of educational experiences** focused on the topic of wilderness. The developers have taken Leopold's question as a challenge and built upon its implications:

To create a set of meaningful investigations of wilderness topics that increase:

- *awareness,*
- *inquiry skills,*
- *appreciation of natural landscapes and those who work to protect them,*
- *storytelling and communication abilities.*

Wilderness Investigations is written in a **subject-integrated format** so that:

1. The multi-subject teacher is able to move through investigations covering various topics and subjects that make experiences more *real* to students and a more efficient use of time for the teacher.

OR

2. The single-subject teacher can *partner* with teachers of other subjects to create learning experiences not limited by typical time, topic, or subject constraints.

Wilderness Investigations is connected to **national standards** which are then easily adaptable to state and/or district standards around the country. The standards referred to in some or all investigations are:

- Environmental Education (from the *North American Association for Environmental Education*)
- Geography (from *Social Science/Geography Standards*; National Geographic Society/Education World)
- History (from the *National Center for History in the Schools*; UCLA/Education World)
- Language Arts (from *English Standards*; National Council of Teachers of English/Education World)
- Science (from *National Science Education Standards*; The National Academy of Sciences/Education World)
- Visual Arts (from *Visual Arts Standards*; Consortium of National Arts Education Associations/Education World)

Because *Wilderness Investigation* teachers operate in a variety of **settings** (rural, sub-urban & urban), **schools** (single-topic classrooms, all-subject classrooms, block schedules, nature centers, etc.), and calendar year **schedules** (year-round, traditional, summer school, etc.) the investigations are designed to be adapted easily and taught as a:

- **Curriculum Unit**--The teacher(s) presents the investigations over a several week period of time and the unit becomes the focus of most classroom attention during a part of most days within that block of time.
- **Weekly Focus**--The teacher(s) chooses an investigation that receives student attention for part of a specified week. Later, another investigation is chosen and this cycle continues until all investigations are completed or the teacher has used those best suited for their students and situation.
- **Special Course**--The teacher(s) present a special *Wilderness Investigations* course that is the basis for a Friday extra-curricular course, summer school class, a nature-center program, an after-school club and so forth. The investigations become the foundation for the special course.

Wilderness Investigation Topics:

1. *Preservation and Protection in their Natural Condition*
 - An exploration of the wild/wilderness continuum with a special focus on The Wilderness Act and what wilderness designation means as *preservation and protection in their natural condition* takes place.
 - Essential question: What is wilderness?

2. *For the American People of Present and Future Generations*
 - As U.S. citizens we all enjoy wilderness rights, privileges, and responsibilities because it has been set-aside *for the American people of present and future generations*.
 - Essential question: Is EVERY citizen a wilderness shareholder?

3. *Outstanding Opportunities*
 - Wilderness as a place of *outstanding opportunities* to experience things that can only be experienced there.
 - Essential question: What experiences are included in the wilderness *suite of values*?

4. *Preservation of their Wilderness Character*
 - Places where *preservation of wilderness character* is first and foremost.
 - Priceless impacts on individual people, communities, and ecosystems.
 - Essential question: Does wilderness have value if I never go there?

5. *Our Wilderness Heritage*
 - Preservation and protection of wilderness are selfless and patriotic acts for the benefit of others (human and non-human; biotic and abiotic) and is *one sign of a maturing democracy*.
 - Essential question: How can I be part of our country's wilderness heritage?

Wilderness Investigation Set-up

The following elements are part of each Wilderness Investigation:

1. *Wilderness What's Up?*

Pre-Investigation Note to Parents

(Topic background, family discussion ideas, activity menu, and other relevant communication)

2. *Wilderness in the Classroom*

In-Class Wilderness Investigations

(Fully developed lesson ideas with supporting materials for activities and projects)

3. *Wilderness Heroes*

Profiles of Individuals & Organizations Who Support Wilderness Preservation

(Brief background materials and mini-lesson/project/activity ideas)

4. *Wilderness Out of the Classroom*

Investigations of Nearby Wild Places

(Activities, lessons, projects, and field trips to places with wild elements meant to sharpen useful wilderness appreciation, interpretation and visitation skills with extensions)

5. *Wilderness Profile*

Introducing Selected Designated Wilderness Areas in the U.S.

(Brief background materials and mini-lesson/project/activity ideas)

6. *Wilderness Show & Tell*

Students Share Wilderness Learning

(Projects, workshops, celebration of wilderness)

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Wilderness Investigation #1

Preservation and Protection in their Natural Condition



Black Ridge Canyons Wilderness (CO & UT); Photo by Matt McGrath

Essential Question: *What is wilderness?*

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Wilderness What's Up?
Investigation #1 Note to Parents

Note to Parents

Dear Parents,

Your child is embarking on a series of wilderness investigations. There are five of these investigations. The current investigation is in **bold** print.

