

Laboratory 16

Effects of Pollution

Student Tip Sheet

This lab establishes a base for further study of pollution of the environment. You will be asked to expose various organisms to substances or conditions that could be found in a polluted environment. Each small example could be used for further investigation into more specific exposures to different organisms. This is the fast-food menu that just begins to simulate a very complicated smorgasbord of pollutants and affected flora and fauna.

The practicality of an entire class progressing through each of these exercises is a bit daunting. I can foresee hours of preparation by your instructor for just a brief demonstration to prove a few simple and obvious points. The old expression “not much bang for the buck” seems to apply. For a better use of time and resources, your class may be divided into groups so that you can bring, provide, or prepare the varied supplies. Be prepared to learn to work within a group. Someone should be the leader and others should be prepared to cooperate. This builds teamwork and spreads the workload so that no one person is overwhelmed.

Each group needs to do research to gather background data for their assigned experiment or demonstration. You also need to decide whether you are doing an experiment or performing a demonstration. Are you using the scientific method or are you simply describing what happens if? As each group makes their presentation, the rest of the class should have no doubt whether or not this is an experiment or a simple demonstration. Did the presenting group follow the steps of the scientific method? Did the students quantify their resulting data or did you as a member of the audience hear descriptive words such as “the organisms move faster when...” or “it took a long time for...?” There is a place for demonstrations to do just that, to show what happens or to describe an event in subjective terms. You should not confuse the two, however, and should state clearly which you are doing. “This exposure to _____ will illustrate...” introduces a demonstration, whereas an introductory comment such as “After exposure to _____, my hypothesis states that...” guides the listeners to a different plane of thought. Do not fall into the trap of attempting an experiment but really only performing a demonstration.

Specifically regarding the first exercise, if you are asked to make a hay infusion, prepare the hay infusions well ahead of time. Hay infusions can work, but sometimes make a smelly and unproductive mess. Plan ahead, prepare several, and see if they are productive. If you do have a successful living microcosm and need quick identification reference, my choice of guides for freshwater investigations is *A Guide to the Study of Fresh-Water Biology* by Needham and Needham, published by McGraw-Hill. ISBN # is 0-07046137-6. This 100-page paperback gives multiple line drawings for comparison and bits of useful information without offering great volumes of details that can overwhelm anyone other than a professional aquatic biologist. This is a must for your home reference library.

Good luck with this broad introduction to the various topics associated with pollution.