Problem Solving Process

1. **Read/Listen Carefully**
   - ♦ Visualize
   - ♦ Connect the information – to personal experiences or to another mathematics problem
   - ♦ Identify (and circle) the words that you don't understand
   - ♦ Look up the words that you don't understand, talk to a classmate, talk to the teacher, refer to the class "word bank"
   - ♦ Re-read the problem. (If the problem is being spoken out, ask for it to be repeated.)

2. **Answer the question "What is the problem asking me to do?"**
   - ♦ Restate the problem in your own words, making sure that it matches the intention and meaning of the author's problem. (Pose it as a question.) *If you are unable to say the problem in your own words, go back to Step 1*.
   - ♦ Identify the information that helps to solve the problem.
   - ♦ Identify information not needed to solve the problem.

3. **Ask "Which strategy will I try?" (If you still aren't 100% certain about how to solve the problem, it's OK.) Choose one or more strategies to try.**

___ Look for a pattern ___ Make a table ___ Draw a picture

___ Make a diagram ___ Guess and check ___ Make the problem simpler

___ Work backward ___ Act it out ___ Make a graph

___ Make a list ___ Identify the mathematics operations that seem to fit the problem

___ Use manipulatives ___ Think of a problem that this problem reminds you of

___ Make a model ___ Write an equation that seems to fit the problem

___ Do research (find books, search the internet, ask someone for help)

___ _____ (another strategy)

4. **Try the strategy (strategies).**
   Perform any necessary actions or computations.
   Check each step of the plan as you proceed.
   Keep a clear record of your work
   If you get stuck, ask "Why did I get stuck?"
   - ♦ *If you still aren't sure about what the problem is asking you to do, go back to Step 1.*
   - ♦ *If the* strategy *you chose doesn't seem to be working, go back to Step 3 and choose another strategy.*

5. **Check -- Ask "Is my answer accurate?" and "How do I know?"**
   Reread the question to make sure that you answered the question being asked.
   Does your answer make sense? Why or why not? (Give evidence.)
   Check all of your computations.
   Did you find the only solution or is there more than one answer?
   Try another strategy to solve the problem and see if you get the same answer(s).
   Work backwards from your solution and see if you can get back to the first step in your solution strategy.

6. **Look backward and forward.**
   Create another problem, like this one, that has the same level of difficulty.
   Create another problem, like this one, that is harder to solve.
   What questions about mathematics do you have after trying this question? (What ideas would you like to learn more about or play with further?)
   What did you discover?
   What surprised you?

This tool was developed at Young Achievers Science and Mathematics Pilot School in Boston, with input from teachers at the Forest Grove School in Worcester, MA.