

A Few Words about Force and Motion

Lesson at a glance:

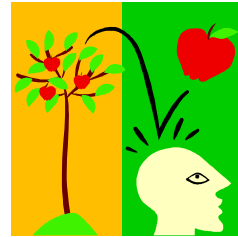
Students will practice reading and demonstrate comprehension skills while becoming familiar with some of the vocabulary they will encounter as they learn about the physics of cars.

Grades:

3-5

Skills:

Reading, Writing



Background:

Students will become familiar with some of the scientific terms associated with Newton's first law of motion.

Materials:

- ❑ "The Physics of Cars Teacher Background Information" (teacher or advanced reader resource)
- ❑ Copies of "Force and Motion" sheet (1 per student)
- ❑ Copies of "A Few Words About Force and Motion Fill-in-the Blank" (1 per student)
- ❑ Copies of "A Few Words About Force and Motion Word Search" (1 per student)
- ❑ "A Few Words About Force and Motion Fill-in-the Blank and Word Search" (Teacher Keys)
- ❑ Dictionary (optional)
- ❑ Pencils

Activity:

1. Tell students about Isaac Newton and his first law of motion.
2. Give your students a copy of "Force and Motion." Have students read individually or make an overhead transparency of the "Force and Motion" for the whole class to read together. For some students, using a dictionary may be helpful.
3. Give each student the "A Few Words About Force and Motion Fill-in-the Blank" sheet to complete.
4. Give each student the "A Few Words About Force and Motion Word Search" activity to help them become more familiar with some of the words.
5. Use the Teacher Keys provided to check student work.



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Force and Motion

What is a force?

A **force** is a push or a pull on an object. A push or a pull can set a still object in motion and likewise, a push or pull against an object in motion can **stop** it. If you push a toy car to make it move, the push is the force that made the car roll. If you pull the car to you, the pull is the force that made the car roll back to you.

What is motion?

When something is not sitting still, it is in **motion**. In order to put the car in motion, you must apply a force. If you push the car it begins to **move** and is in motion. Once in motion, a force must be applied to make it stop. For example, if the car hits a wall, the wall applies a force that stops the car from moving.

What is inertia?

The tendency of something to keep moving or stay at rest, unless a greater force stops or moves it, is called **inertia**. Imagine riding a skateboard down a hill. If you pushed off and coasted down the hill you would keep going until you hit something that would make you slow down or stop.



What is friction?

Friction is a force that slows things down. An example of friction is the rubbing of car tires against the road as it moves forward. When a road is covered in ice, there isn't as much friction between the tires and the ice. This is why cars can slide out of control when driving on ice. By adding rough sand on top of the ice, a car's tires can hold on to the road better because there is more friction between the tires and sand than there is between the tires and ice.

What is gravity?

Gravity is a force that pulls all things towards the earth. It keeps your feet on the ground unless another force pushes or pulls you off of the ground. Gravity is what helps pull your bike down a hill and it is why you pick up speed as you continue down the hill. It is also what makes it harder for you to ride uphill.

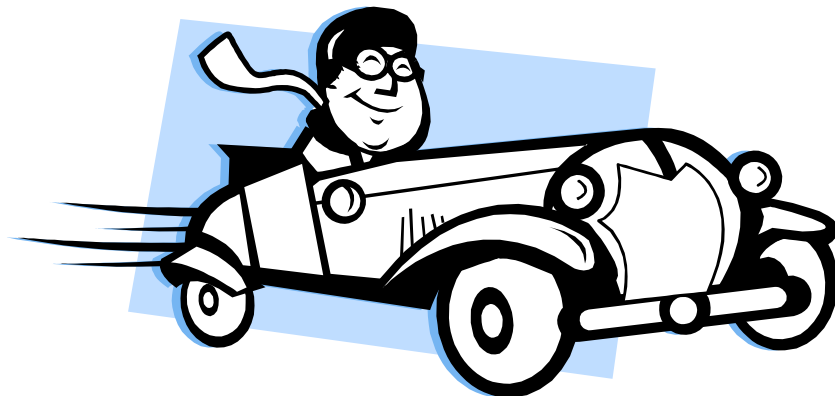


A Few Words about Force and Motion

Fill-in-the-Blank

Fill in the blanks in the sentences below using the bolded words in the reading assignment "Force and Motion":

1. _____ is a force that pulls things towards the earth.
2. A _____ or a _____ can set a still object in motion.
3. A push or pull against an object in motion can _____ it.
4. The tendency of something to keep moving or stay at rest unless a greater force stops or moves it is called _____.
5. Force must be applied to put something into _____ or to _____ it from moving.
6. The rubbing of car tires against the road is an example of _____.
7. A _____ is a push or a pull.



