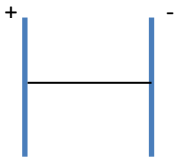
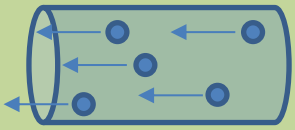
CONCEPT: INTRODUCTION TO CURRENT



- CURRENT is a flow of charges
  - *Conventional* current → direction of flow of **[+ | -]** charges
  - "Motivation" is provided by _____ (aka **ELECTROMOTIVE FORCE**)

- CURRENT is defined as:



$i =$ _____ - Units are **AMPS:** 1 ____ = 1 ____ / ____

EXAMPLE**:** If a capacitor initially charged to 5 nC has a wire connected between the positive and negative plates, what would the current in the wire be if it takes 10 ms to completely discharge?

EXAMPLE**:** 1 mA of current passes through a wire**.** How many electrons pass through the wire in 5 s?

PRACTICE: AMOUNT OF CHARGE IN A LIGHTNING STRIKE

A lightning bolt hits the ground carrying a current of $3x10^4$ A**.** If the strike lasts 50 ms, how much charge enters the ground?