



## **BASIN/EPA Lessons 2018**

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### **#1 Water Filters Time: 1 Hour**

#### **Objectives**

- 1) Understand the issues of water pollution and the importance of access to clean water.
- 2) Understand why we use water filters and how they work.
- 3) Build a small-scale, simple filter and experiment with filtering various substances from water.

#### **Lesson Breakdown**

- 1) Ask campers/students where their drinking water comes from.
- 2) Discuss why it's important that we have access to clean water. What do we use it for?
  - a) Brainstorm ideas and record them on a large sheet of paper (e.g. drinking, taking a shower, flushing the toilet, doing laundry, cleaning a fish tank, cooking, gardening, etc.)
- 3) Discuss ways our water can get polluted.
- 4) Conduct water filter activity.
- 5) Discuss water filter activity.
  - a) What kind of pollutants needed to be filtered out? Were there certain materials that were easier to filter than others?
  - b) What if we had no water treatment plants to filter our water? What would our water look/taste/smell like if we retrieved it right from Bayou St. John? The Mississippi River? Lake Pontchartrain? The Gulf of Mexico? Would they like to use this water for drinking, bathing, cooking, etc.?
  - c) Even if the water looks clean, does that mean it is drinkable? How could we remove pollutants that we cannot see? How do water treatment plants solve this problem? (e.g. they use chemical cleaners, etc.)

#### **Activity and Materials**

- 5-10 Plastic soda/juice bottles
- 5 -10 vases or tall drinking glasses
- Gravel or small stones
- Clean Sand
- Activated Charcoal
- Cotton balls
- Small cloth or coffee filters
- Gardening dirt
- Dirty Water
- Any natural items found outside
- Materials representing pollution (e.g. "garbage items")
- Scissors

- 1) Break campers/students into small groups and distribute activity supplies to each group.
- 2) Have campers/students think about how our water gets polluted. *How can they use the materials provided to represent everyday pollutants?*
- 3) Make the water filter



- a) Cut the soda bottle above the label. Remove the cap and place the top half upside-down (like a funnel) inside the bottom half. The top half will be the filter and the bottom half will hold the water.
- b) Layer the materials inside of the top half of the bottle (sand, gravel, cotton balls, coffee filters, etc.)
- c) Make a concoction of polluted water in a vase/glass. Use the “pollution materials” provided (garbage, materials outside, dirt, etc.)
- d) Pour the polluted water through the filter. *What does the filtered water look like?*
- e) Take apart the filter and examine it. *Which parts of the filter removed the pollutants?*
- f) Empty out the contents, wipe the bottle clean, and try building a different filter!

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## #2 Lead and Hazard Assessment

Time: 1 Hour

### Objectives

- 1) Understand what lead is and its different forms.
- 2) Understand how to identify lead in the environment.
- 3) Be able to use a lead check stick to identify lead in their environment and/or their homes so they can properly protect themselves and their families from possible hazards.

### Lesson Breakdown

- 1) Ask campers/students who has heard of lead before.
- 2) Discuss lead with campers/students. *What is it? Where is it found?*
  - a) e.g. *Lead is a naturally occurring element found in Earth's crust. It has some beneficial uses but can cause health effects in humans and animals. It is found in paint, ceramics, pipes, plumbing materials, batteries, in the soil, etc.*
- 3) Discuss how people might be exposed to lead and how we can limit our exposure.
  - a) e.g. *Dust, water, corroded plumbing, air, paint, food, sediment, some pesticides and fertilizers, etc.*
- 4) Discuss how lead got into the environment.
  - a) e.g. *Deterioration of lead-based paint, leaded gasoline, lead service lines in water distribution systems, industry (e.g. mines)*
- 5) Ask campers/students if they have any ideas on where lead might be found near the camp/school location.
- 6) Conduct lead and hazard assessment activity.
- 7) Discuss lead and hazard assessment activity. *Did campers/students find lead in any unexpected places? Were they surprised by their findings? How will they limit their exposure to lead in their home/environment?*

### Activity and Materials

- Lead check sticks
- Different objects containing lead: copper statues, fishing weights, Christmas tree lights, etc.
  - 1) Using the lead check sticks and the different objects provided, have campers/students test different objects that may contain lead, paint on the walls of the classroom, different metals, etc.
  - 2) After campers/students have tested different objects, take them around the site. *What objects/locations can they identify that have traces of lead?*



### **#3 Becoming an Environmental Advocate/Government and Policy**

**Time: 1 Hour**

#### **Objectives**

- 1) Discuss current environmental issues.
- 2) Identify local environmental issues and learn how to take action.
- 3) Engage campers/students in activities affecting policy (e.g. letter-writing campaign)

#### **Lesson Breakdown**

- 1) Introduce *Station 15* film (and its creators if they're present). Give some background and inform campers why it was created.
- 2) Show film (15 minutes).
- 3) Discuss film and answer camper/student questions.
- 4) Show video of Chasity Hunter (featured in *Station 15* film) speaking at the Environmental Council.
- 5) Discuss why it is important for youth to be involved in environmental advocacy efforts.
- 6) Discuss current environmental issues campers/students were exposed to during the week (e.g. coastal erosion, lack of tree canopy, stormwater/flooding, lead, water quality, etc.)
- 7) Campers/students will write a letter to councilmembers, the mayor, etc. regarding the issue that affected them most that they learned about during the week.

#### **Activity and Materials**

O Paper

O Stamps

O Envelopes

O Writing Utensils

- 1) Have campers/students choose one environmental issues that they learned about during the week.
- 2) Have campers/students (a) write a letter to a the mayor on an environmental issue of their choosing and (b) use a large piece of butcher paper to have campers record their opinions on a water issue.
- 3) Take photo of campers/students with the large piece of paper (and post to social media).
- 4) Have campers/students address envelopes for letters to mayor. Mail or hand-deliver the letters.