

activities and effort in order to achieve those goals; and collaborating and conversing with others so that the understandings of all students is enriched. Many students are not ready to assume that much responsibility. They do not want the power to determine their own destiny. It is much easier to allow others to regulate their lives for them. How skilled are students at setting their own agendas and pursuing them? Many students believe in their roles as passive students. However, our experience and the experiences of virtually every researcher and educator involved with every technology project described in this book show that most students readily accept those responsibilities. When given the opportunity, students of all ages readily experiment with technologies, articulate their own beliefs, and construct, co-construct, and criticize each others' ideas. When learners are allowed to assume ownership of the product, they are diligent and persevering builders of knowledge.

Constructivist approaches to learning, with or without technology, are fraught with risks for students, parents, teachers, and administrators. Change always assumes risks. Many of the activities described in this book entail risks. We encourage you to take those risks. The excitement and enthusiasm generated by students while they construct their own understanding using technology-based tools is more than sufficient reward for taking those risks.

Standards

Teachers are challenged to ensure that students meet a myriad of required national, state, and local standards. It was impossible to tie each of our recommended activities to these myriad standards so we chose the most relevant national standards, National Educational Technology Standards (NETS), provided by the International Society for Technology in Education (ISTE), as our focus. NETS are designed to provide educators with frameworks and standards that guide them in creating rich, technology-supported learning environments. Teachers often become overwhelmed by the numerous indicators students are required to demonstrate in meeting state standards, see each of these indicators as discrete, and subsequently design disconnected instruction that isolates individual objectives. Instead, teachers should think broadly, recognizing that rich project-based learning that incorporates problem-solving and authentic tasks can meet many standards simultaneously. Rather than structure this book around specific, grade level lesson plans, we have offered ways that several types of technologies can be used to enhance a variety of learning activities and outcomes. The six general standards that comprise the NETS for students are demonstrated through ten separate, specific grade level performance indicators for students in Grades Pre-K-2, 3-5, 6-8, and 9-12.

Using the Arbor Day/Earth Day Tree Exploration field experiment in Chapter 2 as an example, let's examine how Suzanne Stillwell's fourth grade students could meet the NETS standards and performance indicators for third through fifth graders.