

Activity 2: Pushes, Pulls, and Motion

Name _____

Date _____

Class _____

Key Questions

1. _____

2. _____

We Think

1. When air from a hair dryer blows on a ball, there is an applied interaction between the air and the ball. If you use a hair dryer to exert a constant force on a small ball, what kind of motion would the ball have? Does it speed up or move at a constant speed? Why?

2. Suppose you have a fan connected to a car. (When the fan blades whirl around they push the air backwards. In return, the air pushes steadily forward on the fan unit and car.) When the fan is on, the air provides a constant forward force on the car and fan unit. Would the car speed up or have a constant speed? Why?

Explore Your Ideas

Part A: Constant Forward Force and Motion

1. How should your teacher conduct the ball and hair-dryer demonstration so that the air from the hair dryer exerts a constant force on the ball?

2. What kind of motion did the ball have? Did it speed up or move at a constant speed?

3. Is this what you predicted in the **We Think** section?

4. What kind of motion did the car have? Did it speed up or move at a constant speed?

5. Is this what you predicted in the **We Think** section?

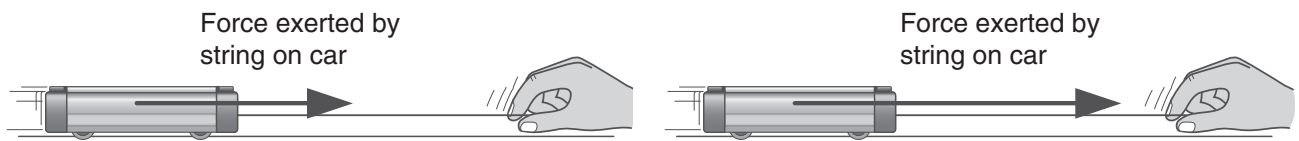
6. Describe how you will exert a *constant forward force* on the low-friction car.

7. What kind of motion did the car have? Did it speed up or move at a constant speed?

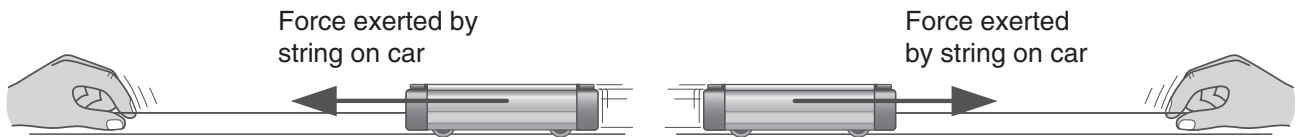
Part B: Forces and Force Arrows

8. Which of the arrows below represents a stronger pull?

The *direction* of the arrow shows the direction of the push or pull.



9. Which of the following force arrows represents a pull to the *left*?



Make Sense of Your Ideas

1. In each situation in this activity, what kind of motion did the low-friction car have when a constant *forward* force was exerted on it?

2. How can the direction and magnitude (strength) of a force be shown on a diagram?

Our Consensus Ideas

The key questions for this activity are:



- 1. How does a constant forward force affect motion?**
- 2. How can an arrow be used to represent a force?**

1. Write your answers to the key questions.

How does a constant forward force affect motion?

How can an arrow be used to represent a force?

2. Write the class consensus ideas about the key questions.

How does a constant forward force affect motion?

How can an arrow be used to represent a force?
