



Creek Freaks Sample Schedules

All data forms, instructions, and reproducible worksheets are available online on the Creek Freaks website www.creekfreaks.net. Most are located in the "Library" www.creekfreaks.net/library. Videos to train educators and staff are available for some activities and are located at www.creekfreaks.net/training.



Biological Water Testing Theme: 2-3 hours

What is a watershed? – *Time: <5 minutes.* Begin with an introduction to the word watershed. Have students cup their hands together and discuss where a drop of rain would go if it landed on their fingertips. Explain that everyone lives in a watershed.

Watershed address- *Time: 10-30 minutes.* Communicates a sense of place within a greater watershed. Have youth construct their watershed address using the closest stream or waterbody and following that to the ocean. For example: "I live in the Muddy Branch, Potomac River, Chesapeake Bay, Atlantic Ocean watershed" Youth can use maps for this, or look up interactive google maps on the computer, allowing for greater accuracy. Can take from 10-30 minutes depending on how in depth the instructor gets. Doing it as a group for where program is located would make it shorter, having students do it individually would make it longer.

Model Watershed– (*Addendum pg.20 & How-To instructions*) *Time: 15-20 minutes.* Using an Enviroscape or homemade model watershed, this activity highlights pollution sources within a watershed and pollution prevention. Good introduction to orient youth to what pollution is, and why they should care. Have them brainstorm ideas how they could reduce pollution in their own lives. 20-30 minutes. ****Have students design their own watershed models, using the instructions in the How-To Instructions in the Addendum. This extension will take 30 min to 1hr to complete****

Critter Cubes – (*Use templates located in binder and data form from Addendum pg.9-10*) *Time: 15-30 minutes* Think Yahtzee when playing this game! Pre-make several sets of critter cubes and have students roll the cubes and practice identifying macroinvertebrates, using identification keys, and calculating water quality score.





Biological Stream Monitoring – *(Instructions and data forms in binder)*

Time: 45-60 minutes Take students to stream to perform biological stream monitoring by collecting and identifying macroinvertebrates. Use Creek Freaks data forms to record and calculate the water quality score. Explain what may have caused a low (poor) score or why it would be important to protect a stream with a high (excellent) score. Don't forget to upload your data to www.creekfreaks.net ****Keep in mind travel time to the stream. If it is a short walk or a bus ride might make the difference between this being an afternoon activity to a full day event****



Unstructured time (if possible): “Exploration” Have youth explore the riparian zone. Note differences between upland area and streamside area. Flip over rocks, get dirty etc.

Chemical Water Testing Theme: 2-3 hours

What is a watershed? – *Time: <5 minutes.* Begin with an introduction to the word watershed. Have students cup their hands together and discuss where a drop of rain would go if it landed on their fingertips. Explain that everyone lives in a watershed.

Watershed address- *Time: 10-30 minutes.* Communicates a sense of place within a greater watershed. Have youth construct their watershed address using the closest stream or waterbody and following that to the ocean. For example: “I live in the Muddy Branch, Potomac River, Chesapeake Bay, Atlantic Ocean watershed” Youth can use maps for this, or look up interactive google maps on the computer, allowing for greater accuracy. Can take from 10-30 minutes depending on how in depth the instructor gets. Doing it as a group for where program is located would make it shorter, having students do it individually would make it longer.

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Can you see pollution? – (Addendum pg. 15-18) Time: 15-30 minutes. This discussion activity prepares students to think critically about water quality, and what it means for water to be polluted or not polluted. Asking the “Would you drink this?” question leads to good (and sometimes silly!) discussion. Watch a demonstration at www.creekfreaks.net/training and click Can you See Pollution at the bottom of the page.



Filter Plants – (Holding onto the Green Zone pg. 37, Addendum pg. 3-4) Time 15-20 minutes. This activity requires pre-set up at least 4hrs, ideally overnight to soak celery. Remember dyeing carnations with food coloring in the water for the science fair? This time we use celery! This activity demonstrates how plants are able to filter out pollutants such as nutrients from the water. Be sure to visit the Addendum pages for help facilitating discussion questions. Watch a demonstration at www.creekfreaks.net/training and click Filter Plants at the bottom of the page.



