

Signals in Action

Read how vibrations, sound signals, and light signals carry information.

S4P2 "Obtain, evaluate, and communicate information about how sound is produced and changed and how sound and/or light can be used to communicate."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline details that tell how a sound was made or changed. Circle details that tell when a sound or light signal can communicate clearly.

Maya Tests Signals

- ① During a music class, Maya plucked one ruler that hung over the edge of her desk. The ruler vibrated back and forth, pushing nearby air and making a sound. When she used a shorter part of the ruler, it vibrated faster and made a higher sound. Pressing the ruler harder made the vibration larger, so the sound was louder.
- ② Later, the class tested a drum code for sending messages across the playground. One beat meant line up, and two beats meant come inside. Students could hear the beats when they were not facing the drummer. However, wind, talking, or a closed door could make a sound signal hard to hear. The class decided that sound works well only when listeners can hear it clearly.
- ③ For a second system, Maya flashed a flashlight three times to mean "meeting starts." Light from the flashlight reached classmates' eyes, so they could see the signal without hearing it. A book held in front of the flashlight blocked the light, and students behind the book did not see the flashes. The class concluded that light signals need a clear path from the source to the viewer.

2

ANSWER WITH EVIDENCE

Use the passage

1

What observation shows that the ruler produced sound by vibrating?

2

How did Maya change the ruler to make a higher sound? How did she change it to make a louder sound?

3

Would the drum code be a reliable way to communicate through a closed door? Use information from the passage to explain.

4

Give one advantage of the flashlight signal and one limit of using it.

3

YOUR TURN

Your own words

Plan signals for a field-day game. Fill in one row for a sound signal and one row for a light signal. Make each message clear, and tell when each signal will work best.

SIGNAL TYPE	HOW YOU MAKE THE SIGNAL	MESSAGE IT SENDS	WHEN IT WORKS BEST

PART 1 • READ AND MARK

Underline details that tell how a sound was made or changed. Circle details that tell when a sound or light signal can communicate clearly. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What observation shows that the ruler produced sound by vibrating?	The ruler vibrated back and forth, pushed nearby air, and made a sound.
2	How did Maya change the ruler to make a higher sound? How did she change it to make a louder sound?	She used a shorter part of the ruler to make a higher sound. She pressed the ruler harder to make a louder sound.
3	Would the drum code be a reliable way to communicate through a closed door? Use information from the passage to explain.	No. A closed door can make the sound signal hard to hear, so listeners may not get the message clearly.
4	Give one advantage of the flashlight signal and one limit of using it.	Students can see the flashlight signal without hearing it. The light needs a clear path because an object can block it.

PART 3 • YOUR TURN (SAMPLE ANSWER)

SIGNAL TYPE	HOW YOU MAKE THE SIGNAL	MESSAGE IT SENDS	WHEN IT WORKS BEST
Sound	Ring a bell twice	Come to the water station	When players are close enough to hear the bell
Light	Flash a flashlight once	The game begins	When players can see the flashlight with no object blocking it