

## Chapter 16

Use with Section 2

## REINFORCEMENT

## ● Why do things fall?

Complete the following paragraph using the terms in the box below. Some terms may not be used.

acceleration	inertia	strong
attraction	mass	unbalanced
balanced	normal force	upward
downward	pulls	weak
gravity	pushes	weight

According to the law of universal gravitation, all matter 1. \_\_\_\_\_ on all other matter. You don't notice the 2. \_\_\_\_\_ between you and your pen because 3. \_\_\_\_\_ is 4. \_\_\_\_\_ for small objects. Without the resistance from air, all objects fall with the same 5. \_\_\_\_\_, due to gravity. The force of gravity acts 6. \_\_\_\_\_ while the 7. \_\_\_\_\_ acts 8. \_\_\_\_\_. When you stand on level ground, the normal force is equal to your 9. \_\_\_\_\_. You do not accelerate because the forces acting on you are 10. \_\_\_\_\_. Before you start moving, your 11. \_\_\_\_\_ must be overcome.

Answer the following questions.

12. How can a spring be used to measure force? \_\_\_\_\_  
\_\_\_\_\_
13. How are weight and mass similar? \_\_\_\_\_  
\_\_\_\_\_
14. On what does mass depend? \_\_\_\_\_
15. On what does weight depend? \_\_\_\_\_
16. A mass of 30 kg weighs 50 N on the moon.
- What is its weight on Earth? \_\_\_\_\_
  - What is its mass on Earth? \_\_\_\_\_
17. How much force is needed to accelerate a 3-kg mass at a rate of  $4 \text{ m/sec}^2$ ? Show your calculations in the space below.