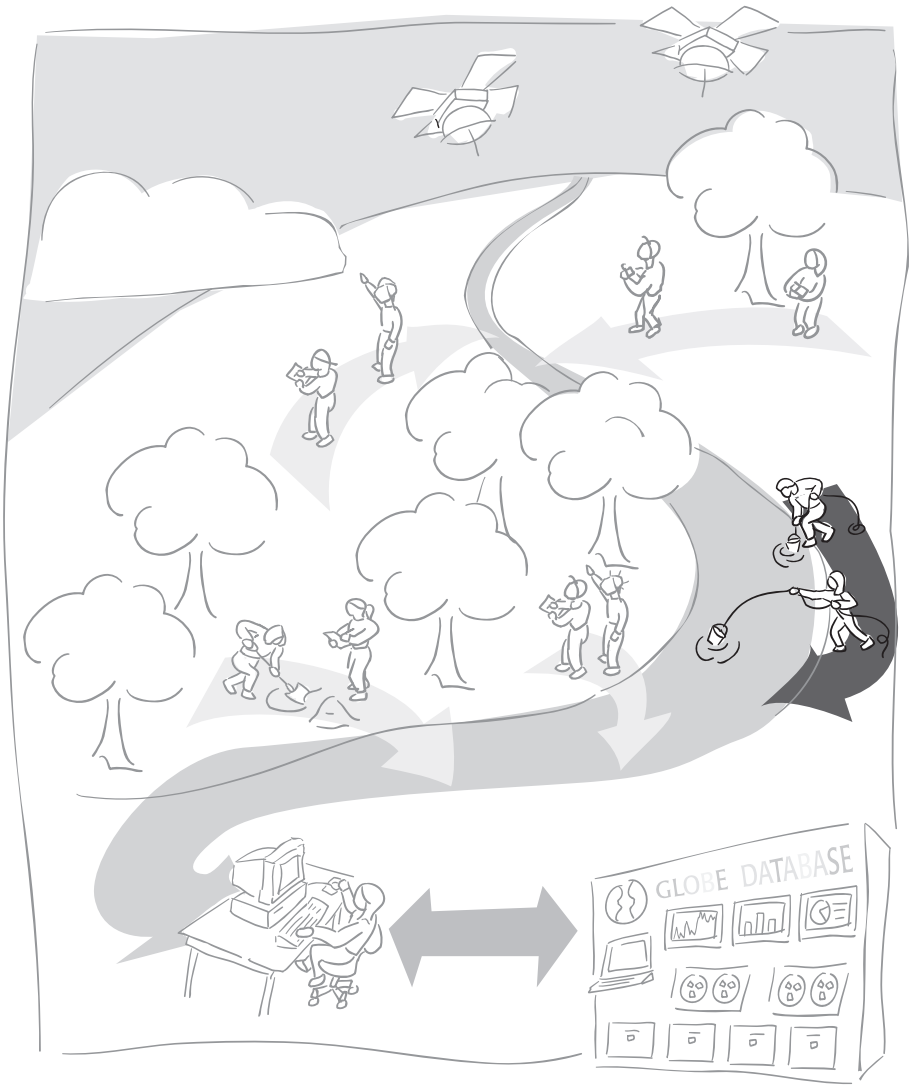
Hydrology Investigation



A GLOBE® Learning Investigation

Hydrology Investigation at a Glance



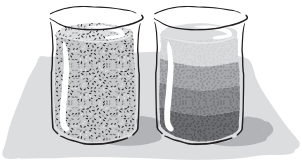
Protocols

Weekly Measurements
Basic
Transparency
Water Temperature
Dissolved Oxygen
Electrical Conductivity
Salinity
Salinity Titration (optional)
pH
Alkalinity
Nitrate

Additional Measurements
Freshwater macroinvertebrates
(twice a year)

Suggested Sequence of Activities

- Read the Introduction, especially the sections *What Measurements Are Taken* and *Getting Started*.
- The *Water Walk Learning Activity* sets the stage for developing a baseline knowledge and interest in your Hydrology Site.
- The *Model a Catchment Basin Learning Activity* provides the big picture view of the students' watershed and the water and study site in relation to this watershed.
- Map Your Hydrology Site. At the beginning of your study as part of defining your site, and once each year thereafter, create a map of the Hydrology Site and take photographs.



- The *Practicing Your Protocols Learning Activity* guides students through learning how to use the instruments and following the protocols so they collect reliable data.
- Begin Field Sampling. Go to the site and begin the weekly measurements for water.
- Use the *Looking at Data* section at the end of each protocol as a guide to examine your data, ask questions and interpret what you find. Start linking water data to other GLOBE measurements.
- Focus on Key Science Ideas by performing the following Learning Activities:
  - *Water Detectives* and *The pH Game* introduce students to key water chemistry variables and to the need using instruments to take certain measurements.
  - *Modeling Your Water Balance* lets students explore how to use their data for modeling.

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The Big Picture .....Introduction 2
GLOBE Measurements.....Introduction 3
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Protocols

Instrument Construction, Site Selection, Site Documentation and Mapping, and Sampling Procedures
Water Transparency Protocol
Water Temperature Protocol
Dissolved Oxygen Protocol
Electrical Conductivity Protocol
Salinity Protocol
pH Protocol
Alkalinity Protocol
Nitrate Protocol
Freshwater Macroinvertebrates Protocol
Rocky Substrates in Running Water
Multi-habitat (sampling a lake, pond, or stream with sandy or muddy bottom)
Salinity Titration Protocol

Learning Activities

Water Walk
Model a Catchment Basin
Practicing Your Protocols
Water Detectives
The pH Game
Modeling Your Water Balance

Appendix

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