Adopt-A-Trout

Bringing Kids to Wyoming’s Rivers and Trout to Wyoming’s Kids

PROGRAM & ACTIVITY GUIDE
PROGRAM OVERVIEW

What is Adopt-A-Trout?
The Adopt-A-Trout Program is a place-based educational and inspirational experience for elementary and middle school students. As part of the program, students use radio telemetry equipment to track trout in local aquatic systems and learn about the underwater life of trout. This is completed in through a multi-faceted classroom and field-based learning approach that engages multiple learning styles and gets kids out on the land and in our rivers and streams having fun!

What is Place-based education?
Place-based education focuses learning within the local community of a student. It provides learners with a path for becoming active citizens and stewards of the environment and place where they live. The resources of the community are brought into the learning process in a way that makes education exciting. The approach emphasizes hands-on, real world learning experiences that challenge students to learn and solve problems. It increases academic achievement, helps students develop stronger ties to their community, enhances student's appreciation for the natural world and creates a heightened commitment for serving as contributing citizens. Community vitality and environmental quality are enhanced as local citizens, organizations and environmental resources are woven into the process of educating its citizens (http://www.anei.org/pages/99_place_based_education.cfm).

Program Goals
Through classroom based lessons, field-based experiences, and an interactive web component, the Adopt-A-Trout program will:

- Spark children's curiosity and interest in trout, fishing, and aquatic ecosystems.
- Engage children in the skills and knowledge needed to have fun fishing.
- Teach students about the underwater world of our lakes and streams.
- Involve students in a real world research study where they get to work with biologists and contribute to local science data.
- Create opportunities for students to actively engage in community restoration projects.
- Gives students opportunities to get to know trout up-close and personal!

Resources
This program is based on the “Adopt-A-Trout” Program started in Montana by Montana Fish, Wildlife and Parks, The Blackfoot Challenge, The US Fish and Wildlife Service, and the Big Blackfoot Chapter of Trout Unlimited. We thank this group for launching such a great program and letting us expand on this program through a similar program in Wyoming. Wyoming TU carried many of the ideas and principles that were begun in this program into the Wyoming
Adopt-A-Trout Program. To learn more about the Montana Adopt-A-Trout program please visit: http://fwp.mt.gov/education/adoptafish/default.html

Why Adopt-A-Trout?
Across the country, there has been a dramatic decline in the number of anglers exploring our rivers, lakes, and streams. Additionally, a research study recently uncovered that a kid is far less likely to engage in hunting and fishing as an adult if he or she doesn't learn it as a child. Ultimately, the future of hunting, fishing, and many of our wild landscapes depend upon the commitment of future generations to learn, know and love these resources and traditional forms of recreation.

In response to this frightening decline in children getting a first hand experience with our country's abundant natural resources, Trout Unlimited, and partners, have developed the Adopt-A-Trout program that gets kids excited about the West’s wild rivers and their slippery, slimy and down-right cool inhabitants.

Who is Trout Unlimited?
TU is a national organization with more than 140,000 volunteers organized into 400 chapters from Maine to Montana to Alaska. This dedicated grassroots army is matched by a respected staff of scientists, policy experts and lawyers, who work out of offices nationwide. These conservation professionals and volunteers ensure that TU is at the forefront of fisheries restoration work at the local, state and national levels.

*Trout Unlimited’s Mission:* To conserve, protect and restore North America’s coldwater fisheries and their watersheds.

*Trout Unlimited’s Vision:* By the next generation, Trout Unlimited will ensure that robust populations of native and wild coldwater fish once again thrive within their North American range, so that our children can enjoy healthy fisheries in their home waters.

This is an ambitious aspiration that calls for an ambitious plan. In order to fulfill this vision we:

- Protect the most important habitats.
- Reconnect them to downstream areas by removing obsolete dams, improving instream flows, and ensuring that culverts pass fish.
- Restore the habitats that will yield the biggest benefit to fish for the least cost.
- Sustain the effort over time by focusing on kids and the capacity of our volunteers so that our work will endure over time.
IMPLEMENTING THE PROGRAM

Key Participants
In order to successfully carry out an Adopt-A-Trout program there are several key players that should be brought on board.

*Wyoming Department of Game and Fish*  When starting an Adopt–A-Trout program it is essential to contact your local Game and Fish biologists. Because of the research-based nature of this program, they are the key providing consent, permits, resources, and valuable knowledge. Call the WGFD headquarters at 307-777-4600 to get the contact information for your local fish biologist (also listed in Appendix B)

*Local Biologist*  Because one of the most rewarding components of the program is contributing to real-life research, it is best to bring a local biologist on board to help assist with the telemetry and answer students questions. This can be an independent biologist, or a biologist with your local state or federal agency.

