Lesson: Demo Student Activities Before the Trip

- step outside the class, show how to estimate a 10x10 ft. site (choose one with water or bring some & pretend it’s stream water); describe how to take water sample safely & without disturbing the water too much by using gloves & lowering bucket a few inches down into the middle current of moving water
- stress safety & protocols (cultural, scientific methods, respect of others & site, clean up of waste water, site & self … bring environmentally friendly hand-cleaner, paper towels, disposable gloves, trash bag, waste water container & discuss safe footwear/closed shoes!)
- sit near but not in the site and observe it **silently** for 1-5 min. (ask specific students to observe: smells; sounds; textures; and sites such as flora; fauna; inanimate objects; human-made objects; atmosphere; & water motion & appearance … ask students to surmise conditions at site within last 24 hours … use caution to taste or touch) … discuss what everyone observed & how to take notes on the field trip
- show or describe how students will sketch their site with a legend & symbols (need pencil and notepad … works great if all group supplies are in small pail)
- unpack 1 water monitoring kit, showing students the booklet inside, or the hand-out, the vials, tablets and measuring strips (encourage careful work so things don’t get lost and ruin the next group’s field trip!)
- have a student read the directions for 1 or more water test while you demo (remind them to help each other in this way on the trip, just as scientists do)

Materials Needed on Field Trip

- prepare a kit in a pail for each group of 2-4 students
- LaMotte kits have 10 tablets for each test (40 for DO)
  - Dissolved Oxygen/DO, 10 min, 2 tabs
  - Nitrate, 5 min, 1 tab
  - pH, 1 min, 1 tab
  - Phosphate/PHOS, 5 min, 1 tab
  - Temperature, 1 min
  - Turbidity, 1 min
- give groups tablets for only 1 of each test (keep extras yourself in case students need to re-test, or give 1 extra set of tablets to each group … do not encourage waste by giving them all tablets in the kit)

Water Tests that Need Classroom Follow-Up

- one student, group or teacher can test for: Coliform (5 day test, p.11-15 in kit booklet); Biochemical Oxygen on Demand/BOD (5 day test, p.20-21)
SAFETY FIRST!
➥ Keep test water and water kit chemicals away from mouth, eyes, open cuts or sores … wear gloves & put waste water in jug!

WHAT TO DO WHEN YOU GET THERE!
1. In your group get your kit and choose a 10x10 ft. site with water access (fresh or brackish is best) within 50 feet of your chaperone or teacher’s line of sight.
2. Sit beside your Observation Site and observe silently for 5 minutes (each student observes 2 or 3 of the following: smells; sounds; textures; and sites such as flora; fauna; inanimate objects; human-made objects; atmosphere; water motion & appearance; & likely conditions at site within last 24 hours).
3. Write at least 10 notes about what you observed and share this info with your group (help each other like scientist teams do!).
4. Sketch your site and make a legend with symbols to show what’s there … do it from a bird’s eye view (straight down from the sky).
5. Divide the 6 water tests you must do among your group (everyone must be in charge of at least 1 test & observe other tests, too). Write the names of the student(s) doing each test here:
   - Dissolved Oxygen/DO, 10 min, 2 tabs - _____________________
   - Nitrate, 5 min, 1 tab - _________________________________
   - pH, 1 min, 1 tab - _________________________________
   - Phosphate/PHOS, 5 min, 1 tab - _________________________________
   - Temperature, 1 min - _________________________________
   - Turbidity, 1 min) - _________________________________
6. Take your water samples carefully – disturb nothing at your site! When you are done with your test water, put it in the waste water container (when back at school, flush or drain with lots of water).
7. Record all of your group’s test results in your own notes to analyze later in class with the Ranking Results (p.32-33 of booklet). Clean up! Take all trash away from field trip area and wash your hands before you leave – especially before you eat anything!