1. ***Preservation and Protection in their Natural Condition***
 - An exploration of the wild/wilderness continuum with a special focus on the Wilderness Act of 1964 and what wilderness designation means as “...*an area where the earth and its community of life are untrammled by man...*”
2. *For the American People of Present and Future Generations*
 - As U.S. citizens we all enjoy wilderness rights, privileges, and responsibilities because it has been preserved *for the American people of present and future generations.*
3. *Outstanding Opportunities*
 - Wilderness as a place of *outstanding opportunities* to experience things that can only be experienced there.
4. *Preservation of their Wilderness Character*
 - Places where *preservation of wilderness character* is first and foremost.
 - Priceless *benefits* for individuals, communities, and ecosystems.
5. *Our Wilderness Heritage*
 - Preservation and protection of wilderness are selfless and patriotic acts for the benefit of others (human and non-human; biotic and abiotic) and is *one sign of a maturing democracy.*

As each investigation begins you will receive an informational sheet like this to help you know what your child is learning, how you can extend that learning with your family, and inform you of school functions/activities related to the investigation. Read on to learn more and thank you for supporting *Wilderness Investigations!*

Sincerely,

The Creators of *Wilderness Investigations*
(Arthur Carhart National Wilderness Training Center)

Background Information about *Wilderness Investigations*

Wilderness Investigations (WI) is a subject-integrated set of lessons that correlate to national and state learning standards that was produced by the interagency Arthur Carhart National Wilderness Training Center. The Carhart Center is an interagency partnership with the Bureau of Land Management, Fish and Wildlife Service, Forest Service, and National Park Service. It was established to empower agency employees and the public to preserve their wilderness heritage through training, information, and education (go to wilderness.net for more information).

Wilderness Investigation #1 Overview

In *Wilderness Investigation #1* your student will be introduced to the Wilderness Act of 1964. They will learn about some of the events leading to its passage by Congress and its subsequent signing into law by President Lyndon B. Johnson. They will be learning what's in the Act and begin to see what wilderness designation means. Finally, they will explore the differences between places with *wild* elements and areas designated as wilderness by law that have become part of the National Wilderness Preservation System.

Upcoming educational experiences related to this topic:

- Students will construct a timeline as an overview of land use history in what is now the United States and overlay the non-partisan efforts by some to preserve designated wilderness in its *natural condition*;
- During a classroom discussion, students will receive a brief review or introduction to the process of passing federal legislation;
- Teams of students will research the Wilderness Act and then prepare presentations to share their expertise with others;
- Students will participate in out-of-class explorations of local wild places;
- Participate in focused learning about Arthur Carhart (Wilderness Hero #1) and the Bob Marshall Wilderness (Wilderness Profile #1).

Invitation to *Wilderness Show & Tell #1*

This space reserved for teachers to place their specific *Wilderness Show & Tell* information.

Discussion Ideas

When asking their child what they did in school on any particular day, almost every parent has come face-to-face with the infamous and lackluster, “Nothing.”

In this and all future *Wilderness What’s Up* notes to parents, you will be provided with ideas that just might prompt more interesting and illuminating responses. Here are discussion ideas for *Wilderness Investigation #1*. Your student’s teacher will let you know when each segment has been completed and when it is appropriate to discuss each one.

- Wilderness Act
 - “What is the Wilderness Act?”
 - “Does our country need designated wilderness? Why or why not?”
- Wilderness Hero
 - “Who was Arthur Carhart and why is he a wilderness hero?”
- Local Wild Elements
 - “Did you find any local places with wild elements?”
 - “Where are they located and what wild elements did you find?”
- Wilderness Profile
 - “What can you tell me about the Bob Marshall Wilderness?”
 - “Would you like to go there?”
 - “Please show me where it is on a map.”

Outdoor Activity Ideas

- Go for a hike or long walk. Take snacks and water and simply enjoy being outdoors together!
- Take your child to a favorite place with wild elements or a wilderness location. Be sure to share with them why you love the particular place.
- Get permission from the property owner or manager and have your child show you around the place or places they have investigated.

Safety Heads-Up

Two important elements of WI are SAFETY and RESPECT. Always pay attention to changing outdoor conditions. Be prepared and aware. Also, never trespass on private property even if it is wild. If you can't locate the owner or manager, find public lands that are suitable for a family *wild place* investigation.

Project Ideas

Begin planning a trip to a designated wilderness area.

- Explore places you would like to go.
- Check out maps, wilderness information, best times to visit, etc.
- Set dates, determine gear needs, set-up a physical conditioning regimen and get excited about a family wilderness adventure.

Safety Heads-Up

Be sure to *do your homework* and choose wilderness and wilderness experiences that fit your family's needs.

Resources for a More In-depth Topic Exploration

Go to www.wilderness.net to learn more about the Arthur Carhart National Wilderness Training Center and many wilderness topics.

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Classroom Investigation #1
Preservation and Protection
in their Natural Condition

Investigation Goals

The teacher will address:

- Multiple meanings of the word wilderness;
- A brief history of land use in what is now the United States;
- Why some Americans have worked to preserve land in a wilderness condition;
- An introduction to the Wilderness Act (of 1964).

Time Requirement

1 1/2 - 2 hours

National Standards Addressed

Environmental Education: Strands 1C *Collecting information about environmental topics*; 2.3C *Familiar with political systems... and how they take the environment into consideration.*

Geography: NSS-G.K-12.5 *Understand how human actions modify the physical environment.*

History: NSS-USH.5-12.7 *Understands how problems of urbanization are addressed*; NSS-USH5-12.9 *Understands the postwar transformation of the U.S.*

Language Arts: NL-ENG.K-12.2 *...apply word identification strategies*; NL-ENG.K-12.6 *Students employ a wide range of strategies as they write...*

Materials/Resources Needed and Pre-Investigation Tasks

- Get your copy of the *Wilderness Act* from the WI Appendix.
- Have 1 copy per two students of online and/or hard copies of various dictionaries.
- Copy and cut out 1 set of *Land Use Sampler* - Timeline Cards. Create more that fit past or future historical areas of focus.
- Copy *A Brief Wilderness Preservation Sequence Sheet* for each student.
- Arrange for adult volunteers or teaching assistants to become familiar with the Wilderness Act (make copies for them or refer them to www.wilderness.net) so that they can lead a small group discussion about its main points.
- Poster board and markers for each poster-making group.
- A copy of the *Wilderness Map* (included with *WI*).

