



# Roaring Fork Conservancy Education Programs

Visit our website [www.roaringfork.org](http://www.roaringfork.org)

Roaring Fork Conservancy (RFC) teaches students about water—the precious resource that connects our valley. Watershed education programs are available to school, youth, and civic groups year-round. All programs incorporate inquiry-based learning, hands-on activities, and relevant place-based content for students in the Roaring Fork Valley. RFC's programs are taught in school classrooms, field locations throughout the Roaring Fork Valley, and at the River Center located in Basalt, Colorado.

## STANDARDS

All programs are correlated to the Colorado Academic 2020 Standards, Next Generation Science Standards, and North American Association of Environmental Education Standards. We strive to help teachers meet curriculum needs.

## OUR VISION

Our vision is that students in the Roaring Fork Valley and beyond, will gain a connection to our watershed. Through hands-on experiences, students will learn about local rivers creating value and awareness through exploration.

## GENERAL INFORMATION

Since 1996, RFC has inspired people to explore, value, and protect the Roaring Fork Watershed. We bring people together to protect our rivers and work hard to keep water in local streams, monitor water quality, and preserve riparian habitat. As one of the largest watershed organizations in Colorado, RFC serves residents and visitors throughout the Roaring Fork Valley through school and community-based watershed education programs and watershed science and policy projects including regional watershed planning, water resource policy initiatives, stream management and restoration.

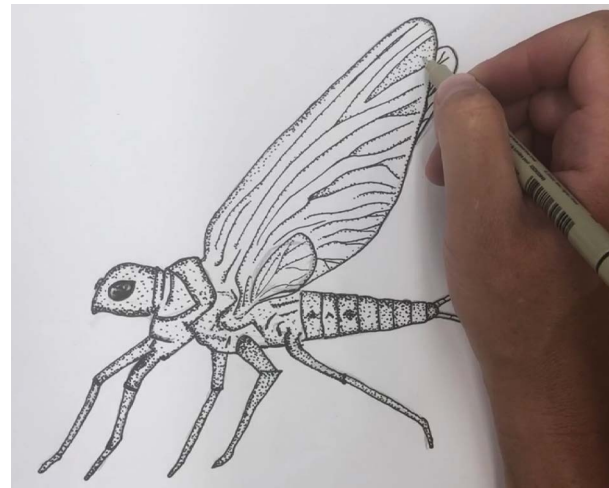
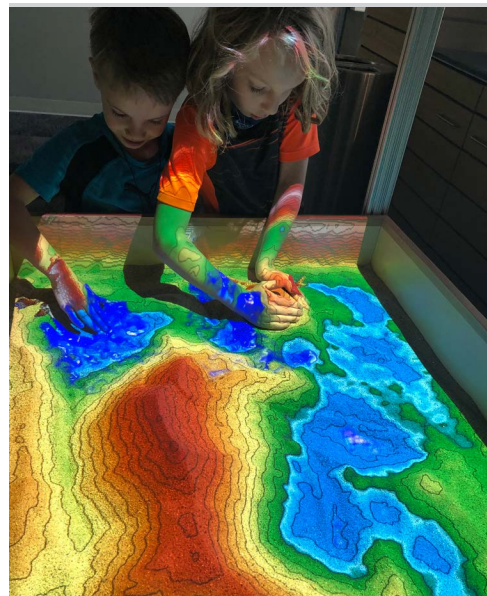
LEARN MORE ABOUT RFC'S PROGRAM OFFERINGS AT [WWW.ROARINGFORK.ORG](http://WWW.ROARINGFORK.ORG)

- Fishing in Schools • Teacher Workshops • The Brooksher Watershed Institute
- Watershed Adult and Family Exploration



# Arranging a program with RFC

- Email [educator@roaringfork.org](mailto:educator@roaringfork.org) to request dates for programming.
- Complete a [Program Request form here](#), by email request, or at [www.roaringfork.org/education-and-outreach/watershed-education/school-programs](http://www.roaringfork.org/education-and-outreach/watershed-education/school-programs).
- Select your program (see pages 4-8 for programs listed by standards and grade levels).
- When we get your program request form, we will send waivers for programs located outside of school or River Center.
- Send home parent letter and liability waivers.
- Collect medical and liability waivers from parents for field programs.
- 2 days before program, review what students should bring (review *How to Dress For Your Program* on page 3).
- Prior to your arrival, give students access to [RFC Intro video](#) and [fun online activities](#).
- Enjoy an action-packed learning experience with your students!



