Resistor Circuit Example
http://www.flippingphysics.com/resistor-circuit-example.html

The circuit shown has four identical 5.0 Ω resistors and a 5.0 V battery. What is the current through, electric potential difference across, and power dissipated by resistor 4?

We know $\Delta V_4 = I_4 R_4$. Because we know the resistance of resistor 4, if we know either the current through or electric potential difference across resistor 4, we can determine the other unknown.

$$P_4 = I_4 \Delta V_4 = I_4^{\,2} R_4 = \frac{\Delta V_4^{\,2}}{R_4}$$

We also know . So again, if we know either current through or electric potential diference across resistor 4, then we can determine the power dissipated by resistor 4.

Let's do the electric potential difference color coding technique to help us determine the electric potential difference across resistor 4.

From this we can see that the electric potential difference across resistor 4 is zero, therefore the current through resistor 4 is also zero, and the power dissipated by resistor 4 is zero.

$$\Delta V_4 = 0$$

$$\Delta V_4 = I_4 R_4 \Rightarrow I_4 = \frac{\Delta V_4}{R_4} = \frac{0}{R_4} = 0$$

$$P_4 = I_4^{\,2} R_4 = \left(0\right)^2 \left(0\right) = 0$$

Resistor 4 is short circuited in this circuit.

Also, please enjoy the animation of the charges moving through the circuit in the video. It really helps with understanding how the charges are moving in the circuit.