

Power

Read from Lesson 1 of the Work, Energy and Power chapter at The Physics Classroom:

<http://www.physicsclassroom.com/Class/energy/u5l1e.html>

MOP Connection: Work and Energy: sublevel 2

Review:

- A force acting upon an object to cause a displacement is known as _____.
 - energy
 - potential
 - kinetic
 - work
- Two acceptable units for work are _____. Choose two.
 - joule
 - newton
 - watt
 - newton•meter

Power as a Rate Quantity:

- Power is defined as the _____ is done.
 - amount of work which
 - direction at which work
 - angle at which work
 - the rate at which work
- Two machines (e.g., elevators) might do identical jobs (e.g., lift 10 passengers three floors) and yet the machines might have different power outputs. Explain how this can be so.
- There are a variety of units for power. Which of the following would be *fitting* units of power (though perhaps not standard)? Include all that apply.
 - Watt
 - Joule
 - Joule / second
 - hp

- Two physics students, Will N. Andable and Ben Pumpiniron, are in the weightlifting room. Will lifts the 100-pound barbell over his head 10 times in one minute; Ben lifts the 100-pound barbell over his head 10 times in 10 seconds. Which student does the most work? _____ Which student delivers the most power? _____ Explain your answers.



- During the Powerhouse lab, Jack and Jill ran up the hill. Jack is twice as massive as Jill; yet Jill ascended the same distance in half the time. Who did the most work? _____ Who delivered the most power? _____ Explain your answers.



- An often-used equation for power is

$$\text{Power} = \text{force} \times \text{velocity}$$

Express an understanding of the meaning of this equation by using it to explain what type of individuals would be the best choice for linemen on a football team.