



Developing a Philosophy for Inquiry

A prerequisite for becoming an inquiry-based teacher is embracing a philosophical mind-set founded on the ideals and principles of constructivism. Today there are as many interpretations of constructivism as there are interpretations of inquiry, yet many high school science teachers may still be unaware of the publicity that constructivism has attained in the last 20 years and its implications of constructivism for science education, instructional reform, and, specifically, inquiry-based classrooms.

Although it has implications for the classroom, constructivism is not about teaching strategies, nor is it about designing curriculum. Rather, it is one theory or philosophy about how an individual learns, one in which the student is embedded in active engagement and is constantly constructing and reconstructing knowledge through environmental interactions. Because the tenets of constructivism align closely with the practice of inquiry, it becomes essential that inquiry-based teachers have a firm foundation in the propositions of constructivism.

This chapter will (a) introduce the philosophy and historical developments of constructivism that have shaped our understanding of how students learn science, (b) discuss how one's prior knowledge and misconceptions can influence learning, and (c) present constructivist learning strategies compatible with inquiry- and learner-centered classrooms. By understanding constructivist principles, we can better envision our role as inquiry-based teachers. For that reason, it becomes crucial that science teachers interested in inquiry be able to articulate their philosophy of teaching and learning, and apply it to classroom practice. After all, our values, beliefs, and even prejudices about teaching and learning are reflected in our classroom culture. Our classrooms, in a sense, mirror and resonate what we believe is good teaching and learning.

