Source: [KBhPHYS201ElectricFields]]

#ref #incomplete

## 1 | Voltage

- Units:  $\frac{Nm}{C} = \frac{J/C}{L}V$
- Amount of energy per unit of charge it takes to bring that charge to that point
  - · If you have a ball and you are taking it up the hill, then it takes energy to do that
  - · When you let go, it will roll back down the hill
  - Voltage = energy per charge is similar to energy per kilogram of raising the ball.
  - Field is the amount that it is resisting-the amount of force required to move the charge.
  - · Analogous to gravitational potential energy.

## **Zero Point**

- If you have one positive and one negative, then the zero point of the voltage is between the two charges
- · The zero can be defined anywhere, just like zero gravitational energy can be anywhere
  - · However, conventionally, we define zero to be between two opposite charges
  - · We also define the voltage infinity distance away to be zero

## **Equipotential**

- A line that shows where voltage is the same srcPhETChargesFieldsEquipotentialLines.png
- · Joules of electric potential energy
- Scalar, while electric field is a vector ### Relationship with Electric Field
- · Perpendicular to the electric field

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