

EDGETraining

systems inc.



PROBLEM SOLVING & DECISION MAKING

Achieving Desired Results

Participant Coursebook



By Tony Iyob



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Published by: Edge Training Systems, Inc., 491 Southlake Boulevard, Richmond, VA 23236
800-476-1405, www.edgetraining.com

AGENDA

I. Definition of Terminology

II. Six Stage Problem Solving Process

III. Techniques of Problem Solving

- Brainstorming
- Gap Analysis
- Drivers & Barriers

IV. Tools Used in Evaluating Ideas

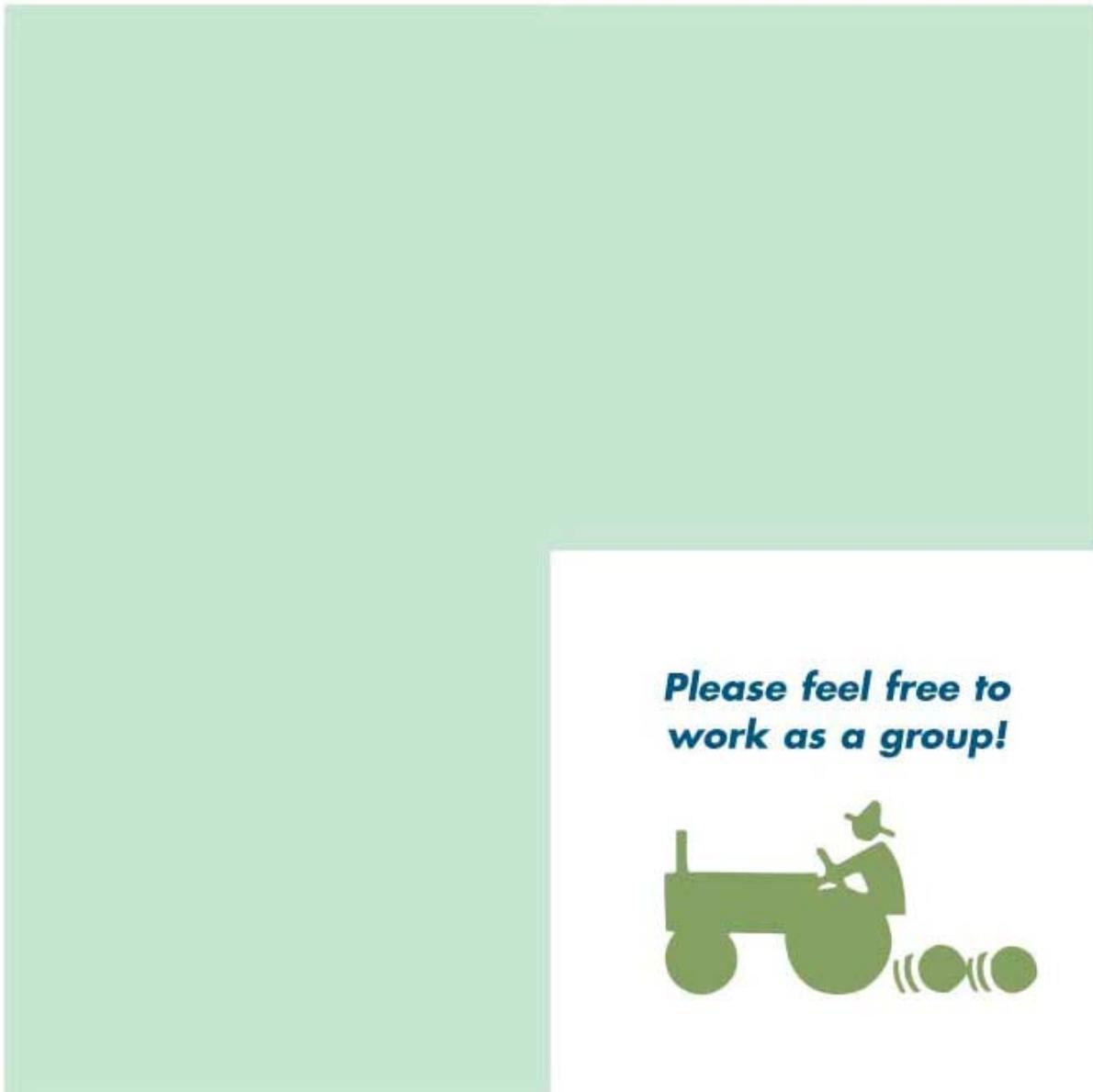
- Knowledge Ranking Ideas
- Advantages/Disadvantages
- Check Sheets
- Impact/Implementation Difficulty Analysis
- Low Hanging Fruit Matrix

