Explanation and Question Prompts for RDW Problem Solving Model:

Read and Visualize: (Thinking Through and Visualizing the Problem Situation or "Story")

We rely on visualizing when we solve problems. Sometimes we create an image of the situation that is being discussed in order to make sense of it; sometimes we need to visualize a model that can represent the situation mathematically before we can begin to develop it, and sometimes we visualize when solving mathematical problems. Therefore, it is important that we encourage, value and develop visualizing in our classrooms.

The "Read" and Visualize step is essential in helping students UNDERSTAND the problem situation. In the "R" step, teachers, emphasize the importance of visualizing what the problem "story" is about. (Remember: Just reading the problem several times, does not ensure understanding).

-Who are the "characters" in this story?
-What are the "characters" in this story, doing?
-What facts do you have? Are there facts or information that is not needed? Explain
-Can you visualize or picture in your head, what is happening in this math problem or "story"?
-What does this problem make you think of?
-How would you describe this problem? What pictures are in your mind?
-How would you describe this problem using your own words?
-Does this problem remind you of a similar problem or connect to a problem you have seen and worked on before?

Draw (Student "Represent" pictorially or concretely their visualization).

Being able to visualize and then identify a useful image (picture or model) or REPRESENTATION of an idea, helps in understanding the problem situation.

Students may use models they have been introduced to and have worked with before (Examples: Number Bonds, Ten Frames, Tape Diagrams, Base Ten Blocks, Place Value Chart, etc OR they may chose a different representation (picture or model). It's important to emphasize that there are multiple ways to represent a problem. Success in solving problems is related to students' ability to move flexibly among representations. The KEY here is that they DRAW what they visualized in Step 1 and that it CONNECTS and/or REPRESENTS the problem situation. Students' understanding is deepened through discussion of similarities among representations, so it is essential at this step that teachers are asking questions that focus students' attention on the mathematics in the problem.

-How can I represent what I visualized in this problem? (Pictorially or Concretely)

-What is this story about? What do I need to draw or model to help me understand this problem?

-What strategies or models could I use to solve this problem?

-Do I need additional tools? If so, which tools would be most appropriate for solving this problem?

-Of the strategies, methods, models and pictures I may have chosen, which one best fits this particular problem and why?

-Does MY drawing connect or match the problem situation?

Write

Students are describing and justifying their mathematical understanding and reasoning by "writing" the equation that represents their drawings, diagrams, and other representations.

-How would I represent my drawings and/or models, using a number sentence (equation)

-Does my equation match my drawing(s)?

- Are there other strategies or methods I could use to solve this problem?

-Can I explain my representation, strategy, and equation?

-Have I used precise math vocabulary to describe my solution?

-Can I explain my strategies, equations, drawings, and how they connect to the problem, to another student?