Teacher Tips — Paper Cup Telephones

Activity Prep

To cut many 6-foot lengths of string at the same time, wrap the string around a yardstick lengthwise. One cut and you'll have as many 6-foot pieces of string as you had wraps.

You can use a paper cup to hold the materials each student needs: a length of string and a paper clip.

Student Questions

In this activity, your students make and test paper cup telephones. Then they experiment with changing their telephones to improve their phone in some way. Here are some questions that may come up.

What do you mean -- "Make it better?"

Before inventing something new, engineers define the problem they are trying to solve. So your first task is to figure out HOW you want to make this telephone better. You could improve the sound quality. You could see if it will work with a longer string (connecting people who are farther apart). You could create a conference phone that many people can use at the same time. Or you could solve a problem we haven't mentioned.

Can I change a lot of things, rather than just one?

If you make more than one change at the same time, you won't know **which** change made a difference. Encourage your students to try one change at a time. That way, they'll know which changes made a difference in how well their telephone works.

Can I change the string without building a whole new telephone?

If you want to try a different string, you can tie the new string to a paper clip and bend the paperclip as you did before. Then you can replace the string in your telephone with the new string. Be warned: there's a downside to doing this. You can't compare the new phone and the old phone as easily.

What if my new telephone is WORSE than my old one?

Don't be disappointed. Engineers and scientists often learn more from an experiment that does something you don't expect. Thinking about why your phone is worse can help you figure out how to make it better.