

Lesson – Problem Solving and Critical Thinking



Lesson Overview

In this lesson, participants will learn the steps to solving a problem effectively. They will use this process to critically think through various work-related problems to find a workable solution.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify the seven steps to solving a problem effectively
- Practice solving work problems as an individual and as a member of a team
- Understand how the same problem solving process works in many settings

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	<ul style="list-style-type: none">• <i>Seven Steps to Solving a Problem Effectively</i> handout	<ol style="list-style-type: none">1. Print/photocopy the <i>Seven Steps to Solving a Problem Effectively</i> – one per student	15 minutes
LEARN	<ul style="list-style-type: none">• <i>Problem Solving Organizer</i> handout• <i>Problem Solving Team Scenarios</i> handout• <i>Problem Solving Case Scenario</i> handout	<ol style="list-style-type: none">1. Print/photocopy the <i>Problem Solving Organizer</i> – one per student2. Print/photocopy the <i>Problem Solving Team Scenario</i> handout – one per team3. Print/photocopy <i>Problem Solving Case Scenario</i> – one per student	Part 1 – 30 minutes Part 2 – 30 minutes Part 3 – 30 minutes
REVIEW	<ul style="list-style-type: none">• Panel of local employers (optional)	<ol style="list-style-type: none">1. Contact a panel of local employers from varying occupations to form a panel	10-30 minutes

Lesson – Problem Solving and Critical Thinking

FOCUS: Steps to Solving a Problem

15 minutes

Purpose:

Problem solving and critical thinking are defined as the ability to use facts, knowledge and data to successfully solve problems. Employers greatly value the ability to develop a well thought out solution within a reasonable time frame. This activity will give students a process for solving problems effectively.

Materials:

- *Seven Steps to Solving a Problem Effectively* handout

Facilitation Steps:

1. Give each student the *Seven Steps to Solving a Problem Effectively* handout.
2. Go through each of the seven steps highlighting each with the following information:

Step 1 – Clearly identify the problem. What issue(s) are you trying to solve? Be specific.

Step 2 – Remember to see the problem from other perspectives than your own. Remember

that the best solution satisfies everyone's interests. Practice active listening to all parties.

Step 3 – This is the brainstorming step. At this point just make a list of potential options without evaluating them. That comes next.

Step 4 – What are the pros and cons of each?

Step 5 – What is the best solution? What has the potential for the best outcome? What are the possible consequences of your solution?

Step 6 – Put your decision in writing. Think about how you will get it done and the resources you may need. Then implement it!

