

Skills Worksheet

Directed Reading B**Section: What Is a Force?** (pp. 344–349)

1. In science, a push or a pull exerted on an object is known as

a(n) **force** _____.

2. All forces have two properties: **magnitude** _____ and

direction _____ that means that force is a vector

3. The SI unit used to express force is called a(n) **Newton** _____.

FORCES ACTING ON OBJECTS

4. Forces always act on **objects** _____.

5. Give two examples of objects on which you exert forces when you are doing your schoolwork.

Your fingers put pressure forces on the book to open or close it, also you put forces on the keys of your computer.

6. Give one example of a force that does not cause an object to move.

A chair puts a force on you, opposite the gravity force, and you are not moving. When the chair force is removed, then you fall.

COMBINED EFFECT OF FORCES

7. The combination of all forces acting on an object is called

net force _____.

8. How do you calculate the net force if two or more forces act in the same direction?

You calculate the net force by adding two forces if they are acting in the same direction. $3\text{N} + 3\text{N} = 6\text{N}$

9. How do you find the net force when two forces act in opposite directions?

You subtract the smaller force from the larger force, to calculate the net force, when the forces vectors are pointing in opposite directions. $4\text{N} - 3\text{N} = 1\text{N}$ is the net force.

Directed Reading B *continued*

BALANCED FORCES: NO CHANGE IN MOTION

10. What must the net force be equal to in order for the forces on an object to be balanced?

When the net forces add up to zero, then there is a balance or static (stasis means remain the same)

11. A hanging light does not move because the force of gravity pulling down is balanced by the force of tension in the cord pulling up.

UNBALANCED FORCES: VELOCITY CHANGES

12. Forces are unbalanced when the net force on an object is NOT equal to zero newtons. unbalanced = not zero = not static

13. What type of force is needed to cause a static object to start moving?

unbalanced = motion will happen = kinetic

14. Give an example of an object that continues to move when an unbalanced force is removed.

a soccer ball is moved when an unbalanced kick force acts upon it.

15. Give an example of an object that moves in a direction different from the direction of an unbalanced force acting on it.

Centripetal force of a string acting on a ball as it swings around your hand. The ball moves in a circular path, not toward your hand. Also the parachute on the space shuttle pulls back on the shuttle while it is still moving forward.