

# Chapter 7

## Science, Social Studies, and RTI

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### ABSTRACT

*The Response to Intervention (RTI) service delivery model has been used primarily in the secondary language arts (reading) academic content area and in the various math courses. RTI has rarely, if at all, been introduced in secondary science and social science courses, even though students are struggling in these courses due to the increase in reading and math content embedded within them. This chapter focuses on implementation of RTI in science and social studies courses at the secondary level. The utilization of a universal screener, tiers, progress monitoring, and fidelity is discussed, followed by a presentation of specific examples of research-based interventions that can be used at each tier level in the science and social sciences content areas.*

### INTRODUCTION

Everything in education revolves around reading. If a student cannot read at all, can read the words but not comprehend what was read, or simply does not recognize the sounds of certain letters and how to put those sounds together to make words, he or she will struggle in all academic content areas. Reading is the essence of all subjects taught in school.

Take a minute and think about the last novel you chose to read. There were many words on each page, whether in the form of a conversation between two or more characters or some type of description. You may have been able to visualize in your head the scenery and what the characters were doing. This book was written to perhaps inform you but mostly to provide entertainment and an escape from reality. Because you, the reader, picked out this book, it likely engaged you.

Now think about the last science or social studies book you read. There were also many words on each page, but in this case, there were no conversations between the characters; in fact, there were no “characters” at all. There may have been pictures to assist in clarifying the words, along with headings, subheadings, important highlighted vocabulary words, tables and graphs, and summary sidebars, but primarily the book was filled with information meant to teach you about the content area. If you as the reader were interested in the academic area, it may have engaged you, but if not, you may have found your mind wandering.

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The main purpose for the above comparison is to point out that students need to use different reading strategies when reading informational text like that found in content area textbooks. Friend (2000/2001) conducted research on reading strategies of high school and college-aged students and found that the ones who were taught summarizing skills had better success academically in the content areas. By using summarizing skills, the students could pick out the important contextual information, eliminate the non-essential points, and identify a theme or themes within the reading material. Holloway (2002) concurred, stating, “We should not overlook the obvious benefits of integrating literacy skills in the content areas. This approach produces stronger readers who possess a greater understanding of content knowledge. The benefits are found throughout the K-12 curriculum” (p. 88).

Mathematics is another academic content area of particular focus in schools. Although not as prevalent in every subject area, math is used in science classes and in elective classes such as consumer sciences (formerly home economics), introductory business, and industrial arts, to name a few, hence making math almost as essential as reading. Students may struggle because they “lack an understanding on how to use and manipulate mathematical signs and symbols” (Draper, 2002, p. 524). As such, teachers need to engage middle and high school students in conversations about both reading and math as they relate to other content areas.

Without a certain mastery of reading and math, a student will not be able to function successfully within the school system or later in life in our democratic society. Because of their importance, Response to Intervention (RTI) was designed to focus on reading and math. However, this service delivery model can and should be used in other academic content areas as well, such as the sciences (general, biology, chemistry, and physics) and social sciences (social studies, psychology, history, economics, and government) since success in those courses is highly dependent on reading and/or math skills. Along those lines, this chapter will review specific strategies that can be used for implementing RTI in science and social studies classes.

As has been discussed in previous chapters, in order for the Response to Intervention service delivery model to be successful, the same tiers and procedures must be followed. Thus, prior to examining specific strategies for RTI implementation in science and social studies, this chapter will review the RTI model through a science/social studies lens.

## **RTI COMPONENTS**

The most common format of the Response to Intervention service delivery model includes a universal screening, tiers, progress monitoring, and fidelity. A brief overview of each of these aspects in relation to implementation in science and/or social studies is included below.

### **Universal Screening**

The universal screening tool can be a state-mandated assessment given annually, a curriculum-based measurement assessment developed by the academic content teacher, or a standardized test that the school district or school has adopted. For example, in a science class, the Third International Math and Science Study (TIMSS) assessment for seventh and eighth grade could be used as the universal screener. Sample questions from the TIMSS are shown in Figure 1.

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