

Sound Message Makers

Design, build, and test a device that carries a sound message farther.

2.8.C “design and build a device using tools and materials that uses sound to solve the problem of communicating over a distance.”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the words that name materials. Then write 1, 2, and 3 beside the speaking cup, the string, and the listening cup to show the path of the sound message.

A Garden Sound Device

- ① Maya and Luis needed to share messages from opposite sides of the school garden. They designed a sound device with two paper cups, a long piece of string, and two small holes. An adult helped them make the holes safely.
- ② Each child held one cup. Maya spoke into her cup, making its bottom shake. The tight string carried the shaking to Luis's cup. Luis put that cup by his ear and heard Maya's voice as sound.
- ③ At first, their string drooped, and the voice was hard to hear. They pulled the string straight and tested again. The sound was clearer. Their device solved the garden problem because a spoken message could travel between the two children.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What problem did Maya and Luis want their device to solve?

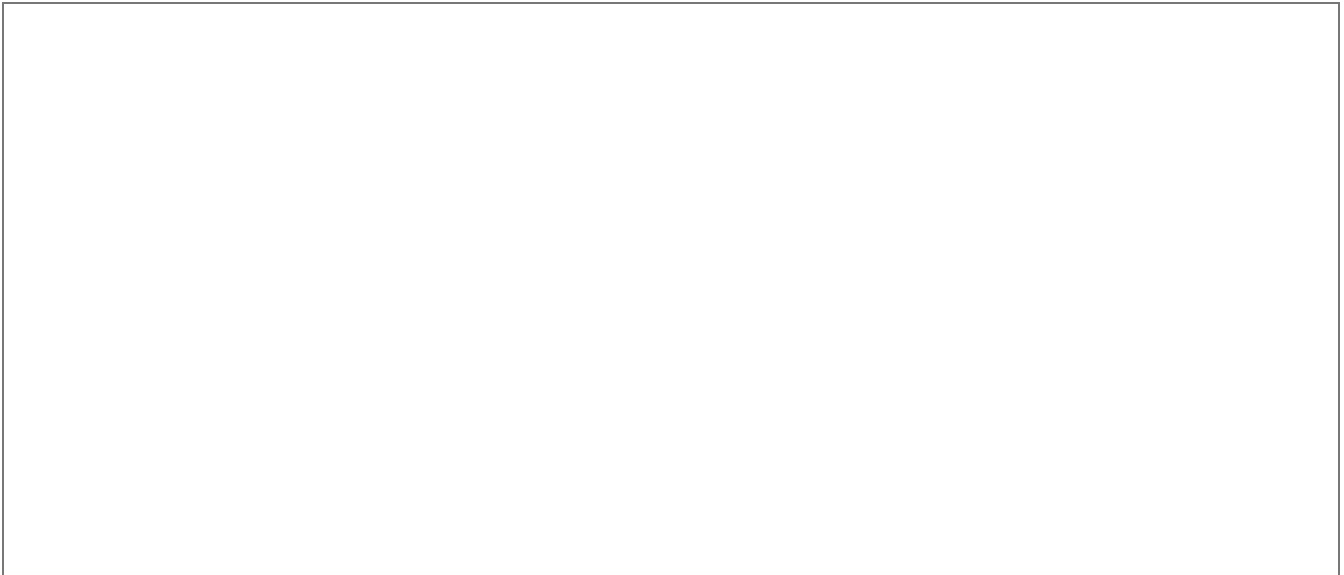
2 How did Maya's sound message move from her cup to Luis's cup?

3 What did the children change when the sound was hard to hear, and what happened after the change?

3 YOUR TURN

Your own words

Draw your own device that helps two people send a sound message across a room. Label two materials and one tool, then write one sentence telling how you would test whether it works. Then build and test a real device with your partner. Teacher supplies two paper cups, string, a ruler, tape and a tray; an adult makes a small center hole in each cup bottom using a suitable tool and puts it away. Use the ruler to measure about 3 m of string; the adult cuts it. Thread the string through each hole and tie a large knot inside each cup; add tape to secure if needed. Draw and label the completed device/materials and the adult-used tool. Stand safely apart with string straight, not around anyone's body, and clear of other objects. One child speaks a quiet two-word message into a cup while the other listens at the second cup and repeats what was heard; switch roles. Compare slack and gently taut string using the same message and voice level. Record the message received and which condition was clearer; improve a loose connection and retest if needed. No shouting or cups pressed into ears.



PART 1 • READ AND MARK

Underline the words that name materials. Then write 1, 2, and 3 beside the speaking cup, the string, and the listening cup to show the path of the sound message. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What problem did Maya and Luis want their device to solve?	They wanted to share spoken messages from opposite sides of the school garden.
2	How did Maya's sound message move from her cup to Luis's cup?	Maya's voice made her cup bottom shake. The tight string carried the shaking to Luis's cup.
3	What did the children change when the sound was hard to hear, and what happened after the change?	They pulled the string straight. The sound became clearer.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Drawing shows two paper cones taped to the ends of a clean plastic tube. Labels: paper cones, plastic tube, tape. Tool: scissors. Test sentence: Two children will stand across the room, and one will whisper into a cone while the other listens at the other cone. Actual cup-phone example: cups and string with a labeled adult-used hole-making tool; two secured knots. Record the sent and received words for slack and taut trials, using the actual outcomes. Taut string commonly transmits the message more clearly; unsuccessful trials should be reported and improved, not replaced by a fictional success.

Accept any safe, workable sound device that includes labeled materials, a tool, and a test that checks whether a listener can receive the message. The device may use a different design than the passage. Require actual construction using tools/materials and a listener's received-message test, not the design drawing alone. Teacher handles all hole-making; check safe spacing and no string around bodies. Verify both children send/listen, records match their trials, and any claim of clearer taut transmission matches observations. Different safe workable constructed designs may be accepted with equivalent actual testing.