Chemical Stream monitoring – (Instructions and data forms in binder) Time: 30-45 minutes Students will take chemical water samples from a waterbody and record their results on Creek Freaks data forms. This is an option for programs who don't have flowing water on the property, but may have lake or pond. Be sure to discuss the parameters that you are testing for with youth and why you are testing for them, tie in some of the pollutants students heard about in the Model Watershed activity. Creek Freaks chemical monitoring instructions should provide leaders with sufficient background knowledge on the parameters, and data forms provide ideal ranges that each should fall into. Upload the data on www.creekfreaks.net to generate a water quality score.



Let it Rain – (Addendum pg. 19) The Environmental Education take on freeze tag, with a twist! This running game gets kids moving and learning at the same time. Great to use for time filler between activities, or to wrap up the lesson.

Unstructured time (if possible): “Exploration” Have youth explore the riparian zone. Brainstorm areas near the stream that might be contributing pollution. Flip over rocks, get dirty etc.



Physical Stream Monitoring Theme: 2-3 hours

Erosion in the zone - (*Holding onto the Green Zone pg. 40*) *Time: 15-30 minutes (will require pre-setup)* This activity demonstrates to students the importance of plant roots and streamside vegetation for keeping soil in place. We've made some adaptations to the activity that make it easier to run so be sure to watch a demonstration at www.creekfreaks.net/training and click Erosion in the Zone at the bottom of the page.



Putting on the brakes – (*Holding onto the Green Zone pg. 21, Addendum pg. 2*) *Time: 30-45 minutes.* Participants create their own creek channels in plastic boxes or shoeboxes using materials from outdoors (or indoors) Staff can run a contest to see who can slow down their marble (representing water) the most, without it stopping completely. We've made some helpful modifications regarding materials and outdoor adaptations to this activity so be sure to watch a demonstration at www.creekfreaks.net/training and click Putting on the Brakes at the bottom of the page.



****Suggestion-introduce this activity by using a long rope laid out in a straight line on the ground. Use a stopwatch to time the group as they walk (heel-toe) in a line from one end to the other. Then make the rope curvy, and repeat. It will take the students longer to walk the curvy path. They can use this concept as they build their stream in a box, and attempt to slow their marble down. Additional 10 minutes****

Soil Texture Test- (*Holding onto the Green Zone pg.32-33*) *Time: 10-15 minutes.* Have students gather soil from different areas of the riparian zone using shovels, soil augers, or their hands. Observe the texture differences and similarities between the soil types by asking the questions found on the worksheet on pg. 24 of the LEADER GUIDE. You can also observe color differences, moisture differences, compaction etc. FYI- clay like soil tends to manifest itself as body paint/war paint- be prepared to have dirty kids!

Soil Percolation Test - (*Holding onto the Green Zone pg. 33-34, Addendum pg. 3*) *Time: 15-20 minutes.* Collect local soil and use 3 control soil types, sand, clay (clay kitty litter ground in a blender—yes we know it's weird but it works), and potting soil to determine what your local soil is closest to. Watch a demonstration at www.creekfreaks.net/training and click Soil Percolation Test at the bottom of the page.





Physical Stream Monitoring- (*Instructions and data forms in binder*)

Time: 20-30 minutes Students will make observations about the stream and record their results on Creek Freaks data forms. Creek Freaks physical monitoring instructions should provide leaders with sufficient background knowledge. Some math is involved here, and could be incorporated into math or STEM focused programs. Upload the data on www.creekfreaks.net!



Unstructured time (if possible): “Exploration” Have youth explore the riparian zone. Brainstorm areas near the stream that might be contributing pollution. Flip over rocks, get dirty etc.

Rainy Day or Program Extensions!

