



Engineering Design Challenges

Name: _____

Date: _____

Grade: Grade 4

Part A: Multiple Choice

Circle the best answer for each question.

1. Maya's tower fell after 5 seconds in trial 1, 8 in trial 2, 15 in trial 3. What is happening?

- A) Her design is improving each trial
- B) Her tower is getting shorter
- C) She is using less tape
- D) The wind is changing

2. A bridge held 200g, 150g, then 250g. Which trial gave the best result?

- A) Trial 1
- B) Trial 3
- C) Trial 2
- D) All equal

3. Sam's parachute fell too fast in trials 1 and 2. What change should he try next?

- A) Smaller canopy
- B) Heavier load
- C) Make canopy bigger
- D) Shorter strings

4. After adding more tape, a tower stopped wobbling. What did the tape change?

- A) The cost
- B) The color
- C) The height
- D) The stability

Part B: Fill in the Blank

Write the correct answer on each line.

1. Doing the design steps over and over to improve is called _____.
2. If a tower keeps falling at the top, the _____ is probably too weak there.
3. Changing the budget rule from \$5 to \$3 is a new _____ on the project.
4. Engineers learn most from a _____ because it shows what does not work.
5. If only the glue type changes between trials, glue is the _____ variable.

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Part B: Fill in the Blank

Write the correct answer on each line.

1. Doing the design steps over and over to improve is called iteration.
2. If a tower keeps falling at the top, the structure is probably too weak there.
3. Changing the budget rule from \$5 to \$3 is a new constraint on the project.
4. Engineers learn most from a failure because it shows what does not work.
5. If only the glue type changes between trials, glue is the independent variable.