Ask the Experts
Expert: Lettie K. Albright, Ph. D.

During the month of March, Dr. Lettie Albright answered your questions about reading across content areas!

Read her response to question 1 below.

Question 1:
Hi- As a middle school math teacher I am wondering what I can do to help some of my struggling readers feel less intimidated by their math text book?
-Kevin Thomas

Response from Dr. Albright:
Dear Kevin,

I'm so glad you recognize that many students need specific help understanding their textbooks. When students reach third and fourth grades, they are usually required to switch from a diet of mainly storybooks to one dominated by textbooks, certainly a type of text unlike any other. Furthermore, we ask them to make this switch without providing them with much guidance on how to use this new form. So, it's understandable that children in middle school still struggle with textbooks. Furthermore, it's likely that even students who don't appear to struggle could benefit from instruction on how to use their books more effectively. It's especially understandable that students struggle with math textbooks, which have some features unique to this subject area, such as the use of symbols and highly technical vocabulary.

First, explicitly teach the parts and features of the textbook to your students. We often assume that all students understand how to use an index, list of tables, etc., by the time they reach middle school, but this is often not the case. Also, help them understand the features within the chapters, such as words in italics or bold print, definitions, explanations, examples, margin notes, diagrams, summaries, etc. This can be accomplished through a variety of whole-class and small-group activities, including teacher modeling/think-alouds and textbook scavenger hunts. Continue to reinforce the use of these textbook parts and aids in each chapter.

Another suggestion is to guide your students through textbook assignments by providing support *before, during,* and *after* the assignments. Also, teach your students to independently approach textbook assignments with this structure in mind. *Before* reading, students should preview the section or chapter by looking at the chapter overview, headings, graphics such as pictures, charts, tables and diagrams, bold or italicized words, and summaries. They should think about what they already know about a topic, since we learn new information by connecting it to information we already know. Students should also set a purpose for reading the text. Sometimes, you will provide the purpose for them (example: How does one describe a set of data using mean, median, and mode?), which you should emphasize and remind them keep in mind as they read. Other times they will set their own purpose. As they preview the text and activate their background knowledge, they can generate questions about the content, which will help them set a purpose for their reading.

During reading, students should read to answer their questions. With a math textbook, students should pay special attention to the vocabulary and the examples provided. Teach them that math textbooks often repeat the following pattern: statement, example, and explanation/summary (Schlumberger and Keller, 1992). They should stop periodically and ask themselves if they understand what they have read. If not, they should use "fix-up strategies," such as rereading, questioning, and asking for help. As their teacher, you can also provide reading guides to support them as they study the text selection.

After reading is a time for students to review and reflect on what they've learned. Students should check to see if their purposes for reading were met. Two effective ways to do this in mathematics are to answer the questions posed before reading and to work a few problems given in the section. As a teacher, you can provide small-group and cooperative learning activities that reinforce the concepts in the textbook and provide the students a chance to learn from each other.

Remember that supporting your students' use of the textbook is an ongoing process. After your initial teaching of strategies for using the textbook, continue to reinforce their use and keep an eye out for new features in subsequent chapters. Your attention to these issues will benefit your students in many of their school subjects and for many years to come!

Original Url: http://www.rif.org/educators/advicetips/askexperts/albright_qu1.mspx

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During the month of March, Dr. Lettie Albright answered your questions about reading across content areas!

Read her response to question 2 below.

Question 2:
I teach science and math to fourth and fifth graders in Junction City KS and I am looking for some strategies to incorporate more reading activities into my lessons. Any ideas?

Response from Dr. Albright:
Dear Science and Math Teacher,

There are a lot of ways to incorporate reading into your science and math lessons. Be sure to read the answer above to learn ways to help your students with their textbooks and other materials. One of the most engaging ways to incorporate reading is to supplement your curriculum with children's literature. There is a wonderful array of trade books about science and math available, and more are being published everyday.

One accessible source for finding these books is the website of The National Science Teachers Association (http://www.nsta.org/ostbc), which annually selects *Outstanding Science Trade Books for Children*. Here is a list to get you started:

Math:

- *Ancient Computing: From Counting to Calendars*, by Michael Woods and Mary B. Woods
- *Anno's Mysterious Multiplying Jar*, by Masaichiro and Mitsumasa Anno
- *G is for Googol: A Math Alphabet Book*, by David Schwartz
- *Grapes of Math: Mind-Stretching Math Riddles*, by Greg Tang
- *The Greedy Triangle*, by Marilyn Burns
- *Math Curse*, by John Sciezska
- *Mr. Archimedes Bath*, by Pamela Allen
- *Sir Cumference and the Knights of the Round Table*, by Cindy Neuschwander

Science:

- *The Life Cycle of a Whale*, by Bobbie Kalman and Karuna Thal
- *Mistakes That Worked*, by Charlotte Foltz Jones
- *The New Way Things Work*, by David Macauley
- *One Giant Leap: The Story of Neil Armstrong*, by Don Brown
- *The Sky's the Limit: Stories of Discovery by Women and Girls*, by Catherine Timmesh
- *Snowflake Bentley*, by Jacqueline Briggs Martin
- *Starry Messenger,* by Peter Sis
- Any book by Seymour Simon

Remember that many of the authors listed above have written multiple books. Once you find an author you or your students like, you can look for other books by that person.
So, what do you do with these books? Try these ideas:

- Read them aloud to your class! Reading aloud to students is a great way to pique their interest in a topic, introduce new concepts, and expose them to information they might not read on their own.
- Think-aloud as you're reading to your students. Verbalizing your thoughts as you read is an effective way to model your comprehension processes for students. This can give them a chance to hear how a scientist or mathematician might think.
- Show students how to use trade books as sources for research or inquiry projects. Model and teach them how to use different graphic organizers to collect and organize the information they find. They can then produce a final project to share their new knowledge. Instead of the usual boring book report, have students create their own nonfiction book, write a play or poem about their topic, or design a poster containing the most important concepts. Be creative!
- Let small groups of students read and discuss different books on topics you're studying. These are often called literature circles or book clubs, and they're not just for language arts class!

- Ensure that you have books about math and science in your classroom library, so that students will have access to them for DEAR or SSR (time for students to read independently in books of their choosing) or for taking them home to read.

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