*School*  The Adopt-A-Trout program fits well in to a formal school setting, but also could fit well in to an after school program or other youth program such as Boy/Girl Scouts, 4-H, or FFA. The program increases in success if you have a teacher excited about integrating the program into other parts of their school curriculum and has a basic understanding of ecology. This program is ideal for 4-8th grade. There are opportunities to bring in older students (ie: a high school ecology class) by letting them do some of the teaching and program coordination.

*Community Volunteers*  Critical to the program are local Trout Unlimited volunteers. This program is a great way to get your chapter excited about working with youth and engaging the next generation of anglers. The primary role of the volunteers can include; program organization, being guest lecturers and teaching lessons, helping set up the field trip, teaching kids to fish, finding supplies and program donations, etc.... You can also look for help to local fishing/guiding businesses, fishing clubs, and other outdoor organization for help in organizing and carrying out the Adopt-A-Trout program. Another source of ‘volunteers’ are college students studying natural resources, outdoor education, education, or are otherwise interested in working with students in an outdoor environment.

Program Components
There are several different components of the Adopt-A-Trout Program, all of which are critically entwined and dependent on multiple stakeholder involvement.
1. **Field Education Component.** Students, with the help of biologists and volunteers, tag and track trout in their home watershed through 2-4 field trips throughout the school year. They learn about the trout life cycle, movements, native vs. non-native species, watershed health, and habitat requirements. Students "adopt" a trout (or several trout) that they help tag and track, developing a relationship with that fish and learning about its movements. Students will also get to identify a river project to participate in to help trout in their home watershed (i.e.: willow planting, river clean-up, etc...).

2. **Classroom Component.** Students participate in lessons that compliment the field education component of the program with potential for cross-curricular integration in science, language arts, math, art and social studies.

3. **Field/Classroom Recreation Component.** Students will also learn basic fishing skills so they can explore and enjoy the underwater world of trout with their families and friends outside of school.

4. **Website Component.** Students can
regularly keep track of their fish through an interactive website. Here students can also post weekly questions to the biologists, download activities, share information with other Adopt-A-Trout program students, and learn about their trout’s habitat through an interactive web-site. In addition, biologists will be able post updated maps of fish locations and other information on the Adopt-A-Trout website. (Note: funding is currently being recruited for this website – please contact Wyoming TU for more information)

5. Data collection. The information learned during the telemetry study will be used by fish biologists to record and monitor fish movements.

Setting-Up an Adopt-A-Trout Program
Below are suggestions for steps to set-up and carry out an Adopt-A-Trout Program.

2-6 months prior
1. Identify a program coordinator.
2. Contact local biologists and identify a telemetry project. Discuss the Adopt-A-Trout program with local biologist and ask them if they are interested in spending 5-20 hours over the course of the school year to help you implement it.
3. Find a classroom that is interested in participating in the program.

1-2 months ahead
4. Recruit volunteers to assist with program activities.
5. Purchase or request donations of supplies and equipment.
6. Plan classroom visits and field trips in coordination with local biologist and teacher.

1-2 weeks ahead
7. Confirm dates and times with volunteers and teacher.
8. Send out press release to local papers, TV news stations, etc...

Funding an Adopt-A-Trout program
Depending on local resources and the scale of the program, an Adopt-A-Trout can cost anywhere from $100 - $500. The price tag vastly increases however, if a local biologist with telemetry equipment isn’t involved (that equipment ranges from $2500-$5000). General expenses are incurred through purchasing educational materials (see activities below). There might be additional costs if materials & equipment (ie: Fly rods, fly tying
equipment, stream bank restoration materials, etc...) has to be purchased instead of borrowed or donated.

