

## TTP: Additional reading

[Teaching Mathematics Through Problem-Solving](#) (Tom McDougal & Akihiko Takahashi, Fall 2014)

In Japan, math educators have been thinking about how to develop problem-solving for several decades. This article walks through a typical 5th grade teaching through problem solving mathematics lesson highlighting some of the important teaching strategies discovered that support ongoing perseverance in students' problem-solving.

[Why Do Americans Stink At Math?](#) (Elizabeth Green, July 23, 2014)

Green compiles the history of math education in the United States from New Math to the Common Core focusing on two leading math educators, Akihiko Takahashi and Magdalene Lampert, as they share their experiences to improve teaching and student learning in the classroom. This article provides a clear explanation for the difficulties in mathematics classroom.

[Characteristics of Japanese Mathematics Lessons](#) (Akihiko Takahashi, 2006).

Japanese mathematics lessons, especially for elementary grades, include a significant amount of problem solving. This article discusses the instructional approach of teaching through problem-solving, and describes how it is designed to create interest in mathematics and stimulate creative mathematical activity in the classroom through students' collaborative work.

[Anticipating Children's Thinking](#) (Tad Watanabe, 2001)

The Japanese approach to anticipating students' thinking requires understanding about what students already know and represents an effective tool for knowing what questions to ask, how to ask them, and how to design appropriate learning experiences. This discussion, using the example of a fourth-grade introductory lesson on division with fractions explains how students and teacher work together.