For Preview Purposes Only

FARMER'S LAND BEQUEST

Subdivide a farmer's property upon his death into four pieces of equal size and shape for distribution to his four offspring.

All land given to each offspring must be adjoining itself and it cannot be distributed piecemeal.





DEFINITION OF TERMS

It is important to understand the terminology before we begin.

People think of problems and solutions going hand-in-hand. We are driven to find solutions when we are confronted with problems.

Sometimes we mistake symptoms for problems. We will talk about how to drill down deeply to find the real problem and the cause so you can begin to try to find solutions. Solutions are possibilities, ideas, strategies, desired results.

PROBLEM

SYMPTOM

CAUSE

SOLUTION



PROBLEM SOLVING & DECISION MAKING VIDEO

As you watch the video, take note of the six steps included in the problem solving process.

STEP 1

STEP 2

STEP 3

STEP 4

STEP 5

STEP 6

PROBLEM SOLVING PROCESS

1. Define the Problem

What exactly is happening that needs to be fixed, or modified or improved? The more clearly the situation or item in question can be identified, the easier it is to know what a viable solution might look like.

2. Analyze the Problem by Doing a Gap Analysis

Define today's state and then define the future desired state. This shows you where you are and where you want to be.

3. Develop Solutions

Gather everyone around and brainstorm all the ideas you can. One of the key things to remember here is that when brainstorming there are no stupid ideas. You need to encourage everyone to think as if the impossible is possible.

4. Evaluate Solutions

Conduct a Force Field Analysis that will help you identify the Drivers and Barriers to reaching your desired future state within each solution. Use the Low Hanging Fruit module to rate the potential of each option as well as the impact it might have if implemented.

5. Choose and Implement the Best Solution

Design an implementation strategy to guide your execution. Create action plans, time lines and chart measurable results that you wish to achieve.

6. Follow up and Evaluate Progress

Follow up with your plan and evaluate it's progress. Adjustment might have to be made in order to tweak the solution that best meets your original objective.

DEFINE THE PROBLEM

Ask why numerous times...

Asking “why?” is the backbone of creative problem solving. You are usually faced with symptoms. If you don't ask why and dig deeper, you won't be solving the real problem or be able to find the real cause of the problem.

For example: Let's say my car doesn't start. Is that the problem? No, that is a symptom. So, you ask, “Why didn't the car start?” Let's say the answer is that the battery is dead.

Is that a problem or a symptom? A dead battery is probably a symptom of the true problem. Now you ask, “Why did the battery go dead?” This forces you to think of all the things that would kill a battery, like a bad alternator, a loose belt, lack of fluid in the battery, bad connection, left the lights on, etc, etc.

You check out all of these possibilities and you fix the true problem. If you had a bad alternator and had only replaced the battery, did you solve the problem? No, so can you see the value of asking why?

Other Tips:

- Break complex problems into smaller parts and solve the small parts.
- When there is disagreement about what the problem is, get all the data and facts.
- When you are having difficulty in understanding the problem, leave it for a while, let it sink in, go back to it when you are fresh.
- Involve other people with different points of view.

