About
Are you looking for ways to help your students become more confident problem solvers? To help students move beyond “I don’t get it”? To teach Common Core Mathematical Practices?

The Math Forum’s Problem Solving and Communication Activity Series can be used with the Problems of the Week (PoWs) to help students develop, formalize, and reflect on their problem-solving strategies. We also focus on enhancing students’ mathematical communication skills as they write to learn, communicate, and present.

Each document in the Activity Series highlights a problem-solving strategy in developmental sequence and provides focused small-group or partner explorations to help introduce each strategy. Each document includes student handouts to support students as they work through the activities.

The other side of this handout aligns the activity series to the Common Core Mathematical Practices.

Quotes
“I used the Noticing/Wondering strategy again. I LOVE IT! It really gets the students engaged and they feel that they can contribute, especially since there isn’t any pressure to have a right answer.”

—Delaware middle school teacher

“I really like the rounds provided—understanding the problem is exactly where we need to start. Students often miss what is being asked. Round 1 is an excellent place to begin.”

—New Jersey middle school teacher

Rounds

Round 1: Understanding the Problem
What do I notice about the problem? What do I wonder? Can I say it in my own words? Can I say it a different way?

Round 2: Guess and Check
What quantities could I make a guess for? What calculations could I do? How can I check my guess? And how can I organize my work to make good guesses and see patterns in my calculations?

Round 3: Solve a Simpler Problem
What makes this problem hard? What can I change to make it simpler?

Round 4: Making a Table
What needs to be organized? How can I organize it to help me see patterns?

Round 5: Cases
What are the objects or situations in this problem? What kinds of cases do they come in? Examples of different kinds of cases are provided.

Round 6: Logical Reasoning
What must be true? What might be true? What can’t be true?

Round 7: Change the Representation
What are the main ideas in this problem? What are other ways to express them? Examples of different mathematical representation are provided.

Round 8: Make a Mathematical Model
What are the quantities in this problem? How can I write the relationships between them? Can I build those relationships into a model? Or can I think of the big picture and break it down into a complete model?

Round 9: Working Backwards
What’s happening? What must have happened before that?

Round 10: Planning and Reflecting
What information do I have? What strategies could I use? How do I step back if I get stuck? And what can I learn from communicating my plan at each stage?

Round 11: Getting Unstuck
What is going on in this problem? What can I try? What does this remind me of? Why isn’t this working? What am I missing? Do I need more ideas? Do I need help?

Round 12: Play
Play with the information provided in the problem and possible strategies. Several playful activities are provided.

Round 13 Wondering
What am I missing? How does this fit with what I learned before? What am I trying to figure out, again? And much, much more...