

Force, Work, and Energy



Force - what is it and what does it do?

Force is an action that changes the motion of things. Force causes things to move, stop, or change direction. A push or a pull is a force. **Force is always needed to make something move.**

It takes more force to move some things than it does to move others. For example, it takes a small amount of force to push a toy car - a small child could push it. It takes a lot more force to move a real car - it would take many children or a strong adult to push it.



Force is also needed to make things slow down or stop moving. The boy is using a pulling force to stop the dog.






Force is needed to make moving things change their direction. When a baseball player hits the baseball with the bat, he's using force to change the direction of the ball.



Force makes things move, slow down or stop, and change direction.

Answer Key

Match the forces to the pictures.

1. pushing 
2. pulling 
3. changing direction 





4. Which takes more force to move?



5. Force must be used to make things stop moving. True False
6. Force is always needed to make things move. True False
7. Force is not needed to make things change direction. True False
8. Force is an action that changes the _____ of things.

direction push pull motion

Draw lines matching the clue to the picture.

1. The force that pulls things toward the earth  friction
2. Something that reduces friction  lubricant
3. A force that can push or pull and acts on certain metals  gravity
4. A force that slows down or stops the motion of objects that rub against each other  magnetism

5-7. Match the force shown in the picture to the name of the force.



gravity

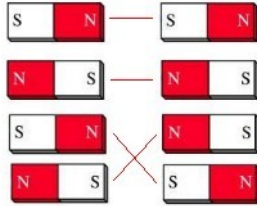
magnetism

friction

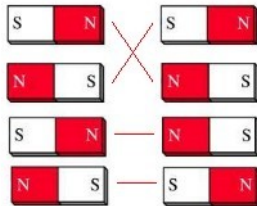
True or false.

- 8. F A leaf is pulled more by gravity than a bowling ball.
- 9. T Friction is a force that changes motion.
- 10. F A lubricant makes more friction.
- 11. T The ends of a magnet are called the north pole and the south pole.

12. Show which ends of the magnet **pull** by drawing a line to them.

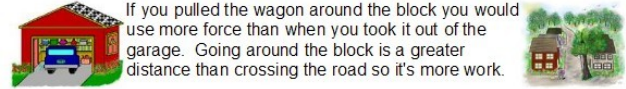
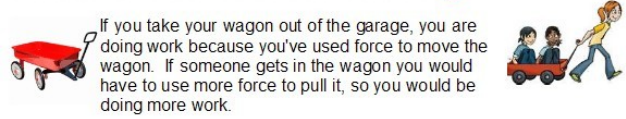


13. Show which ends of the magnet **push** by drawing lines to them.



Work

Work is done when a force is used to move something.



The amount of work that is done always depends on two things:

- ✓ How much force is used to move an object.
- ✓ How far the object moves.

1. If you use force to move something, you have done

force work moving

2. The amount of work done depends on how much force is used.

True False

3. The amount of work done does **not** depend on how far the object moves.

True False

4. Which wagon takes more work to move?

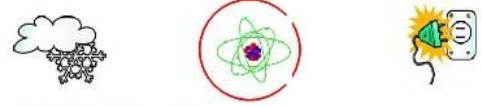


- 1. Energy can do work. TRUE FALSE
- 2. Energy can move and change things. TRUE FALSE
- 3. Heat is a kind of energy. TRUE FALSE
- 4. Heat cannot cause an object to move. TRUE FALSE
- 5. Electricity is not a kind of energy. TRUE FALSE
- 6. Electricity can only be found in electrical outlets. TRUE FALSE
- 7. Everything in the world is made of atoms. TRUE FALSE
- 8. Atoms can be seen with a magnifying glass. TRUE FALSE
- 9. Electricity causes movement. TRUE FALSE
- 10. Electricity is not a very useful type of energy. TRUE FALSE
- 11. Electricity is very dangerous. TRUE FALSE

12. Circle the objects below that use heat energy. Underline the pictures that use electrical energy.



14. Circle the picture that shows an atom.



16. Why is electricity dangerous?



- 1. Energy can do work.
- 2. Energy can move and change things.
- 3. Heat is a kind of energy.
- 4. Electricity is a kind of energy.