Sample Adopt-A-Trout Schedule

<table>
<thead>
<tr>
<th>Visit #1: Early Fall Field</th>
<th>Students help biologists capture and tag fish. They adopt several fish that they tag.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit #2: Early Fall Classroom</td>
<td>Lesson on Trout Adaptations and how to use telemetry equipment. They receive adoption certificates for their trout and name them.</td>
</tr>
<tr>
<td>Visit #3: Mid/Late Fall Classroom</td>
<td>Fly casting lesson. (Could also do this earlier and combine it with a trip to a river and do a “Reading the River” lesson)</td>
</tr>
<tr>
<td>Visit #5: Early Spring Classroom</td>
<td>Lesson on “What is a Watershed?”</td>
</tr>
<tr>
<td>Visit #5: Spring Field</td>
<td>Stations: Trout Obstacle Course; Aquatic Bugs; River Monitoring; Trout Tracking; Fishing</td>
</tr>
<tr>
<td>Visit #6: Spring Classroom</td>
<td>What can you do to help trout? Land owner lesson. Identify a “Lend a Hand to the River” project.</td>
</tr>
<tr>
<td>Visit #7: Spring Field</td>
<td>Carry out the “Lend a Hand to the River” project. Time to practice casting and fishing.</td>
</tr>
<tr>
<td>Throughout</td>
<td>Students will track trout via the website where they can enter their trout’s GPS points. They can also post projects, photos, ask biologists questions, etc... The teacher can also integrate this program into math, geography, language arts and reading.</td>
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</tbody>
</table>
ADOPT-A-TROUT CURRICULUM GUIDE

CLASSROOM AND FIELD-BASED ACTIVITIES

Educational Objectives
After completing the Adopt-A-Trout Program students will be able to...

1. identify the characteristics of a trout and understand the life-cycles and differences between native, hybrid, and non-native trout species in their home watershed.
2. define and understand the term watershed, and depict a watershed through the eyes of a trout by identifying good habitat, potential threats, and hazards to a trout in the river.
3. describe several ways that biologists study trout and how they use the information that they discover.
4. be able to list 4 things that they can do to help trout in their watershed.
5. carry out a project that helps trout in their watershed.

Target Age
The below lessons have been given trial runs with 4th-5th grade students. However, the lessons can easily be adapted to older or younger students by going more indepth into concepts and vocabulary or simplifying the ideas.

Additional Lesson Sources
In addition to the lesson plans below, there are countless resources out there available for classroom education of conservation concepts. A few we thought were relevant are listed in Appendix C.
Classroom Lesson Plan #1 – Trout Busters!

Summary: Through discussion, demonstration, and hands-on participation, students will learn about special adaptations of trout, use telemetry equipment, and see a trout being tagged.

Participants: Students, Biologist, Guest Educator and others volunteers

Setting/Time: 1 hour 15 minutes. Classroom and playground or other open area.

Target Age: 4-8th grade students

Materials Needed:

<table>
<thead>
<tr>
<th>Educational Materials</th>
<th>Biologist Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish Puzzle</td>
<td>Telemetry Equipment (extra tags, tracking equipment, weight, etc...)</td>
</tr>
<tr>
<td>Fish Model</td>
<td>Surgery Equipment (plastic bin, surgery supplies, etc...)</td>
</tr>
<tr>
<td>Adopt-A-Trout Adoption Certificate (See Appendix D for a sample)</td>
<td>Two trout</td>
</tr>
<tr>
<td>UpStream – Amazing Trout</td>
<td></td>
</tr>
</tbody>
</table>

Objectives:
After participating in this lesson students will...
1. be able to identify 4-7 characteristics of trout and how these characteristics help the trout survive in its environment.
2. have had the opportunity to use telemetry tracking equipment to track hidden tags and be able to explain 3 ways that biologists study trout.
3. observe a fish tagging surgery.
4. adopt their own ‘classroom’ trout to track and monitor throughout the spring.

Introduction – TroutBusters! (approx. 15 min)

Using a ‘detective’ theme (ie: investigation, clues to how trout survive, detective gear, etc...) to introduce people/characters involved and give the students a sneak preview of what we are going to be doing today. CREATIVE TWIST: Break out ‘detective’ props/costume/etc...(notepads, magnifying glass, long coat, detective hat, etc...) and act the part! The goofier the better for 4th graders...😊
Adaptations and Characteristics. Discuss with students the adaptations that humans have, that help us survive in our environment. Make a list of the adaptations the students list in a column on a chalk or white board. Ask the students what characteristics they might have to develop to survive under water, in a river or lake? Make a list of these characteristics in a column next to the first.

Now let’s take a look at trout. Discuss the adaptations that trout have using the life sized model, actions (ie: see lateral line below) that the students participate through, and a large paper ‘fish puzzle’ discuss the different adaptations and special characteristics trout have to survive in their habitat.

**Kype:** The kype is the hooked part of the lower jaw. Males use the kype to fight over mates during spawning time.

**Nare:** The nare is a closed sac and functions as a nostril, helping the trout to detect odors.

**Gills & Operculum:** Gills work much the same way our lungs do. Trout draw water in through their mouths. The water passes through the gills where oxygen is exchanged for carbon dioxide. The delicate gills are covered by a hard plate called the operculum.

