Just as how water flow would be measured in kg/s, current is in units of C/s (aka an Amp) and represented by the symbol I. $I = \frac{\Delta V}{\text{Resistance}}$

Therefore Resistance $= R = \frac{J}{C} \cdot \frac{s}{C} = \frac{Js}{C^2} =$ Ohm $= \Omega$

Resistance increases with longer or skinnier wires, so $R = \frac{L}{A} \cdot$ Resistivity of material. Resisitivity is in units of Ωm and denoted by ρ.

Current can be thought of as $\frac{dQ}{dt}$. D