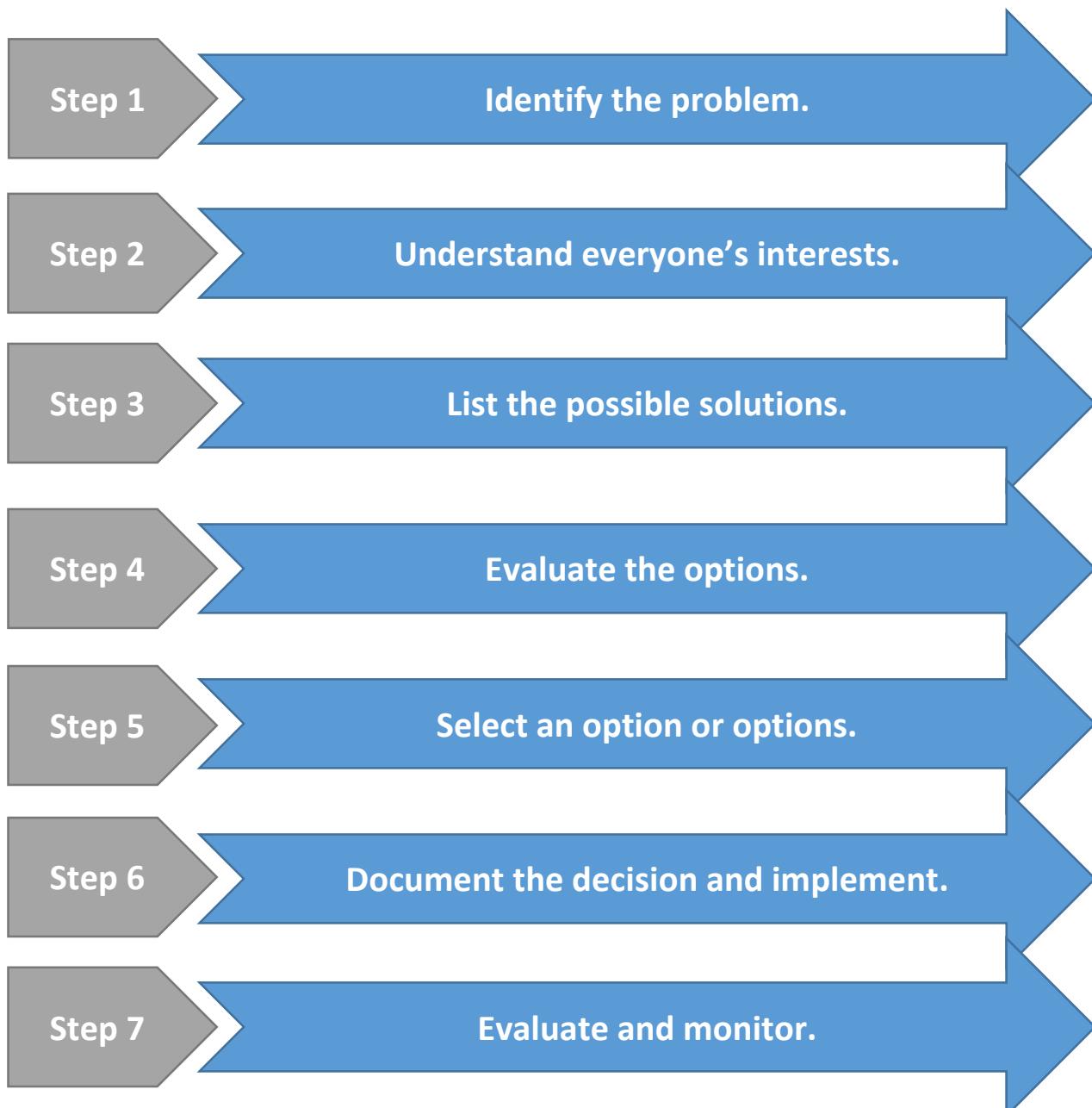
Step 7 – Decide how to monitor or track the decision and follow-through. Are there contingency plans if circumstances change in the future?

3. Tell students that they are going to be put into a variety of problem solving situations in this lesson and they should keep this process in mind as they work through to a solution.



Seven Steps to Solving a Problem Effectively

Employers want employees who can work through problem solving, critical thinking and decision making as an effective member of their staff. If you follow this seven step process to effective problem solving, you will increase your chance for a successful resolution to the issue.



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LEARN: Active Practice

110-140 minutes

Purpose:

The purpose of this activity is to have participants practice solving different types of problems. They will learn how to successfully go through each step in the problem solving process to reach a viable solution through a variety of activities.

Materials:

- *Problem Solving Organizer* handout, one per student
- *Problem solving Team Scenarios handout*, one per team
- *Problem Solving Case Scenario* handout, one per student

Facilitation Steps:

Part 1 – Problem Solving as an Individual Employee (30 minutes)

1. Give students the *Problem Solving Organizer* handout. Briefly review each of the step in the process. Have students complete the graphic organizer as you read the following worked-related problem scenario to them.

Scenario:

You work in a deli. Your busiest time of the day is the lunch hour rush when many working people from nearby factories and businesses come to grab something quick. A new fast food

restaurant is opening up next door to you. How can you avoid losing your lunch customers to this new competitor?

2. Explain to students that problems like this, both small and large, are an everyday part on the job. Being able to successfully offer solutions to problems that occur is a skills greatly valued by employers. This is true both of the skill as an individual employee as well as problem solving in a group. In this scenario you have done so as an individual. Let's review your answers.
3. Answers will vary but here are some potential answers to the various steps.

