

# Chapter 14 Lesson 1 Day 2

I can explain how force relate to the movement of objects.

# Learning Objective

- I can calculate power.
- I can explain the relationship between work and power.

# What Mastery Looks Like

These are the types of questions you will be able to answer at the end of this lesson.

1. What is the formula used to calculate power?
2. The metric unit for power is the \_\_\_\_\_.
3. A horse performs 15000 joules of work pulling a wagon for 20 seconds. What is the horse's power?

# Agenda

- Check homework.
- Watch Brain Pop.
- Take notes.
- Complete Applying Math on page 429.

# Homework

- Get out your homework. (Work worksheet)
- If you do not have it, sign the book.
- Ms. Royal will call on students to put their problems on the board.
- Check your answers.

# What is Power?

- <http://www.brainpop.com/science/motionsforcesandtime/power/>
- How quickly or rate at which work is done.
- Amount of work done per unit time.
- If two people mow two lawns of equal size and one does the job in half the time, who did more work?
- Same work. Different power exerted.
- **POWER = WORK / TIME**

# *The Watt*



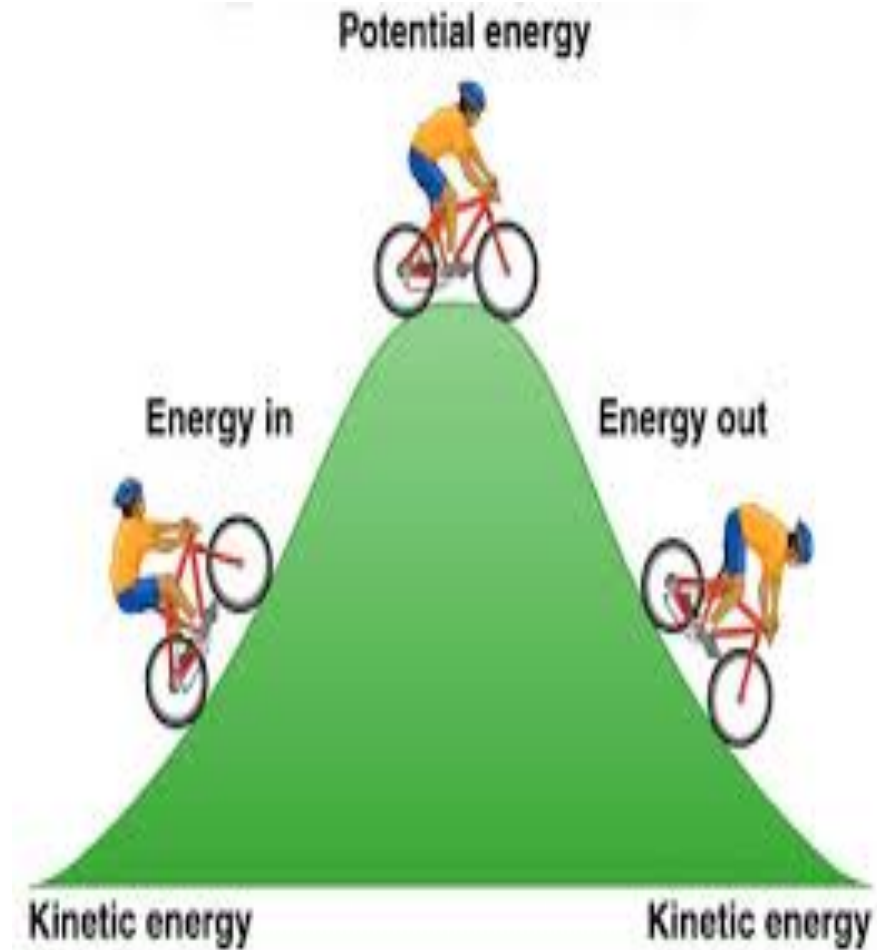
- A unit named after Scottish inventor James Watt.
- Invented the steam engine.
- $P = W/t$ 
  - Joules/second
  - 1 watt = 1 J/s





# B. Work and Energy

- When something is moving, it has energy of motion – kinetic energy
- <http://www.brainpop.com/science/energy/kineticenergy/>
- Energy of an object changes or increases when you do work and lift it higher – potential energy.



# C. Power and Energy

- Work on an object increases its energy.
  - Energy can never be created or destroyed.
  - It can gain or lose the energy
- Amount of work done = amount of energy transferred.
- Power = the amount of energy transferred even when no work is done.
  - Ex heat transfers from warm to cold object.
- Power is always the rate at which energy transferred.

# Exit Ticket

\*How much power is used when 600 J of work are done in 10 seconds?

*(Write in your binder for me to come around and check.)*

\***HOMEWORK:** When you finish, work section 1 of your note-taking sheet or vocabulary cards. Both of these are due Monday!