PROBLEM SOLVING PROCESS

2. Analyze the Problem

- Conduct a gap analysis.
 - What are we trying to accomplish?
 - Define the current and the desired state.
 - This shows you where you are and where you want to be.
-

What are you trying to achieve by solving this problem?

- Involve the people who have a stake in solving the problem.
- Get their input.
- Make sure that everyone fully understands the problem or you may find that you are getting different solution objectives.

Be very specific. The objectives should be measurable. For example, let's say that you were looking for an increase in sales. You should define the specific percentage of increase, which will need to increase, when it will need to happen, in what regions, etc, being that specific will help in finding the solution.

Paint a picture of the desired result, so that everyone involved can visualize it.

If there is more than one objective, make sure that they are not conflicting with each other.

Also, define which objectives are most important.

- Goals & objectives should be specific and measurable.
- Begin with the end in mind, by determining what the end solution would look like.
- Prioritize, if more than one objective is identified to solve a single problem.

ANALYZE THE PROBLEM - GAP ANALYSIS

How do we increase profitability?

Remember, you are not trying to solve the problem; you are performing a gap analysis to determine where you are now and where you want to be.

only

CURRENT STATE <i>Where are we now?</i>	DESIRED STATE <i>Where do we want to be?</i>
<i>Think of the forces that will support or block the implementation. We call these "Drivers" & "Barriers".</i>	
DRIVERS <i>Forces that support your plan.</i>	BARRIERS <i>Forces that block your plan.</i>

PROBLEM SOLVING PROCESS

3. Develop Solutions

- Brainstorm all possible solutions.
 - Require group commitment.
 - Groups made up of people with different points of view are more productive.
 - Encourage participation and think the impossible is possible.
-

If you are running a brainstorming session, here are some things you can do:

- Before starting, allow 3-5 minutes for people to think about the topic individually.
- Break the group into small groups of 3-4 people. Some people are more comfortable sharing their ideas in smaller groups. Non-participants will be more evident in small groups and can be encouraged.
- Realign groups to expose people to new ideas. Plus, people who spend a lot of time together begin to think alike. You want to shake things up to promote creativity.
- Encourage people who are hesitant or who have reservations to make their thoughts known. Otherwise, they will just go along with the group to avoid making waves.
- Incorporate activities that require movement, participation and humor because they break down communication barriers. People who laugh together see each other as individuals, rather than titles/positions.
- When the flow of ideas slows down, stimulate the energy in the room by introducing a new train of thought, taking a break to do something different (stretch, joke, throw a ball around, whatever), or sidestep to brainstorm a different, but related topic.

IDEA STIMULATORS

- **In a perfect world, what would this look like?**
- **What if . . . ?**
- **What if a famous or historical person were solving this problem?**
- **Why? Why? Why?**
- **How else could this be done?**
- **What does this look like to the customer?**
 - ... to another department?
 - ... to a newcomer?
 - ... to a child?

