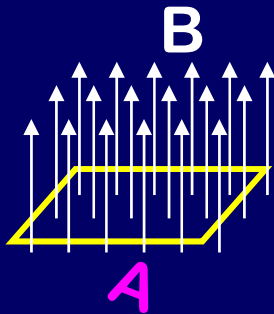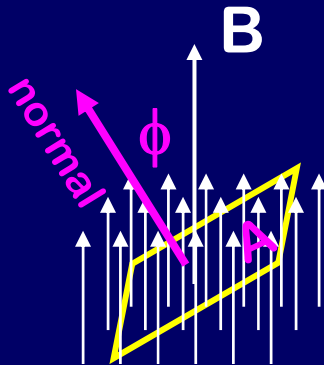# First a preliminary: Magnetic Flux

- "Counts" number of field lines through loop.

B

A

Uniform magnetic field, B, passes through a plane surface of area A.

Magnetic flux Φ **= B A**

(Units Tm^2 = Wb)

B

normal

ϕ

A

Magnetic flux $\boxed{\Phi \equiv \text{B A cos}(\phi)}$

ϕ **is angle between normal and B**

Note: The flux can be negative
(if field lines go thru loop in opposite direction)