## PRE-TRIP LOGISTICS

A logistics email will be sent to the lead teacher prior to the field trip that will include waivers, letter home to parents, online extension activities, program schedule, and logistics for the students.

## ROLE OF THE TEACHER DURING RFC PROGRAMMING

To give your students the best possible experience, RFC educators need to be focused on delivering content, creating playful experiences, and safety. RFC educators do not have in-depth knowledge of specific student's needs, and we rely on teachers to be responsible for redirecting behavior.

## VIRTUAL PROGRAM OFFERINGS

- Subjects include investigations on macroinvertebrates, trout, riparian plants, ecology survey, erosion, and interactive watershed maps.
- Students will learn how to observe, journal, and create scientific illustrations.
- We also offer interactive activities using local watershed data and issues.

# RFC offers multi-class series, full-day programs, or single classes

## SAMPLE SCHEDULE FOR A FULL-DAY PROGRAM

### Morning Session at the River Center

- **Group 1:** Riparian Birding - led by RFC educator
- **Group 2:** Riparian Scavenger Hunt - led by School teacher

*Bring your own lunch (Outside classroom or at Old Pond Park, indoor classroom available during inclement weather)*

### Afternoon Session at the River Center

- **Group 1:** Riparian Scavenger Hunt - led by School teacher
- **Group 2:** Riparian Birding - led by RFC educator

*Additional groups can usually be accommodated with advance notice.*

PROGRAM NAME AND AGE GROUP		CLASSES INCLUDED IN SERIES (Series programs can be customized)
PROGRAM NAME AND AGE GROUP	K-2	<ul style="list-style-type: none"> <li>• Dee Dee the Fryingpan River Dipper</li> <li>• Watery World</li> <li>• Builders are Beavers</li> <li>• Captain Cutthroat (Trout)</li> <li>• Riparian Bats</li> <li>• Playful Otters</li> </ul>
	3-5	<ul style="list-style-type: none"> <li>• Macroinvertebrates, Aquatic Insects</li> <li>• Riparian Birding Olympics and Adaptations</li> <li>• Augmented Reality Sand Table: Creating and seeing watersheds</li> <li>• Water History Trunk</li> <li>• Geomorphology: A field study</li> </ul>
	6-8	<ul style="list-style-type: none"> <li>• Augmented Reality Sand Table: Mapping how water flows</li> <li>• Enviroscape: Modeling a community's impact on water</li> <li>• Macroinvertebrates: Water quality indicators</li> <li>• Storm Drain Hunts: Nonpoint sources of pollution</li> <li>• Riparian Ecology Survey</li> <li>• Water Chemistry and Snow Science</li> </ul>
High School	<ul style="list-style-type: none"> <li>• Augmented Reality Sand Table: Water use and storage</li> <li>• Interactive virtual watershed map</li> <li>• Snow Science</li> <li>• Water in the West</li> <li>• Plumbing the Colorado: Where does the water go?</li> </ul>	

## HOW TO DRESS FOR YOUR PROGRAM

FALL	WINTER
<ul style="list-style-type: none"> <li>Long sleeve shirt</li> <li>Shorts or pants</li> <li>Hiking boots or sturdy walking shoes</li> <li>Rain jacket or poncho</li> <li>Wool or warm socks</li> <li>Warm hat</li> <li>Gloves</li> <li>Sunglasses</li> </ul>	<ul style="list-style-type: none"> <li>Long sleeve shirt</li> <li>Fleece mid-layer</li> <li>Insulated winter jacket</li> <li>Long underwear</li> <li>Insulated snow pants</li> <li>Hiking boots (preferably waterproof)</li> <li>Winter hat</li> <li>Waterproof winter gloves</li> <li>Warm socks</li> <li>Sunglasses</li> </ul>
SPRING	SUMMER
<ul style="list-style-type: none"> <li>Long sleeve shirt</li> <li>Shorts or pants</li> <li>Hiking boots or sturdy walking shoes (preferably waterproof)</li> <li>Waterproof rain jacket or poncho</li> <li>Wool or warm socks</li> <li>Sunglasses</li> </ul>	<ul style="list-style-type: none"> <li>T-shirt</li> <li>Hiking shorts or pants</li> <li>Hiking shoes or tennis shoes</li> <li>Hat</li> <li>Sunglasses</li> <li>Sunscreen</li> </ul>



