MAXWELL'S EQUATIONS

In 1865 James Clerk Maxwell discovered that the fundamental principles of **_electromagnetism_** can be concisely expressed in terms of 4 equations. We call these four equations Maxwell's Equations:

$$\Phi_E = \oint \mathbf{E} \bullet \mathbf{dA} = \frac{q_{enc}}{\varepsilon_o}$$ Explains how electric fields **E** are produced

$$\oint \mathbf{B} \bullet d\ell = \mu_o (I + \varepsilon_o \frac{d\phi_E}{dt})$$ Explains how magnetic fields **B** are produced

$$\int \mathbf{B} \bullet d\mathbf{A} = 0$$ Explains why there are no magnetic monopoles

$$\oint \mathbf{E} \bullet d\mathbf{l} = -\frac{d\Phi_B}{dt}$$ Explains how electric fields **E** are produced by magnetic fields **B**