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A Few Words about Force and Motion Word Search

Find these force and motion vocabulary words in the word search below. Words might be vertical (up and down), horizontal (left to right), or diagonal (at a slant). Look carefully and have fun!

<input type="checkbox"/> force	<input type="checkbox"/> motion
<input type="checkbox"/> friction	<input type="checkbox"/> push
<input type="checkbox"/> gravity	<input type="checkbox"/> pull
<input type="checkbox"/> inertia	<input type="checkbox"/> stop

W B F A E M I R S C
H F O D S O Y G I C
D F R I C T I O N M
H G C U I I O A E J
L P E V P O W P R S
U S A G G N S L T G
O R T J H P I U I E
G U F A P U S H A C
O E B T M L W P C O
D F T C E L W E S A



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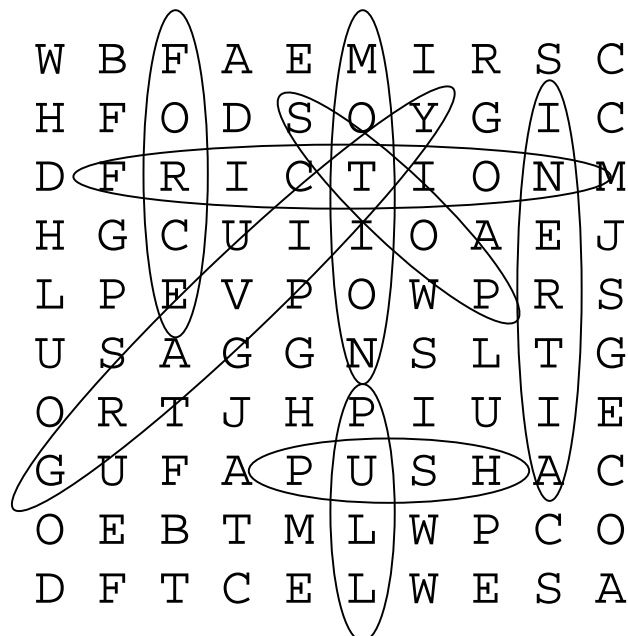
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Word Search

TEACHER KEY

Find these force and motion vocabulary words in the word search below. Words might be vertical (up and down), horizontal (left to right), or diagonal (at a slant). Look carefully and have fun!

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<input type="checkbox"/> friction	<input type="checkbox"/> push
<input type="checkbox"/> gravity	<input type="checkbox"/> pull
<input type="checkbox"/> inertia	<input type="checkbox"/> stop



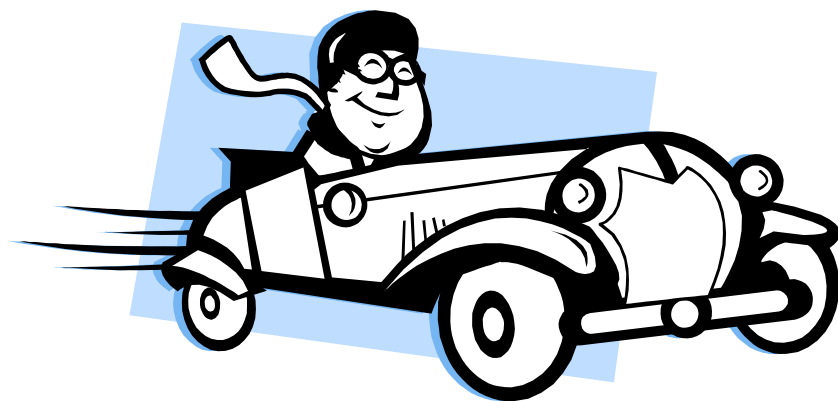
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A Few Words about Force and Motion

Fill-in-the-Blank

Fill in the blanks in the sentences below using the bolded words in the reading assignment "Force and Motion":

1. **Gravity** is a force that pulls things towards the earth.
2. A **push** or a **pull** can set a still object in motion.
3. A push or pull against an object in motion can **stop** it.
4. The tendency of something to keep moving or stay at rest unless a greater force stops or moves it is called **inertia**.
5. Force must be applied to put something into **motion** or to stop it from moving.
6. The rubbing of car tires against the road is an example of **friction**.
7. A **force** is a push or a pull.



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