

# DOINGWHATWORKS



SAMPLE MATERIAL

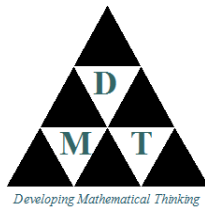
## Questions and Prompts for Developing Mathematical Thinking

Initiative for Developing Mathematical Thinking, Boise State University, Idaho

**Topic:** Improving Mathematical Problem Solving in Grades 4 Through 8

**Practice:** Prepare Problems

This sample material is a list of prompts and questions that can guide teachers in scaffolding students' understanding and reflecting on the steps in problem solving.



## Questions and Prompts for Developing Mathematical Thinking

### Taking Students' Ideas Seriously

- Explain how you solved the problem?
- How did you figure that out?
- What in the problem made you use addition? (*subtraction, multiplication, division*)
- Why did you use this method?
- Who knows what the presenter is going to do next?

### Encouraging Multiple Strategies

- How is your strategy similar/*different* to this approach/*model*?
- Can you solve this problem using a different/more advanced way?
- Does anyone have a different way to explain this?
- How could you organize the information more efficiently?

### Pressing Students Conceptually

- How do the numbers relate back to the problem context?
- Does this approach always work? How do you know?
- For what types of numbers does this approach work?
- How could you rewrite this problem to make it more challenging?
- Is there an example where this doesn't work?
- What is the pattern?

### Addressing Misconceptions

- Would this idea work in all situations?
- When does this idea work and when doesn't it?
- Why doesn't this approach work?
- How could you avoid this mistake next time?

### Focusing on the Structure of Mathematics

- What does this idea/symbol mean in the problem/model?
- What assumptions are you making?
- How would you convince someone else this is correct?
- How does this approach work for more difficult numbers/problems?
- What are the key mathematical ideas that come out of solving this problem?