

Directed Reading B *continued*

9. One of the ways to express speed is by using the SI unit

of **meters per second**.

10. Name two other units often used for expressing speed.

miles per hour

km/h = kilometers per hour

11. What is the equation for average speed?

average speed = (total distance) / (total time)

12. Speed can be represented on a graph where **time in seconds** is plotted on the x -axis and position of the object is plotted on the y -axis.

13. In the graph in your book illustrating the speed of a dog walking beside a fence, why does the distance traveled in a given second vary?

The graph shows that the dog stopped still between 3 and 6 seconds. Perhaps he urinated on a fire hydrant.

VELOCITY: DIRECTION MATTERS

14. How could two birds flying at the same speed from the same starting point end up at different destinations?

The two birds went in different directions, "where the crow flies" is the shortest straight line between two places. you can't always drive where the crow flies.

15. What is the difference between velocity and speed?

speed is a scalar - a number that only says magnitude (how much?)

velocity is a vector - a number that says both magnitude and direction.

16. What can change when an object's velocity changes?

The speed OR direction changes.

ACCELERATION

17. Acceleration is the rate at which **velocity** changes over time.

18. The units of **acceleration** are the units of velocity divided by a unit of time.

Directed Reading B *continued*

19. A common unit for acceleration is meters per second per

second _____.

20. An increase in speed is sometimes called **positive linear** _____ acceleration.

21. What are the two terms sometimes used to describe a decrease in speed?

negative linear acceleration = deceleration _____

22. Why is an object traveling in a circle considered to be accelerating?

Changing directions also changes the velocity vector, so technically you are accelerating. The force you feel from it pushes you away from the center of the circular path and is called centripetal force. _____

23. The type of acceleration that occurs when an object travels at a constant speed in circular motion is called **centripetal** _____ acceleration.

24. Acceleration can be shown on a graph of speed versus **time** _____.

25. In the graph in your book showing the acceleration of a radio-controlled toy car over 10 s, how can you tell acceleration is positive from 0 s to 5 s?

the positive slope upward means that you have positive acceleration _____

26. In the same figure, how can you tell that the speed of the radio-controlled car is constant between 5 s and 7 s?

The lines is straight horizontal, = zero slope = constant speed _____