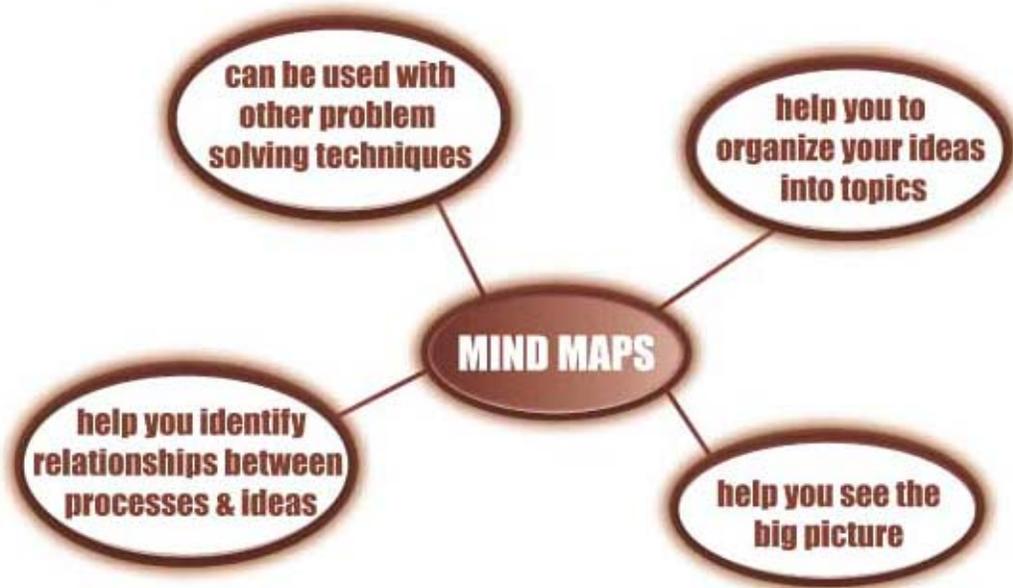
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- The key to generating a lot of ideas is to ask a lot of questions.
 - Questions provoke a search - for knowledge and for understanding.
 - Ask who, what, where, when, why, and how about all aspects of the problem to be solved.

Questioning is the quickest and most direct way to stimulate creativity. Try to avoid questions that go into an endless loop, going nowhere, such as Why me? Why did it have to happen? Rather, ask questions that open the mind, that search for information, alternatives.

Questions are empowering because of this. They lead to new thoughts, new ideas, new possibilities, and new solutions.

On the next few pages we have provided a list of questions that will help you if you run out of questions. They won't all apply to every problem, obviously. But, they may help you to think of your own questions.

MIND MAPPING



Notes: Whenever information is being taken in, mind maps help organize it into a form that is easily assimilated by the brain and easily remembered. They can be used for noting anything: books, lectures, meetings, interviews, phone conversations or recall. Whenever information is being retrieved from memory, mind maps allow ideas to be quickly noted as they occur, in an organized manner. There's no need to form sentences and write them out in full. They serve as quick and efficient means of review and so keep recall at a high level.

