Booklet # 85

Name: **Date: April 6, 2016**

Do Now (Read the passage to answer question below)	15 minutes

1. Charge is the fundamental quantity that underlies all electrical phenomena. The symbol for charge is q and SI unit is Coulomb (C). The fundamental carrier of negative charge is electron, with a charge of -1.6 X 10^-19 C. Proton also carries same charge but it positive. When you will make battery, keep one thing in mind, the transfer of charge mean transfer of electron. When an object has surplus of electron, we say negatively charged and deficiency of electron means positively charge. Like the Energy, charge is conserved during the transfer-taking place so any charge lost by one object (in your case it will be zinc) will be gain by other object (Cupper). The law of charge tells us that like charge repel each other and unlike charge attract each other.

Solve this problem:

Lets say there are four charges (A, B, C, D) on my table here. Charge A attracts B but B repels C, and C repels D and D is positively charge. What is the sign of charge A?

Solve this problem:
Lets say two charge sphere of equal size carry a charge of +6 C abd -4 C respectively. The two spheres are brought in contact with one another for time sufficient to allow them to reach equilibrium. They are then separated. What is the final charge of each sphere?

2. Coulomb's Law Time (15 mins)

We now know that two charges exert either attractive or repulsive charges on each other. But what is the nature of this force? It turns out that force between any two charge follow the same basic Newton's Law of Gravitation: F = K Q q/r^2 (K = 9 X 10^9 Nm^2/C^2

Solve this problem:
Two point charge Q and q separated by distance r. What happen to force q if Q is double? What happen to q, if Q doubled and distance between charges also doubled?

3. Electric Field (Time 15 mins)

Electric Fields exist in the region of space around a charged object. When another charged object enters this electric field, you get electric forces.

Let's say that you have a small positive charge q0 that is placed near a second charge that is larger and positive Q. The strength of the electric field E, at the location of q0 is defined as the magnitude of the electric force acting on q0 divided by the charge of q0

This is the electric field at the location of q0 produced by the charge of Q, NOT THE FIELD PRODUCED BY q0. We sometimes call q0 a test charge.

Key Equation: E = F(electric)/ q (the units are in Newtons/Coulombs

The electric field is a vector quantity

Drawings of positive charges and negative charges and the direction of the electric field done on the chalkboard. Electric field line direction depends on the sign of the charge producing the field. It depends on Q. Why? Show how the charges cancel out using algebra.

Solve this Problem:
A charge of +6 X 10^-6C is brought near a negative charge in a region where electric field strength due to the negative charge 20N/C. What are the magnitude and direction of the force acting on the positive charge? (Please try to solve it)

	Link for the Video (15 Minutes): https://www.youtube.com/watch?v=8RJ6Kdk8KDo
	Write the main idea of this Electric Circuit Video: