Skills Worksheet

Directed Reading A

Section: Measuring Motion

1. Name something in motion that you cannot see moving.

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   _____

OBSERVING MOTION BY USING A REFERENCE POINT

_____ 2. An object in motion is moving in relation to an object that appears to
   a. stay in place.   c. maintain constant velocity.
   b. keep moving.   d. maintain constant acceleration.

_____ 3. When an object changes position over time relative to a reference
   point, the object is
   a. speeding.   c. decelerating.
   b. accelerating.   d. moving.

4. For determining motion, the surface of Earth is a common

   _____.

5. Why are buildings, trees, and mountains all useful reference points?

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   _____

6. Can a moving object be used as a reference point? Explain.

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SPEED DEPENDS ON DISTANCE AND TIME

7. The speed of an object depends on the distance traveled and the

   _____taken to travel that distance.

8. The SI unit for speed is _____.

9. Why is it useful to calculate average speed?

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| Directed Reading A *continued* |

10. Explain how to calculate average speed.

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11. When a person drives for several hours, how does the distance traveled in one hour usually compare with the distance traveled in other hours? Explain.

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12. Suppose that, on a graph showing speed, there are two lines. One line represents speed per hour, and the other line represents average speed. Will both lines be exactly alike and in the same place on the graph? Explain.

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VELOCITY: DIRECTION MATTERS

13. Why wouldn't birds end up at the same destination if they are flying exactly the same speed at all times?

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14. What is the difference between velocity and speed?

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    _____

Directed Reading A *continued*

15 How would you calculate the resultant velocity of two velocities in the same direction?

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16. How would you calculate the resultant velocity of two velocities in opposite directions? What direction is the larger velocity?

    _____

    _____

ACCELERATION

17. If your speed is not changing but your direction is changing, are you accelerating? Explain your answer.

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    _____

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18. Another name for acceleration in which velocity increases is

    _____ acceleration.

19. What are the two common terms for decrease in velocity?

    _____

    _____

20. Write the mathematical formula for calculating average acceleration.

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21. A speedometer shows that a cyclist is going 1 m/s the 1st second, 2 m/s the 2nd second, and 3 m/s the 3rd second, as the cyclist continues straight south. How do you know the cyclist is accelerating?

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    _____

    _____

Directed Reading A *continued*

22. How would acceleration be shown on a graph?

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23. A graph shows a roller coaster increasing in velocity for the first eight seconds as it goes down the hill. Will the graph have an upward slope representing a roller coaster traveling down the hill? Explain your answer.

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24. As long as something travels in a circle, is it always accelerating? Explain your answer.

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