Name _____ Date _____ Class _____

Note-taking Worksheet

Motion and Speed

Section 1 Describing Motion

A. _____—when an object changes its position relative to a reference point

1. _____—how far an object has moved
2. _____—distance and direction of an object's change in position from the starting point

B. _____—distance an object travels per unit of time

1. _____—any change over time
2. Calculation for speed: *speed = distance /* _____
3. Speed that doesn't change over time—_____ speed
4. Speed is usually not constant; usually an object has _____ speed.
5. _____—speed of motion when speed is changing:
   speed = total _____ */ total travel time*
6. _____—speed at any given point in time

C. A distance-time _____ displays motion of an object over time.

1. Plot distance on a(n) _____ axis.
2. Plot time on a(n) _____ axis.

D. _____—speed and direction of an object's motion

E. Motion of Earth's crust—so _____ we don't notice

Section 2 Acceleration

A. _____—change in velocity's rate

1. _____ acceleration—speed is increasing.
2. _____ acceleration—speed is decreasing.
3. When an object changes speed or _____, it is accelerating.

B. Calculating acceleration

1. Acceleration = _____ / time
2. Change in velocity = _____ – initial velocity
3. Unit for acceleration—meters per _____ squared
4. Positive acceleration—positive number with a _____ slope on a velocity-time graph

Meeting Individual Needs

Note-taking Worksheet (continued)

5. Negative acceleration—negative number with a _____ slope on a velocity-time graph

C. Amusement park acceleration—Roller coasters

1. Changes in _____ cause acceleration.
2. Changes in _____ cause acceleration.

Section 3 Motion and Forces

A. _____—a push or pull that one body applies to another

1. A force can cause an object's _____ to change.
2. When two or more forces combine at the same time, they create a _____.
3. **Balanced forces** are equal in _____ and opposite in _____.
4. _____ are unequal in size and / or are in the same direction.

B. Inertia and Mass

1. _____—an object's resistance to any change in motion
2. Objects with greater _____ have greater inertia.
3. Newton's _____—an object moving at a constant velocity keeps moving at that velocity unless a net force acts on it; an object at rest will stay at rest unless a net force acts on it.

C. Auto crashes—the law of _____ at work

1. A passenger not wearing a seat belt keeps moving _____ at the car's speed even after the car stops.
2. A passenger wearing a seat belt _____ as the car slows down and stops.

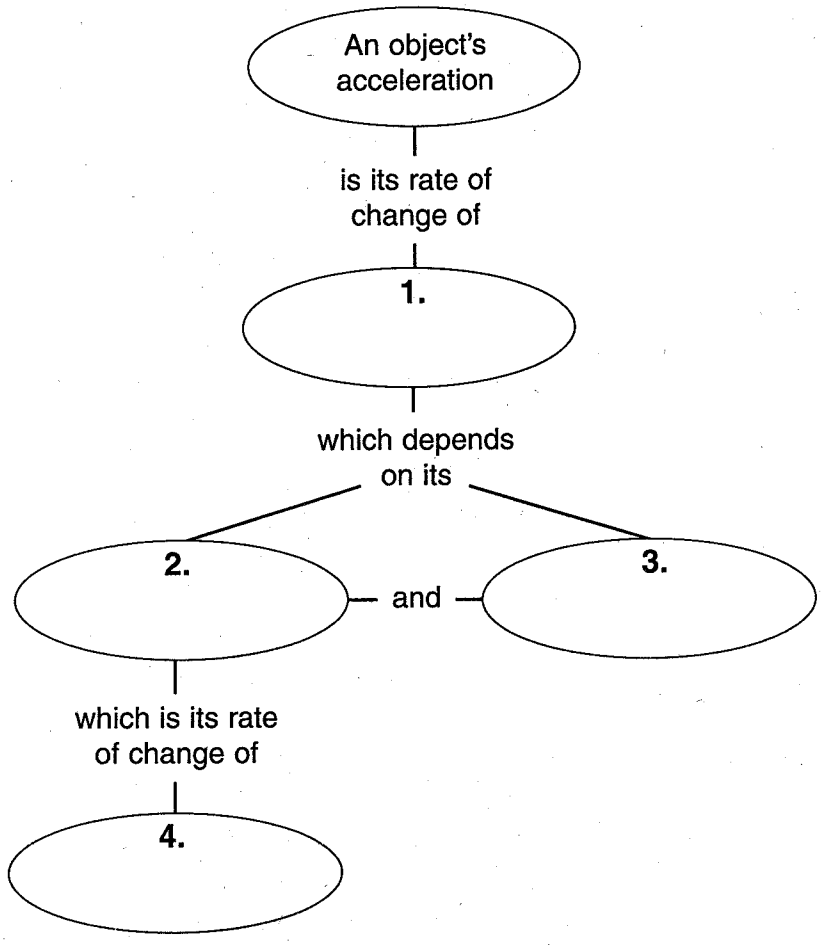
Name Date Class

Directed Reading for Content Mastery

Overview
Motion and Speed

Directions: *Complete the concept map using the terms below.*

velocity **position** **speed** **direction**



Directions: *Circle the term in parentheses that correctly completes the sentence.*

