

Power

Power is the **rate of energy transfer**.

$$\text{power} = \frac{\overset{\text{J}}{\text{energy transferred}}}{\underset{\text{s}}{\text{time taken}}} = \frac{\overset{\text{J}}{\text{work done}}}{\underset{\text{s}}{\text{time taken}}}$$

J/s
watts W

$$P = \frac{E}{t} = \frac{w.p.}{t}$$

Example: an Aussie pulls a tyre 150m along a beach with a force of 200N. It takes 40 seconds.

- how much work is done?
- what happens to all the energy transferred?
- what is the Aussie's power?
- a Brit pulls the tyre back with the same force in a time of 2 mins. Calculate her power.
- a Kiwi pulls it the same distance with the same force, and runs at an average speed of 2.5m/s. Calculate his power.