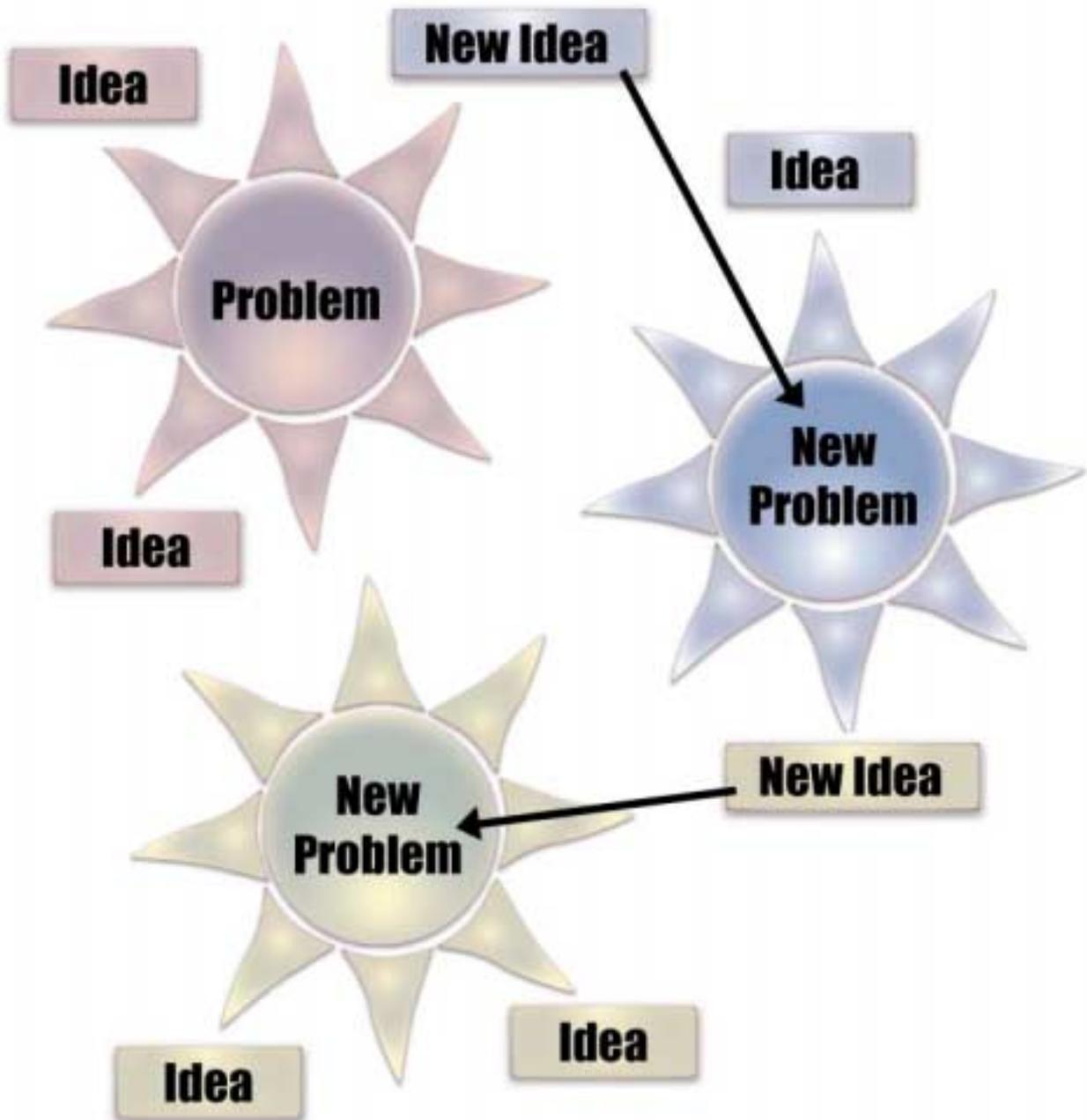
Creativity: Whenever you want to encourage creativity, mind maps liberate the mind from linear thinking, allowing new ideas to flow more rapidly. Think of every item in a mind map as the center of another mind map.

Problem Solving: Whenever you are confronted by a problem, professional or personal: mind maps help you see all the issues and how they relate to each other. They also help others quickly get an overview of how you see different aspects of the situation, and their relative importance.

Planning: Whenever you are planning something, mind maps help you get all the relevant information down in one place and organize it easily. They can be used for planning any piece of writing from a letter to a screenplay to a book or for planning a meeting, a day or a vacation.

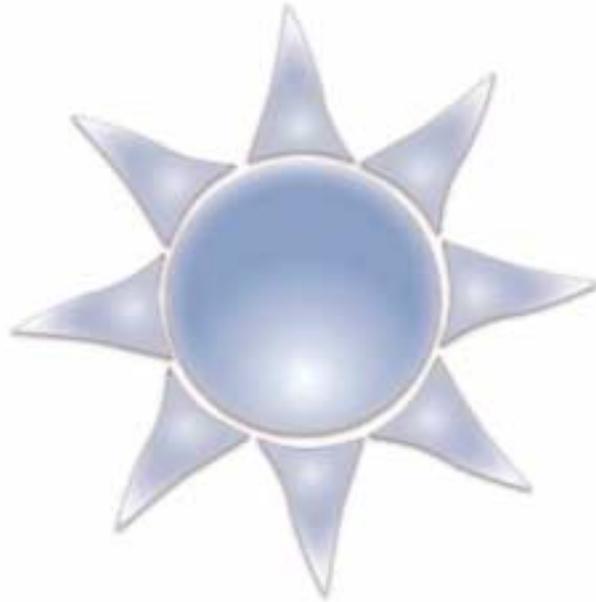
Presentations: Prepare a mind map of the topic and its flow. This not only helps organize the ideas coherently; the visual nature of the map means that it can be read in your head, without ever having to look at a sheet of paper.

