

Problem-Solving Activity

Students will participate in a problem-solving activity and learn to work through failures.

SETUP: Desks should be arranged into 5 groups. If possible, move chairs away from desks.

Divide students evenly at the tables so that groups have about the same number of members.

Goal: Students will build the tallest cup pyramid starting with the top level (a single cup).

Introduce yourself and briefly share your career/education background.

Opening remarks:

- Ask students what they think problem solving means.
 - *Problem solving is a process that provides steps that help you identify the problem and come up with a solution.*
- **Problem-solving is a critical skill that is highly valued in today's workplace.** Use the flashcards to show 5 reasons that problem solving skills are so important. Ask for volunteers to share how they think problems solving does these 5 things BEFORE sharing the answers.
 - Improves decision-making: Problem-solving involves analyzing a situation, identifying potential solutions, and choosing the best course of action.
 - Increases Efficiency: When faced with a problem, the ability to identify the root cause and come up with a solution can help to save time, money, and resources.
 - Builds Confidence: When you're able to tackle a difficult challenge and find a solution, you can build self-confidence and feel more empowered to take on future challenges.
 - Strengthens Relationships: Problem-solving often involves collaboration and communication with others. By working together to find a solution, you can build stronger relationships with your colleagues and foster a more positive work environment.
 - Encourages Innovation: When faced with a problem, you may need to think outside the box and come up with new ideas to find a solution. This process can lead to innovative solutions and new ways of thinking.
- Today, each group will be presented with a problem (in this case a group challenge). Their job is to think about the problem and come up with a solution.

Activity - Read the following directions to the students:

- For each group, your objective is to build the tallest pyramid using the 21 cups provided (6 rows is the tallest). In our definition, a pyramid consists of stacked rows of cups (not a nested stack) in which each row will have one less cup than the row below it. (top row – 1 cup, next row – 2 cups, etc.)
- For this activity, however, you are required to start by forming the top row of the pyramid first – one cup.
- To begin, set this one cup down on your table/desks. (Demonstrate)
- Then, anyone in your group can lift this first cup so that two cups can be placed under it by another student, forming the second row of the pyramid. (Have a student come up and demonstrate this; the student should lift the 1 cup while you place 2 cups below.)
- From this point forward you are only allowed to lift the bottom row of your pyramid structure – the row touching the table – to add the next row underneath. (Have the student demonstrate lifting the second row and tell them that another student would then add the next row of 3 cups.)
- All other cups in the pyramid can only be touched or supported by any player's finger - before, during and after a lift - but the cups may not be grabbed and/or lifted in any way. (While the student is lifting the 2nd row, demonstrate touching the top cup with only your fingers (the proper technique). Then show what they may not do by lifting/holding the top cup while the student lifts the second row.)
- Again, only the bottom row of the pyramid can be lifted.
- If any part of your pyramid structure falls apart, you must start your building process over from one cup.
- After I answer any questions you have about the directions, you will have 15 minutes of building time to see how high you can get your pyramid.
- Success is usually achieved with the first three or four rows. After four rows, it's up to the creativity, focus and tenacity of the group. Cups will be falling. We keep encouraging attempts as long as there is time to build.
- While the groups are working, move around and encourage working together and starting over after a collapse. Emphasize that the build is about "sticking to it: overcoming the collapses." **Students should stop and think about other ways to be successful.**
- Rather than immediately starting to rebuild after a collapse, the students should start talking with each other to try to determine a plan. They need to think about what they can do differently (while still following the guidelines) to build their pyramid. After a few failed attempts, please suggest this to groups if they haven't done so on their own. Here are some tips to share if they are stuck and can't come up with anything, but give them time to try:
 - Even though extra students can only support with their fingers, the "lifting" student can use any part of their body. For example, instead of grabbing the cups on the end, they could use their arms to lift the row of cups.
 - This is easier to do if the cups are near the edge of the table instead of in the center.
 - As one student is lifting, students should be on both sides of the pyramid supporting the cups with their fingers. Also support from the top.
 - Get the next row of cups lined up and ready before lifting.

- At the end of 15 minutes, stop and see how many rows each group has in their pyramid (or how many rows they had before the pyramid collapsed). Have students stack the cups back together and lay them down on their table.

Here is a link and a QR Code to a video of people completing the activity if you would like to see it in action: [Pyramid Build](#)



Closing Remarks: Ask students the following questions.

- Did you start doing things differently after your first few pyramid-building attempts failed? *(Probably yes)*
 - Why? *(What they were doing first wasn't working.)*
- What did you find yourselves doing differently after the pyramid collapsed? *(Accept various responses.)*
- What did the communication among your group sound like and look like during the activity? *(Accept various responses.)*
- Did members of your group take on different roles/tasks as you were building? *(Accept various responses.)*
- What choices do you have after a "failure"? *(give up or persevere)*
- What have you learned about problem solving?
 - *Work as a group (if possible)*
 - *Communicate well*
 - *If one solution doesn't work, try another*
 - *Try everyone's suggestions*
 - *Don't give up - persevere*

End of Day Clean-Up Checklist – Place the following back in the bin:

- 5 Pencils
- Scratch Paper
- USB drive with Opening Video
- QR code for Opening Video
- The 5 stacks of 21 cups each (plus any extra cups still left).
- Volunteer Instructions Folder
 - Volunteer Instructions (4 Pages)
 - Flash Cards (5)
 - Recap Question Card (1)
- Thank the teacher for allowing JA in their classroom today.
- Return Bin to JA staff in hospitality area.

Smile. You made a difference today!

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