Physics 12 Section 21-4
Changing Magnetic Flux Produces an Electric Field

1. Section 20-4 showed that the charges in a conductor experience a force equal to F = qvB. This implies that an electric field is present in the conductor.

2. Electric fields are defined by the force a charge field while in the field.

$$E = \frac{F}{q}$$

Substituting in qvB for the force the charge experiences we get

$$E = \frac{qvB}{q}$$

$$E = vB$$

3. A changing magnetic flux results in an electric field equal to vB. Where v is the velocity of the charge while moving through the B field.