Teacher Background

The word **wilderness** is one of those tricky English words that, in addition to multiple dictionary listings, mean different things to different people depending on their personal experiences, age, background, culture, geographic location, and so forth. During this investigation you will explore some of those meanings. For the purposes of these Wilderness Investigations we will bring students to the following (as used in the *Wilderness Act* itself):

“A wilderness... is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man is a visitor who does not remain.” [Section 2.(c)]

When non-Native people arrived and stayed in what is now the United States they found what must have seemed, to them, a vast, untouched wilderness. By their European standards, it certainly would have seemed that way. Most were probably unable to grasp the reality that millions of people had for thousands of years (and did at time of contact) called this wilderness landscape home. Even today some think of pre-European Native People as living on the land and having little or no recognizable impact on *the wilderness*. However, with a little investigative work, we find that many more people lived here than previously believed. Many cultures had, in fact, by the effect of their sheer numbers or because they found ways to use the land to their advantage, *civilized* much of the landscape. That is to say, much of the land was not free of humans. Native People called these places home. Many Native People did and still do live in a way that is respectful and has a low impact on the land, but humans have and always will impact wilderness. According to Tony Incashola, Director of the Salish-Pend d’Oreille Culture Committee in western Montana, most Native Peoples, past and present, viewed

themselves as part of the landscape whether wilderness or not. “In the past, Native People had no word or mental construct for wilderness,” stated Tony during a recent conversation (June 2011). “The people were part of the landscape and drew few distinctions between themselves and their place. That’s why so many *newcomers* missed our ancestors. They simply didn’t stand out. They fit in.”

During this investigation, students will be introduced to and/or review historic land uses in what are now the United States pre-1964. They will then look at some of the leading voices of the late 19th and early/middle 20th Centuries who called for some sort of federal wilderness preservation. Some of the names are familiar: John Muir, Theodore Roosevelt, Aldo Leopold to name a few. Some are less familiar: Mardy Muirie, Arthur Carhart, Benton MacKaye come to mind. These visionary citizens, plus many more, worked hard to bring our country around to the ultimate intersection of land use and wilderness preservation.

In 1964 Congress passed and President Lyndon Johnson signed the *Wilderness Act*. In this investigation students will learn about or review the legislative process and then study parts of this landmark wilderness designation. Take some time to study the *Wilderness Act* (see WI Appendix for a copy) before you begin this investigation and identify areas that you don’t want your students to overlook.



Everglades (Florida); Wilderness.net; Image #326

Step-by-Step Presentation Instructions

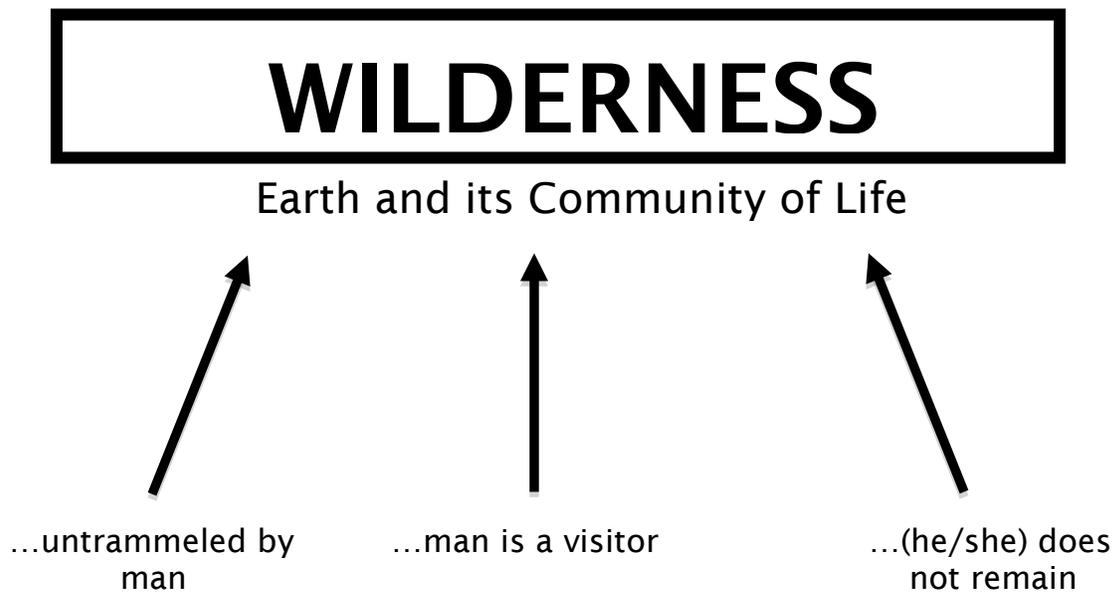
Write the word WILDERNESS so that all students can read it.

Ask students to share what they believe it means.

- Accept all reasonable responses.

Send student teams to various editions of dictionaries and have them look up the word WILDERNESS. Share findings.

Recognize the validity of each definition and then display a diagram that looks something like this:



Untrammelled OR Untrampled?

These are two terms that can cause confusion. The writers of the Wilderness Act chose **untrammelled** (Definition: "Not limited or controlled."). *Untrampled*, on the other hand, means something "not stepped upon." The words sound a lot alike but mean something entirely different! Be sure your students understand the difference.

Instruct individual students or student teams to take the information in the diagram and turn it into a wilderness definition.

Ask for volunteers to read their definitions.

