

Cars Make Physics Fun

Pre and Post Test

Lesson at a glance:

Use this test to measure your students existing knowledge of physics before using the “Cars in Your Classroom” unit. Test students at the end of the unit to measure their new knowledge and understanding of physics.

Skills:

Questioning, Communicating, Applying Knowledge

Grade:

3-5

Materials:

For each student:

- ❑ 2 copies of the “Cars Make Physics Fun Test”
- ❑ A pencil



Activity:

1. Hand each student a test. Explain that this is for you to gain an understanding of their knowledge of physics before you study cars.
2. Grade the tests.
3. Do not go over Pre-Test results with students.
4. Make sure that the activities that you choose to use with your students address the content of the test.
5. Have students take the same test again at the end of the unit.
6. Grade the tests and compare their scores.



AMERICA'S CAR MUSEUM®

Cars Make Physics Fun

Pre and Post Test

Write true or false next to each statement.

1. Gravity is the force that pushes objects away from earth.
2. Friction causes moving objects to slow down or stop.
3. Friction can cause heat.
4. All objects, whether they are moving or at rest, have inertia.
5. Friction causes moving objects to speed up and go faster.
6. Smooth surfaces such as ice tend to cause greater friction.
7. Rough surfaces such as sandpaper tend to produce more friction.

Write a short answer for each of the following.

1. Give three examples of force in motion:
2. Give two examples of how friction can be increased:
3. Give at least one example of how friction can be reduced.



AMERICA'S CAR MUSEUM®

Circle the best answer for each of the following questions.

1. Oil on a road would:
 - a. *decrease friction*
 - b. *increase friction*
 - c. *decrease velocity*
 - d. *decrease speed*
2. _____ is the force that causes objects to be pulled toward the center of the earth.
 - a. *acceleration*
 - b. *motion*
 - c. *gravity*
 - d. *friction*
3. _____ tells you the speed of an object as well as the direction in which it is traveling.
 - a. *friction*
 - b. *gravity*
 - c. *acceleration*
 - d. *velocity*
4. A force such as pushing can cause an object to:
 - a. *move*
 - b. *stop*
 - c. *change direction*
 - d. *all of the above*
5. Sand is often put on icy roads to:
 - a. *increase motion*
 - b. *increase friction*
 - c. *decrease friction*
 - d. *keep friction the same*
6. You know something is moving because other objects that are not are your _____.
 - a. *frame of reference*
 - b. *force*
 - c. *weight*
 - d. *speed*
7. Snow falls to the ground because of:
 - a. *acceleration*
 - b. *weight*
 - c. *speed*
 - d. *gravity*



AMERICA'S CAR MUSEUM®

Cars Make Physics Fun

Pre and Post Test Answers

Write true or false next to each statement.

1. Gravity is the force that pushes objects away from earth. **False**
2. Friction causes moving objects to slow down or stop. **True**
3. Friction can cause heat. **True**
4. All objects, whether they are moving or at rest, have inertia. **True**
5. Friction causes moving objects to speed up and go faster. **False**
6. Smooth surfaces such as ice tend to cause greater friction. **False**
7. Rough surfaces such as sandpaper tend to produce more friction. **True**

Write a short answer for each of the following.

1. Give three examples of force in motion:
A flag blowing, a car moving, an iron moving, a broom sweeping, an airplane flying, etc
2. Describe two examples of how friction can be increased:
Increasing the weight of the object, making the surface rougher
3. Give at least one example of how friction can be reduced.
Lightening the load, making the surface smoother

Circle the best answer for each of the following questions.

1. Oil on a road would:
 - a. **decrease friction**
 - b. *increase friction*
 - c. *decrease velocity*
 - d. *decrease speed*

2. _____ is the force that causes objects to be pulled toward the center of the earth.



AMERICA'S CAR MUSEUM®

- a. *acceleration*
 - b. *motion*
 - c. gravity**
 - d. *friction*
3. _____ tells you the speed of an object as well as the direction in which it is traveling.
- a. *friction*
 - b. *gravity*
 - c. *acceleration*
 - d. velocity**
4. A force such as pushing can cause an object to:
- a. *move*
 - b. *stop*
 - c. *change direction*
 - d. all of the above**
5. Sand is often put on icy roads to:
- a. *increase motion*
 - b. increase friction**
 - c. *decrease friction*
 - d. *keep friction the same*
6. You know something is moving because other objects that are not are your _____.
- a. frame of reference**
 - b. *force*
 - c. *weight*
 - d. *speed*
7. Snow falls to the ground because of
- a. *acceleration*
 - b. *weight*
 - c. *speed*
 - d. gravity**

