

Water Quality Kit

Student Worksheet

Day 1 of the experiment:

Each group of students will receive the following: 4 pretreated petri dishes, 2 bottles of Total Count (TC) **Easygel**, 2 bottles Coliscan **Easygel**, 2 sterile 3 mL droppers and a water sample (or a collecting tube for you to collect your own water sample. Follow your teacher's instructions).

1. Label your petri dishes with the following: names, date, water sample source and the medium type (TC 1, TC 2, Coliscan 1 and Coliscan 2).
2. After consulting Table I to determine the proper amount of inoculum, use the sterile dropper pipet to measure the correct amount of water. For example, if you need 1.0 mL, you will draw water into the pipet until the water reaches the 1.0 mark on the side of the pipet. Lift the tip out of the water and draw the water the rest of the way into the pipet bulb.
3. After measuring the correct amount of water, open a bottle of TC and deposit the water into the bottle. Replace the cap, and swirl gently. Remove the cap and pour into the correct petri dish. Label the dish with the amount of water you added.
4. Repeat steps 2 and 3 for the other Total Count bottle and the Coliscan bottles. Follow your teacher's instructions for incubation procedure.

Day 2 of the experiment:

5. Remove dishes from the incubator and:
 - a. Count all the colonies on the Total Count dish report results in terms of colonies/mL of water.
 - b. Count all the purple colonies on the Coliscan dish (disregard any light blue or white colonies), and report the results in terms of *E. coli*/mL of water.
 - c. Count all the red, pink and purple colonies on the Coliscan dish (disregard any light blue or white colonies) and report the results in terms of coliforms/mL of water
6. Dispose of your materials according to your teacher's instructions.

Table I: Inoculation Amount

Water Source	Medium Type	
	Total Count	Coliscan
River, lake, pond, etc.	0.1 to 0.5 mL (3-5 drops)	1.0 to 5.0 mL
Drinking water	1.0 to 3.0 mL	5.0 mL

Table II: Results

Medium Type	Colonies / mL of water	
Total Count	1	
	2	
Coliscan	Red+Purple (coliforms)	Purple (<i>E. coli</i>)
	1	
	2	

Study Questions:

1. How would you assess the purity of the water you tested? Would you be willing to drink this water? Why or why not? Would you be willing to swim in this water? Explain.
2. Why is a larger inoculum used for the Coliscan medium than for the Total Count? Why would *E. coli* turn red if the Coliscan did not contain the blue dye?
3. Why should drinking water be relatively free of coliform bacteria?
4. Which is more indicative of fecal contamination, red or purple colonies on the Coliscan medium? Why?