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** ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ **Details** ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Acceleration—Changes in Velocity

I found this on page _____ .

Define acceleration.

acceleration: _____

_____

I found this on page _____ .

🗝 **Identify** *3 ways that an object can accelerate.*

1. _____

2. _____

3. _____

I found this on page _____ .

Describe *the* acceleration *of a car in each situation.*

	Description
Leaving an intersection	
Approaching an intersection	

I found this on page _____ .

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.
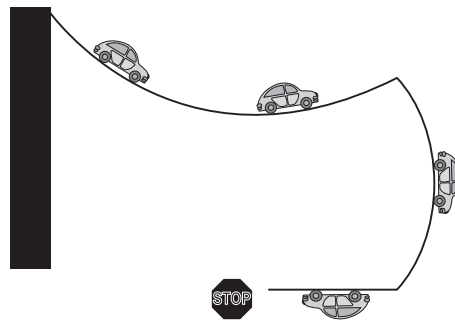
KEY

acceleration

velocity

▪▪▪ **Main Idea** ▪▪▪ | ▪▪▪▪▪▪▪▪▪▪▪▪ **Details** ▪▪▪▪▪▪▪▪▪▪▪▪▪▪

Calculating Acceleration

I found this on page _____ .

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

average acceleration: _____

_____

_____

Average Acceleration Equation:

$$a = \frac{\underline{\qquad} - \underline{\qquad}}{\underline{\qquad}}$$

I found this on page _____ .

Identify *each variable in the equation.*

average acceleration: _____   final speed: _____

initial speed: _____   *t*: _____

I found this on page _____ .

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: _____

$$a = \frac{\underline{\qquad\qquad}}{\underline{\qquad\qquad}}$$

What is the average acceleration of the rocket? _____

I found this on page _____ .

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)

Speed-Time Graphs

I found this on page _____ .

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

_____

I found this on page _____ .

🔑 **Describe** *the* motion *represented by each set of graphs.*
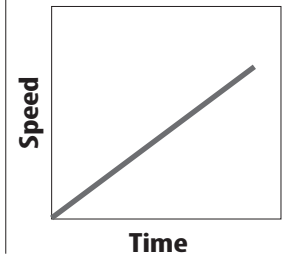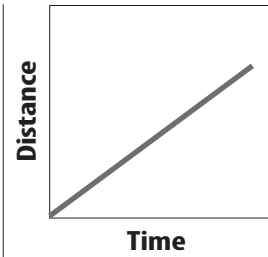
Distance / Time	Distance / Time	Distance / Time
Speed / Time	Speed / Time	Speed / Time
SET 1	**SET 2**	**SET 3**

SET 1. _____

SET 2. _____

SET 3. _____

Summarizing Motion

I found this on page _____ .

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.
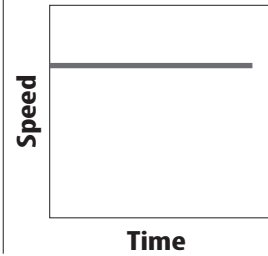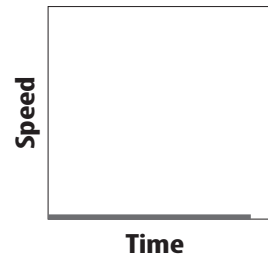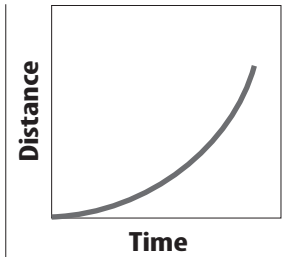
Car Trip

Speed (km): 40, 30, 20, 10, 0

Time (s): 10 20 30 40 50 60 70