Design Information Transfer

Grade 4 Science Worksheet - Challenge Me

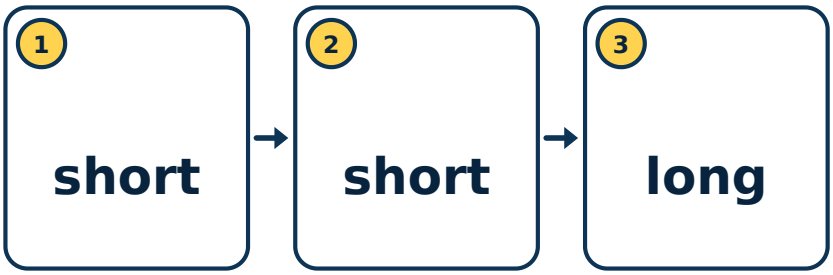
Name _____ Date _____

Circle the answer.

1. Code 1 uses a red light and an orange light. Code 2 uses one white light with short and long flashes. Why might Code 2 read better far away?
   red and orange lights cannot travel very far
   short and long flashes are easier to tell apart than red and orange
   white light never needs a code key
   Code 1 has no agreed key between the two people

2. Two teams compare codes for five messages. Team 1's patterns are all 2 flashes long. Team 2's are 1 to 5 flashes. Team 1's partners make fewer mistakes. Why?
   every message takes the same short time, so counting errors are rare
   Team 1 sent fewer messages during the test
   Team 2 used a brighter flashlight than Team 1
   longer codes are always easier for partners to read

3. Code: short-short-long = help, long-short = all clear. Look at the signal. What is the message?



   all clear come back wait here help

4. A phone sends a photo as a long pattern of on and off signals. Why must the pattern be exact?
   photos are sent by moving paper through wires
   any pattern of signals makes the same photo
   a changed part of the pattern changes the picture received
   the phone can only send sounds, not pictures

5. Why do traffic lights use both color and position (red on top)?
   a driver who cannot tell colors apart can still read the signal
   the top light is always brighter than the others
   putting red on top makes the lights cost less
   colored light alone travels too slowly to drivers

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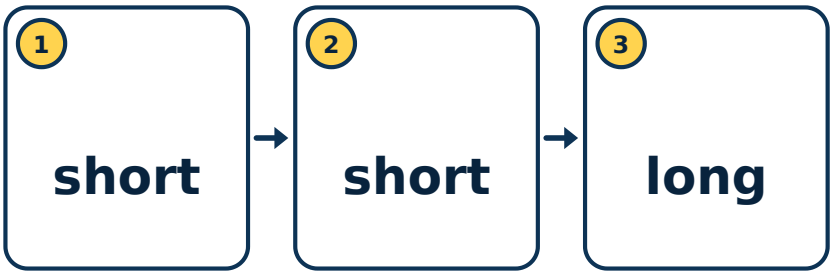
Answer Key - Grade 4 Science Worksheet - Challenge Me

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