



Engineering Design Challenges

Name: _____

Date: _____

Grade: Grade 4

Part A: Multiple Choice

Circle the best answer for each question.

1. Mia's tower fell at 8 blocks. She widens the base. What likely happens next test?

- A) The tower stands taller before falling.
- B) The tower falls at exactly 8 blocks again.
- C) The tower tips over at fewer blocks.
- D) The tower cannot stand at all anymore.

2. Leo's paper bridge held 4 coins. He folds the paper into a beam. What is the fairest test next?

- A) Use a brand new shape and new coins.
- B) Use the same coins and same span length.
- C) Use heavier coins to challenge the bridge.
- D) Use a different table and shorter span.

3. Ana's water filter is slow. She wants faster flow. Which change fits the goal?

- A) Add more layers of fine sand on top.
- B) Make the funnel opening much smaller.
- C) Use slightly larger gravel near the bottom.
- D) Pack every layer down very tightly.

4. Sam's marble run is too fast and misses the cup. Which improvement helps accuracy most?

- A) Raise the start height much higher.
- B) Remove every curve from the track.
- C) Use a heavier and bigger marble instead.
- D) Add a gentle curve before the cup.

Part B: Fill in the Blank

Write the correct answer on each line.

1. Changing one thing at a time keeps a test _____.
2. Repeating Ask, Imagine, Plan, Create, Improve is called _____.
3. The thing being changed in a fair test is the _____.
4. Predicting the result before testing is called a _____.
5. Test results that match a prediction give the team useful _____.

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Part B: Fill in the Blank

Write the correct answer on each line.

1. Changing one thing at a time keeps a test fair .
2. Repeating Ask, Imagine, Plan, Create, Improve is called iteration .
3. The thing being changed in a fair test is the variable .
4. Predicting the result before testing is called a hypothesis .
5. Test results that match a prediction give the team useful data .