5. Newton's first law of motion states that an object's velocity will not change unless it is acted upon by (balanced/unbalanced) forces.

6. The greater a boulder's mass, the (greater/less) inertia it has.

7. Displacement depends on an object's distance and (speed/direction) compared to a starting point.

8. An automobile that slows down when approaching a stop sign has (negative, positive) acceleration.

Meeting Individual Needs

Name Date Class

Directed Reading for Content Mastery

Section 1 ▪ Describing Motion

Directions: *For each of the following, write the letter of the term or phrase that best completes the sentence.*

_____ 1. A sprinter runs 200 m west and 100 m east. Her displacement is _____.
a. 300 m **b.** 100 m west

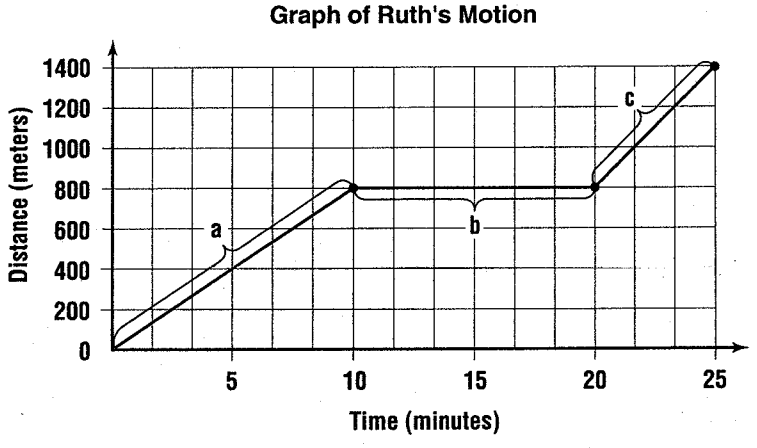
_____ 2. Speed can be calculated by dividing distance by _____.
a. time **b.** displacement

_____ 3. The speed of a motorcycle at a particular moment is its _____ speed.
a. average **b.** instantaneous

_____ 4. Earth's plates move only a few _____ per year.
a. centimeters **b.** meters

_____ 5. Two cars are each traveling at 72 km/h. One car is traveling northeast, and the other is traveling south. The two cars have different _____ .
a. velocities **b.** speeds

Directions: *Look at the graph. Match the letters in the graph to the sentences below.*



_____ 6. Ruth stops for 10 minutes to speak to a friend.

_____ 7. She walks at a constant speed of 80 m/min.

_____ 8. She jogs 600 m in 5 minutes.

Name _____ Date _____ Class _____

Directed Reading for Content Mastery

Section 2 ▪ Acceleration
Section 3 ▪ Motion and Forces

Directions: *Complete the paragraph by filling in the blanks using the terms listed below.*

acceleration	**velocity**	**direction**
negative	**positive**	**time**

Acceleration occurs when an object's **1.** _____ changes. When an object speeds up, it has **2.** _____ acceleration. When an object's final velocity is less than its initial velocity, however, it has **3.** _____ acceleration. An object that is changing **4.** _____ is accelerating, even if its speed remains the same. Acceleration can be calculated by dividing the change in velocity by the **5.** _____ interval in which the change occurred. The SI unit of **6.** _____ is m/s^2.

Directions: *Match the terms in Column II with the descriptions in Column I. Write the letter of the correct term in the blank at the left.*

Column I

_____ **7.** result in a net force of zero

_____ **8.** the tendency of an object to resist any change in its motion

_____ **9.** cause an object's velocity to change

_____ **10.** a push or pull that can change an object's motion

_____ **11.** states that an object at rest will remain at rest unless acted upon by a net unbalanced force

_____ **12.** the combined force on an object

Column II

a. force

b. net force

c. unbalanced forces

d. balanced forces

e. inertia

f. Newton's first law of motion

Meeting Individual Needs