Read the definition as it appears in the Wilderness Act:

“A wilderness... is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man is a visitor who does not remain.” [Section 2.(c)]

Review what a timeline is and how it is used.

- A visual display of linear time and the correct placement of significant events that fall upon the segment being viewed.

Pass *Land Use Sampler* timeline cards (1 each) to selected students.

NOTE: The eight time periods/events represent a very small number of land uses that could fall on the timeline. Insert other significant dates/events if that will help your students grasp the concept of change over time.

- Suggest that many have believed what is now the United States was all wilderness before the coming of European settlement.
- Bring out that the Native American population in 1492 is estimated to have been as high as 112 million or as low as 8 million (University of Wisconsin; William M. Denevan).
- Create a human timeline by spacing students with land use cards around the room perimeter (use the date in bold print).
 - Students should understand that historical dates are simply estimates and subject to change as new evidence emerges.
- Bring out that in many places there have been large populations and lots of human activity that would have altered what had been wilderness.
- Brainstorm other land uses that likely took place during all or part of human history in North America.
 - Examples: Solitude/rituals/ceremonies, harnessing the power of water, irrigation, road/trail building, recreation, fire management (purposeful burning, fire suppression), etc.
- When Columbus first landed in North America (1492)--or even earlier Viking explorers before that (and perhaps others even earlier)--was all of what is now the United States a wilderness?
- Point out that the first Europeans found a dynamic place with many cultures already calling their *new* place home, yet we would consider it wilderness or at least extensive wildland.
 - Be sure students are exposed to the ideas about Native People and wilderness as articulated by Tony Incashola in the *Teacher Background* section of this Investigation.

Mention today's U.S. population estimate: 310.5 million (U.S. Census Bureau; 2011).

- Point out that although only a small percentage of U.S. citizens produce food, lumber, or are involved in other natural resource extraction/production, we all utilize these products every day.
- Cities, suburbs, small towns and rural development occur on what was once wilderness.

Ask: In your opinion, as the United States was established (1776) and the population continued to increase over time, why might some citizens begin to call for land/wilderness preservation?

- Accept responses and ask clarifying questions as needed.
- Bring out that many people are especially in need of solitude, natural environments, open space, etc.

Pass out *A Brief Wilderness Preservation Sequence Sheet* to students.

- Have students spend some time studying and then ask a few questions to check on their level of focus.
- Next, have students take the events listed and use them to create a short piece of written work that tells the story leading up to the enactment of the Wilderness Act of 1964.

Organize students into small working groups (each with an adult volunteer or teacher's aide).

- Have adult leaders go through main points of the Wilderness Act from page 1.
- Groups create a poster about the Wilderness Act and its main elements.
- Place posters around the room when completed.

Lead a whole-class discussion about the Wilderness Act.

- Display the *Wilderness Map* and point out those areas currently protected by the Wilderness Act.
- Allow students to share their responses to the legislation.
- Let students know that they will be learning and experiencing wilderness as they conduct further wilderness investigations.

Extension Ideas

- You and some of your students might enjoy reading the following books with wilderness themes or settings:
 - Non-fiction (related to wilderness/wild places)
 - Atkins, Jeannine; *Girls Who Looked Under Rocks: The Lives of Six Pioneering Naturalists*
 - Douglas, William O.; *My Wilderness*
 - Leopold, Aldo; *A Sand County Almanac*
 - Murie, Margaret & Olaus; *Wapiti Wilderness*
 - Thoreau, Henry David; *Walden*
 - Fiction (In wilderness settings)
 - Craighead-George, Jean; *Fire Storm, Julie of the Wolves, My Side of the Mountain* and more
 - Paulson, Gary; *Canyons, Hatchet, The River* and others

Resources for a More In-depth Topic Exploration

- Check out www.wilderness.net for information about many wilderness topics.

Land Use Sampler - Timeline Cards

14,000 - 18,000 Years Ago

Earliest fossil evidence of humans in what is now the United States.

Land uses: Hunting/gathering for food, clothing, shelter; wood gathering for fuel and structures

(New York Times; John Noble Wilford; April 2008)

5,000 - 10,000 Years Ago

Some North American hunters/gatherers supplement diets by cultivating some plants.

Land uses: Hunting/gathering; some plant cultivation; wood gathering for fuel/structures

(Univ. of MI Museum of Anthropology;1986)

Present - 5,000 Years Ago

Communities in North America based increasingly on agricultural production.

Land uses: Farming; some hunting/gathering; trees harvested for building/fuel

(Digital History Textbook; "Native American Voices";2006)

Present - 400 Years Ago

Modern logging and wood milling begins in North America .

Land uses: Modern logging/wood milling; farming; some hunting/gathering

(History Channel;2011)

150 - 14,000+ Years Ago

Rock is excavated and used for tool-making, weapons, jewelry, etc.

Land uses: Migrating people locate and visit/revisit sites where desirable rock resources are available. Less transient communities continue to visit rock sites and/or trade for rock resources.

1,000 - 3,000 Years Ago

Early agricultural irrigation systems in arid southwest by Chaco, Hohokam, and Anasazi cultures.

Land uses: Water diversion by way of intricate canal systems; flood irrigation of fields.

(Ancient Irrigation Systems; Larry Mays; from the Water Encyclopedia)

900 - 1,100 Years Ago

First domesticated animals (turkeys) by Native People in North America.

Land uses: Animals were raised for their feathers and penned, fed, and butchered for food to supplement hunting.

(Discovery News; Discovery.com;2011)

7,000 +/- Years Ago

Pueblo Indian people build apartment-like structures in desert southwest.

