

# Pipecleaner STEM Challenge

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The Pipecleaner (aka "Fuzzy Sticks") Challenge is one of my favorite STEM activities to introduce students to STEM learning. This is a fun, inexpensive, and engaging challenge that can be tailored to different ages, settings, and time-frames. This challenge is also an excellent team icebreaker.

AMAZING ICEBREAKER!

## PIPECLEANER STEM ACTIVITY



**Challenge: Students will use pipe-cleaners to build the tallest, freestanding tower.**

- Grade level: 3rd - 12th (Adaptable to almost any age)
- Group Size: 3 - 4 per team
- Time Required: 15 - 30 minutes

- Cost per group: Less than \$1
- Materials: 15 pipe-cleaners per team. Tip: wrap a pipe cleaner around a bundle of 14 for easy prep

## Activity

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1. Group students into teams of 2 - 4.
2. Pass out bundles of 15 pipe-cleaners to each group.
3. Instruct students that each engineering team is tasked to build the "tallest free-standing structure" with the materials provided. Teams will have about 10 minutes. Free-standing means the structure can not be held, taped, wedged between desks, etc. Ask for any clarification.
4. After working for 2-4 minutes: tell students to freeze. "Your team had an unexpected budget cut, and one of your resources has been depleted. Each team member must now put one arm behind his/her back!"
5. 2-4 more minutes: freeze again. "Your engineering company realized that the loss in resources were detrimental to the product. The manager has decided to expand your operations globally to bring in more business. Your team now operates in (insert favorite country here) allowing you to use both arms again. But now you are unable to speak the same language. Continue the task without any speaking!"
6. 1-2 minute: "Business is booming, and your company has hired translators. Complete the task with all your resources! One minute left!"
7. Count down from ten and stop the activity.
8. Walk around the room and note the different shapes and designs of the towers. Determine the tallest tower and allow the team to explain their successful design.

## Tips

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- Adjust the time depending on how quickly students are working.
- Younger students may become paralyzed by the planning stage. Help them focus on building a sturdy foundation.

- Some teams will ignore the rules. Take away pipe-cleaners as a consequence!

I have tried this with various groups in both an after-school and classroom setting, and I believe this is a great go-to challenge! I love the introduction of new constraints throughout that keeps students on their toes and engaged.

You will also find many students' initial reaction to be a rolling of eyes and claiming that this will be so easy. Students soon realize that the materials are flimsy and don't carry much weight. Some students get frustrated and want to give up, but eventually, most teams have a breakthrough. First, they realize they need a strong base. Then they realize to distribute the weight and not become very top heavy. And finally, the students get excited and engaged!

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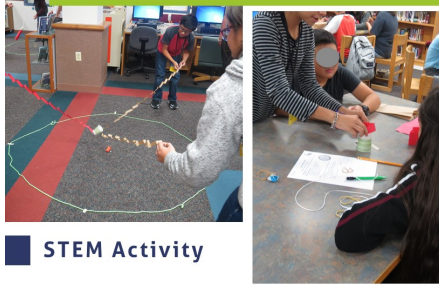
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