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Thank you for your request to our REL Reference Desk regarding research that has been conducted on teachers using reading comprehension strategies to teach math. Ask A REL is a collaborative reference desk service provided by the ten regional educational laboratories (REL) that, by design, functions much in the same way as a technical reference library. It provides references, referrals, and brief responses in the form of citations on research based education questions.

The information below represents the most rigorous research available. Researchers consider the type of methodology and give priority to research reports that employ well described and thorough methods. The resources were also selected based on the date of the publication with a preference for research from the last ten years. Additional criteria for inclusion include the source and funder of the resource.

**Question:** *What does the research say about elementary school teachers using reading comprehension strategies when teaching math?*

**Key words and search strings used in the search:** math AND comprehension strategies OR reading comprehension strategies OR reading strategies OR literacy OR literacy strategies; content literacy OR domain literacy AND math;

**Search databases and websites:**

1. ERIC: <http://www.eric.ed.gov/>
2. JSTOR: <http://www.jstor.org/action/showAdvancedSearch>
3. Google Scholar: [www.google.com/scholar](http://www.google.com/scholar)
4. Institute of Education Sciences (IES) Resources: <http://ies.ed.gov/pubsearch/>
5. What Works Clearinghouse: <http://ies.ed.gov/ncee/wwc/>

**Citations Retrieved: (NOTE: Abstracts and executive summaries are copied directly from the reports when possible to ensure accuracy):**

Adams, T. L. (2003). Reading Mathematics: More than words can say. *Reading Teacher*, 56(8), 786-95. <http://eric.ed.gov/?id=EJ667707>

**Abstract/summary:** Provides impetus for teaching children to read mathematics including reading words, numerals, and symbols to successfully uncover the messages of and about mathematics. Provides a variety of examples related to reading mathematics through words, numerals, and symbols and also suggestions that transcend particular mathematics topics and are applicable across grade levels.

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Adams, T. L., & Lowery, R. M. (2007). An analysis of children's strategies for reading mathematics. *Reading & Writing Quarterly*, 23(2), 161-177.  
<http://eric.ed.gov/?id=EJ763800>

**Abstract/summary:** Students “doing” mathematics ultimately results in students reading mathematics. This reading of mathematics is manifested in students reading words, symbols (including numerals), and visuals such as diagrams and graphs. Furthermore, students' successful response to word problems engages them in reading mathematics in the context of real – life or contrived situations presented in text. There are a variety of skills that students might use to read mathematics in these various arenas, and in most cases, multiple skills are utilized. This article presents the cases of two fourth grade students engaged in reading a children's trade book with embedded mathematics and in reading from their mathematics textbook. The authors found that the students utilized the knowledge from their daily lived experiences (from direct and indirect engagements) to assist them with the mathematics in the trade book and used conceptual understanding rather than formal procedures in response to the text of the mathematics textbook.

Adams, A. E., Pegg, J., & Case, M. (2015). Anticipation guides: Reading for mathematics understanding. *Mathematics Teacher*, 108(7), 498-504. <http://eric.ed.gov/?id=EJ1053523>

**Abstract/summary:** With the acceptance by many states of the Common Core State Standards for Mathematics, new emphasis is being placed on students' ability to engage in mathematical practices such as understanding problems (including word problems), reading and critiquing arguments, and making explicit use of definitions (CCSSI, 2010). Engaging students in mathematics through reading and discussing mathematical ideas is an important means of developing these mathematical practices and the skills needed to be successful in such tasks. Reading is a fundamental skill for learning in all disciplines, including mathematics. Independent readers can gain new knowledge and understanding from reading a variety of mathematics-focused texts. Students' reading abilities also influence their performance on mathematics assessments. In this article, the authors describe benefits and specific considerations for supporting reading comprehension in mathematics and discuss the use of anticipation guides as tools to actively and critically engage students in reading, mathematical reasoning, and comprehension of mathematics text. Their discussion is based on their work with mathematics teachers using literacy strategies in the Literacy Instruction in Math and Science for Secondary Teachers (LIMSST) project. During this four-year project, they observed mathematics lessons, collected lesson plans, and interviewed teachers about their use of literacy strategies.

Reed, D. K., & Vaughn, S. (2012). Comprehension instruction for students with reading disabilities in grades 4 through 12. *Learning Disabilities: A Contemporary Journal*, 10(1), 17-33. <http://eric.ed.gov/?id=EJ977717>

**Abstract/summary:** Many students with reading difficulties in grades 4 through 12 experience

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challenges in understanding and learning from text. Some of these learners have demonstrated reading challenges from the early grades and have not acquired successful reading skills. Others were adequate readers in the early grades when word reading was the focus and when text complexity was minimal. Improving reading outcomes for both persistently poor readers and relatively newly challenged readers requires school-wide instructional practices integrated into content area instruction in math, science, and social studies. This article describes these practices and provides examples of how to teach reading comprehension within the content area.

## **Referrals**

### **Organizations:**

- National Council of Teachers of Mathematics: <http://www.nctm.org/>
- Association of Mathematics Teacher Educators: <http://amte.net/>
- Khan Academy: <https://www.khanacademy.org/>

### **Federally Funded Resources:**

- Institute of Education Sciences (IES), public search engine available at: <http://ies.ed.gov/pubsearch/>
- What Works Clearinghouse: <http://ies.ed.gov/ncee/wwc/>

### **Disclaimer:**

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