**Eyes:** The eyes provide sight. The pupil has a slight triangle shape which gives the trout a larger field of vision.

**Lateral line:** This sense organ runs from the operculum to the tail. This sensor detects pressure waves or vibrations. It helps the trout maintain position without bumping into other fish or objects in the water. Have students lay down on the classroom floor on their stomachs, and have them pretend they are a school of moving fish, have them notice that it would be really hard to see what is on both sides and behind you if you had to turn your head all the time. The lateral line helps them ‘sense’ where other fish and objects are...

**Caudal fin:** The caudal fin or tail fin is the biggest fin. It provides the “push” for the trout to start moving and also acts as a rudder for steering through the water. Females use the caudal fin as a fan when making a redd.

**Dorsal fin:** The dorsal fin is used to stay upright and on course

**Anal fin:** The anal fin helps the trout propel forward, balance and steer.

**Adipose fin:** The adipose fin is used for swimming and stabilization. (Adipose means that it is a “fatty” fin without rays.)

**Pectoral fins:** These fins help the fish brake, turn, and balance. They are below the gills.

**Pelvic fins:** The pelvic or ventral fins are paired fins which are set back from the pectoral fins. They help with up and down movement.

Split into two groups to do activities #1 and #2
**Activity #1** – Try out Telemetry! (approx. 20 min)

Before the lesson begins, hide 3-4 telemetry tags outside on the playground. To introduce telemetry have a short discussion on how it is often difficult to study fish because they are underwater, so biologist have to come up with special techniques in order to find out information and collect data about fish. Demonstrate how telemetry equipment is used, what it can do and any special safety concerns. Let small groups of students try to find the hidden tags using the telemetry equipment; make sure that every student feels like he or she gets to participate.

**Activity #2** – Tagging Trout! (approx 20 min)

Set up trout surgery equipment prior to lesson, try to find a place where students can gather close or otherwise see the demonstration. Have a biologist demonstrate the steps of tagging a fish, noting concerns and what special considerations have to be taken when doing this on the river. Discuss with students why we might tag and track fish. What can we learn from this information? Let students practice ‘fish surgeries’ of their own on plastic cup ‘fish’.

**Activity #3** – Adopt Your Trout! (15 min)

The importance and ‘coolness’ of this program centers on the students participation in a real-life research project happening in their local watershed. Discuss and show photos of the fish tagging on the river (or get out on the river with the biologist and meet your trout first hand!) Hand out ‘adoption’ packets that include: a photo of their fish, an ‘adoption certificate’, name their fish, a map of places the fish has already went, some worksheets where the students can write a story about their fish, draw photos, etc… NOTE: Ideally, students would get to go out in the field and actually help tag their adopted trout…then this section of the lesson can be done out in the field and/or a day after the tagging session.

Demonstrate and let students plot the new fish coordinates on the ‘big maps’ or via the Adopt-A-Trout website.

**Wrap-Up**

Let them know that later on this year, they will get to try to ‘find’ their adopted fish out in the river. They will get to see where it lives, what it might be eating and how it is using its adaptations to survive, in the mean time they can ‘watch’ their fish move through the online or paper maps, and by asking weekly questions to fish biologists.

**Extension Ideas**

Bring the TroutTracking Fun into other subjects. Write essays on “A day in the life of my trout”, Start a trout tracking journal, develop art projects, or host a trout science fair!
Classroom Lesson Plan #2 – What is a Watershed?

**Summary:** Through discussion, demonstration, and hands-on participation, students will explore a simulated watershed and learn how trout move and depend on the habitat in their watershed.

**Participants:** Students, and Guest Educators

**Setting/Time:** 45 minutes. Classroom and playground or other open area.

**Target Age:** 4th-6th grade students

**Materials Needed:**
- Watershed Trailer and Accessories (Wyoming Game and Fish Department)
- Watershed outline (rope)
- Scent containers

**Objectives:**
After this lesson students will be able to...
1. Describe a watershed.
2. List four habitat requirements that fish need to survive.
3. List several threats that trout might face in their watershed.
4. List at least two reasons fish might migrate within their watershed and how they migrate.

**Introduction**

Begin the lesson by reviewing some items covered in the last lesson. “We talked about some things that trout have on their bodies or do in their actions that help them survive. See if the students can remember what these things are called (adaptations). Today we are going to talk about what trout need in their environment or habitat to survive.” Help them come up with a definition of habitat. Ask the students about some of the things they have in their ‘habitat’ that helps them survive. (examples might include: a house to shelter from weather, food that gives them energy, clean water to drink, a place to play and learn, etc...) Tell them we are going to get to explore a trout’s habitat by going outside and looking at a mini-watershed.