Land uses: Builders use cut sandstone, sun-dried bricks, and adobe (soil/straw/water mix) as well as timbers for roofs and smaller wood for ladders

(Legends of America;2011)

A Brief Wilderness Preservation Sequence Sheet

Name: _____

Date: _____

Instructions: Look over this sheet carefully in order to understand a few of the people and events that led up to the establishment of federally designated wilderness with the enactment of the Wilderness Act in 1964.

Pre-1492:

Indigenous people live for thousands of years in what is now the United States of America. Though their population was smaller than the country's population today, they lived on and impacted landscapes. Vast wildland areas existed across North America. →

1500 - 1800:

Explorers, colonists and others advance into wildland areas and as populations increase more and more wildlands are ←developed for human use and control.

1800 - 1850:

Many of those living in what is now the U.S. begin to look at nature as something more than *things* to be conquered or tamed as Romanticism in art and literature extol the wonders of the natural world. →

1850 - 1900:

Naturalist/writers like Henry David Thoreau, John Muir, and others influence thinking about wilderness landscapes even as wilderness continues to shrink from pressures associated with increased demand for land and other natural resources. Yosemite established as the first state park (1864) and ←Yellowstone as the first national park (1872).

1900 - 1950:

U.S. public overwhelmingly supports land preservation. National Parks continue to be established and the system of protection strengthened. Presidents are given the power to proclaim national monuments. States, communities, and private landowners set aside land to preserve in a natural state. People like Aldo Leopold, Mardy Murie, Bob Marshall, Howard Zahniser and Arthur Carhart work towards preservation of wild landscapes. →

1950 - 1964:

Increasing awareness of the country's shrinking wilderness landscapes prompt private citizens, politicians, government agency personnel/scientists, and many others to push for a national wilderness preservation system. In 1964 Congress passes and President Lyndon B. Johnson signs into law the *Wilderness Act*.

Wilderness Hero #1 ***Arthur Carhart***

Instructions for the teacher:

Arthur Carhart, the focus of *Wilderness Hero #1*, was one of the key visionaries in the movement to preserve wilderness in our country. He was a true patriot looking out for the good of others and keeping an eye on the future.

To help students get to know Arthur Carhart, choose one or more of the following:

- Photocopy and hand out *Wilderness Hero Sheet #1* to each student.
 - Have them read it and then write 3 - 5 questions (and their answers) based on the written material.
 - Have each student or team of students create a *Wilderness Hero Quiz* based on the Arthur Carhart information.
- Use the handout as the basis for a short mini-lesson about Arthur Carhart.
 - If possible, take students outdoors for the lesson and enjoy some of the natural sights and sounds he would have enjoyed were he with you.
- Discuss the term HERO with your students and then, based on the information provided here, help students discover reasons they might consider Arthur Carhart to be a wilderness hero.
- Based on the handout, have students write a paragraph or create a concept web focused on Arthur Carhart.
- Have students study and then place their copy of *Wilderness Hero #1* in their Wilderness Investigations Folder.
- Create a *Wilderness Hero* bulletin board.
 - Have students create story illustrations, maps, descriptive words, etc. that tell the story of Arthur Carhart.

Wilderness Hero #1
Arthur Carhart
1892 - 1978



Introduction to a Hero

Arthur Carhart was born in Iowa in 1892. He had an eye for special landscapes. His college degree was in landscape architecture and the U.S. Forest Service hired him as their first full-time landscape architect. From the beginning of his new career in Colorado's White River National Forest he kept his eyes focused on wild places. He spent his entire life, both in and out of government service, working for the ideal of wilderness. Mr. Carhart died in 1978.

Here's a special story from his early days in the Forest Service:

One of Carhart's first assignments was to survey a road around Trappers Lake in the White River National Forest in Colorado, and to plot several home sites on the lakeshore. Carhart completed the assignment, but recommended to his supervisor Carl Stahl that no development be permitted on the shore. Instead, he strongly urged the best use of the area was for wilderness recreation. This was a bold suggestion for such a young employee and Carhart was quite surprised when Stahl endorsed his recommendations. In 1920 Trappers Lake was designated as an area to be kept roadless and undeveloped. It remains so to this day. That designation marked the first application of the wilderness preservation concept in Forest Service history. (from www.wilderness.net)

Other heroic wilderness actions:

- Arthur wrote one of the earliest Forest Service documents referring to wilderness, in a letter to Aldo Leopold, another *wilderness hero*. He wrote:

There is a limit to the number of lands of shoreline on lakes; there is a limit to the number of lakes in existence; there is a limit to the mountainous areas of the world, and... there are portions of natural beauty which are God-made, and.. which of a right should be the property of all people.

- Worked to protect what is now the Boundary Waters Canoe Area Wilderness in Minnesota.
- Through his 80's he continued to write about and work for the ideal of wilderness.



**Hikers in Eagles Nest Wilderness
White River National Forest; Colorado**
(from wilderness.net; Image #1962)

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Local Investigation #1
Preservation and Protection
in their Natural Condition

Investigation Goals

The teacher/leader will choose from a menu of field experiences that will address some or all of the following based on information learned during the previous in-class investigation:

- Explore real-world examples of local places with wild elements;
- Create maps showing spatial relationships between neighborhood wild places and their school;
- Choose creative ways to record their wild place experiences; and, as an EXTENSION:
- Come up with projects for *protecting* a local place with wild elements by educating users about positive actions they can take to address observed challenges.

Time Requirement

Option #1 *Wild Places Mapping Walk*: 1 - 2 hours

Option #2 *Wild Places Exploration and Recording Project*: 1/2 - 1 full day

Extension: To be determined by the teacher

National Standards Addressed

Environmental Education: Strand 1C and 3.2 B & C

- *Collect Information about the environment*
- *Evaluate the need for citizen action*
- *Plan and take action*

Geography: NSS-G.K-12.1

- *Understand how to use maps to report information from a spatial perspective.*

Language Arts: NL-ENG.K-12.5

- *Employ a wide range of strategies as they write and use different writing process elements.*

AND/OR

Visual Art: NA-VA.5-8.1

- *Take advantage of the qualities and characteristics of art media, techniques, and processes.*

AND/OR

Technology: NT.K-12.4

- *Use a variety of media and formats to communicate information and ideas.*

Science: NS.5-8.3

- *Understanding of populations and diversity.*

Materials/Resources Needed and Pre-Investigation Tasks

- For Option #1:
 - Determine if students will be working individually or in mapping teams; create teams as needed beforehand.
 - U.S. Wilderness Map
 - Clipboard, pencils (regular and colored) and *Wild Places Mapping Sheet* for each student or mapping team.
 - Compass(es) or GPS unit(s) for establishing map locations/positioning.
- For Option #2:
 - Copies of the *What's Wild in the Neighborhood?* survey for student teams.
 - Based on availability and student preference, gather appropriate tools and materials for students to use as they record their field experience.
 - Examples: Sketch books and art pencils/pens; digital cameras with notebook for recording photos taken; writing notebooks and pens/pencils; video cameras; watercolors and watercolor paper/easel; etc.
- For Extension:
 - Permission from school or landowner/manager to visit and create educational displays for a local wild place.

Teacher Background

Very few schools are within walking distance of a designated wilderness. However, many schools are within walking distance of land with wild elements even if the area(s) is/are quite small. In this field activity, students look for examples of places with wild elements on or near their school grounds. This will help reinforce terminology learned during the in-class portion of this Wilderness Investigation and help make real-world comparisons to designated wilderness they learn more about in the future. In the in-class investigation students explored the word wilderness and were introduced to the definition used in the Wilderness Act. Here is a definition of the word **wild** that may be helpful to use during this investigation segment:

WILD: Something that thrives as it occurs, exists, or lives in a natural state without any interference, help of or need for humans.

- This may or may not include native vegetation or wildlife yet the elements still *thrive... without the help from, or need for humans*.
- Neighborhood examples: Vacant lots or unmanaged portions of lots or yards, orchards or pastures no longer actively used or managed, unmaintained ditch banks along abandoned irrigation channels, small unmanaged woodlots, unpaved alleys, areas adjacent to abandoned buildings, etc.

Safety Heads-Up

- Before setting out to explore a place with wild elements, find out who owns or manages it and get permission to take students there.
- Experienced outdoor educators rarely if ever take students to places they have not previously visited themselves. Go there first and be on the lookout for teaching opportunities and safety issues.
- See *Tips for Taking Students into the Field* in the *Wilderness Investigations* Appendix for more useful ideas to make your field experiences safe and worthwhile.

In Option #1 of this *Local Investigation*, students and teachers will be taking an exploratory walk and be on the lookout for local places with wild elements. Based on what is found, maps will be produced and plans initiated for future *wild place* investigation.

In Option #2 of this *Local Investigation*, students and teachers will explore wild areas located earlier. After identifying these places, and getting permission to explore, students spend time on the land and produce a creative record of their findings, feelings and ideas.

The main objective is to open eyes to local wild places, ignite imaginations about possible support of these places (see *Extension* activity), and to whet student appetites for future Wilderness Investigations.

Local Investigation Ideas

OPTION #1 *Wild Places Mapping Walk*

Review WILDERNESS and the ideas found in the Wilderness Act as laid out in the previous in-class investigation:

- “A wilderness... is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man is a visitor who does not remain.”

Introduce WILD as a term:

- Something that thrives as it occurs, exists, or lives in a natural state without any interference, help of or need for humans.
 - This may or may not include native vegetation or wildlife yet the elements still *thrive... without the help of or need for humans.*

Compare and contrast the two terms.

Refer to the U.S. Wilderness Map as you ask:

- Where is the closest designated wilderness to our place?
- Where is the furthest away?
- If we were going to visit one or the other, how would we get there?
- What kinds of things would we need to help make our wilderness experience be a good one?

Brainstorm examples of places with wild elements that may be on or close to the school.

- Some schools have wild corners or sections on the schoolyard. Don't forget these!
- Examples: Vacant lots or unmanaged portions of lots or yards, orchards or pastures no longer actively used or managed, unmaintained ditch banks along abandoned irrigation channels, small unmanaged woodlots, unpaved alleys, areas adjacent to abandoned buildings, etc.

Prepare students for the walking investigation:

- Proper clothing for outdoor conditions;
- Backpacks for mapping supplies, water bottles, extra gear;
- Go over behavioral expectations;
- Reinforce the idea that you are extending the classroom to include outdoor locations;
- Refer to mapping project so that students can be focused on spatial details from the beginning.
 - Pass out *Wild Places Mapping Sheet* and clipboard to each student or mapping team.
 - Go over instructions as listed.

Outdoor Investigation Hint

Just because it's damp or rainy outside doesn't mean you can't have students write or draw. Pick-up two-gallon plastic storage bags and use as *writing/drawing rain coats*. Field journals or clipboards slip in nicely with plenty of room for pencil or pen work and, of course, you can see right through the clear plastic!

Begin the investigation by exploring the schoolyard and work outwards from there.

