Name:_____ Date:_____

How Powerful Are You?

Let's:

- Learn how power/work is used in everyday life
- Measure the power/work required to walk up a flight of stairs
- Measure the power/work require to run up a flight of stairs
- Discuss what may affect our power/work

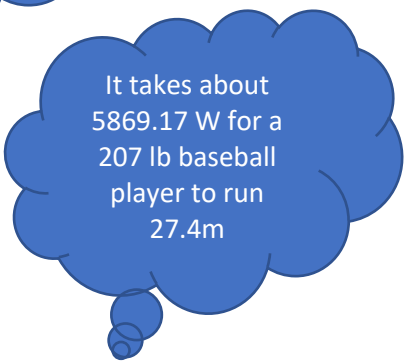
Materials:

- A flight of stairs
- A ruler
- Measuring scales
- A friend/lab partner
- A stopwatch
- A calculator
- Some paper
- A pen

First let's predict. How much power will it take you to:

Walk up the stairs_____
Why?

Run up the stairs_____
Why?



Now let's try it.

Step 1: Find out your mass in kilograms_____

Step 2: Get your weight in Newtons(Multiply mass by 9.8 m/ s^2)_____

Step 3: Measure the height of the stairs_____

Step 4: Have your friend time how long it takes you to walk up the stairs(Normal pace)_____

Step 5: Have your friend time how long it takes you to run up the stairs_____

Step 6: Use our power and work rules to determine your power in watts.

Force of Gravity(Weight) in newtons= Mass in kilograms x 9.8m/s^2 (Step 1)

Work done in joules= Weight in newtons x Vertical Height of Stairs in Meters

Power in watts= Work done in joules / Time in seconds

What are some things we think may affect what the work and power will be?

_____

_____

_____