

Chapter 4: Newton's First Law

Text:Chapter 4

Think and Explain: 1-12

Think and Solve: 2

Vocabulary:

force, Newton's 1st law, equilibrium, friction, inertia, kilogram, newton, law of inertia, mass, weight, net force, volume, normal force, support force, free body diagram (force diagram), tension

Equations:

$$F_w = mg$$

Constants: $g = \pm 10 \text{ m/s}^2$

Key Objectives:*Concepts*

- Understand the role of Aristotle, Galileo, and Newton in our understanding of motion.
- State and explain Newton's First Law of Motion.
- Describe the concept of inertia.
- State the difference between mass and weight.
- Define equilibrium and recognize objects in equilibrium.
- Create free body diagrams for objects in equilibrium and state what forces are acting on the objects.

Problem Solving

- Solve for the mass of an object when given the weight.
- Solve for the weight of an object on a planet when given the mass and the acceleration due to gravity on that planet.