MIND MAPPING



MIND MAPPING ACTIVITY

How can we increase profitability?



For Preview

PROBLEM SOLVING PROCESS

4. Evaluate Solutions

- Compare your ideas to your solutions to determine which idea will most completely satisfy the objectives.
 - Be scientific by utilizing the methods of developing criteria.
 - Rate the potential of each item.
 - Make your solution actionable – specific, measurable, with time frame, cost, etc.
 - Using all methods; choose the best solution to the problem.
-

Various Methods:

1. Rank the ideas using the your current knowledge base
2. Identify the advantages and disadvantages
3. Apply an Impact/Implementation Analysis
4. Complete a “Low Hanging Fruit” Matrix
5. Compare our findings based on results

The obvious choice would be the idea that ranks the highest using all the methods.

EVALUATE SOLUTIONS

How do we increase profitability?

Refer to your original list of ideas on page #13. Narrow down your list and pick your top 5 ideas.

List your top 5 ideas in order of preference.

1.

2.

3.

4.

5.

EVALUATE SOLUTIONS

List the advantages and disadvantages of each idea.

Using your top 5 ideas from page #19, narrow your list down to your top 3 ideas then list the advantages and disadvantages of each idea.

214

Idea #1:	
Advantages	Disadvantages
Idea #2:	
Advantages	Disadvantages
Idea #3:	
Advantages	Disadvantages

PROBLEM SOLVING PROCESS

5. Choose and Implement the Best Solution

- Compare your solutions to determine which idea will most completely satisfy the objectives.
 - Choose the solution that best meets your objectives.
 - Design an implementation strategy to guide your execution.
 - Create action plans, timelines and chart measurable results that you wish to achieve.
 - Develop contingency plans just in case things don't go as planned.
-

Remember the Methods Used:

1. Rank the ideas using the your current knowledge base
2. Identify the advantages and disadvantages
3. Apply an Impact/Implementation Analysis
4. Complete a “Low Hanging Fruit” Matrix
5. Compare our findings based on results

The obvious choice would be the idea that ranks the highest using all the methods.

IMPACT/IMPLEMENTATION DIFFICULTY ANALYSIS

Idea #	Task or Action	Level of Business Impact	Level of Implementation Difficulty
1	Cut Expenses	H	L

For Preview 1

LOW HANGING FRUIT MATRIX

Level of Implementation Difficulty	High			
	Medium			
	Low			1
		Low	Medium	High
		Level of Business Impact		

For Preview Purposes

PROBLEM SOLVING PROCESS

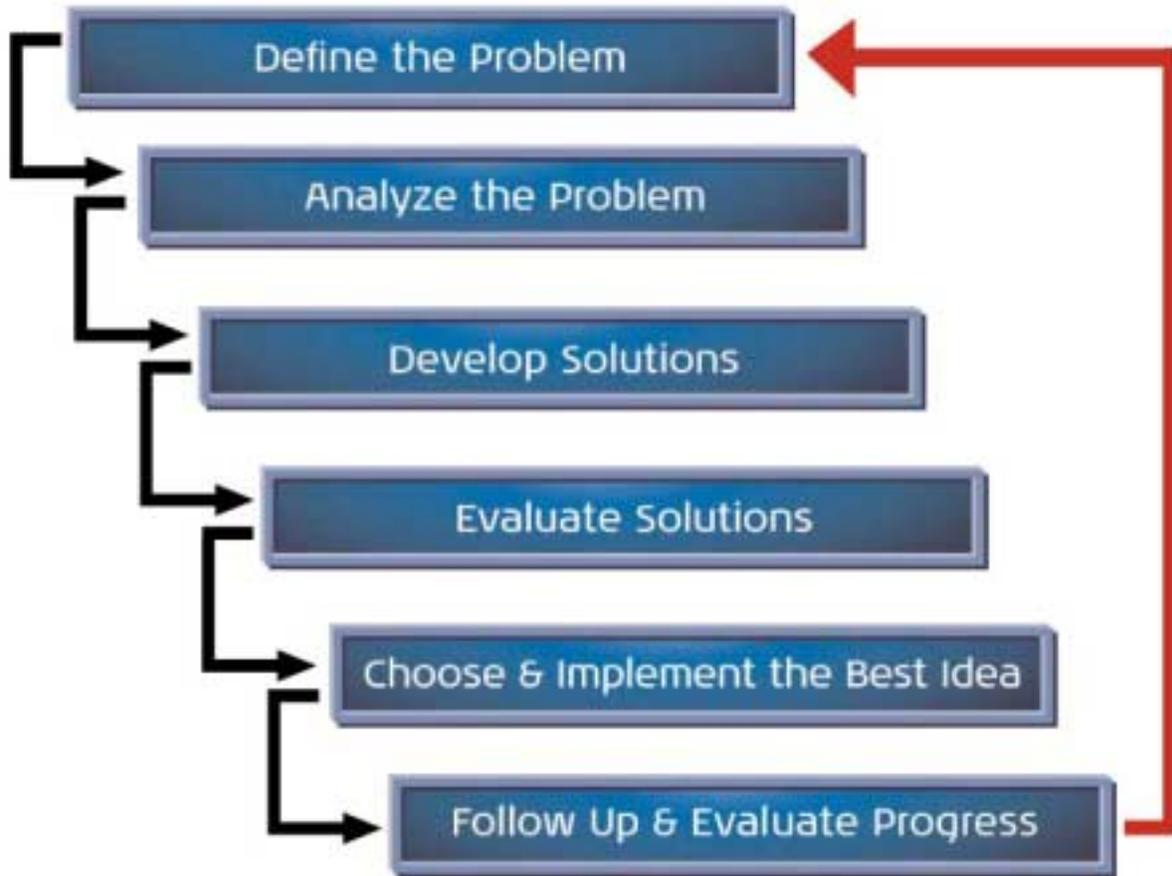
6. Follow Up & Evaluate Progress

- Follow up with assignments to ensure everyone is on track with execution.
 - Compare your action plans to your timelines.
 - Remember to monitor things closely so you can accurately tell if your gap is being closed.
 - Determine if you are achieving the measurable results you had anticipated.
 - Develop contingency plans just in case things don't go as planned.
 - Don't hesitate to fall back on your contingency plan.
-

Remember...

- Follow up on all actionable items, like timelines, task lists, etc.
- This is a key step in ensuring your solution is going as planned.
- Utilize measurable results tracking mechanisms which allow you to track progress.
- Your goal is to close the gap between the current state and the desired state.

WRAP UP/SUMMARY



FOR



Your spaceship has just crash-landed on the dark side of the moon. You were scheduled to rendezvous with the mother ship 200 miles away on the lighted side of the moon, but the rough landing has ruined your ship and destroyed all the equipment on board except for 15 items.

Your crew's survival depends on reaching the mother ship, so you must choose the most critical items aboard for the 200 mile trip to the rendezvous point.

The Rules

1. Working independently, rank your choices and justify each choice
2. Break into teams and complete the exercise as a team
3. Compare your individual rankings to your group rankings
4. Avoid arguing for your own rankings
5. Do not assume that someone must win and someone must lose when discussion reaches a stalemate
6. Do not change your mind simply to avoid conflict
7. Avoid conflict-reducing techniques such as majority vote, averages, coin-flips and bargaining
8. Differences of opinion are natural and to be expected
9. Compare your rankings with those of NASA



LOST on the moon

Rank the 15 items in terms of their importance for survival.
"1" being the most important.

