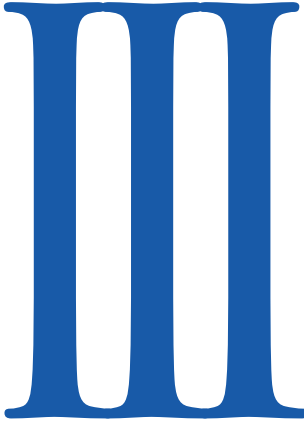


PART
DEVELOPING
RELATED
SKILLS



MODULE SIX:
PROBLEM SOLVING

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PART III: DEVELOPING RELATED SKILLS

MODULE SIX: PROBLEM SOLVING.

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DEFINING PROBLEMS— BIG AND SMALL



A G E N D A

- Starter
- Scale of Difficulty
- Name It
- Solutions, Please
- Conclusion
- Questions for Assessment

Objectives

Students will recognize that they already possess the ability to solve many problems.

Students will understand the importance of defining a problem before acting on a solution.

Students will identify a problem and propose solutions.

Materials Needed

- A clean chalkboard or whiteboard eraser (Part I)
- A dictionary (Part II)

Starter (3 minutes)

Ask students if they enjoy riding roller coasters. Have them describe what they like and don't like about roller coasters. Ask, "Are all roller coasters the same? Are there some roller coasters that you feel more nervous about riding than others?" (*Students will probably say that some roller coasters are more frightening than others.*)

Explain that some roller coasters are small and easy to ride, while others are bigger and require more thought before one decides whether to ride them. Explain that problems are similar to roller coasters in that some are small and easy to solve, while others are bigger and require more thought before we can solve them.

Explain that in this lesson students will discuss the kinds of problems they might face and a process for finding solutions.

Part I Scale of Difficulty (10 minutes)

Purpose: Students recognize that they already possess the ability to solve many problems.

1. STUDENTS PLAY A GAME IN WHICH THEY SOLVE PROBLEMS.

Tell students that they are going to play a game. Explain that you will state a problem and then toss a clean chalkboard/whiteboard eraser to a student. That student must catch the eraser and toss it back while giving a solution.

Begin the game. State problems that increase in difficulty, such as the following:

- What does 12 plus 4 equal?
- Your shoe is untied.
- How do you avoid a puddle in your path?
- You need to know the time, but your watch is broken.
- Your locker is jammed.
- You're supposed to go home after school to babysit today, but you have to serve detention.

If students hesitate in tossing the eraser back to you, urge them to return it quickly and answer with the first thing that comes to mind.

2. STUDENTS EVALUATE THEIR SOLUTIONS.

When all students have had a chance to solve a problem, ask them if they thought that some of the problems were easier to solve than others. Ask students to identify which problems were more difficult and to explain why.

Explain to students that the last few problems were more difficult because they had to think about a number of different ways to solve the problems before choosing a solution.

Part II Name It (15 minutes)

Purpose: Students understand the importance of defining a problem before acting on a solution.

1. STUDENTS DEFINE THE WORD “PROBLEM.”

Write the word “problem” on the board. Ask students to discuss and formulate a definition of the word. Record responses on the board.

Have a student look up the word “problem” in a dictionary and read the definition aloud. Ask students to decide on a single definition that works best for them. (*Students might define “problem” as “a question, condition, or situation that must be solved in order to do something successfully.”*)

2. STUDENTS LEARN HOW TO IDENTIFY PROBLEMS.

Point out that it’s important to identify a problem before one can go about solving it. Present a few examples such as the following in order to illustrate this point:

- If the pedals on your bicycle won’t move, what must you do before you can fix them? (*Students should mention that they need to figure out what the problem is—something may be caught in the chain or maybe the chain is jammed or needs oil.*)
- If you work hard on a project for school, but get a poor grade, what must you do first to improve the grade or do better next time? (*Students should mention that they need to determine the problem—perhaps they didn’t follow directions, turned it in late, or forgot to include part of the assignment.*)

Explain to students that once they have identified a problem, they can decide if they can solve the problem themselves or if they need help.

3. STUDENTS LEARN HOW TO IDENTIFY SOLUTIONS.

Refer to the first problem above. Ask students how they might fix the bicycle if they discovered the problem to be something caught in the chain. (*Students should respond: clean and then oil the chain.*) Ask them to describe how they might respond if they found that a piece of the chain is damaged or broken. (*Students should mention: take the bicycle to someone who knows how to fix or replace the chain.*)

Ask students how they might solve the second problem. (*Students might respond: they can check the assignment themselves to see if they followed directions, check the finished product to determine if something is missing, ask the teacher why they earned a poor grade, or ask if they can correct the problem and resubmit the project.*)

Point out to students that there are always a number of ways to solve a problem, but first they must identify the problem. Ask, “What can you do when you need help solving a problem?” (*Students should mention asking someone for help.*)

Part III Solutions, Please (20 minutes)

Purpose: Students identify a problem and propose solutions.

1. STUDENTS TAKE PART IN AN ACTIVITY.

Divide the class into four groups. Ask each group to go to a different corner of the room. Quietly give the following instructions, without letting the other groups hear you:

- Group 1: Your task is to move all of the chairs to the left side of the room.
- Group 2: Your task is to move all of the chairs to the right side of the room.
- Group 3: Your task is to put all of the chairs in straight lines in the middle of the room.
- Group 4: Your task is to put all of the chairs in a circle in the middle of the room.

Allow students to work against each other for a few minutes. When the frustration level becomes high, end the activity. Ask all students to help with putting the room back in order.

2. STUDENTS IDENTIFY THE PROBLEM.

Help students identify the problem they faced in the activity by asking questions such as the following:

- Why couldn't your group complete this task?
- What were the other groups trying to do?

Call on volunteers to give their ideas. Then, have students from each group explain their assigned tasks.

Help students come to the conclusion that the problem arose because each group was trying to accomplish a different task at the same time.

3. STUDENTS OFFER SOLUTIONS.

Ask students how they might solve this problem and still complete all four of the assigned tasks. (*Students might respond: the groups must take turns completing their tasks.*)

Through questions and discussion, guide students to conclude that it is necessary to do the following in order to solve the problem:

- Identify the problem.
- Talk to others and get information about what they are doing and why.
- Decide on a solution.
- Work together in order to complete one task at a time.

Emphasize that students should never feel that they must solve problems by themselves. Point out that asking for assistance with problems is a great way to solve them successfully.

Conclusion (2 minutes)

Ask students to explain why it is important to identify a problem before acting on a solution. Elicit from students the following **key points** that were taught in this lesson:

- Always identify problems before acting on solutions.
- Once the problem has been identified, decide if you can solve it yourself or if you need assistance.

Questions for Assessment

1. List three reasons why some problems are more difficult than others.
2. Define “problem.”
3. Describe a problem you have faced in your life. Identify the problem, the solution you decided on, and the outcome.

LESSON EXTENSIONS

Extension: Using Quotations

Quote: “Recognizing the problem is half of the solution.” –Old adage

Activity: Have students think of a problem they faced. Ask volunteers to describe the moment they identified the problem they were facing, how they felt about it, and how they went about solving it.

Extension: Addressing Multiple Learning Styles

Activity: Have students think of problems that they have been grappling with and write them down anonymously. Have students fold their papers up and drop them into a bag. Then, invite each student to pick a problem out of the bag, and come up with suggestions of whom to ask for help with solving it (e.g., teacher, doctor, psychologist, clergy, parent/guardian).

Discuss the resources that students suggested for each problem.

Extension: Writing in Your Journal

Activity: Have students write about a recent problem they had that they felt they could not solve to their satisfaction.

As students continue working on this module, have them apply the steps of the problem solving process to their unsolved problems, keeping notes of each step in their journals.

Extension: Using Technology

Activity: Have students visit news websites and find and print articles about conflicts between countries, groups, or individuals.

Divide students into small groups. Have the groups read each member’s article, discuss it, and identify the core problem behind the conflict.

Extension: Homework

Activity: Ask students to interview adults about recent problems they had and how they solved them.

Have students present their findings to the class.

Extension: Additional Resources

Activity: Invite a guidance counselor or school social worker to speak to your class. Have the guest speaker explain the concept of “secondary emotions” and how such emotions usually indicate a root problem. Have the speaker provide strategies for identifying problems that underlie secondary emotions (e.g., freewriting).

Have students write these strategies down and use them as required.

IDENTIFYING OPTIONS

A G E N D A

- Starter
- Recycle It
- The Two-Foot Race
- Count the Ways
- Conclusion
- Questions for Assessment

Objectives

Students will review the decision making process and learn that they can use this process to solve problems.

Students will gather information and explore options in order to solve a problem.

Students will identify options that generate possible solutions to problems.

Materials Needed

- One copy of the “How Could I Do This?” activity sheet (#1) for each student (Part III)

Starter (3 minutes)

Ask students to list all of the possible ways that they could get home from school. Tell them to include all means of transportation, all possible routes, and any other ways that they can think of.

Ask students to recall the definition of the word “option,” which they discussed in “Lesson 3: Identifying Options” of *Module Two: Decision Making*. (*Students should respond: a chance to pick what is wanted.*) Explain that the class is going to review the decision making process and see how it applies to problem solving.

Part I Recycle It (10 minutes)

Purpose: Students review the decision making process and learn that they can use this process to solve problems.

1. STUDENTS REVIEW THE DECISION MAKING PROCESS.

Ask students to describe the decision making process. Invite students to describe how they would go about making a decision or a choice. To prompt their thinking, ask them to describe what they would do before choosing a cell phone or another high-priced electronic item to buy.

Through questions and comments, help students identify the basic steps of the decision making process. Summarize the discussion by outlining the process on the board:

1. Gather information.
2. Identify as many options as possible.
3. Weigh the pros and cons of each option.
4. Make a decision.

2. STUDENTS APPLY THE DECISION MAKING PROCESS TO SOLVING PROBLEMS.

Point out that students can use the steps outlined to answer the question, “What should I do?” Explain that they can also use the process to answer the question, “How should I do it?” Point out that when they answer these questions, they begin to solve their problems.

Suggest that students look through past notes for this class to see if they have recorded the steps of the decision making process that are outlined on the board. If they haven’t, give them time to do so now.

Circle the first two steps on the board, and explain that today, students will see how these two steps apply to problem solving.

Part II The Two-Foot Race (20 minutes)

Purpose: Students gather information and explore options in order to solve a problem.

1. STUDENTS PARTICIPATE IN AND OBSERVE A DEMONSTRATION.

Clear a path from one wall to another that is wide enough to allow two teams to move across the room at the same time. If you need more space, ask students to move chairs and desks aside. Ask four volunteers to join you at the front of the classroom.

Divide the volunteers into two teams. Explain that the teams will race each other across the room. Emphasize that there is only one rule: only two feet from each team can be on the floor during the race.

Give the teams time to work out a strategy. Have the rest of the class think silently of possible options for solving this problem. Tell them to observe the methods that each team uses to finish the race. When the teams are ready, have them begin the race.

2. STUDENTS DISCUSS OPTIONS FOR RUNNING THE RACE.

Congratulate the winners. Ask students to describe the methods that the teams used to finish the race. Record their responses on the board. Then, ask the teams if they discussed other ways to finish the race. If they did, list those as well.

Challenge students to think of other options for how the teams could have run the race. Remind them of the “two feet” rule. Record student responses on the board. Encourage students to think of all possibilities, regardless of how silly or impractical they seem. (*Students might respond: one team member stands on the other’s feet and they walk together; each team member holds one foot up, then both join arms across one another’s shoulders and hop; one member holds the other’s feet and “walks” him or her across on his or her hands; one team member never starts, but sits with his or her feet up while the other member runs.*)

If students don’t suggest having only one member run the race, suggest that option now.

3. STUDENTS REVIEW THE LIST OF OPTIONS.

Have students review the list and identify options that they think would work best. Prompt them to give reasons for their choices. After some discussion, place a star beside the two options that students agree would work best and allow them to win the race. Then, ask students to identify which of these options they would choose. If all students choose the option of having only one member run the race, congratulate them on their excellent decision making and problem solving abilities.

4. STUDENTS REVIEW STEPS OF THE DECISION MAKING PROCESS.

Direct attention to the first two steps of your outline on the board. Ask, “Why was it important for you to know about the race’s rule? Would the teams have been able to successfully finish the race if they didn’t know the rule?” Explain to students that without this information, they would not have been able to solve the problem. Point out that it’s important for them to take the time to get information they need about a problem.

Point to the list of options on the board as you discuss the importance of identifying and considering as many options as possible. Explain that people often get their best ideas when they consider things that seem impossible. Remind students that what may seem to be an “impossible” option might open up winning ideas that they may never have considered.

Save the list of options on the board for use in the next lesson.

Part III Count the Ways (15 minutes)

Purpose: Students identify options that will generate possible solutions to problems.

1. STUDENTS IDENTIFY OPTIONS.

Distribute copies of the “How Could I Do This?” activity sheet (#1). Explain that students are to think about both of the problems presented and list as many ways as possible to solve them.

Tell students to number the options they list for each problem. Point out that they may want to record options in ways other than writing (e.g., by drawing). Suggest that they use the back of the activity sheet if they need more room.

Tell students to be very specific with the options they list. Explain to students that listing “ask someone for a ride” as an option for getting to their babysitting job is less helpful than listing specific people to ask.

Give students most of the time allotted for this activity to work on their options. Remind them to list all options, even those that seem picky or far-fetched.

2. STUDENTS SHARE THE OPTIONS THEY LISTED.

Ask students to share the options they listed for the first problem. Keep an informal count of the different options suggested. Help students split the general option “ask for a ride” into at least four specific options:

- Ask your parents for a ride both ways.
- Ask your parents for a ride one way.
- Ask the people you will be sitting for if they can give you a ride both ways.
- Ask the people you will be sitting for if they can give you a ride one way.

Tell students to save their activity sheets for use in the next lesson.
(Remember to record the list of options for use in the next session as well.)

Conclusion (2 minutes)

Ask students to identify why it is important to list as many options as possible when trying to solve a problem. Elicit from students the following **key points** that were taught in this lesson:

- Knowing how to make decisions will help you solve problems.
- Take the time to get the information you need about the problem.
- When solving problems, identify as many options as possible before deciding on a solution.

Questions for Assessment

1. How is the decision making process similar to problem solving?
2. List three ways that listing different options can help you solve a problem.
3. Imagine that you sit down to watch your favorite TV show and your TV doesn't work. List five options for dealing with this problem.

LESSON EXTENSIONS

Extension: Using Quotations

Quote: “Two roads diverged in a yellow wood/...I took the one less traveled by,/And that has made all the difference.” –Robert Frost, “The Road Not Taken”

Activity: Ask students to think of a time when they chose a less popular option or one that didn’t seem as if it would work out. What happened? Have students write about the results of their decisions.

Extension: Addressing Multiple Learning Styles

Activity: Have each student create a plan for spending a \$25.00 gift card. Have students present their detailed plans to the class. Have students discuss the various options for spending their money (e.g., saving it, budgeting it).

Extension: Writing in Your Journal

Activity: For one week, have students keep track of the problems that they encounter and possible solutions for them.

Have students share the problems they encountered and allow the class to suggest possible solutions to each one.

Extension: Using Technology

Activity: Have students search the internet for follow-up articles about the conflicts they found during the “Using Technology” extension in lesson 1 of this module.

Divide the students into groups. Have the groups list possible solutions to each conflict.

Extension: Homework

Activity: Have students find games that center around problems (e.g., board games, sports, video games).

Have students bring in the game or a description of the game and the options that it provides players.

Extension: Additional Resources

Activity: Have students read “The Lady, or the Tiger?” by Frank Stockton.

This story always engenders lively discussions. Have students write their own endings to the story and discuss the various ways it can end.

LESSON **3**
CONSIDERING
PROS AND CONS

A G E N D A

- Starter
- The Two-Foot Race Revisited
- Get Out the Scale
- Add Them Up
- Conclusion
- Questions for Assessment

Objectives

Students will recall and review the problem solving process.

Students will identify ways to evaluate the pros and cons of different options.

Students will list pros and cons and weigh options in order to choose the best solutions to problems.

Materials Needed

- List of options from the previous lesson (Part I)
- Copies of the “How Could I Do This?” activity sheet (#1) for students who may have been absent during the previous lesson (Part III)
- One copy of the “Find Solutions” activity sheet (#2) for each student (Part III)

Starter (3 minutes)

Present a brainteaser for students to solve. Say, “Last week, I bought a new coat and a hat, and paid \$150 total. The coat cost \$100 more than the hat. How much did the hat cost?” Give students a minute to work together and think of a solution. (*Students should say that the coat cost \$125 and the hat cost \$25.*)

Ask students to explain why the hat could not have cost \$50. (*Students should say that if the hat were \$50, then the coat would have cost \$100—only \$50 more than the hat.*) Explain that most students probably had to work through a few combinations before they came up with one that worked. Tell students that most problems require thought, just like this brainteaser. Explain to students that in this lesson they are going to continue talking about how to solve difficult problems.

Part I The Two-Foot Race Revisited (10 minutes)

Purpose: Students recall and review the problem solving process.

1. STUDENTS RECALL THE RACE FROM THE PREVIOUS LESSON.

Ask students to recall the race from the previous lesson. If necessary, use questions such as the following to prompt their thinking and guide the discussion:

- What was the problem that needed to be solved in order to successfully complete the race?
- How did the winning team solve the problem?
- Were other methods or options considered? If so, what were they?

Record student responses on the board. Quickly check through your list of options from the last lesson and prompt students to add those that have not been mentioned. Ask students to identify the option they thought was the best solution to the problem.

2. STUDENTS REVIEW THE PROBLEM SOLVING PROCESS.

Discuss each option. Ask students to give reasons why they chose one option over another. Point out that they have just completed a very important step of the problem solving process—they considered the pros and cons of each option before identifying a winning solution.

Have students list the steps of the decision making and problem solving process, which they noted in the last lesson. Students should list the following:

1. Gather information.
2. Identify as many options as possible.
3. Weigh the pros and cons of each option.
4. Make a decision.

Circle numbers three and four on the board, and tell students that they will focus on these steps during the rest of this lesson.

Part II Get Out the Scale (15 minutes)

Purpose: Students identify ways to evaluate the pros and cons of different options.

1. STUDENTS RECALL WHAT THEY KNOW ABOUT PROS AND CONS.

Write the following words and symbols on the board: “pros +” and “cons –.” Ask students to define “pros” and “cons.” (*Students might respond: pros are positive factors or reasons for something; cons are negative factors or reasons against something.*)

Discuss why it is important to consider pros and cons for options. If necessary, remind students that when they consider the pros and cons for options, they are weighing the options in order to determine their positive and negative aspects.

2. STUDENTS BRAINSTORM PROS AND CONS.

Indicate the list of options on the board, and ask students to give both the positive and negative aspects for each one. After each suggestion, ask if students can think of any others. Keep count of the number of pros and cons suggested by using + and – symbols after each option. For example, while discussing the option of having teammates stand on each other’s feet as they walk across the room, you might mark two + symbols to represent pros such as the following:

- It would satisfy the rule for the race.
- It would be challenging to do or fun to try.

You might mark four – symbols to represent the following cons:

- It would be very difficult to get across the room quickly.
- It would be difficult for teammates to keep their balance.
- It could hurt the teammate whose feet are being stood upon.
- The team would probably lose the race.

3. STUDENTS WEIGH PROS AND CONS.

When your list is complete, ask students to identify the option that has the most pros and the fewest cons. (The winning option will probably be the one in which only one student crosses the floor, because it is most likely to have no – symbols.)

Acknowledge that in this case, the pros and cons are easy to identify. Explain that sometimes the problem is more difficult to solve because the options are not easy to identify and the pros and cons are not so obvious. Ask students what they might do in such a case. (*Students might respond: ask for help from someone who has experienced the problem, consult a trusted adult.*)

Part III Add Them Up (20 minutes)

Purpose: Students list pros and cons and weigh options in order to choose the best solutions to problems.

1. STUDENTS REVIEW THEIR LISTS OF OPTIONS.

Have students take out their completed “How Could I Do This?” activity sheets (#1) from the previous lesson. Pair students who were absent with students who completed the activity sheet.

Ask students to look over both problems and the options they listed on the activity sheet. Tell them to cross out any options that are completely unrealistic.

2. STUDENTS RECORD PROS AND CONS.

Distribute copies of the “Find Solutions” activity sheet (#2). Explain that students will use this activity sheet to record reasons for and against the options they listed on the “How Could I Do This?” activity sheet.

Tell students to list reasons for and against their options for both problems. Point out the column in which they should mark a + symbol if the reason is a pro and a – symbol if the reason is a con. Remind students to weigh options by adding up the + and – symbols, and then circle the best solution for each problem.

Circulate among students as they work, offering suggestions or assistance where needed.

3. STUDENTS SHARE SOLUTIONS.

Ask students to share their solutions to the first problem. If time permits, encourage them to review how they made this decision or why they decided against another option.

Ask students to share their solutions to the second problem. Have them identify the biggest obstacle they needed to overcome in order to find a solution. Ask students if considering pros and cons helped them arrive at a solution they think could work well.

Conclusion (2 minutes)

Ask students to explain why considering pros and cons is helpful when solving difficult problems. Elicit from students the following **key points** that were taught in this lesson:

- When solving difficult problems, make a list of your options.
- Take the time to think through pros and cons for each option, and then weigh them before deciding on the best solution.

Questions for Assessment

1. How can writing a pro/con list help you make a decision?
2. Think of a problem you're currently facing, and write down five options you have for solving it. Write a pro/con list for each of the five options. At the end of each pro/con list, indicate which option you would pursue.

LESSON EXTENSIONS

Extension: Using Quotations

Quote: “He who builds according to everyone’s advice will have a crooked house.” –Danish proverb

Activity: Discuss this quote as a class. Invite students to draw an illustration inspired by the quote. Have students share their drawings with the class.

Extension: Addressing Multiple Learning Styles

Activity: Have students create a plan for a community park that has been allotted only a limited amount of space.

Have students describe the pros and cons of the park, its location, and its layout.

Extension: Writing in Your Journal

Activity: Have students think of a problem that doesn’t have an easy solution. Have them make a list of options for solving this problem.

Discuss what students should do based on their lists. Ask students if they think they can trust their lists.

Extension: Using Technology

Activity: Pick a current controversial news story. Have students follow the story by watching, listening to, or reading the news for one week.

Have students list and weigh the pros and cons for each of the views surrounding this story. Have them share their work in small groups.

Extension: Homework

Activity: Ask students to interview workers about the pros and cons of their jobs.

Have students discuss the pros and cons of each job and identify the jobs they like best.

Extension: Additional Resources

Activity: Have students read *Real Friends vs. the Other Kind* (*Middle School Confidential*) by Annie Fox.

As a class, discuss the qualities that real friends should possess. Divide students into groups, and assign each group a character from the book. Have groups create pro and con lists for their characters’ relationships. Discuss how evaluating friendships can be useful in real life.

FINDING SOLUTIONS

A G E N D A

- Starter
- Tall Towers
- Let the Contest Begin
- It's Personal
- Conclusion
- Questions for Assessment

Objectives

Students will gather information they need in order to complete a task.

Students will collaborate with others and use problem solving skills in order to complete a task.

Students will apply problem solving skills to their own lives.

Materials Needed

- 15 sheets of paper (stock white or newsprint) for each group of five students (Part II)
- One three-foot strip of masking tape for each group of five students (Part II)

Starter (3 minutes)

State that students have been working on solving problems for the last three lessons. Ask, “If you had a difficult problem to solve, would you feel more comfortable solving it now than you would have at the beginning of the year?” Ask students to explain their answers.

Acknowledge that knowing how to do something usually makes us feel more able and confident about doing it. Explain that today students will continue strengthening their problem solving skills by solving more problems.

Part I Tall Towers (10 minutes)

Purpose: Students gather information they need in order to complete a task.

1. STUDENTS CONSIDER A CHALLENGE.

Begin the activity by telling students that they are going to participate in a contest to see who can build the tallest tower. Explain that everyone will use the same materials and will have the same amount of time to work.

Ask students to help you clear space for the contest by moving all chairs and desks to the front, back, and sides of the room. Tell students to leave as much open floor space as possible for the contest.

Stand back and allow students to work. If necessary, remind students not to block the door of the classroom or to pile chairs or desks dangerously high.

2. STUDENTS ASK QUESTIONS IN ORDER TO GATHER INFORMATION.

Ask students if they are ready to begin. (*Students should answer no.*) Have students identify the first thing they should do when faced with a problem. (*Students should respond: gather information.*)

Tell students to ask you questions about the contest’s rules, which are listed below:

- Students will work in teams of five to build towers.
- Each group will be given 15 sheets of paper and some masking tape. These are the only materials that can be used.
- Towers must be freestanding—they cannot be taped to desks or any other objects.
- There will be 10 minutes allotted for work.
- The tallest structure that can stand on its own will win.
- The winning group does not have to participate in cleanup.

Part II Let the Contest Begin (25–30 minutes)

Purpose: Students collaborate with others and use problem solving skills in order to complete a task.

1. STUDENTS FORM GROUPS AND ORGANIZE TASKS.

Divide the class into groups of five. Give each group 15 sheets of paper and a strip of masking tape. Suggest that students discuss options and then try them out in order to consider pros and cons before using the tape.

2. STUDENTS BUILD TOWERS.

Start the contest and observe students as they work. After 10 minutes have passed, announce that time is up. Have the class decide on the winning tower or towers, and then instruct students to put the room back in order. Observe their ability to work together.

3. STUDENTS DISCUSS THE ACTIVITY.

Ask students to describe the winning strategies. Through questions and comments, guide students to describe what worked and what didn't work. If necessary, help students realize that the towers with the strongest bases were most successful.

Point out that students used all the steps of the problem solving process in order to solve this problem. Ask students to explain how each step was used. (*Students should mention the following: They gathered information when asking questions about the contest. They identified options when considering how the tower could be built. They considered pros and cons when they tried the options. They made a decision when they chose an option and built the tower.*)

Have students identify the skills they relied on in order to participate in this contest and build the towers. Through discussion, help students realize that in addition to decision making and problem solving skills, they also used goal setting, planning, and time management skills, as well as their abilities to follow instructions and work together as a team.

Part III It's Personal (10–15 minutes)

Purpose: Students apply problem solving skills to their own lives.

1. STUDENTS REFLECT ON THEIR LIVES.

Explain that students will begin to solve one more problem before they leave class today. Ask them to think about what is happening in their lives. Suggest that they think about the following:

- Problems they may have with friends
- Problems or obstacles they are facing in trying to reach a goal
- A past problem

2. STUDENTS IDENTIFY A PROBLEM.

Tell students to take out a sheet of paper and identify the problem they would like to solve or specify the unsolved problem from their past. Remind them to take their time and properly identify their problems. Remind them that identifying a problem accurately is often half the battle.

Have students begin to list possible options they could employ in order to solve the problems they identified. Explain that they have the remainder of the class period to think about the problems, list options for solving them, and weigh pros and cons for each option before deciding on a solution.

Assure students that they do not need to work out the problem before the end of class—especially if they need to gather any information. Invite students to talk with you if they need help.

Conclusion (2 minutes)

Ask students if they think that successful people are usually good problem solvers. Invite volunteers to explain their answers. Elicit from students the following **key points** that were taught in this lesson:

- Use all the steps of the problem solving process when facing a problem: gather information that's needed, identify as many options as possible, weigh the pros and cons for each option, and decide on the best solution.
- The best solution to a difficult problem is a thoughtful one, so take the time to think it through.

Questions for Assessment

1. Describe a problem you have faced this week. It does not have to be a big problem. It can be something like a quiz you took in school or a game in which you competed. Describe how you used or did not use the problem solving process. If you did use any of the steps, were you aware of it at the time?
2. List three skills you have learned in this course that can help you solve problems. Explain how each skill can help you.

LESSON EXTENSIONS

Extension: Using Quotations

Quote: “There are no problems we cannot solve together.” –Lyndon B. Johnson

Activity: Divide students into groups of three. Have students describe a problem they are facing to their groups. The groups should then use the steps of the problem solving process to find possible solutions for each of their members.

Extension: Addressing Multiple Learning Styles

Activity: Have small groups of students mime various problems for the class.

After each group performs, have the other groups guess the problem being portrayed and propose solutions for it.

Extension: Writing in Your Journal

Activity: Have students write a short paragraph about help they have received with solving a problem.

Have volunteers discuss the help they received and identify if it was helpful.

Extension: Using Technology

Activity: Assign each student a state that he or she knows little about. Have students use the internet to research their assigned states. (You might suggest that they visit www.50states.com, which includes information about each state, like its state flower, representatives in government, etc.)

Have students write a brief essay on their states. As a class, have students identify the problem they faced in this activity (i.e., knowing little about their assigned states) and how they solved it.

Extension: Homework

Activity: Have students identify in class an issue or problem in their communities that they feel a congressperson can help them with.

Have students write a letter to their congressperson about the problem they identified. Encourage students to bring their letters into class to read aloud. Mail the letters.

Extension: Additional Resources

Activity: Select an activity from *Team Challenges: 170+ Group Activities to Build Cooperation, Communication, and Creativity* by Kris Bordessa, which provides teachers with a variety of creative problem solving exercises.

Divide students into groups and present them with the activity you selected. When they are finished, discuss how students used their problem solving skills in the activity.

HOW COULD I DO THIS?

List all of the ways that you could solve these problems. Number the options for each one.

PROBLEM 1: You've been offered a great babysitting job on Saturday mornings that pays well, but it's in another neighborhood. How might you get there?

PROBLEM 2: Your room is so boring! How might you rearrange it to make it look completely different?

FIND SOLUTIONS

List pros and cons for each option you listed on your “How Could I Do This?” activity sheet. Mark a + or – sign after each one. Then, find the option with the most + signs and the fewest – signs, and circle your solution.

PROS AND CONS PROBLEM 1 OPTIONS		PROS AND CONS PROBLEM 2 OPTIONS	
	+ or –		+ or –

GLOSSARY

MODULE SIX: PROBLEM SOLVING

problem: 1. A question to be considered, solved, or answered. 2. A situation, matter, or person that presents a difficulty.

collaborate: To work together, especially in a joint effort.

skill: 1. The familiar knowledge of any science, art, or handicraft. 2. A developed talent or ability.

