

## ***Activity name: State of the Earth–Historical Case Study***

### **Goals**

- to employ the study of water quality as a model for analyzing other issues relevant to the state of the Earth
- to apply knowledge and skill in higher orders of thinking, including application, analysis, synthesis, and evaluation.

<b>Activity</b>	<b>Objectives</b>
Historical Case Study of Water Quality	<ul style="list-style-type: none"> <li>• Graph data for water quality parameters over time</li> <li>• Analyze and synthesize data to determine trends</li> <li>• Investigate historical data of a watershed to determine possible causes for change</li> </ul>

*Introduction:* This activity requires students to critically evaluate trends in water quality for a specific site. They begin by acquiring historical water quality data for their site . This information will be used to determine if water quality, for a specific parameter, has improved or declined over time. After this determination has been made students will be given the task of discovering reasons why this changes may have occurred.

*Learning Objectives:* Students will be able to:

- Graph data for water quality parameters over time.
- Analyze and synthesize data to determine trends.
- Investigate historical data of a watershed to determine possible causes for change.

*Time:* 2-3 class periods

*Source of Activity:* ATEEC Fellows 2000

*Materials:* Internet access

*Math, Science, and Technical Knowledge/Skills:* Interpret and extrapolate trends in data and statistics.

*Scans Skills:* Using information and interpersonal skills

*Authentic Assessment:* Oral and graphical presentation of results

*Procedure:*

1. Students should be divided into groups and assigned the parameter of streamflow for this study. Students will use the internet to find data for a specific site that has

## ATEEC Activities for Real-Life Applications

- been continuously measured for a some historical period. As teachers or students locate data on the internet other parameters besides streamflow could be substituted for or added to the study. Use this site as a starting point for your investigation <http://www.usgs.gov/>.
2. After collecting the data students will create a graph to display their findings
  3. Students will investigate land use practices which could impact the water quality. This investigation will allow them to make suggestions for reasons that the changes have occurred. Here are some possible questions to consider when attempting to explain changes:
    - What changes or trends did you observe?
    - Were the changes gradual or abrupt?
    - Based on your research suggest possible reasons these changes would occur...i.e. if streamflow data dropped by 15% and there was a drought, a correlation could be made.