Item	NASA's Rank	Individual Rank	Your Difference	Group Rank	Group Difference
	A	B	C (A) (B)	D	E (D) (A)
Box of Matches					
Food Concentrate					
50 Feet of Nylon Rope					
Silk Parachute					
Solar-Powered Heating Unit					
Two .45 Caliber Pistols					
One Case of Dehydrated Milk					
Two 100 lb. Tanks of Oxygen					
Stellar Map (Moon's Constellation)					
Self-Inflating Life Raft					
Magnetic Compass					
Five Gallons of Water					
Signal Flares					
First-Aid Kit Including Injection Needles					
Solar Powered Transmitter/Receiver					
Totals					

Answer Key
0-20 Excellent • 21-32 Good • 33-45 Fair • 46-70 Oops • 71-112 Oh, Well!

QUICK REFERENCE

Problem Solving Process	Evaluation Methods
<p><i>Define the Problem</i></p> <p><i>Analyze the Problem</i></p> <p><i>Develop Solutions</i></p> <p><i>Evaluate Solutions</i></p> <p><i>Choose & Implement the Best Idea</i></p> <p><i>Follow Up & Evaluate Progress</i></p>	<p><i>Current Knowledge Base</i></p> <p><i>Priority Ranking</i></p> <p><i>Advantages & Disadvantages</i></p> <p><i>Evaluation Criteria</i></p> <p><i>Impact/Implementation Analysis</i></p> <p><i>Low Hanging Fruit Matrix</i></p>
Brainstorming Ideas	Brainstorming Rules
<p><i>Allow People Time to Think</i></p> <p><i>Break the Groups into Smaller Groups</i></p> <p><i>Expose People to New Ideas</i></p> <p><i>Encourage Free Thinking</i></p> <p><i>Incorporate Activities</i></p> <p><i>Stimulate the Energy with Humor</i></p>	<p><i>No Judgment</i></p> <p><i>Everyone Must Participate</i></p> <p><i>Quantity of Ideas</i></p> <p><i>Switch Point of View</i></p> <p><i>What if Scenarios</i></p> <p><i>Record All Ideas</i></p>
Idea Stimulators	Idea Killers
<p><i>Option Generator</i></p> <p><i>What If</i></p> <p><i>Questioning</i></p> <p><i>How Else Could it be Done</i></p> <p><i>Mind Mapping</i></p> <p><i>Streamline</i></p>	<p><i>Not Allowing Creativity</i></p> <p><i>Judgmental Attitudes</i></p> <p><i>Negative Attitudes</i></p> <p><i>No Participation</i></p> <p><i>No Questioning</i></p>

**PROGRAM
EVALUATION**

PROBLEM SOLVING & DECISION MAKING
Achieving Desired Results

Class Name: _____

Date: _____

Name: (Optional) _____

Company: _____

Please circle the number which best reflects your opinion of this training program. Use the back of the form if you have additional comments or suggestions.

	Not at all	←————→			Very
1. The objectives of this course were relevant to the knowledge/skill requirements of my job.	1	2	3	4	5
2. The course materials were useful and relevant to my job.	1	2	3	4	5
3. The course content was presented in a clear and understandable manner.	1	2	3	4	5
4. This course has increased my confidence level to apply this training to my job.	1	2	3	4	5
5. The information in this course was informative and helpful.	1	2	3	4	5
6. How would you rate the delivery skills of the instructor(s)?	Low ←————→ High				
Course Presentation/Visuals	1	2	3	4	5
Knowledgeable	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Able to Stay on Topic	1	2	3	4	5
Encouraged Participation	1	2	3	4	5
7. How would you rate the facilities & classroom?	Low ←————→ High				
Comfort	1	2	3	4	5
Service & Friendliness of Training Staff	1	2	3	4	5
Workshop Materials	1	2	3	4	5
8. Please list three ideas or skills that you will apply to your job.	_____				

Thank you for your comments and feedback.