**Watershed trailer**
Let the watershed trailer run for awhile. Explain that when we are talking about trout we usually say their habitat usually falls within a specific watershed. Define a watershed. Ask the students to make a few observations about what they see on the watershed trailer. (How is the water moving? Are other things moving with the water? Do you notice any places that people have influenced the watershed?)

Then ask the students what things they see in this watershed that might be good habitat qualities for trout.
- Clean cool moving water.
- Pools and riffles.
- Shaded areas for summer sun.
- Deep pools for winter when it freezes and summer when water temps rise.

And where threats to trout are:
- Buildings/Ag/roads close to stream.
- Place where there isn’t much water for a long stretch.
- Pollution

Reintroduce the idea of scientific inquiry. Point out a way that we could alter the watershed, ask the students to make a hypothesis what might happen. Make alterations to the Watershed Trailer using the props to create good habitat and threats to trout. Ask students to make hypothesis and then reevaluate their hypothesis based on the results of the alterations.

Explain how trout often have to travel to find all of the things they need to survive. Fish don’t have maps like we use when we travel but they do have a special tool...their sense of smell!

*See Wyoming Game and Fish Departments “Stream Trailer Guide” for more details and ideas*

**Fish Scent Game**

How does your sense of smell help you?
Tell them about the specialized ‘smell system’ that trout have and how it helps them smell danger, find food, and find their way.

Use rope to make a large watershed in an area on the playground. At each confluence place small containers with specific scents (vinegar, lemon, anise, etc...) Give each student a scent that he/she will use to find their way back to their home stream. At each confluence place scents...if the scent matches the students they take that route, using their nose to get back their home stream. Discuss what scenarios in a stream might effect a trout’s ability to migrate.
**Wrap Up**

Back in the classroom: Ask the kids to come up with a list that revisits good fish habitat and threats fish might face...Ask them to keep thinking about this and they can add to this list over the course of the next couple of weeks.

**Definitions:**
- **Watershed:** An area of land that drains water to a common receiving body or outlet.
- **Hypothesis:** An informed prediction.
- **Nare:** A fish’s nostril
- **Tributary:** A stream or river that flows into another body of water.
Classroom Lesson Plan #3 – Your Watershed Community

Summary: Students become landowners on their home river and learn about the effect their actions, and the actions of the collective landowners, have on the river, the watershed and each other.

Participants: Students, and Guest Educators

Setting/Time: 45 minutes. Classroom.

Target Age: 4th–8th grade students

Materials Needed:
- 11x17 paper (one for each student) with piece of river drawn through each paper so that when laid side by side the river connects.
- Crayons, markers, other drawing materials.
- Tape
- Pull up map of their home watershed on Google Maps™ or Google Earth™.

Objectives:
After this lesson students will be able to...
5. become imaginary owners of a piece of land along a river and make decisions regarding that land.
6. discuss with their classmate their actions, and how those actions effect trout, other species and their neighbors.
7. List three things they could do on their ‘property’ to help trout and the aquatic ecosystem.

Landowner Activity
Give students their own piece of land (on the 11x17 piece of paper) along their nearest home river. Tell them that they get to do whatever they would like on their land but keep in mind that their adopted trout live in that river and the actions they do on their land effect the river and the fish’s habitat. Have students draw out what they would like to do on their land.

After having time to draw, have the students tape their piece of land to the matching pieces of land that their classmates own up and down stream. Discuss the ‘big’ watershed picture. Ask
what students considered when ‘managing’ their land? Does what they do effect their neighbors downstream? Would they do anything different after seeing all the pieces of land along the river connected?

Using GoogleMaps or an aerial photo show students what their watershed looks like from above. Ask them to rate the watershed on a scale of 1(bad)-10(good) on how “trout-friendly” it is. Ask the students to brainstorm some projects that could be done to help trout in the area. Use these ideas to plan your watershed action project. (You might ask G&F biologist or local TU chapter members about some projects they have in mind that the kids could help with, but the idea is to give the kids some ownership in an active stewardship project!).

**Extension Ideas**

Have student create dioramas of their land along the river and describe things they would do on their land in an essay.

NOTE: This activity could be used as a pre-post program evaluation. Have students do this activity as the first lesson in the program…then again at the end. See if they have implemented any good things for trout at the end of the program that they didn’t do in the beginning!
Classroom/Field Lesson Plan #4 – Watershed Warriors

Summary: Students identify, plan and implement a “Help your Watershed” project.