# Watershed Education

## ELEMENTARY SCHOOL & MIDDLE SCHOOL

RFC Lesson Grade Level Location	Program Description	Learning Target/Standard
<b>Human Watershed</b> 4th - 6th Grade River Center or Field Trip	Create a class size watershed and learn about seasonal water flows and resource distribution.	<ul style="list-style-type: none"> <li>• Earths major systems react in multiple ways</li> </ul>
<b>Macroinvertebrates</b> K - 6th Grade Classroom, River Center, or Field Trip	Explore and identify live aquatic insects using identification guides and microscopes.	<ul style="list-style-type: none"> <li>• Organisms have structures with different functions</li> <li>• Classification, interaction, and interdependence</li> <li>• Interaction between living and nonliving</li> <li>• Life cycle and habitat</li> </ul>
<b>Beavers are Builders</b> K - 5th River Center, or Field Trip	Learn how beavers are a keystone species in ecosystems through playing a giant Jenga@-like game created by RFC educators. Students will learn how beavers create valuable wetland habitat that protect our rivers.	<ul style="list-style-type: none"> <li>• Organisms have structures with different functions</li> <li>• Classification, interaction and interdependence</li> <li>• Interaction between living and nonliving</li> <li>• Life cycle and habitat</li> </ul>
<b>Riparian Ecology Assessment</b> 3rd - 6th Grade Classroom, River Center or Field Trip	Learn about the food chain and what animals need to survive. Students use scientific tools to assess riparian habitat.	<ul style="list-style-type: none"> <li>• Construct an explanation that predicts patterns of interactions across multiple ecosystems</li> <li>• Gather empirical evidence that changes to ecosystems affect populations. Create and design solutions.</li> </ul>
<b>Captain Cutthroat</b> K - 3rd Grade Classroom, River Center or Field Trip	Enjoy a visit from Captain Cutthroat and learn about trout anatomy and habitat needs.	<ul style="list-style-type: none"> <li>• Organisms have structures with different functions</li> <li>• Interaction between living and nonliving things</li> <li>• Life cycle and habitat</li> </ul>
<b>Dee Dee the Fryingspan River Dipper</b> K - 4th Grade Classroom, River Center or Field Trip	Learn about RFC's favorite aquatic songbird through storytelling, dress up, and habitat exploration.	<ul style="list-style-type: none"> <li>• Organisms depend on their habitat's nonliving parts to satisfy their needs</li> <li>• Inheritance of traits</li> </ul>
<b>Riparian Bird Olympics</b> 4th - 6th Grade Classroom, River Center or Field Trip	Compete in games using the adaptations of birds while exploring their habitat.	<ul style="list-style-type: none"> <li>• All living things share similar characteristics</li> <li>• Living things also have differences that can be described and classified</li> </ul>
<b>Art &amp; Science of Birds or Bats</b> K - 6th Grade Classroom, River Center or Field Trip	Enjoy playing games using art to learn about bird/bat anatomy and habitat needs.	<ul style="list-style-type: none"> <li>• All living things share similar characteristics</li> <li>• Living things also have differences that can be described and classified</li> </ul>

PLEASE NOTE: All programs can be adapted to different grade levels and different seasons – just ask!



