

Strategies for Advanced Thinking

SOLVED

To help me with problem solving.

This strategy is designed to help you understand the process of problem solving. You can apply it to solving your own problems or understanding how others have solved problems. For each step, use self talk to verbalize the thinking required. Also, use graphic organizers to help you represent the relationship between ideas at each step.

Set out the problem.

- Identify the problem to be solved.
- Say it in your own words. Then write it down so you are sure that you understand it.
- For example, if the problem is how to solve the gasoline crisis, write: “*What are all the ways that the gasoline shortage can be solved?*”

Outline all possible solutions.

- Brainstorm all the ways that the problem might be solved.
- Don't reject any solution at this step.
- Construct a graphic organizer with the problem written in a circle in the center and all the possible solutions written in circles that come out of the center circle.
- For example, for the gasoline shortage, the following solutions might be projected.
 - ✓ Conservation.
 - ✓ Alternate fuels
 - ✓ Electric cars.
 - ✓ Unlimited exploration of oil in the U.S.
 - ✓ Unlimited exploration throughout the world.
 - ✓ More fuel efficient cars.
 - ✓ More public transportation.

List the consequences of each of the solutions that were outlined.

- Think of what will be the likely effect of each solution. Think of the solution as a cause and the consequence as the effect.
- Create a graphic organizer for each solution where the solution is written in the center circle and the consequences for it are written in circles that project from the center circle.

- For example, for the consequences of unlimited exploration of oil in the U.S., the following consequences might be projected:
 - ✓ Might result in ecological problems.
 - ✓ There might not be limitless reserves of oil.

View the rankings.

- On the basis of the consequences you projected, rank the solutions in terms of what will work with the least amount of negative consequences.
- View the rankings and select the highest ranked solution (or solutions) as the choice to be put into action. There may be no one best solution, but several solutions that have to be considered together.
- For the example above, you might rank the possible solutions in the following order based on the ease with which they could be put into effect and the least resistance from the public:
 1. More fuel efficient cars.
 2. More public transportation.
 3. Conservation.
 4. Alternate fuels.
 5. Electric cars.
 6. Unlimited exploration of oil in the U.S.
 7. Unlimited exploration in the world.

Execute the solution.

- The highest ranked solution (or solutions) should be put into action. Think of all the things that would have to be done to make the solution work. Make a list of these.
- To execute the above sample, the list of actions that would have to be taken might include getting car manufacturers to increase fuel efficiency, getting governments to allocate more money for public transportation, getting the public to change its opinion toward public transportation, etc.

Did it work?

- If you put the solution into action, evaluate it to see if it worked. If it did not, go back and view the other possible solutions and consider which should be tried.
- If it is not possible to put the solution into action, as in the previous example, list questions that need to be answered to determine if the solutions worked. For example, you might ask:
 - ✓ Do people use more public transportation if more options are provided?
 - ✓ Would auto manufacturers willingly increase fuel efficiency?
 - ✓ Who would pay for production of alternate forms of fuel?

- In some cases, you will need to go back and start the problem solving process again to search for the best solutions to the problem.