Participants: Students, Guest Educators, local community members

Setting/Time: Pre-project planning time and an afternoon or full day field trip to river for the project.

Target Age: 4th-8th grade students

Materials Needed:
- Planning materials for students (paper, markers, maps, projects that could be done from biologists, etc...)
- Restoration/Clean-up/Project materials (this will depend on the type of projects the students decide to do)

Objectives:
After this lesson students will...
1. have and be able to use the skills and tools to identify and plan a watershed project.
2. work collaboratively to complete a community project.
3. have completed a watershed project that benefits their trout, the environment and their community!

Introduction
This lesson has several phases; a brainstorming stage, a planning stage, and a project implementation stage. It works best to start brainstorming and planning after the Adopt-A-Trout program is started but when there is still enough time before the end of the school year to implement the project.

Brainstorming
Ask students to brainstorm potential ways they could help their adopted trout and community. Create lists of ideas (based on student ideas, asking local biologists and community members, their local Conservation District, reading newspaper reports, etc...). Have students prioritize the list based on their interest, and ability to complete the project.

Planning
Use community resources to plan the project. Bring in local biologists, volunteers, your Conservation District, etc... Help the students answer the questions on the following page.

**River Helper Project**

What do we need to do to complete the project? And who is going to help with each part?

What supplies and materials do we need?

Who do we need help from?

What is the time line for this project?
## APPENDIX A

### WYOMING STATE STANDARDS Addressed

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<tr>
<th>Lesson/Activity</th>
<th>Standards Addressed (4th Grade)</th>
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</thead>
<tbody>
<tr>
<td><strong>Classroom Visit #1 (Feb 08)</strong></td>
<td><strong>Science: 1. Concepts and Processes</strong></td>
</tr>
<tr>
<td>• What is a Trout?</td>
<td>LIFE SYSTEMS 1. Characteristics of Organisms: Students describe observable characteristics of living things, including structures that serve specific functions and everyday behaviors.</td>
</tr>
<tr>
<td>• Adopt Your Trout</td>
<td>LIFE SYSTEMS 2. Life Cycles of Organisms: Students sequence life cycles of living things, and recognize that plants and animals resemble their parents.</td>
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<tr>
<td>• How do biologists study trout? (part 1)</td>
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</tr>
</tbody>
</table>

| **Classroom Visit #2 (March 08)** | **Science: 1. Concepts and Processes** |
| • What is a watershed? | LIFE SYSTEMS 3. Organisms and Their Environments: Students show connections between living things, their basic needs, and the environments. |
| • How do trout move and interact with their watershed? | EARTH, SPACE & PHYSICAL SYSTEMS 6. Changes in Earth and Sky: Students describe observable changes in earth and sky, including rapid and gradual changes to the earth's surface, and daily and seasonal changes in the weather. |

| **Field Trip (Apr. 08)** | **Science: 3. History and Nature of Science in Personal and Social Decisions** |
| 1. Track Adopted trout in the Gros Ventre river. | 2. Students recognize how scientific information is used to make decisions. |
| 2. Discuss and show examples of habitat (good and bad), human influences, etc... | A. Identify and describe local science issues, such as environmental hazards or resource management |
| | B. Suggest feasible solutions and personal action plans to address an identified issue |

**Social Studies: 3. Production, Distribution and Consumption**

1. Students describe the importance of major resources, industries, and economic development of the local community and Wyoming.
### Classroom Visit #3 (May 08)

1. Biologists tool box continued: How do we use the information we collected? (maps, graphing, data collecting, etc...)

### Science: 2. Science As Inquiry

1. Students research answers to science questions and present findings through appropriate means.
2. Students use the inquiry process to conduct simple scientific investigations.
   - A. Collect and organize data
   - B. Use data to construct simple graphs, charts, diagrams, and/or models
   - C. Draw conclusions and accurately communicate results, making connections to daily life
   - D. Pose or identify questions and make predictions
   - E. Conduct investigations to answer questions and check predictions

### Extension Activity Options/Ideas:

1. Students write a short story/book about their trout’s journey in its watershed.
2. Students develop a presentation board that introduces readers to their trout, its life, challenges it faced, etc..
3. Students give group presentations about their trout and where it traveled using maps, props, etc...
4. Students develop skits based on the life of their trout, where it traveled and what it encountered along the way.
5. Students compare data collected

### Language Arts: 2. WRITING

Students use the writing process and use appropriate strategies to write a variety of expressive and expository pieces.

