

A Natural Approach to Chemistry Instructional Strategies

Inquiry:

Both the text and laboratory investigations of ***A Natural Approach to Chemistry*** follow a guided inquiry-based instructional strategy that gives students a direct experience with scientific processes and how they are related to natural phenomena. Every component of the program; experimental design, laboratory investigations, data collection and analysis, computer modeling and simulations and communication are instructional activities that are inquiry-based.

Use of Evidence:

Observation and use of evidence is at the core of developing the scientific process. Materials give teachers and students the opportunity to develop and use scientific evidence as the major tool for developing the scientific process. The student text elaborates with specific examples of the use of evidence and how the evidence results from scientific experiments and observations.

Critical Thinking:

In every laboratory investigation, the students are asked formative questions that focus on developing critical thinking skills. Students are asked to think critically about observations that they make and are required to design derivative experimental procedures that explore a different range of parameters. Critical thinking is further developed by asking students to put concepts together in order to explain a more challenging phenomenon, often with quantitative analysis using their own data.

Making Connections:

Making science relevant to personal experiences is fundamental for the active engagement of students. ***A Natural Approach to Chemistry*** achieves this goal by first placing emphasis on the experiential component of the curriculum, then making direct connections between the various scientific concepts and real world applications.

By making these connections, NAC gives students the opportunity to craft arguments and define positions based on scientific evidence and principles. For example: when students learn about nuclear chemistry, they become familiar not only with the basic nuclear science but also with the implications that these scientific concepts have on their lives.

Communication:

The strong emphasis that ***A Natural Approach to Chemistry*** places on laboratory investigations provides students with many opportunities to develop their oral and written communication skills. Each laboratory investigation requires a communication strategy. In doing the laboratories, students work collaboratively, communicate orally, listen to others, organize their information, build their arguments, and develop ways to present information and draw conclusions.