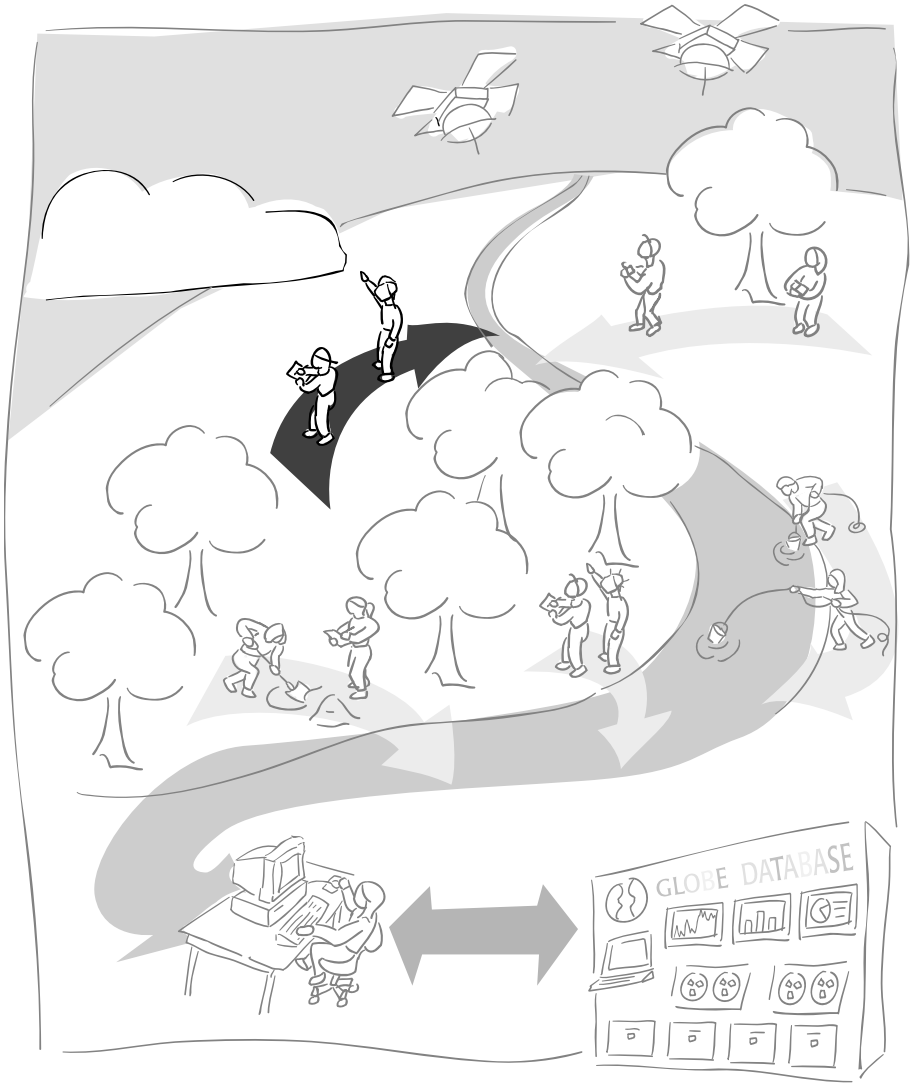
Atmosphere Investigation



A GLOBE® Learning Investigation

Atmosphere Investigation at a Glance

Protocols

Daily measurements within one hour of local solar noon:
- precipitation (rain or snow) including precipitation pH
- minimum and maximum air temperature for the last 24 hours
  (a Digital Day Max/Min thermometer can be read anytime of day)

At least one measurement per day:
- cloud cover and type and contrail cover and type
- aerosols
- water vapor
- relative humidity
- snow pack
- current temperature
- surface temperature
- ozone

Suggested Sequence of Activities

- Read the *Introduction*, especially the sections *What Measurements Are Taken* and *Getting Started*.
- Read the brief description of the learning activities at the beginning of the *Learning Activities* section.
- Review the protocols and plan which measurements your students will take; feel free to start with an easily sustained level of effort and then expand.
- Order any new or replacement instruments required.
- Cloud measurements are the easiest place to start and are required for several other protocols; do these activities with your students before beginning cloud observations:
  - *Observing, Describing, and Identifying Clouds*
  - *Estimating Cloud Cover: A Simulation*
- Install the instrument shelter which is required for taking air temperature measurements.
- Check the calibrations of your instruments (thermometers and barometer or altimeter).
- Have students define their Study Site and submit site definition data to GLOBE.
- Install your rain gauge and barometer or altimeter and plan out measurement logistics (such as where will required instruments and materials stay, timing and time requirements, etc.).
- Choose which *Atmosphere Data Sheets* your students will use and copy them.
- Copy the *Field Guides* for the protocols your students will follow.
- Teach students how to take the measurements following the *Field Guides*, record their readings on the *Data Sheet(s)*, and report data to GLOBE.
- Transfer to the students as much responsibility as practical for taking measurements and reporting data.
- Have students look at their data and comparable data from other schools.
- Engage students in inquiry and help middle and secondary students conduct student research projects using the Looking at the Data sections of the protocols.

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Appendix