1. Students apply writing skills to plan, draft, revise, and publish writing.
   - I. Students write a variety of expressive and expository pieces.

### Language Arts: 3. SPEAKING AND LISTENING

Students use listening and speaking skills for a variety of purposes and audiences.

1. Students speak on a focused topic with organization, volume, posture, pace, eye contact, and relevant gestures.
2. Students use speaking strategies appropriate to different types of presentations.
3. Students speak and listen in small groups cooperatively.

### Math: 5. DATA ANALYSIS AND PROBABILITY

Students use data analysis and probability to analyze given situations and the results of experiments.

1. Students collect, organize, and compare data in graphs, Venn diagrams, tables, and charts.
2. Students communicate conclusions about a set of data by interpreting information using graphs, Venn diagrams, tables, and charts.
| Through maps, graphs and tables. (Could post these projects to the website to share with students in other schools.) |   |
APPENDIX B

CONTACTS FOR WYOMING ADOPT-A-TROUT PROGRAM

WYOMING GAME AND FISH DEPARTMENT
Janet Milek - Aquatic Education Coordinator
3030 Energy Lane
Casper, WY 82604
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2013 Eastside 2nd Street
Sheridan, WY 82801
307-674-2600

Medicine Bow-Routt National Forests, Thunder Basin National Grassland
2468 Jackson Street
Laramie, WY 82070
307-745-2300

Shoshone National Forest
808 Meadowlane Ave
Cody, WY 82414
307-527-6241

Bridger-Teton National Forest
P.O. Box 1888
Jackson, WY 83001
(307) 739-5500

LOCAL COUNTY CONSERVATION DISTRICT OFFICE

Campbell County Conservation District
PO Box 2577
601 4J Ct, Suite D
Gillette, WY 82717
307-682-1824 (phone) 307-682-3813 (fax)

Cody Conservation District
808 Meadow Lane Avenue
Cody, WY 82414
307-587-6763
codycd@vcn.com
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www.cccdwy.net
icd@vcn.com

Converse County Natural Resource District
911 Windriver Drive
Douglas, WY 82633
307-358-3050
michelle.huntington@wy.nacdnet.net
www.conserveconverse.org

Hot Springs Conservation District
601 Broadway, Suite A
Thermopolis, WY 82443
307-864-3488
carla.thomas@wy.nacdnet.net

Laramie County Conservation District
11221 US Highway 30
Cheyenne, WY 82009
307-772-2600
info@lccdnet.org
www.lccdnet.org

Lincoln Conservation District
PO Box 98
110 Pine Street
Cokeville, WY 83114
307-279-3256
brenda.lazcanotegui@wy.nacdnet.net

Little Snake River Conservation District
PO Box 355
285 North Penland Street
Baggs, WY 82321
307-383-7860
lsrcd@yahoo.com

Medicine Bow Conservation District
PO Box 6
510 Utah Street
Medicine Bow, WY 82324
307-379-2221
mbcd@carbonpower.net

Dubois-Crowheart Conservation District
PO Box 27
706 Meckem Street
Dubois, WY 82513
307-455-2388
dccd@dteworld.com

Lake DeSmet Conservation District
621 West Fetterman
Buffalo, WY 82834
307-684-2526
nikki.lohse@wy.nacdnet.net

Laramie Rivers Conservation District
5015 Stone Road
Laramie, WY 82070
307-721-0072
tony.hoch@wy.nacdnet.net
www.LRCD.net

Lingle-Fort Laramie Conservation District
1441 East M, Suite B
Torrington, WY 82240
307-532-4880
nancy.borton@wy.nacdnet.net

Lower Wind River Conservation District
508 N. Broadway
Riverton, WY 82501
307-856-7524
cathy.meyer@wy.nacdnet.net

Meeteetse Conservation District
PO Box 237
2103 State Street
Meeteetse, WY 82433
307-868-2484
mcd@tctwest.net
Natrona County Conservation District
5880 Enterprise Drive, Suite 100
Casper, WY 82609
307-234-4022
katherine.myers@wy.nacdnet.net

Niobrara Conservation District
PO Box 659
Lusk, WY 82225
307-334-2953
lshaw@wyoming.com

North Platte Valley Conservation District
1441 East M, Suite B
Torrington, WY 82240
307-532-4880
nancy.borton@wy.nacdnet.net

Platte County Resource District
1502 Progress Court
Wheatland, WY 82201
307-322-9060
brady.irvine@wy.nacdnet.net
http://www.conservewy.com/pcrd.html

Popo Agie Conservation District
221 S. 2nd Street
Lander, WY 82520
307-332-3114
pacd@wyoming.com
www.popoagie.org