# Watershed Education

## ELEMENTARY SCHOOL & MIDDLE SCHOOL

RFC Lesson Grade Level Location	Program Description	Learning Target/Standard
<b>Weather Stations</b> 4th - 6th Grade Classroom, River Center or Field Trip	Become a weather scientist by creating CER: Claim, Evidence, and Reasoning and testing them with weather instruments.	<ul style="list-style-type: none"> <li>• Weather changes are measured by differences in temperature, air pressure, wind and water in the atmosphere and type of precipitation</li> </ul>
<b>Water Cycle Game</b> 4th - 6th Grade Classroom, River Center, or Field Trip	Become a drop of water and roll the dice to find out where you will land.	<ul style="list-style-type: none"> <li>• Matter exists in different states such as solids, liquids, and gases</li> <li>• Matter can change from one state to another by heating and cooling</li> </ul>
<b>Watery World</b> K - 2nd Grade Classroom, River Center, or Field Trip	Explore the properties and states of water through hands on activities and stories.	<ul style="list-style-type: none"> <li>• Solids and liquids have unique properties that distinguish them</li> </ul>
<b>Water History</b> 2nd - 6th Grade Classroom or River Center	Explore real artifacts from Colorado History while learning about how water shaped our past.	<ul style="list-style-type: none"> <li>• Colorado history</li> </ul>
<b>Augmented Reality Sand Table: Creating and Seeing Watersheds</b> 4th - 6th Grade Classroom or River Center	Use and create maps to understand earth systems and renewable resources. Play with an Augmented Reality Sand Table to learn about water and geology!	<ul style="list-style-type: none"> <li>• Earth's surface changes constantly through a variety of processes and forces</li> </ul>
<b>Riparian Scavenger Hunt and Watershed Games</b> K- 6th Grade, River Center or Field trip	Immerse in role playing games and activities that demonstrate natural world relationships through play.	<ul style="list-style-type: none"> <li>• Animal characteristics provide advantages in survival</li> <li>• Being part of a group helps animals survive</li> <li>• Life cycles and habitat needs</li> </ul>
<b>Effects of Fires on Watersheds</b> 2nd-8th Grade Classroom, River Center, or Field trip	What are the benefits and negative effects of forest fires on watersheds? How does climate change impact fires?	<ul style="list-style-type: none"> <li>• Earth's surface processes interact</li> <li>• Ecosystems</li> <li>• Effects of erosion</li> </ul>
<b>Terrific Trees</b> 2nd - 6th Grade Field or River Center	Ecology and Life Science	<ul style="list-style-type: none"> <li>• Internal and external structures of plants</li> <li>• Obtain and use energy</li> <li>• How plants obtain energy</li> </ul>
<b>Playful Otter</b> K - 4th Grade Classroom, River Center, or Field trip	Learn about the North American river otter's relationship with other animals and how they are specialized for living in local rivers.	<ul style="list-style-type: none"> <li>• Organisms have structures with different functions</li> <li>• Interaction between living and nonliving</li> <li>• Life cycle and habitat</li> <li>• A range of different organisms lives in different places</li> </ul>

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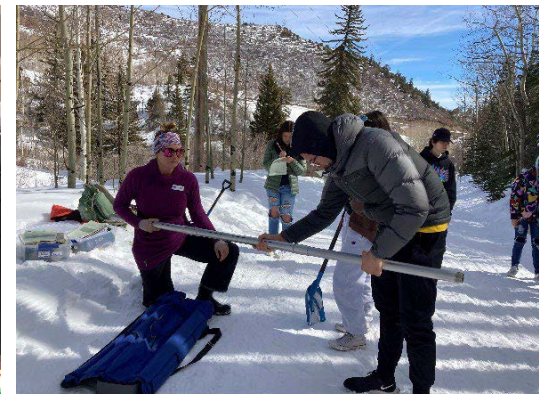


# Watershed Education

## MIDDLE SCHOOL AND HIGH SCHOOL

Program Name	Main Subject	2020 Standards & Main Focus
<b>Macroinvertebrates: Indicators of Water Quality</b> (Aquatic Insects) Classroom, River Center, or Field Trip	Biology	<ul style="list-style-type: none"> <li>Population dynamics</li> <li>Environmental interactions</li> <li>Biological components of stream health</li> <li>Dichotomous keys</li> </ul>
<b>Cutthroat Trout and/or Beavers as Ecosystem Engineers</b> Native Species & Local Adaptations Classroom, River Center, or Field Trip	Biology	<ul style="list-style-type: none"> <li>Anatomy</li> <li>Genetics</li> <li>Ecosystems are dynamic in nature; characteristics can vary over time</li> <li>Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations</li> </ul>
<b>Wetlands and Riparian Ecology Survey: Become an Ecologist on Public Land</b> River Center, Field Trip	Ecology, Social Studies	<ul style="list-style-type: none"> <li>Biotic and abiotic factors</li> <li>Living and nonliving interactions</li> <li>Food chain and energy transfer</li> <li>Learn how communities and government work together to create public lands</li> </ul>
<b>River Ecology</b> We can accompany school raft trips	Ecology	<ul style="list-style-type: none"> <li>Abiotic and biotic factors, basic water chemistry</li> <li>Understanding how human activities and the Earth's surface processes interact</li> </ul>
<b>Water Quality</b> Field Trip, River Center	Chemistry	<ul style="list-style-type: none"> <li>Molecules and reactions</li> <li>Understanding how human activities and the earth's surface processes interact</li> <li>Chemical and physical indicators of stream health</li> </ul>
<b>Streamgages: Measuring the Dynamics of a River</b> Classroom and Field Site	Forces and Motion, Biology	<ul style="list-style-type: none"> <li>Velocity</li> <li>Newton's Laws of Motion</li> <li>Human impact on environment and resources</li> </ul>
<b>Plumbing the Colorado</b> Classroom or River Center	Social Studies, Earth Science	<ul style="list-style-type: none"> <li>Geographic tools</li> <li>Effects of resource availability on organisms</li> <li>Inferences and predictions</li> <li>Western development and expansion</li> </ul>