Step 1 – You may lose customers to a new competitor

Step 2 – Deli owner, deli workers, customers

Step 3 – Do nothing; lower prices, advertising campaign for awareness of what makes the deli unique; special giveaways; lunch specials; play up strengths

Step 4 – This will vary

Step 5 – This will vary but make sure students can justify the reasoning for choosing the solution they chose

Step 6 – Make sure steps are logical to solution in step 5

Step 7 – Make sure monitoring is logical based on the solution chosen



Problem Solving Organizer

1 Problem

2 Other points of view

3 Options

7 Evaluation and monitoring

4 Evaluate the options

Pros

Cons

5 Solution

6 Documentation and steps to implementation



Part 2 – Problem Solving on a Work Team (30 minutes)

1. Problem solving by yourself may be challenging. However, working together on a team may be even more difficult. One bad attitude or large ego can derail the problem solving process. It requires different skills than solving a problem as an individual. The purpose of this activity is to explore how to overcome common challenges when you problem solve on a team. It is recommended to teach the lesson Effective Teamwork in the Workplace prior to this activity.

2. Divide your class into small groups of three or four students. Give each group one *Problem Solving Team Scenario* handout. Have each group act out the scenario, allowing team members to take turns acting as the difficult team member. Then they should come up with at least one solution for solving this problem behavior so that this work team can be productive.
3. Bring the class back together and have each group read their scenario. Then have each group share what their best solution was for the scenario. Solicit additional solutions from the class.



Problem Solving Team Scenarios

Here are a list of suggested workplace scenarios. Give each small group one scenario to act out and work through as a team. Team members may take turns acting as the difficult team member. Each problem solving team should act out and come up with ways to solve the problem behavior.

Scenario 1: The leader of the team wants to do everything him or herself. They have a very big ego and are difficult to work with.

Scenario 2: One team member is extremely shy. However, he or she has the most expertise and background to help solve the technical issue your team is experiencing in your best product.

Scenario 3: Two of your team members do not get along. There are many hard feelings between the two and they refuse to communicate with one another.

Scenario 4: One of your team members is very social. In fact, he or she believes they are the life of the party. This team member enjoys telling jokes continually which derails the conversation.

Scenario 5: One team member is very sensitive and emotional. This member gets upset when he/she doesn't feel listened to and is extremely offended if all of his or her ideas do not get used. To further complicate matters, most of this team member's ideas are not practical.

Scenario 6: One of your team members enjoys hearing themselves talk. They dominate the discussion and expect everyone to listen to them. This person is not the assigned leader of the problem solving team.



Part 3 – Problem Solving/Critical Thinking Case Scenario (30 minutes)

1. Review the steps to effectively solving a problem. Tell students that you will be reading through a case scenario. They will need to complete a problem solving organizer for this activity.
2. Have each student read through the *Problem Solving Case Scenario* handout or do it aloud for the whole class.
3. Have each student work through the *Problem Solving Organizer* handout. Give students approximately 15-20 minutes to work through the steps to a solution.
4. Call the class back together and go through each step of the problem solving process.
 1. What was the problem? The airman's wife was ill and he needed more money and time to help her.
2. Points of view - The airman, his wife, his commanding officer, his unit
3. Options – They can list some of what he tried in the scenario as well as thinking of additional options he didn't try
4. Evaluation – Students should list the pros and the cons of each option he tried as well as any they came up with
5. Solution – What should he have done? What should the Air Force have done for him?
6. Implementation – Come up with a short list of steps he could follow for the solution chosen
7. Evaluation – How will he and the Air Force know if the solution worked? What circumstances may change and need flexibility for in the future?



Problem Solving Case Scenario

A young man joined the Air Force, attended tech school and was assigned to his first permanent duty station. After being on duty for 14 months, he deserted. He was apprehended two years after he deserted, was court martialed and pled guilty to a single charge of desertion. He was sentenced by a military judge to a reduction in his rank and given a dishonorable discharge.

On the surface, this seems like a very light sentence for desertion. But now for the rest of the story.

