Define Engineering Problems

Grade 3 Science Worksheet

Name _____ Date _____

Circle the answer.

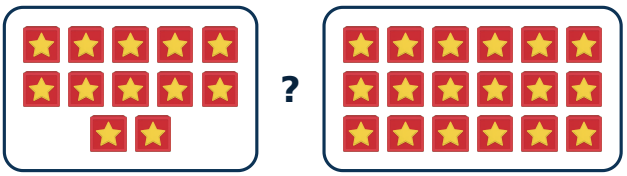
1. A rain gutter must carry water away from a doorway. Which observation shows it is not working?
   water pools at the doorway during rain
   the gutter is 10 feet long
   the gutter is made of metal
   water flows away from the doorway

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

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

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

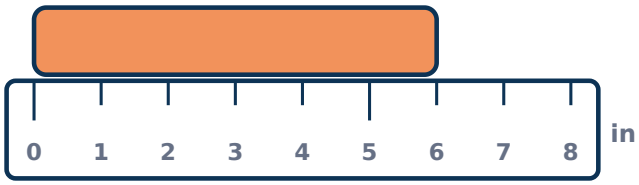
5. A block tower may use no more than 15 blocks. Tower A uses 12 blocks and Tower B uses 18. Which tower follows the limit?



   Tower A neither tower both towers Tower B

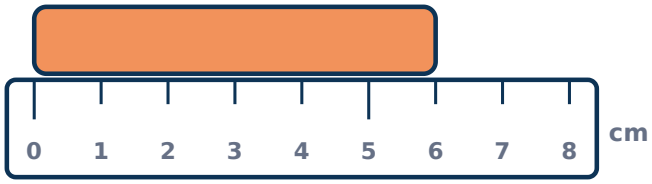
6. A lunchbox must keep food cold for 4 hours and fit a cubby 30 cm wide. Which describes the whole problem?
   keep food cold 4 hours and fit a 30 cm cubby
   keep food cold for 4 hours
   fit in a 30 cm cubby
   be the coldest lunchbox ever made

7. A pencil holder must be no wider than 6 inches. This one is 6 inches wide. Does it meet the size limit?



yes, because it is not wider than 6 inches
no, because it is exactly 6 inches wide
yes, because it holds many pencils
no, because it must be smaller than 6 inches

8. 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?



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

9. 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?

no, because it uses more materials than allowed
no, because it flies too low
yes, because extra sticks make it stronger
yes, because it flies steadily

10. 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 still reaches the door
no, because it is steeper than the rule allows
yes, because it rises only 1 inch at a time
no, because it is too flat

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Answer Key - Grade 3 Science Worksheet

Circle the answer.

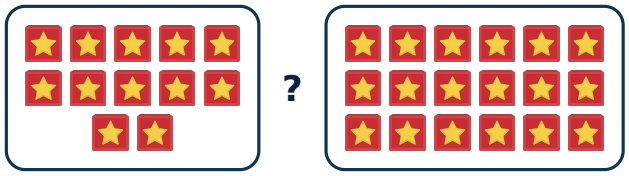
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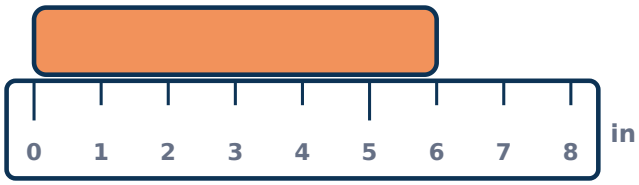
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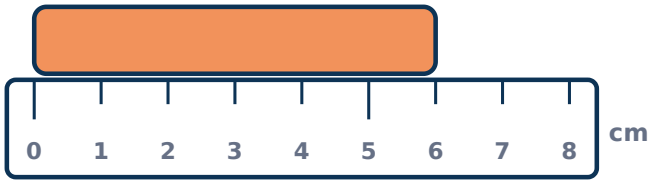
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