- Help students get their maps started using a compass (or GPS unit if available) and creating a *compass rose* showing directions.
- Students may expect wild places to be *only* large areas. Point out that even relatively small areas can fit the definition used.
 - This is a good time to point out the difference between a local wild place and a designated wilderness.
- Make special note of locations with wild elements to be visited during Part 2 of this investigation.

Do the following back at school:

- Finish maps
 - Reinforce the spatial relationship and proximity of wild places to the school.
- Prepare students for Part 2 of this Local Investigation.
- Talk about the joy of being outdoors and of discovering wild places nearby.
- Reinforce positive experiences associated with Part 1.

Option #2 *Wild Places Exploration and Recording Project*

Prepare students for this extended local investigation:

- Depending on how much time you have to spend, students may need field lunches, snacks, etc.
- Students may be spending longer periods of time in one spot if they are drawing, writing, or painting. If conditions are damp, bring garbage bags or some other waterproof item for them to sit and/or kneel on.
- Be sure to have students pack items needed for their recording experience (art supplies, writing tools, photo items, etc.).
 - Before Option #2 takes place, let students choose a creative method for recording this experience: painting, sketching with colored pencils or charcoal, photographing, videotaping, etc.

- Introduce or review *Leave No Trace* principles*:
 - Plan Ahead and Prepare
 - Travel and Camp on Durable Surfaces
 - Dispose of Waste Properly
 - Minimize Campfire Impacts
 - Respect Wildlife
 - Be Considerate of Other Visitors

* See *Resources for a More In-depth Topic Exploration* at the end of this section for a link to detailed information about *Leave No Trace* principles.

Travel to your prearranged wild elements location.

- Go over expectations and remind students that they are visitors to this place.

Focus student attention on the elements of the place by having teams conduct a *What’s Wild in the Neighborhood?* survey.

- Pass out sheets and go over instructions.
- Choose a location name (i.e. 5th Street Vacant Lot) to be entered on the sheet.
- If students have learned specific species names (i.e. Red squirrel or Rocky Mountain juniper) have them list the specific name as they observe items. If they have not learned specific names, let them know that they can list squirrel, or tree, or grass, etc.
- Animal signs (tracks, scat, rubbings, sounds) should be included. Don’t forget the insects!

Provide time for the surveys and drawings.

Outdoor Investigation Hint

Some students will be unaccustomed to doing schoolwork in outdoor settings. When set to a task they often return prematurely proclaiming, “I’m done.” You will need to train them to stay focused when studying outdoors. Rather than have them hurry through an assignment or wonder how long they have left, use this statement before sending them off: “Work until you hear me call you. You’re not finished until I do.”

Bring students together when time is up and review findings/discoveries.

- Gently share observations *you* made that may have been left out.
- Provide lots of positive feedback for serious, focused effort.

Launch students into their recording projects.

- Remind them of recording choices made back at school.
- Project goal: To spend the time allotted recording important elements of this wild elements place.
 - Don't try to record everything.
 - Choose a few things and focus your energy there.
- What you create now will be used very soon as we extend and share our wilderness learning.

Circulate as students create.

- Having extra adult assistants (school aids, older students, parents) is a good idea as part of any off-campus investigation. Assign helpers to specific areas or students.

Provide a little free time during the day if possible.

Review *wild* and *wilderness* and celebrate those places with wild elements found locally.

- Discuss ways to positively contribute to places students feel especially drawn to (see the Extension segment of this investigation and the *Wilderness Show & Tell* event).

Gather supplies and check the area for garbage, lost items, etc.

- It's a good idea to stress leaving wild places better than you found them.
- Review *Leave No Trace* principles from earlier discussion.

Extension

Remind students that one of the main goals of the Wilderness Act is to *preserve and protect wilderness in their natural condition*.

- Help students understand that even though a wilderness or place with wild elements is protected and may have policies in place to maintain wilderness values, some people may not understand what they should or should not do there.
 - Example
Policy: Garbage is to be packed out.
Human misunderstanding: Garbage is buried.

Talk about the wild element places visited in Part 2 of this Investigation.

- What did you like most about it?
- What concerns do you have for the future of wild elements there?
- Did you observe any human actions that may have been the result of not knowing appropriate ways to act there?
- Is there anything we could do to contribute to the health and wildness of that place by supporting efforts to educate about appropriate human actions?

Guide students to come up with educational opportunities they observed in the wild place(s) they visited.

- Problem examples (that educational efforts might impact in positive ways):
 - Dogs chasing wildlife when they are to be kept on leash; wildflower picking; trail switchback cutting; littering; etc.
- Contact land managers/owners and see if they would be interested in having students produce positive educational materials (signs, brochures, presentations) that would address actions that are not good for the wild elements of the place.
- If land managers/owners are supportive, have student groups produce positive educational materials (not confrontational or finger-pointing) and display/maintain them as outlined by the person in charge.
 - Catchy slogans, clear and colorful images, short and to-the-point positive messaging are all successful educational approaches.

Provide time for group projects and implementation.

Assess if educational efforts are helping to solve problems after a reasonable amount of time.

Service-Learning Opportunities

- Concepts learned, skills gained, and new ideas are often reinforced most effectively by teaching or sharing with others.
 - If your wild elements place is suitable, arrange for your students to *guide* a group of younger students through that place. Have students determine what they should teach, what activities they should facilitate and how they will manage the learning experience.

Resources for a More In-depth Topic Exploration

- Interested in knowing more about *Leave No Trace* approaches to being on the land? Go to Wilderness.net and type *Leave No Trace* in the search section. You will be led to more information about this helpful and sensible method.
- *Ten Minute Field Trips*; Helen Ross Russell; a publication of the National Science Teachers Association; 1990.
 - An excellent guide for schoolyard and neighborhood investigations.

Wilderness Investigation #1 *Wild Places Mapping Sheet*

Student(s): _____

Instructions: Today you will conduct a local investigation in search of places with wild elements on or near your school. It is your responsibility to create a map of the investigation area. Your teacher will help you determine where the school should be located on this map. Your job is to accurately indicate these wild-element places and their spatial relationship to the school. Remember, the sheet of paper is small so your map scale needs to be small as well! Create a Map Key in the box provided.

<p><u>Map Key</u></p>

Wilderness Profile #1 ***Bob Marshall Wilderness***

Teacher background:

Established as part of the *Wilderness Act* of 1964, the Bob Marshall Wilderness typifies what many think of when they hear the word wilderness. Composed of high elevation mountains, glacially carved canyons, high mountain lakes, areas of dense forest, spectacular wildlife, and great trails, "The Bob" is loved by locals as well as visitors from afar.

Instructions for the teacher:

To help students become familiar with the Bob Marshall Wilderness, choose one or more of the following:

- Have students start a *U.S. Wilderness Area Field Guide* using the Bob Marshall Wilderness as their first entry (to be added onto as you work through future *Wilderness Investigations*):
 - Help them research the geographical location of the wilderness area and create a Montana map showing that location and its relationship to other familiar features (i.e. neighboring states, Canada, Helena (Montana's capital city), the Missouri River, and other Montana wilderness areas).
 - Photocopy the Student Information Sheet and have students turn the listed facts into an interesting written description.
 - Find photos of the area and have students create original drawings of favorite scenes.
 - Have students do more research and look for information about pre-wilderness history, the story of its wilderness designation, facts about those who championed its designation as wilderness.
 - Have students investigate who Bob Marshall was and why a wilderness area was named after him.
 - Host a class discussion that focuses on the connection between large tracts of designated wilderness and the presence of healthy wildlife populations using the Bob Marshall Wilderness as an example.

- Create a *U.S. Wilderness Area* bulletin board and add information as new areas are focused on.
 - Just a few wilderness areas are focused on as part of *Wilderness Investigations*. Have students choose non-focused areas to research, present and post on the bulletin board.
- For more information about the Bob Marshall Wilderness, go to www.wilderness.net.



Students studying in Bob Marshall Wilderness
(from wilderness.net; Image #2594)

Wilderness Profile #1
Bob Marshall Wilderness
Student Information Sheet



Danaher Meadows/Bob Marshall Wilderness
(from wilderness.net; Image #1563)

What's the story?

- Designated by Congress as wilderness in 1964.
- Located entirely in Montana, it is bordered by the Great Bear Wilderness to the north and the Scapegoat Wilderness to the south.
 - These three designated wilderness areas make-up the Bob Marshall Wilderness Complex.
- Size: 1,009,356 acres (Montana's largest wilderness)
- Managed by U.S. Forest Service (administered by the Flathead National Forest)
- Named after early forester, wilderness preservation pioneer, and Wilderness Society co-founder Bob Marshall.
- Elevation range: 4,000 - 9,000 feet above sea level

- Landscape characterized by rugged peaks, alpine lakes, cascading waterfalls, grassy meadows with streams, a towering coniferous forest, and big river valleys.
- Wildlife: Habitat for the grizzly bear, lynx, mountain lion, wolf, black bear, moose, mountain sheep, mountain goat, elk and a variety of other birds and mammals.
- Plants (a sample of common species): Whitebark pine, lodgepole pine, Douglas fir, beargrass, quaking aspen, subalpine fir, and many more.
- Historic Native People presence: Within ancestral Bitterroot Salish, Pend d'Oreille, Kootenai and Blackfoot lands and used seasonally by other tribal groups.
- Other information: More than 1,000 miles of trail. Some well-used trails are well maintained. In more remote areas they receive less maintenance.



Bob Marshall Wilderness
(from wilderness.net; Image #2603)

Arthur Carhart National Wilderness Training Center's
Wilderness Investigations
A Subject-Integrated Curriculum for Grades 5 - 8

Wilderness Investigation #1 ***Wilderness Show & Tell***

Instructions

At the conclusion of each investigation work with students to set-up displays and presentations that showcase learning, skills, and experiences related to the just-completed Wilderness Investigation. Use this sheet as a planning template.

Projects, Presentations & Displays

Choose student projects from any or all of the segments of Wilderness Investigation #1.

1. Classroom Investigation: *Wilderness Act Posters*.
2. Wilderness Hero Arthur Carhart: *Wilderness Hero Sheet #1*; *Wilderness Hero* bulletin board; misc. *Wilderness Hero* projects.
3. Local Investigation: *Wild Places Mapping Sheet*; *What's Wild in the Neighborhood?* surveys; *Wild Place Recording Projects*; *Wild Elements Education* extension project.
4. Wilderness Profile--Bob Marshall Wilderness: Various *Wilderness Profile* projects.

Location of Event

Date(s)

Invitations

Note: Parents will have already been invited if you sent home the *Wilderness What's Up?* note at the beginning of this investigation. A reminder may be in order. Others to consider inviting: school administrators, grandparents, other classes, resource people from agencies, nature center personnel, etc. Include thank you notes for those who have helped during Wilderness Investigation #1 and invite them to celebrate student learning about wilderness.

Equipment/Material/Resource Needs

Make a list of needs based on presentations and displays being featured.

Refreshments and other Logistical Details