A Guide to Inquiry Based Science Education

What is Inquiry Based Science Education?

Inquiry based science education is a style of instruction that has its roots in the heart of the scientific method. Science is about asking questions and embarking on investigations to find answers and explanations. These same principles constitute the core of inquiry based science education. Presenting questions to students introduces them to the scientific process while ensuring that they are active participants in the lesson. The instructor not only poses questions, they also encourage children to propose their own questions and to seek solutions. Children are naturally inquisitive and immersion in situations and activities that encourage and sculpt these skills are extremely beneficial.

Inquiry based science is not only about presenting questions, it also involves providing situations for students to participate in investigations and hands on activities. These experiences provide children with the opportunity to understand the scientific principles being discussed. Students involved in explorations of this nature will have a greater understanding of the concepts. In addition, their retention of the material presented is greater because of their active participation in the learning process. As a result, students develop the skills necessary to engage in scientific investigations.

Inquiry Based Science Methods

The inquiry based method presents science as problems to solve rather than facts to learn. Consequently, lessons must provide opportunities for students to observe, raise questions, make predictions, test hypotheses and be active participants in the learning process. To achieve this the instructor should present open-ended questions, which will stimulate thought and discussion. A wide range of responses should be both encouraged and accepted. This does not mean that all answers will be correct and it is the instructors' responsibility to help students clarify their misconceptions. A statement such as, "That is an interesting idea, why don't we try it out and see what happens" can achieve this. Responding in this way ensures that the

student continues to participate in the learning process and does not become discouraged. The child will want to continue to investigate the concepts being discussed to determine if their ideas are right. At the end of the activities or demonstration it is essential that the instructor provides accurate explanations to ensure that students properly understand the concepts that were introduced.

Activities and experiments should be presented with a hands-on approach. Students should be provided with opportunities to test their hypotheses and be active participants. These experiences will allow children to engage in the scientific process, understand the concepts presented and learn about constructing investigations and experiments. Learning in this way fosters a greater comprehension of scientific theories, sparks interest in science and helps develop scientific skills. In addition to the academic benefits of inquiry based science education, children will have fun while learning because they will be activity participating!