The unit for power, watt, is named in honor of James Watt (1736-1819), who developed the steam engine. He found by experiment that a good horse could work all day at an average rate of about 360 foot-pounds per second. So as not to be accused of exaggeration in the sale of his steam engines, he multiplied this by 1 ½ when he defined horsepower (hp). 1 hp = 746 W

* Equation: Power = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

P = W/t

* Unit = J/s = \_\_\_\_\_\_\_\_\_ (W)
* A ‘force’ that is applied over a ‘distance’ will take some amount of ‘\_\_\_\_\_\_\_’.
* \_\_\_\_\_\_\_\_ at which work is done
* The faster the work is done the \_\_\_\_\_\_\_\_\_\_ power is required

Power

* One joule of work is done when 1 N of force is exerted over 1 m. (Lifting a quarter-pounder with cheese up 1m requires about 1 J of work.)
* The unit for work, the joule, is named in honor of James Joule (1818 – 1889). He was an English brewer that did a lot of ‘work’ studying the idea of heat.
* Equation: Work = \_\_\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

W = Fd

* Unit: N m = \_\_\_\_\_\_\_\_\_ (J)

This \_\_\_\_\_\_\_\_\_\_ must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the direction the object is moving

Ex: Is work being done in the following?

1. Lifting your book bag \_\_\_\_\_\_

2. Pushing a box across the floor \_\_\_\_\_\_

3. Carrying a book across the classroom \_\_\_\_\_\_\_

* Must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* A \_\_\_\_\_\_\_\_\_\_\_\_\_ must be applied over a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Work