



These Gold questions require explaining forces with genuine reasoning and comparing real-world scenarios.

Name: _____ Date: _____

Section A: Force Reasoning

1. Explain why a feather and a hammer fall at the same rate in a vacuum, but not in normal air.

2. A parachutist falls, then opens their parachute. Explain what happens to their speed and why.

3. Design a fair test to compare the air resistance of two differently shaped paper models.

4. Explain why it is harder to walk through water than through air, using the idea of resistance.

5. Why might a cyclist go faster downhill than uphill, considering both gravity and friction?

Section B: Applying Force Concepts

1. Explain why racing cars are designed to be low and streamlined.

2. A ball rolls further on a smooth floor than on a carpet. Explain why, using the idea of friction.

3. Explain why ice skates have a thin blade rather than a flat sole.

4. Design an experiment to test which surface (grass, concrete, or sand) creates the most friction for a rolling ball.

5. Explain how both gravity and air resistance affect a skydiver throughout their jump, from leaving the plane to landing.
