Define Engineering Problems

Grade 3 Science Worksheet - Challenge Me

Name _____ Date _____

Circle the answer.

1. A bird feeder must let small birds eat but keep squirrels out. Which question best defines the problem?

   How can small birds reach the seeds while squirrels cannot?

   How can a feeder hold the most seeds?

   How can a feeder be built quickly?

   How can squirrels reach the seeds faster?

2. Why should engineers talk with the people who will use a design before building it?

   to choose the materials for them

   to learn what needs the design must meet

   to skip testing later

   to make the design cost more

3. A bridge holds 25 washers. The goal was 20 washers, but the team used 3 more sheets of paper than allowed. Does it solve the problem?

   no, because it breaks the paper limit

   yes, because it holds more than 20 washers

   no, because it holds too many washers

   yes, because extra paper is fine if it works

4. A shade cover must shade a 2-meter bench and cost less than $20. Cover A shades 2 meters and costs $15. Cover B shades 3 meters and costs $25. Which fits the problem?

   Cover A both covers Cover B neither cover

5. Which is the best order for starting a design project?

   list criteria, build, then state the problem

   build a model, state the problem, then test

   brainstorm, state the problem, then list criteria

   state the problem, list criteria and constraints, then brainstorm

6. A greenhouse must keep plants above 40°F at night. On a 25°F night, the inside reads 45°F. Did it meet the goal?

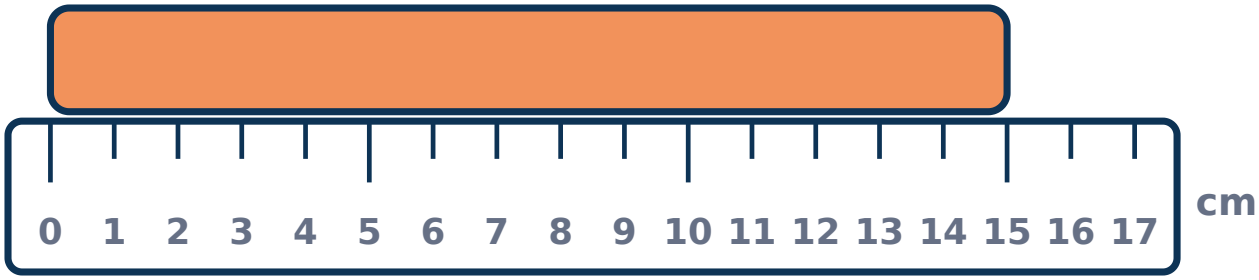
no, because 45°F is below 40°F

no, because it was 25°F outside

yes, because 45°F is above 40°F

yes, because it was cold outside

7. A card bridge must span a gap of at least 18 cm. This bridge spans 15 cm. Does it meet the requirement?



yes, because it uses only index cards

yes, because 15 cm is close enough

no, because 15 cm is shorter than the 18 cm goal

no, because it uses too many cards

8. A doghouse must keep rain out and fit a yard 4 feet wide. Doghouse A is 3 feet wide and keeps rain out. Doghouse B keeps rain out but is 6 feet wide. Which solves the problem?

Doghouse B only Doghouse A only neither doghouse both doghouses

9. A tower must be at least 30 cm tall and use no more than 20 straws. Tower A is 32 cm with 18 straws. Tower B is 35 cm with 20 straws. Which towers meet the rules?

neither tower Tower A only Tower B only both towers

10. A boat must hold 10 pennies and use one sheet of foil. Boat A holds 12 pennies but uses two sheets. Boat B uses one sheet but holds 7 pennies. Which boats meet the rules?

Boat B only both boats neither boat Boat A only

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Answer Key - Grade 3 Science Worksheet - Challenge Me

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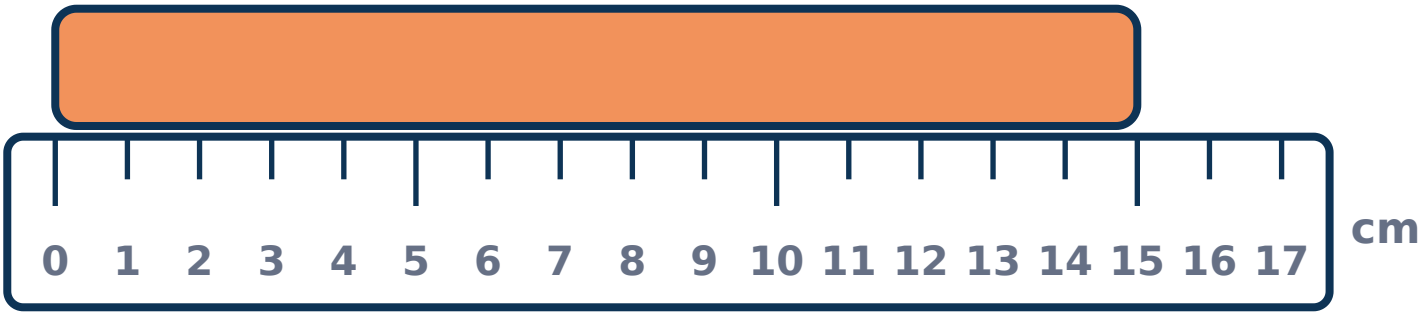
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