

Investigation 3.C: Preparing for Your Field Study Answer Key

Answers to Procedure Question

2. Some tests will include the following:
 - Ambient air and water temperatures: You should also research seasonal averages.
 - Precipitation: You can use a rain gauge to collect a week's worth of data if the site is nearby.
 - Soil moisture: For a given soil sample, weigh the sample when it is fresh; place in an oven to dry and then weigh again. The difference in the samples will yield the moisture volume of sample.
 - pH tests, conductivity, nitrates and phosphates, and flow rate: Collect water samples and analyze in the field with kits or back in the lab at school.
 - Water clarity: Use a Secchi disk to measure how far a person can see into the water.
 - Average abiotic factors (e.g., rainfall, climate, soils): You can collect long-term data from Agroclimate Atlas.

Answers to Analysis Questions

1. (a/b) Data collection in the field is more accurate for precise spatial information on a specific site than information from a database. However, information gathered in the field will be from one particular time and will lend little information to trends and averages, so the field data should be coupled and presented with data from databases or maps.
2. It is important to have a number of samples from each of the sites, and to take an average of the values. Even within ecosystems, there is great variation of both biotic and abiotic characteristics. If you would like to make generalizations about your ecosystems, the more samples the better. This will increase the reliability of your data. Three samples from each ecosystem for each test will be sufficient.
3. You should have a clear and credible plan for obtaining whatever measurement tools you need, and you should indicate where the responsibilities have been assigned among the team.

Extension

4. Answers should include name and contact information of the person who supplied the information, as well as a detailed list of the tools used in the field.