

USING A PROBLEM SOLVING PROCESS

FUN-DAMENTALS

In George Palya's book, How To Solve It, he teaches four basic principles of problem solving. Using these basic steps is how mathematicians do their work. Remember to be fearless when problem solving. Take risks. Even professional mathematicians make mistakes. Mistakes will help you learn and ultimately will help you be successful as you continue to grow and learn.

STEP 1 — UNDERSTAND THE PROBLEM

The first step to problem solving is to make sure you understand the problem. Ask yourself the following questions: Do I understand all the words used in the problem? What am I asked to find or show? What does the answer look like? Can I restate the problem in my own words? Is there a picture or diagram that will help me understand the problem?

STEP 2 — DEVISE A PLAN

Make a plan to help you find a solution. To do this, find the connection between the data and the unknown. Have you seen this problem before? Do you know a theorem that could be useful? What does the answer look like? Possible strategies could be: guess and check, solve a simpler problem, find a similar problem and go off of that, work backwards

STEP 3 — CARRY OUT THE PLAN

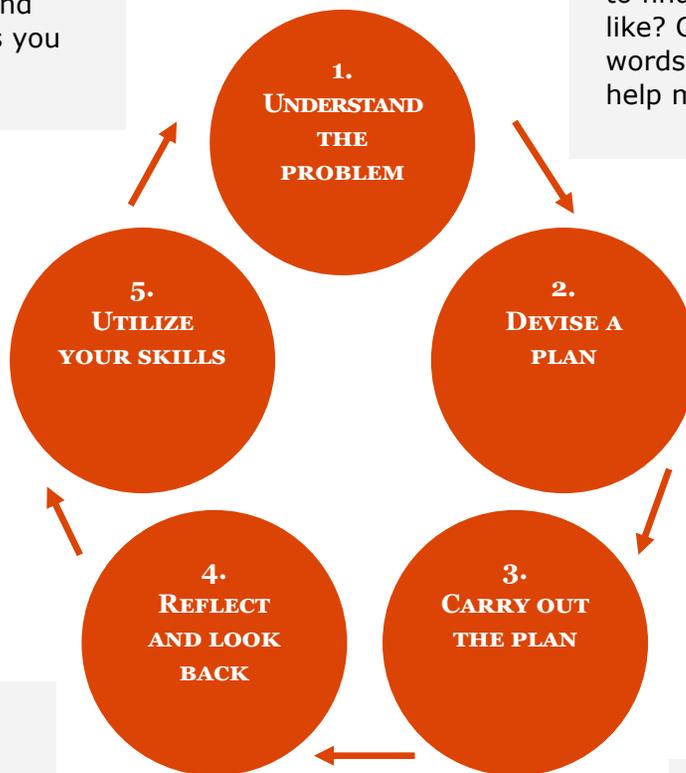
Use the plan you have chosen. Be patient with yourself. Check each step. Can you see that you are answering the problem in the right direction? If it continues not to work, choose another plan.

STEP 4 — REFLECT

After you have come to a solution, it is time to look back on the problem solving process. Examine the solution. Determine what worked and what didn't work while you were working through the solution. Doing this will enable you to predict what strategy to use to solve future problems.

Now that you have effectively solved the problem, use your skills. You can do this by starting another problem, explaining how you got your solution to a peer, or working through past problems that have given you trouble.

STEP 5 — UTILIZE YOUR SKILLS



Adapted from "Polya's Problem Solving Techniques". (2012). Retrieved from <http://math.berkeley.edu/~gmelvin/>



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