Electromagnetic Induction

$\vec{B}$ does not produce I

$\frac{\mathrm{d}\Phi_{\mathrm{B}}}{\mathrm{d}t}$ produces I

Ohm's Law

$\varepsilon_{\text{ind}} = i_{\text{ind}} R$

Faraday & Lenz's Law

$\varepsilon_{\text{ind}} = -N\frac{\mathrm{d}\Phi_{\mathrm{B}}}{\mathrm{d}t}$

The direction of i_{ind} creates a $\vec{\mathrm{B}}_{\text{ind}}$ that tries to oppose the change in Φ_{B}

Direction: Thumb points towards $\vec{\mathrm{B}}_{\text{ind}}$, Fingers curl around i_{ind}

Motional EMF

Changing Φ_{B} through motion (v) produces a **motional** ε_{ind}

$\varepsilon_{\text{ind}} = v\mathrm{B}L$

Similar to: $V = Ed$