Compare Engineering Solutions

Grade 3 Science Worksheet - Challenge Me

Name _____ Date _____

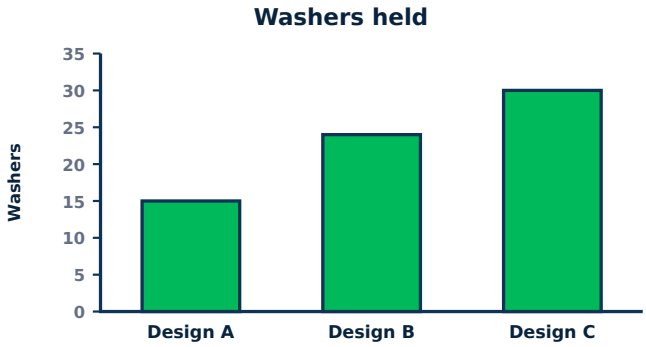
Circle the answer.

1. 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
   pick the one built first
   assume they perform the same
   choose one without more testing

2. A class has three ramp designs and time to test only two. Which two should they test first?
   the two most likely to meet the distance goal
   the two made of the same material
   the two with the most parts
   the two finished last

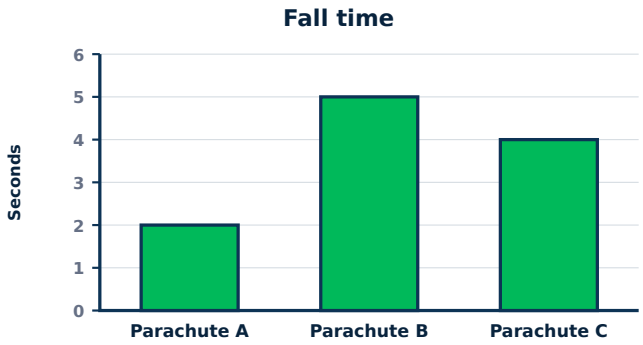
3. Two gliders are launched the same way. Glider A flies straight across the room. Glider B spins and drops. The goal is to fly straight and far. Which meets the goal?
   Glider B Glider A neither glider both gliders

4. 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 C Designs A and C Design B Design A

5. The goal is a parachute that takes at least 4 seconds to fall. Use the graph. Which parachutes meet the goal?



A and C all three B only B and C

6. Design A held 10, 12 and 11 washers in three tests. Design B held 15, 4 and 14. The goal is a bridge that holds at least 10 washers every time. Which is better?
both, because each held 10 once
Design A, because every test met the goal
Design B, because its total is higher
Design B, because it held the most once

7. 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?
both slides neither slide Slide A Slide B

8. Why might engineers combine the best parts of two designs?
to use more materials than allowed
to avoid testing either design
to make a new design that meets more criteria
to make sure neither design is used

9. 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?
both kites neither kite Kite A only Kite B only

10. Which order shows how engineers usually compare and improve solutions?
test each design, compare results to the goal, redesign if needed
redesign, test each design, then compare to the goal
compare to the goal, redesign, then test
build once, skip testing, keep the first design

Scan to get this marked free. No screen time for your child.
Print it · do it in pencil · scan it · PencilGo picks the next sheet.

Compare Engineering Solutions

Answer Key - Grade 3 Science Worksheet - Challenge Me

Circle the answer.

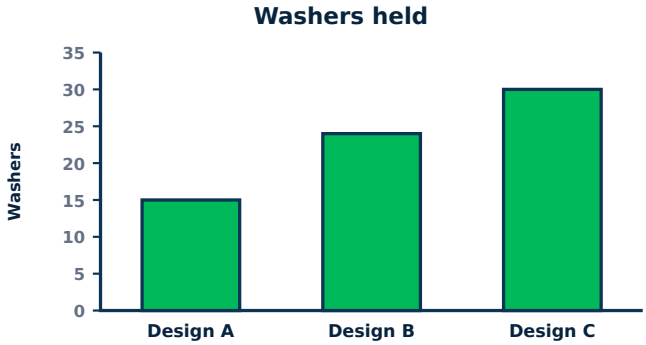
1. Two solutions both meet the criteria and constraints. What is a reasonable next step before choosing one?
   - test both again to see which works more reliably
   - pick the one built first
   - assume they perform the same
   - choose one without more testing

2. A class has three ramp designs and time to test only two. Which two should they test first?
   - the two most likely to meet the distance goal
   - the two made of the same material
   - the two with the most parts
   - the two finished last

3. 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?

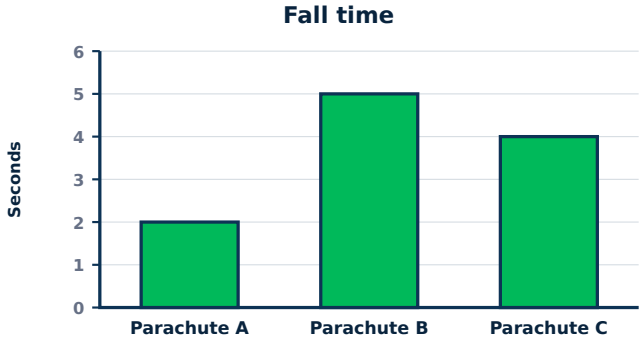
   Glider B | Glider A | neither glider | both gliders

4. 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 C | Designs A and C | Design B | Design A

5. The goal is a parachute that takes at least 4 seconds to fall. Use the graph. Which parachutes meet the goal?



   A and C | all three | B only | B and C

6. Design A held 10, 12 and 11 washers in three tests. Design B held 15, 4 and 14. The goal is a bridge that holds at least 10 washers every time. Which is better?
both, because each held 10 once
Design A, because every test met the goal
Design B, because its total is higher
Design B, because it held the most once

7. 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?
both slides neither slide Slide A Slide B

8. Why might engineers combine the best parts of two designs?
to use more materials than allowed
to avoid testing either design
to make a new design that meets more criteria
to make sure neither design is used

9. 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?
both kites neither kite Kite A only Kite B only

10. Which order shows how engineers usually compare and improve solutions?
test each design, compare results to the goal, redesign if needed
redesign, test each design, then compare to the goal
compare to the goal, redesign, then test
build once, skip testing, keep the first design