

## **Fecal Coliform Lesson Plan**

### **Key Understandings:**

- What is Fecal Coliform?
- How these bacteria can get in the water
- What health concerns there are with fecal coliform
- How the levels of fecal coliform are measured in water and their significance

### **Time needed:**

We suggest taking one lesson to discuss Fecal Coliform (FC) and demo the test, and a second lesson to allow the students to perform the laboratory.

### **Discussion:**

Do as a whole-class discussion:

- What are fecal coliform?
- Can they cause disease?
- How do they get in the water?
- Recall FC values for drinking / swimming / boating – what are the units?
- Explain the units and demonstrate the testing procedure itself. Discuss the need for and importance of sterile equipment and procedure.

### **Lab:**

- Follow procedures in the CBL handout
- Each group should test a tap water sample and a sample from a local water body
- Turn in one data / calculations sheet per group

### **Homework:**

- Read CBL Handout on Fecal Coliform (pages 9.1 – 9.7)
- On the MWRA website, find information on how drinking water is treated for fecal coliform.

### **Handouts:**

Vernier Software: Water Quality with CBL – Fecal Coliform

*MWRA Coliform handout*

[http://learnweb.harvard.edu/ent/gallery/pop4/TotalColiform\\_MWRA.pdf](http://learnweb.harvard.edu/ent/gallery/pop4/TotalColiform_MWRA.pdf)

### **Alternatives to this test, comments and further resources:**

Although Fecal Coliform is a very important Water Quality measurement, unfortunately this is a rather expensive test (see Materials section for costs and ordering information). An alternative simple test is available from the Massachusetts Water Resources Authority (MWRA). The MWRA lends out water quality test kits to schools free of charge. The MWRA test is for Total Coliform and is a simple “Yes/No” test that uses a nutrient indicator-containing solution that changes color if coliform bacteria are present. This test does not allow for a quantitative measurement.

If you are unable (as we were) to obtain magnetic filtration holders or hand pumps for this test, it is still possible to perform the filtration using Buchner funnels and a lab bench vacuum setup. You need to make sure that the filter fits well into the funnel and that no water is leaking through under the filter.