What is Problem Solving?

There are two major types of problem solving – reflective and creative. Regardless of the type of problem solving a class uses, problem solving focuses on knowing the issues, considering all possible factor and finding a solution. Because all ideas are accepted initially, problem solving allows for finding the best possible solution as opposed to the easiest solution or the first solution proposed.

What is its purpose?

The process is used to help students think about a problem without applying their own pre-conceived ideas. Defining what the problem looks like is separated from looking at the cause of the problem to prevent premature judgment. Similarly, clarifying what makes an acceptable solution is defined before solutions are generated, preventing preconceptions from driving solutions. Some people argue that problem solving is the art of reasoning in its purest form. In the classroom, problem solving is best used to help student understand complex ethical dilemmas, think about the future or do some strategic planning.

How can I do it?

Reflective Problem Solving follows a series of tasks. Once you have broken the students into groups, the students define the problem, analyze the problem, establish the criteria for evaluating solutions, propose solutions and take action.

Define the Problem: List all the characteristics of the problem by focusing on the symptoms, things affected, and resources or people related to defining the problem. In the end, pair down the thinking to a clear definition of the problem to be solved.

Analyze the Problem: Use the evidence you collected in step one to decide why the problem exists. This step is separate from defining the problem because when the steps are done together it is possible to prejudge the cause.

Establish Criteria: Set a clear objective for the solution. If the problem is too hard, break the objectives into two categories – musts and wants. Don't discuss solutions yet, just what criteria a solution must meet.

Propose Solutions: Brainstorm as many different solutions as possible. Select the one that best meets the objectives you stated as a part of the criteria for a solution.

Take action: Write a plan for what to do including all resources you will need to complete the plan. If possible, implement the plan.

Creative Problem Solving uses the same basic focus, but the process is less geared towards solutions and more towards a focus on brainstorming. The focus is on creating ideas rather than solving a clear existing problem. Sometimes the problem is pre-defined, and the group must focus on understanding the definition rather than creating it.

Orientation: Similar to defining the problem, orientation also focuses on being sure the group is prepared to work together. The group might take the time to agree upon behaviors or ways of saying things in addition to setting the context and symptoms of the issues. The group generates a series of headings that group the topics they must address.

Preparation and Analysis: Decide which headings are relevant or irrelevant. The group focuses on similarities and differences between ideas and works on grouping them into like categories. The group asks how and why a lot, and focuses on the root cause of the problem in a way that is similar to analyzing the problem.

Brainstorm: The group generates as many potential solutions as possible. At this point, all ideas are considered to be good ones.

Incubation: Before deciding which solution is the best, the group should leave the problem for as much time as reasonable. Often several days or a week is ideal depending on the ages of the students. Leave enough time to develop distance but not long enough for students to lose the gist of their earlier work.

Synthesis and Verification: Start by establishing the criteria for a good solution, then look at all the brainstormed solutions and try to combine them to create the solution with the greatest numbers of positives and the smallest numbers of negatives.

How can I adapt it?

If you are working in a multi-grade room or on a project that involves a diverse group, problem solving is a great process for achieving consensus. You can also use parts of the process to help students challenge set thinking patterns.

This is from http://olc.spsd.sk.ca/de/pd/instr/strats/psolving/index.html