

- Terminal Voltage, ΔV_t , is the measured voltage across the terminals of the battery.

- Because all real batteries have some internal resistance, when a battery is supplying current to a circuit, the terminal voltage of a real battery is less than the emf.
 - The symbol for the internal resistance of a real battery is typically, r .
- One way to illustrate a real battery in an electric circuit is shown in yellow.

$$\Delta V_t = \mathcal{E} - \Delta V_r \Rightarrow \Delta V_t = \mathcal{E} - Ir$$

- As current increases, the terminal voltage decreases.
- The only way to get the terminal voltage to be equal to the emf is to have no current flowing through the battery.

