



# Force and Motion



How can you detect the presence of motion energy? Motion is movement. If an object is moving, then you know motion energy is present. Some examples of motion energy are a toy car moving, a sailing boat, a moving wagon, and a door opening. Forces make objects move. Two of these forces are push and pull.

You can make an object move by pushing on the object. If you push a toy car, it will roll across the floor. The wind can also push things. A sail boat moves when the wind pushes on the sails and makes it move. Water can also push things. Have you ever been in the ocean? The waves can be very strong and push you in the water.



Fig. 1  
Wind pushes the windmill to generate electricity.



Fig. 2  
The water pushes the surfer.

Objects can also be set in motion from a pull. You can pull a wagon behind you. If you want the door to open, you have to pull it open. Another example of a pull is when you pull on your socks.



Fig. 3  
The bike pulls the wagon forward.

The motion of an object can be changed. Pretend you are having a toy car race with a friend. You will push your car to make it move, but you can also use a ramp to make it move faster. Friction is a force that will slow a toy car down. If the surface that you are driving the car on is bumpy, the car will slow down because of friction. A car will move the fastest down a smooth ramp.

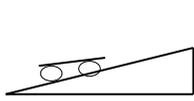


Fig. 4  
The ramp in the first picture will make the skateboard move the fastest because it is steep.

Motion can also be transferred from one object to another. For example, when you hit a ball with a baseball bat, the motion of the bat transfers, or moves, to the ball to make the ball move. In a dominos game, the motion of one domino moves to the next domino when they hit. The motion transfers through all the dominos until all of them fall down.



Fig. 5  
The motion of the bat is transferred to the ball, making the ball move.



Fig. 6  
The motion of the first domino is transferred to the next domino when it falls and knocks it down.

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

### **Force and Motion Comprehension Questions**

1. What is motion? a. heat            b. movement            c. cars            d. wind

2. According to paragraph 1, what are two forces that can make an object move?

\_\_\_\_\_ and \_\_\_\_\_

3. The wind is an example of a force that \_\_\_\_\_ things to make them move.

4. Explain how the wind can push an object to make it move? \_\_\_\_\_

\_\_\_\_\_

5. You can \_\_\_\_\_ a wagon to make it move forward.

6. Give an example of how a pull can make an object move. \_\_\_\_\_

\_\_\_\_\_

7. What can you use to make a toy car move faster? \_\_\_\_\_

8. According to Fig. 4, why would a car go slower on the second ramp? \_\_\_\_\_

\_\_\_\_\_

9. What force will slow a toy car down? a. the Sun            b. wind            c. push            d. friction

10. Explain how motion energy can be transferred from one object to another.

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

## Force and Motion Comprehension Questions – Answer Key

1. What is motion? a. heat      **b. movement**      c. cars      d. wind

2. According to paragraph 1, what are two forces that can make an object move?

\_\_\_\_\_ push \_\_\_\_\_ and \_\_\_\_\_ pull \_\_\_\_\_

3. The wind is an example of a force that \_\_\_\_\_ pushes \_\_\_\_\_ things to make them move.

4. Explain how the wind can push an object to make it move? \_\_\_\_\_

\_\_\_\_\_ The wind pushes on the sails of a boat to make it move. \_\_\_\_\_

5. You can \_\_\_\_\_ pull \_\_\_\_\_ a wagon to make it move forward.

6. Give an example of how a pull can make an object move. \_\_\_\_\_

\_\_\_\_\_ A bike can pull a wagon, you can pull a door to open it, you pull your socks on \_\_\_\_\_

7. What can you use to make a toy car move faster? \_\_\_\_\_ a ramp \_\_\_\_\_

8. According to Fig. 4, why would a car go slower on the second ramp? \_\_\_\_\_

\_\_\_\_\_ the second ramp is less steep \_\_\_\_\_

9. What force will slow a toy car down? a. the Sun      b. wind      c. push      **d. friction**

10. Explain how motion energy can be transferred from one object to another.

\_\_\_\_\_ a domino transfers motion energy to the next domino when it falls on it, the bat transfers its motion energy to the ball when it hits the ball, etc. \_\_\_\_\_