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Define critical thinking and discuss briefly how a teacher can develop critical thinking skills in students?

Critical thinking is the analysis of available facts, evidence, observations, and arguments to form a judgment. The subject is complex; several different definitions exist, which generally include the rational, skeptical, and unbiased analysis or evaluation of factual evidence.

Critical thinking skills are an increasingly important element of elementary education, but teaching them can often be a challenge for elementary school teachers.

Critical thinking goes beyond memorization, encouraging students to connect the dots between concepts, solve problems, think creatively, and apply knowledge in new ways. Despite myths that critical thinking skills are only applicable to subjects like science and math, the reality is that these skills—which are based on the evaluation and application of knowledge—are not only vital for success in all subject areas, but everyday life as well.

Group projects and discussions are another excellent way for elementary school teachers to encourage critical thinking skills. Cooperative learning not only exposes students to the thought processes of their classmates, it expands their thinking and worldview by demonstrating that there's no one right way to approach a problem.

A history teacher could ask their student why a certain bill was passed in an assembly by understanding the viewpoints of various invested parties. The best way to boost critical thinking is to challenge your students with a tricky problem. They will learn to use the resources at hand to produce creative solutions.

Describe the scientific method and discuss briefly how a teacher can use the scientific method of teaching in class?

The scientific method is an empirical method of acquiring knowledge that has characterized the development of science since at least the 17th century. It involves careful observation, applying rigorous skepticism about what is observed, given that cognitive assumptions can distort how one interprets the observation.

Students, and sometimes even teachers, often think scientists only use the scientific method to answer science-related questions. In fact, you can apply the scientific method to almost any problem. The key is to use the elements (steps) to reduce bias and help come to a solution to the problem. Being involved in science and using the scientific method are not necessarily the same thing. It is possible to be involved in science without applying all the processes of the scientific method. The citizen science movement, which is a very powerful part of the science community, is a great example of this. Citizen scientists are ordinary folks who are involved with pieces of the scientific method, such as data collection.

For example, in the Monarch Monitoring Project, citizen scientists help count migrating monarch butterflies. Each year thousands of people from around the country spend time collecting critical butterfly census data. The Great Backyard Bird Count (GBBC) is another large citizen science project that relies on the help of people from around the country to collect bird data.

Collecting data is one part of the scientific method, and citizen scientists clearly “do science," but they have not applied all the parts of the scientific method. Students should understand that the scientific method is a process that results in a conclusion. Simply gathering data does not result in a conclusion; other steps are necessary.