GRADE 7 SCIENCE

Gravity & Weight

Name: Date:

INQUIRY

An astronaut on China's Tiangong station floats in microgravity. Are they actually weightless?

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

Term	Definition
Gravity	Attractive force between any objects with mass.
Weight	Force of gravity on an object. W = mg.
Mass	Amount of matter. Doesn't change with location.

Part A — Mass vs Weight

1. Explain the difference between mass and weight. Which changes when you go to the Moon? [3 marks]

Part B — Calculating

2. A student has mass 55 kg. Calculate weight on: (a) Earth (g=10) (b) Moon (g=1.6) (c) Mars (g=3.7). [3 marks]

Show your working:

3. The Tiangong space station orbits at 400 km altitude. Gravity there is about 8.7 m/s2 (not zero!). Calculate the weight of a 70 kg astronaut. Why do they float? [3 marks]

Show your working: