

10 Science Teaching Tips for Elementary School

Teaching Science for Conceptual Learning and Understanding

Aug 21, 2008 David R. Wetzel

Questioning, critical thinking, inquiry, investigations, hypothesizing, technology, and more are critical for helping students understand and learn the sciences.

Teaching science to elementary students is critical for establishing a foundation for further success in science. There is a need for some basic memorization of facts; however memorization of everything involving science eliminates the inner curiosity students have about the natural world.

Science should be fun and interesting. When students become actively involved in learning science, they retain more than just rote memorization of science facts. Instead of just using worksheets and completing canned science experiments, make science challenging.

Science Teaching Tips

Inquiry, critical thinking, questioning, science games, integration of technology, interactive science websites, and more:

Students Asking Questions – natural curiosity is built around asking questions. Have students develop questions they want to know about something they are investigating.

- For example: Why do plants grow toward the sunlight? Or, Where do rainbows come from? This makes the lesson more personal and more likely to be internalized by the student.

Teachers Asking Questions – help students with critical thinking skills by asking them open-ended guiding questions about an investigation they are conducting.

- For example: Is there any other way you can measure the weight of this book? See 20 Questions to Ask Children for additional examples.

Collect Own Data – instead of using data from canned labs or textbooks, allow students to collect their own data. This is critical for personalizing the investigation and allowing the students to become actively engaged in learning.

- For example: Measuring the growth of a plant or how far a ball rolls on different materials.

Weekly Science Problems – once a week begin class with a problem students must answer related to current concepts being studied.

- For example: Set up station for students to find the volume of irregular shaped objects with a graduated cylinder.

Interactive Science Websites – take students to the computer lab or use a classroom computer learning center to study science concepts.

- For example: Have students' complete specific interactive simulations on the FOSS website.

Science WebQuests – develop your own or find some already prepared and have students work in groups to solve science problems.

- For example: Why are the beaches closed? Or, What causes earthquakes? Visit webquest.org for additional science examples.

Use Science Tradebooks – use tradebooks in connection with science concepts being studied.

- For example: *Box Turtles*, *Face to Face with Caterpillars*, *Close to the Wind: The Beaufort Scale*, *Giants of Science: Marie Curie*. All are recommended by the National Science Teachers Association, Best Science Tradebooks, 2008.

Hands-On and Minds-On – science teaching should be hands-on activities, which requires critical thinking by students for minds-on.

- For example: Students use science tools to take measurements of all substances added to plants to determine which will help the plants grow faster. They are required to make predictions prior to the experiment regarding which substances would work best. Then they justify their findings in writing using the data from the experiment.

Experimental Design – students must have the opportunity to design their own experiments to allow for inquiry-based teaching and learning.

- For example: Students design an experiment to determine how friction affects the distance toy cars travel.

Multimedia Presentations – allow students to collect data and information using digital cameras, camcorders, and websites. They embed this information in PowerPoint presentations or make videos to use when they share their experimental findings.

Science Conceptual Learning

These 10 tips are designed to support conceptual understanding in support of memorization of science facts. The use of these tips actively engages students in critical thinking skills. Active engagement results in students developing better understanding of science and how to conduct investigations like scientists.

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