The young man had joined the Air Force after completing several semesters of college work. After completing basic training, en route to tech school, he married his high school sweetheart. At his first permanent duty assignment, he could not get on-base housing, so he and his wife rented a small apartment about 10 miles from the base. As with most very young couples, there wasn't a lot of money; in fact, there were some small debts which were being paid off month to month. He had taken advance pay for the apartment deposit and to cover minor moving expenses. His car became unreliable, so he got more advance pay to make a down payment on a newer, more reliable car. They were making it, but barely. He wanted to get a second job, but his unit told him that wasn't allowed until he achieved a higher rank. His wife could not work because she had had several episodes of illness. The Air Force base doctor suspected kidney problems and referred her off base for evaluation. A kidney biopsy showed she had less than 20 percent of her kidney function left.

The young airman did not have any additional insurance. His application for Medicaid was refused because theoretically the military provided his wife with medical care. Medical bills began to mount. His insurance policy required that the airman pay for the first \$1000 of medical expenses and the insurance company would pay for everything beyond that. However \$1,000 is a lot of money when you don't have any. Further, that policy renews each calendar year which means he would have to pay \$1000 each year for medical expenses for his wife.

The insurance policy he had did not cover all medical bills either. The airman submitted claims that were turned down. For instance, when his wife was hospitalized downtown, she routinely had lab work and X-rays. Those claims were denied because those services were available on base. No one adequately answered the question about how she was supposed to get to the base to get these services when she was staying in the hospital as a patient downtown. Additionally, even though the base told the airman that this particular hospital was the only place to get the necessary treatment, the doctor and hospital routinely billed higher fees than his insurance allowed. This meant that all of the extra fees was the airman's responsibility to pay.

The airman went to the Air Force for help. He applied asking for a "humanitarian transfer" so that he could be assigned to the base that was near his extended family and that had a base hospital with the ability to treat his wife's condition. That would have significantly reduced his expenses, and his family would have been able to help out with getting his wife to appointments, and they could have provided some emotional support. The Air Force turned down his request. He obtained more documentation from his wife's doctor and reapplied. His second request was also denied. At no time did his commander or first sergeant discuss the possibility of a humanitarian discharge.



For five months, the airman tried to get other help from the Air Force. With all the medical and normal expenses, he couldn't make ends meet. He went to a budgeting class. He was trying, but everything seemed to be working against him. His wife's condition continued to worsen. She needed some pretty expensive medication. One type alone cost \$50.00 a week. The insurance company would pay for some but the airman had to pay for it first, then file a claim. He got an emergency loan from the Air Force Aid Society, but he was told their money was tight, and he would have to find some other way to buy the medication the next time.

His wife's medical condition continued to deteriorate. She was unable to drive, and the airman had to drive her everywhere. She needed three 4-hour sessions of dialysis per week. The hospital was 30 minutes away from the base.

The airman took a day off from work, got all of his belongings, placed them in a trailer, got his wife and went to his hometown. Over the two years he was a deserter; he got a job, got promoted in that job, and took care of his wife. At the time of his apprehension, his wife was virtually blind and in a wheelchair.

After the trial, the judge said the Air Force deserted the airman long before the airman deserted the Air Force.



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Review: Problem Solving Experience on the Job

10 minutes (30 if you do the panel activity)

Purpose:

The purpose of this activity is to have participants think about their own problem solving experiences either on the job or in a school situation.

Materials:

- Panel of local employers (optional)

Facilitation Steps:

1. Ask students how many of them currently have a part time job or have had one in the past.
2. Have them identify an example of a problem that occurred on the job and invite them to talk about the following:

- What kind of problem was it? What happened?
- What factors did they have to consider when finding a solution?
- What steps were taken to resolve this problem?
- Who made the decision about how the problem was resolved?

3. Ask students to think about a time when they encountered a problem at school. Ask the same questions above. Did the students generally follow the same process to solve the school-related problem?

Extension Activity: Invite a panel of employers from the local community from a variety of occupational areas to come and talk about how they solve problems at their place of work.

