Define Engineering Problems

Grade 3 Science Worksheet

Name _____ Date _____

Circle the answer.

1. A birdhouse hole must be no more than 4 cm across, so squirrels cannot get in. This hole is 6 cm across. Does it meet the rule?



yes, because 6 cm is close to 4 cm
no, because the hole is too small
yes, because bigger holes let more birds in
no, because 6 cm is larger than the 4 cm limit

2. A kite challenge allows one sheet of paper and one stick. A student's kite uses two sheets and three sticks, and it flies steadily. Does it meet the requirements?
yes, because it flies steadily
no, because it flies too low
no, because it uses more materials than allowed
yes, because extra sticks make it stronger

3. A rule says a ramp may rise no more than 1 inch for every 12 inches of length. A ramp rises 1 inch for every 6 inches. Does it meet the rule?
yes, because it rises only 1 inch at a time
no, because it is too flat
yes, because it still reaches the door
no, because it is steeper than the rule allows

4. A ramp must send a marble at least 50 cm. In a test, the marble went 65 cm. Does the ramp meet the goal?
no, because it must be exactly 50 cm
no, because 65 cm is too far
yes, because 65 cm is farther than 50 cm
yes, because the ramp is tall

5. A paper airplane flies 2 meters, but the goal is 5 meters. What should the student do next?
redesign the plane and test it again
change the goal to 2 meters
stop testing, since 2 meters is close
throw it the same way ten more times

6. A parachute must make a toy fall slowly. Which test result shows the parachute works?
   the parachute is the biggest in the class
   the toy lands upside down
   the toy falls slower with the parachute than without it
   the toy falls at the same speed either way

7. A rain gutter must carry water away from a doorway. Which observation shows it is not working?
   water flows away from the doorway
   the gutter is made of metal
   water pools at the doorway during rain
   the gutter is 10 feet long

8. A foil boat must hold 10 pennies and use only one sheet of foil. Which is the constraint?
   float for one minute use only one sheet of foil stay dry inside hold 10 pennies

9. Why should a class list the criteria before building a solution?
   criteria are added after building
   criteria are the materials allowed
   criteria replace testing
   criteria show how to judge if the design works

10. A cup holder must keep a cup upright on a bumpy bus. Which test best shows if the design meets this need?
    measure how tall the cup holder is
    weigh the holder with no cup
    count how many students like it
    tilt and shake the holder and see if the cup stays up

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Answer Key - Grade 3 Science Worksheet

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