Compare Engineering Solutions

Grade 3 Science Worksheet - Challenge Me

Name _____ Date _____

Circle the answer.

1. Slide A is faster, but children bump at the end. Slide B is slower, and children stop safely. If safety is the most important criterion, which is better?

   Slide A neither slide Slide B both slides

2. Why might engineers combine the best parts of two designs?

   to make sure neither design is used

   to make a new design that meets more criteria

   to avoid testing either design

   to use more materials than allowed

3. A kite must stay up at least 5 minutes and cost less than $5. Kite A stayed up 6 minutes and costs $4. Kite B stayed up 7 minutes and costs $6. Which kites meet all the rules?

   Kite B only both kites Kite A only neither kite

4. Which order shows how engineers usually compare and improve solutions?

   redesign, test each design, then compare to the goal

   compare to the goal, redesign, then test

   test each design, compare results to the goal, redesign if needed

   build once, skip testing, keep the first design

5. Design A meets every criterion but breaks the material limit. Design B meets the limit but misses one criterion. What should engineers do next?

   choose B and ignore the missing goal

   build both again without changes

   choose A and ignore the limit

   improve the designs so one meets both

6. A wind-powered car goes farther with bigger sails but tips over more easily. What tradeoff does this show?

   sail size versus cost sail size versus stability speed versus wheel size

   speed versus distance

7. Two solutions both meet the criteria and constraints. What is a reasonable next step before choosing one?

- test both again to see which works more reliably
- choose one without more testing
- assume they perform the same
- pick the one built first

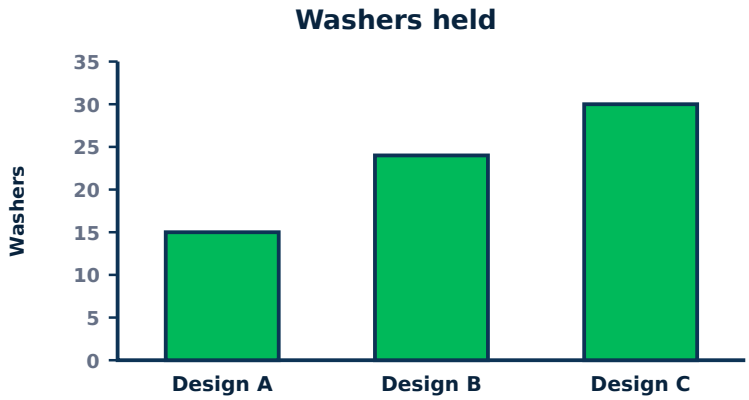
8. A class has three ramp designs and time to test only two. Which two should they test first?

- the two made of the same material
- the two finished last
- the two with the most parts
- the two most likely to meet the distance goal

9. Two gliders are launched the same way. Glider A flies straight across the room. Glider B spins and drops. The goal is to fly straight and far. Which meets the goal?

both gliders neither glider Glider A Glider B

10. The goal is a bridge that holds at least 20 washers using as little paper as possible. Design B uses 4 sheets and Design C uses 8 sheets. Use the graph. Which is the best choice?



Design A Design B Designs A and C Design C

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Answer Key - Grade 3 Science Worksheet - Challenge Me

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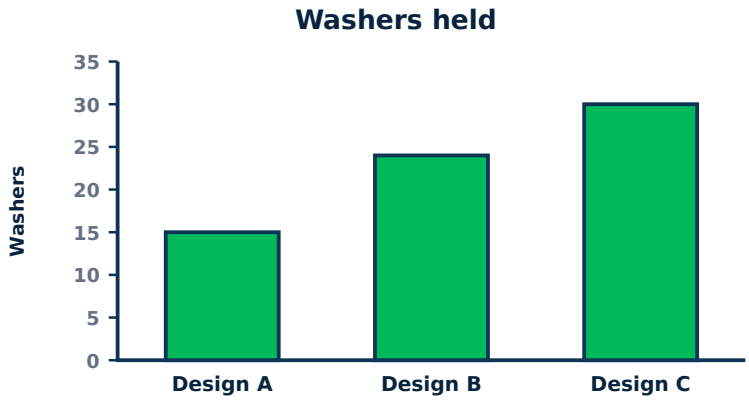
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