#Jenny

Finally I get this ebook, thanks for all these I can get now!

#Rio

Cool! I'am really happy

#Markus Jensen

I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu

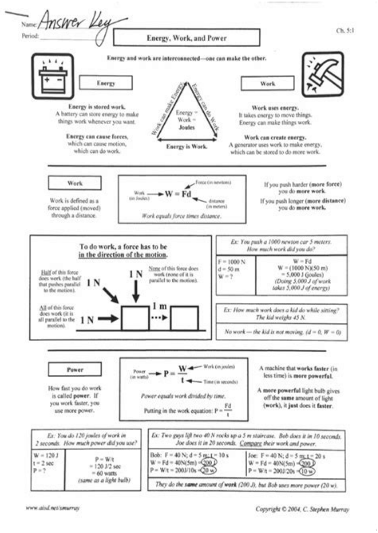
wtf this great ebook for free?!

#Che Salsa

My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler

so many fake sites. this is the first one which worked! Many thanks



Name: Answer Key
Period:

Energy, Work, and Power

Ch. 5:1

Energy and work are interconnected—one can make the other.

Energy

Energy is stored work. A battery can store energy to make things work whenever you want.

Energy can cause forces, which can cause motion, which can do work.

Work can make Energy
Energy can do Work
Energy = Work = **Joules**
Energy is Work.

Work

Work uses energy. It takes energy to move things. Energy can make things work.

Work can create energy. A generator uses work to make energy, which can be stored to do more work.

Work

Work is defined as a force applied (moved) through a distance.

Work (in Joules) → **W = Fd** ← Force (in newtons), distance (in meters)

Work equals force times distance.

If you push harder (**more force**) you do **more work**.

If you push longer (**more distance**) you do **more work.**

To do work, a force has to be in the direction of the motion.

Half of this force does work (the half that pushes parallel to the motion). 1 N

None of this force does work (none of it is parallel to the motion). 1 N

All of this force does work (it is all parallel to the motion). 1 N

1 m

Ex: You push a 1000 newton car 5 meters. How much work did you do?

F = 1000 N
d = 50 m
W = ?

W = Fd
W = (1000 N)(50 m)
= 5,000 J (joules)
(Doing 5,000 J of work takes 5,000 J of energy)

Ex: How much work does a kid do while sitting? The kid weighs 45 N.

No work — the kid is not moving. (d = 0, W = 0)

Power

How fast you do work is called **power**. If you work faster, you use more power.

Power (in watts) → $P = \frac{W}{t}$ ← Work (in joules), Time (in seconds)

Power equals work divided by time.

Putting in the work equation: $P = \frac{Fd}{t}$

A machine that **works faster** (in less time) is **more powerful.**

A **more powerful** light bulb gives off the **same** amount of light (**work**), it **just** does it **faster**.

Ex: You do 120 joules of work in 2 seconds. How much power did you use?

W = 120 J
t = 2 sec
P = ?

P = W/t
= 120 J/2 sec
= 60 watts
(same as a light bulb)

Ex: Two guys lift two 40 N rocks up a 5 m staircase. Bob does it in 10 seconds. Joe does it in 20 seconds. Compare their work and power.

Bob: F = 40 N; d = 5 m; t = 10 s
W = Fd = 40N(5m) = 200 J
P = W/t = 200J/10s = 20 w

Joe: F = 40 N; d = 5 m; t = 20 s
W = Fd = 40N(5m) = 200 J
P = W/t = 200J/20s = 10 w

*They do the **same** amount of **work** (200 J), but Bob uses more power (20 w).*

www.aisd.net/smurray

Download PDF version of :

Work Energy Power Answer Sheet