Brain-Powered Science: Inquiry Learning With Unexpected Results

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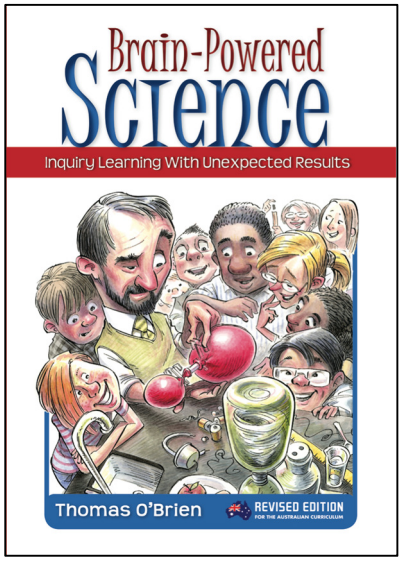

Summary:

Author Thomas O'Brien takes 33 science inquiry activities to a higher level in this book for educators who love to surprise and challenge their students with unanticipated results. Using experiments based on the science of a "discrepant event" – an experiment or demonstration in which the outcome is not what students expect – O'Brien shows how learners can be motivated to reconsider their preconceived notions and think more closely about what has *actually* occurred and the underlying scientific explanations.

What makes this volume more valuable than a mere activity book is the addition of a *science education component* to the extensive science content found in each activity. Each discrepant event is shown to be analogous to a pedagogical principle. The detailed analogies between the activities and science learning make the book an ideal resource for middle years and secondary school teachers, science teacher educators and their preservice students, and professional development specialists alike.

The Australian Curriculum content descriptions found in *Brain-Powered Science* are taken from Foundation (Prep, Reception, Kindergarten etc) to Year 12, but it should always be assumed that these are only a guide. While this book is designed for use with Year 6–12 students, F–5 Australian Curriculum: Science content descriptions are also included to illustrate the appropriate prerequisite work that students should engage in prior to the meaningful review and extensions they will participate in subsequent to those year levels. These content descriptions mainly focus on the physical and chemical sciences, but many of the lessons also draw strong analogies to biological science concepts.

This thorough and thought-provoking text includes many up-to-date online resources, as well as extensions to each of the physical science, biology and chemistry activities – bringing the total number of inquiry activities to nearly 120. Most important, the author reminds teachers that the study of science is full of surprises and should be both meaningful and fun for students.

Supporting Resources:

- *Even More Brain-Powered Science: Teaching and Learning with Discrepant Events* (NST0843)
- *Designing Effective Science Instruction: What Works in Science Classrooms* (NST0782)