Preserved specimens identification quiz – If you have a preserved specimen set choose a subset of the macroinvertebrate pictures or preserved specimens and have students try to identify them. Give them magnifying glasses or dissecting scopes for a more in-depth and longer examination. This is a good intro to Biological Monitoring but can be used if instead of outdoor monitoring is the weather is poor or the stream is unsafe. ****Make it a game!** Tape pictures of macros to the backs of students and have them work with a partner to ask questions about their macro until they can guess it. i.e. Do I have legs? Do I have tails?*



You can make a set of preserved macroinvertebrates by collecting samples and preserving the organisms in 70% isopropyl alcohol and a few drops of glycerin in tightly sealed vials.

Make your own macroinvertebrate - Craft activity- use toilet paper rolls, googly eyes, pipe cleaners, straws, Q-tips, cotton balls, feathers, colored paper or other craft supplies to create your own macroinvertebrate. Encourage students to give their macro the adaptations it needs to eat, breathe, find (or make) shelter, and hide or escape from predators. Instructions can be found on www.creekfreaks.net/library in the “How-To” section near the bottom.





Technology

Uploading Data – Biological, Chemical, Physical and Multimedia (photo and video) data can be uploaded to the Creek Freaks website. Program pages can easily be created for programs who are interested in storing their stream data. Keep track of data from year to year and have kids contribute to a nationwide monitoring effort.

CreekFreaks
A project of the Izaak Walton League of America

Get Started Log In
Become a Creek Freak Lead a Program Explore Creeks

Linn County Chapter (Cedar Rapids, IA)

Home
Subscribe to this program
State: Iowa
Site of first Creek Freaks workshop in April 2010. Venture Crew 2000, a group of high school students in Cedar Rapids, are trained Creek Freaks program leaders. They deliver the program to local boy scouts at area creeks. Venture Crew members have their own Creek Freaks t-shirts, featured in some of the photos.
Sampling methodology: IOWATSL

Program map
Map showing location in Cedar Rapids, IA, with markers for Wapello, Dubuque, Marshalltown, Cedar Rapids, Des Moines, and Davenport.

Field Reports

Sampling date	Type of Report	Site ID
09/12/2011 - 2:14pm	Multimedia Report	
06/26/2010 - 12:45pm	Biological Report	

Multimedia
Grid of images showing stream monitoring activities.

Date & Time: Tuesday, June 10, 2014 - 12:03pm

Water Quality Rating: **Good**

How was the score and rating calculated?
Water quality ratings are based on diversity of bugs found in the stream and their tolerance for pollution. For more information about how bugs can tell us how clean the water is, click here.

New to Creek Freaks

Location
Map showing location in Cedar Rapids, IA.

Recent Reports

Sampling date	Type of Report
01/15/2015 - 12:30pm	Chemical Report
09/25/2014 - 3:00pm	Biological Report
06/18/2014 - 12:21am	Biological Report
06/12/2014 - 12:52am	Biological Report
06/10/2014 - 12:05pm	Biological Report

Sensitive

- Caddisflies (except net spinners): 0
- Mayflies: 4
- Stoneflies: 4
- Watersnipe flies: 0
- Riffle beetles (adults or larvae): 4
- Water pennies: 0
- Gilled snails: 0

Prongbill Mayfly

Less sensitive

- Dobsonflies: 0
- Fishflies: 2
- Common net spinning caddisflies: 2
- Crane flies: 0
- Damselflies: 0

Sharing the Story - Depending on the type of program, kids may be interested in presenting their stream data. Writing, filming, or acting out stories about their streams, pollution problems, or stories of success could be unique ways to communicate their data. Have students act and film a news report communicating the results from the stream data, and encourage policy makers to enact legislation to combat the issue/protect the stream. Video can be a great takeaway for students, and can be shared on www.creekfreaks.net



Contact Erin Johnson ejohnson@iwla.org for help on Creek Freaks activities, planning a Creek Freaks program, or to schedule a training for your team!