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# Watershed Education

## MIDDLE SCHOOL AND HIGH SCHOOL

Program Name	Main Subject	2020 Standards & Main Focus
<b>Water Manager: Pass the Jug</b> Classroom, River Center, or Field Trip	Social Studies	<ul style="list-style-type: none"> <li>Role of consumers</li> <li>Resource use and consumption</li> </ul>
<b>Water in the West and Colorado Water History</b> Classroom or River Center	Social Studies	<ul style="list-style-type: none"> <li>Economic systems</li> <li>Water law and history</li> <li>Reservoirs and dams</li> </ul>
<b>Snow Science</b> Field Trip (Classroom if deep snow nearby)	Geology, Chemistry, Nature of Science	<ul style="list-style-type: none"> <li>Digital information as wave pulses</li> <li>Volume and density</li> <li>Snow water equivalent</li> <li>Climate change effects on watershed, food production, and resources</li> </ul>
<b>Groundwater Interactive Model</b> Classroom or River Center	Geology	<ul style="list-style-type: none"> <li>Understanding how human activities and the earth's surface processes interact</li> <li>Use a model to describe the cycling of water through earth's systems</li> <li>Create a CER based on model experiments to explain geoscience groundwater processes</li> </ul>
<b>Weather and Water Cycle</b> Classroom, River Center, or Field Trip	Earth Science	<ul style="list-style-type: none"> <li>Water cycles</li> <li>Collect data to provide evidence for changing weather systems</li> </ul>
<b>Enviroscape: Non-Point Source Pollution</b> Classroom or River Center	Earth Science	<ul style="list-style-type: none"> <li>Humans' dependency and impact on the environment</li> <li>Use a model to learn that best practices create positive changes to physical and biological components of an ecosystem, positively affecting populations</li> </ul>
<b>Augmented Reality Sand Table: Understanding Watersheds and Maps</b>	Earth Science and Social Studies	<ul style="list-style-type: none"> <li>Earth's surface and systems</li> <li>Mapping distribution of resources</li> <li>Geological forces and gravity, and distribution of resources</li> </ul>
<b>Hydrology, Geomorphology and Land Use</b>	Geology and Social Studies	<ul style="list-style-type: none"> <li>Characteristics of places and regions and human interactions</li> <li>Best management practices</li> <li>Earth systems and processes, erosion and weathering</li> </ul>

PLEASE NOTE: All programs can be adapted to different grade levels and different seasons – just ask!

# Watershed Education

## SNOW SCIENCE



Program Name	Program Description	2020 Standards & Main Focus
<b>Snow Water Equivalent</b> 6th-12th Grade, locations vary	Today's snow is tomorrow's water! Measure snow density and calculate how much water is in the snowpack.	<ul style="list-style-type: none"> <li>• Volume and density</li> <li>• Solids, liquids, and gas</li> <li>• Waves and information technologies</li> </ul>
<b>Riparian Animals Need Snow, Too!</b> 3rd - 8th Grade, locations vary	Explore the secret wintry world below our feet. Learn how animals use snow to survive in cold environments. Build a winter den and measure the effectiveness of insulation using a field thermometer. How do animals use snow to help them survive the winter?	<ul style="list-style-type: none"> <li>• Living things also have differences that can be described and classified</li> <li>• Ecosystems are dynamic in nature; characteristics can vary over time</li> </ul>
<b>Snow Crystals</b> 3rd - 8th Grade, locations vary	Study snow crystals and learn about how snow forms, identify states of matter, dig a snow pit, and create a class size snow crystal.	<ul style="list-style-type: none"> <li>• Water cycles</li> <li>• Earth's surface processes interact</li> <li>• Solids, liquids, and gas</li> </ul>
<b>Avalanche!</b> 3rd - 12th Grade, locations vary	Learn about the positive and negative effects of natural disasters through the study of avalanches.	<ul style="list-style-type: none"> <li>• Earth systems and processes, erosion, and weathering</li> <li>• Understanding how human activities and the earth's surface processes interact</li> <li>• Natural disasters</li> <li>• Geological forces</li> <li>• Earth's surface changes constantly through a variety of processes and forces</li> </ul>

Many RFC programs can be adapted for different grade levels or core subjects. Please contact RFC's education staff if you are interested in custom water education programs.

*All Snow Science programs can be combined to create a full day of winter programming.*



ROARING FORK  
CONSERVANCY

*Bringing People Together  
to Protect Our Rivers®*

[www.roaringfork.org](http://www.roaringfork.org)

