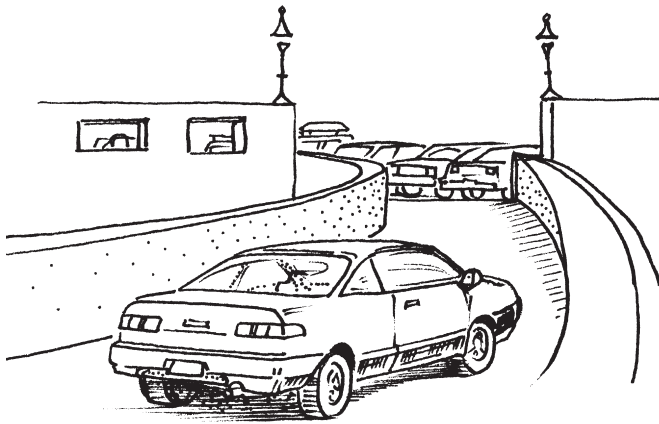


# Forces and Motion

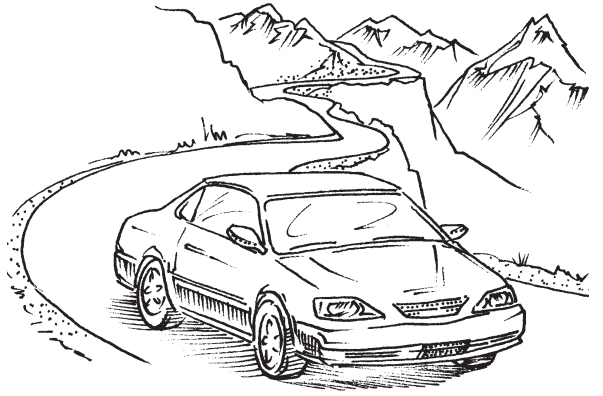
Imagine you are test-driving this new car. Explain how the car's motion is affected by different forces.



Write about how Car 1 is affected by inertia.

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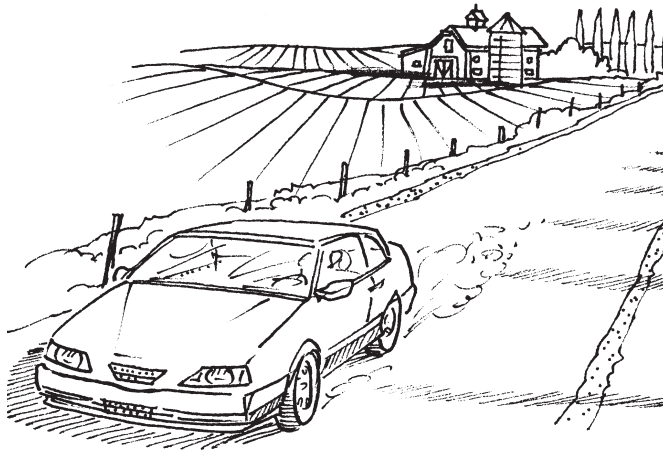
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Write about how Car 2 is affected by gravity.

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Write about how Car 3 is affected by friction.

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**Notes for Home** Your child has learned about the effects of inertia, gravity, and friction on motion.  
**Home Activity:** Discuss how inertia, gravity, and friction affect a recreational or work related activity you pursue.

## Using Interactive Transparency 6

### Big Idea

Inertia, gravity, friction, and other forces affect the speed and velocity of an object.

### Glossary

inertia      speed      gravity  
friction      weather

### ESL/ELD

#### Hands-On Activity

To prepare students for the *Test Drive* activity, have them use a book as an incline and roll three common objects down the incline. Objects could include a crumpled ball of paper, a paper clip, a pencil, and an eraser. Before they roll an object down the incline have them predict which will be fast, faster, and fastest among the three objects they use.

Have them compare reality with their expectations and note any surprises. Ask them to account for differences in speed.

Then ask students to vary the incline of the books they use as a ramp. Encourage them to speculate on how the degree of the angle will affect the motion of the object.

### Cooperative Learning

Organize students into small groups. Each student should share an experience of a fall from something with wheels such as a bike, roller blades, etc. Ask them to describe the fall and what they think caused them to fall. Suggest that speed, unseen objects on the path, inexperience, or faulty equipment might have contributed to the fall.

### Teach and Apply

**1** Make a copy of the transparency for each student. Let students use their own copy as the lesson develops.

**2** Cover all the images on the transparency except the car going up a parking ramp. Discuss how car 1 will be affected by gravity and friction while going up the ramp.

**3** Focus on the image of car 2 coming down a hairpin curve. Discuss how the car is affected by inertia and friction.

■ Emphasize the effect of the gravel road on car 3. Discuss how car 3 is affected by inertia and gravity.

■ Have students, working individually, write about how car 1 is affected by inertia; car 2 by gravity; car 3 by friction.

■ Discuss students' responses.

**1** Give a copy of the transparency to each student.

**7** Compile a chart or graph to represent student analysis.

**2** Uncover the car going up the parking ramp. Discuss the effects of gravity and friction on car 1.

Uncover the rural road scene and discuss how car 3 which is traveling on a gravel road, would be affected by inertia and gravity.

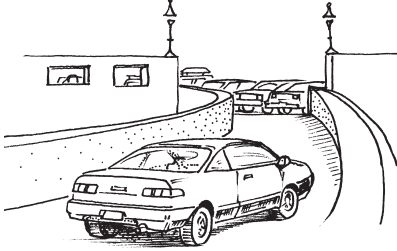
**3** Uncover the image of the car coming down the curve and discuss the effects of inertia and friction on car 2.

Name \_\_\_\_\_ Date \_\_\_\_\_

**Interactive Transparency 6**  
Use with Unit B, Chapter 2.

## Forces and Motion Answers will vary.

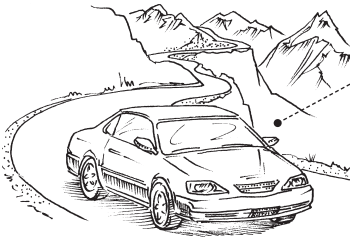
Imagine you are test-driving this new car. Explain how the car's motion is affected by different forces.



Write about how Car 1 is affected by inertia.

\_\_\_\_\_

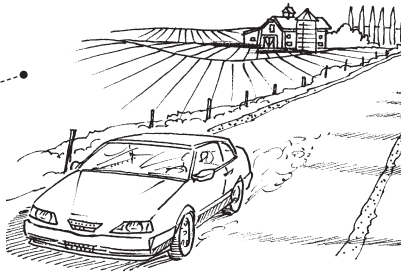
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Write about how Car 2 is affected by gravity.

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Write about how Car 3 is affected by friction.

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© Scott Foresman 5

**Notes for Home** Your child has learned about the effects of inertia, gravity, and friction on motion.  
**Home Activity:** Discuss how inertia, gravity, and friction affect a recreational or work related activity you pursue.

Have students explain in writing how car 1 would be affected by inertia; car 2 by gravity; car 3 by friction.