Powder River Conservation District
PO Box 48
Kaycee, WY 82639
307-738-2321
anita.bartlett@wy.nacdnet.net
www.powderrivercd.org

Powell-Clarks Fork Conservation District
1017 Highway 14A
Powell, WY 82435
307-754-9301
ann.trosper@wy.nacdnet.net
www.pcfcd.org

Saratoga-Encampment-Rawlins Conservation District
PO Box 633
101 Cypress Avenue
Saratoga, WY 82331
307-326-8156
jean.runner@wy.nacdnet.net
www.sercd.org

Sheridan County Conservation District
1949 Sugarland Drive, Suite 102
Sheridan, WY 82801
307-672-5860
carrie.rogaczewski@wy.nacdnet.net
www.sccdofwy.org/

Shoshone Conservation District
359 Nevada Avenue
Lovell, WY 82431
307-548-7422
shoshonecd@tctwest.net

South Big Horn Conservation District
408 Greybull Avenue
Greybull, WY 82426
307-765-2483

South Goshen Conservation District
1441 East M, Suite B
Torrington, WY 82240
307-532-4880

www.meeteetsecd-wy.gov
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janet.hallsted@wy.nacdnet.net
www.conservewy.com/sbhcd

nancy.borton@wy.nacdnet.net

Star Valley Conservation District
PO Box 216
61 E. 5th Avenue
Afton, WY 83110
307-885-7823
bashworth@starvalley.org
www.starvalleycd.org

Sublette County Conservation District
PO Box 36
1625 W. Pine Street
Pinedale, WY 82941
307-367-2257
sccd@wy.nacdnet.net
www.sublettecountycd.com

Sweetwater County Conservation District
79 Winston Drive, Suite 110
Rock Springs, WY 82901
307-362-3062
admin@swccd.us
www.swccd.us

Teton Conservation District
PO Box 1070
230 E. Broadway, Suite 2A
Jackson, WY 83001
307-733-2110
randy@tetonconservation.org
www.tetonconservation.org

Uinta County Conservation District
PO Box 370
100 East Sage Street
Lyman, WY 82937
307-787-3794
kerri.sabey@wy.nacdnet.net
www.uintacountycd.com

Washakie County Conservation District
208 Shiloh Road
Worland, WY 82401
307-347-2456
wccd@rtconnect.net
http://www.conservewy.com/wccd.htm

Weston County Natural Resource District
1225 Washington Boulevard, #3
Newcastle, WY 82701
307-746-3264
christina.schmidt@wy.nacdnet.net
APPENDIX C

ADDITIONAL EDUCATION RESOURCE/LESSON PLANS

Future Farmers of America
Wyoming based information – another good partner
http://www.wyomingffa.org/index.html
PALS program (links highschool students with elementary students)
http://www.ffa.org/index.cfm?method=c_programs.PALS

Trout Unlimited
StreamExplorers Website
Online youth activities
www.streamexplorers.org

First Cast Curriculum and Coldwater Conservation Education Guide
Resources for teaching fly fishing and stream ecology to children through adults.
http://www.tu.org/site/c.kkLRJ7MSKtH/b.3211909/k.B9AB/First_Cast_Program.htm

Trout in the Classroom
Another great TU youth program – good lesson plan ideas and info about trout!
http://www.troutintheclassroom.org

USDA Forest Service
Lots of activities, curriculum ideas on the larger ecosystem.
http://www.na.fs.fed.us/SPFO/ce/content/for_students/index.cfm

Wyoming Association of Conservation Districts website
Great list of links, curriculums and websites (most Wyoming specific)
http://www.conservewy.com/EDUCATION.htm

Wyoming Association of Environmental Education
Good way to find out what others are doing around the state – also a great curriculum.
http://www.wyaee.org/

Wyoming Ag in the Classroom
Excellent potential partner with youth and educator resources on their website.
http://www.wyomingagclassroom.org/

Wyoming Game and Fish Department
Excellent partner also has a bunch of great programs for further outdoor education opportunities!
http://gf.state.wy.us/services/education/index.asp
Certificate of Adoption

Congratulations! You are the proud new caretaker of five special trout that live in your watershed. These trout also need your help in order to successfully eat, find a mate and travel. You will help track these trout as they go about their life this spring. Please read the ways you can help your trout on the next page so that you can take special care of these trout.

A Cutthroat Trout named:

A Cutthroat Trout named:

A Cutthroat Trout named:

A Rainbow Trout named:

A Hybrid Trout named: