

FINDING SOLUTIONS



AGENDA

- Starter
- Tall Towers
- Let the Contest Begin
- It's Personal
- Conclusion
- Student 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 metre 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 organise 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 realise 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 realise 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 students 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.

Student 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 test 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

Using Quotations

“There are no problems we cannot solve together.”

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.

Addressing Multiple Learning Modes

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.

Writing in Your Journal

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

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

Using Technology

Students solve the secret pattern on https://www.mathplayground.com/break_the_code.html “

Students explain the effective and ineffective strategies they used.

Homework

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

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

Additional 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.