

Lesson 3 Acceleration

Skim Lesson 3 in your book. Read the headings, and look at the photos and illustrations. Identify three things you want to learn more about as you read the lesson. Write your ideas in your Science Journal.

Main Idea

Acceleration—Changes in Velocity

I found this on page _____.

I found this on page _____.

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I found this on page _____.

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Details

Define acceleration.

acceleration: _____

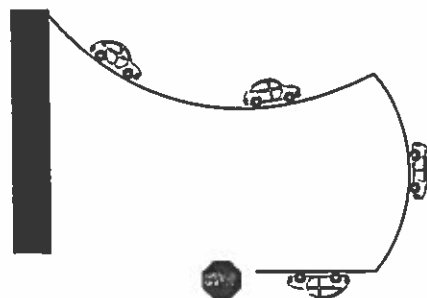
Identify 3 ways that an object can accelerate.

1. _____
2. _____
3. _____

Describe the acceleration of a car in each situation.

	Description
Leaving an intersection	
Approaching an intersection	

Draw arrows to show the direction of velocity and acceleration as the toy car moves along the track. Use one color to show velocity and another color to show acceleration.



KEY
acceleration
velocity

Lesson 3 | Acceleration (continued)

Main Idea

Calculating Acceleration

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Details

Define average acceleration, and complete the equation for calculating it.

average acceleration: _____

Average Acceleration Equation:

$$a = \frac{\text{final speed} - \text{initial speed}}{t}$$

Identify each variable in the equation.

average acceleration: _____ final speed: _____

initial speed: _____ t: _____

Solve for average acceleration.

A rocket accelerates from 0 to 20 km/s. Five seconds after reaching 20 km/s, the rocket is traveling at 280 km/s. What is the average acceleration of the rocket?

initial speed: _____

final speed: _____

total time: _____

$$a = \frac{\text{final speed} - \text{initial speed}}{t}$$

What is the average acceleration of the rocket? _____

Determine the direction of motion of two objects.

Time (s)	Average Acceleration (m/s)
0	0
1	-2
2	-4
3	-6
4	-8

Direction of motion: _____

Time (s)	Average Acceleration (m/s)
0	0
1	2
2	4
3	6
4	8

Direction of motion: _____

Lesson 3 | Acceleration (continued)

Main Idea

Speed-Time Graphs

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Summarizing Motion

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Details



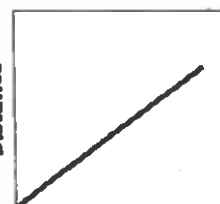
Explain what a speed-time graph indicates about an object's motion.



Describe the motion represented by each set of graphs.



Time



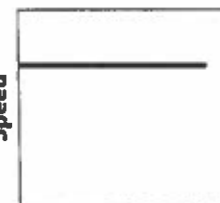
Time



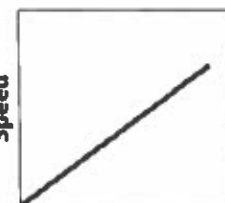
Time



Time



Time



Time

SET 1

SET 2

SET 3

SET 1. _____

SET 2. _____

SET 3. _____

Summarize five ways motion can be described.

1. _____ 4. _____

2. _____ 5. _____

3. _____



Synthesize It Draw a graph to show a car that starts from rest, accelerates to 35 km/h in 20 seconds, travels at a constant speed for 20 seconds, slows to a stop in 10 seconds, and remains at rest for 20 seconds. Label acceleration during each time period.

