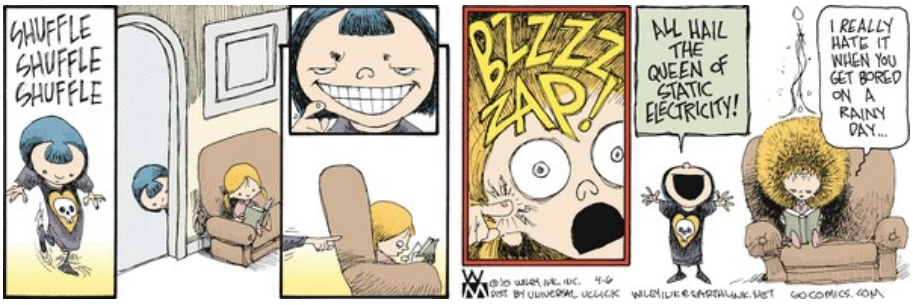
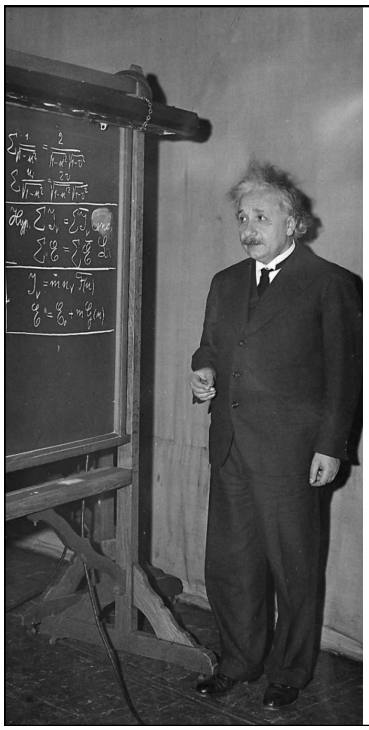
- **Theme Music:** Maynard Ferguson
  High Voltage
- **Cartoon:** Wiley Miller
  Non-Sequitur





The Equation of the Day

The Electric Potential

$$V(\vec{r}) = \frac{\Delta U(\vec{r})}{q}$$

$$V(\vec{r}) = \sum_{j=1}^{N} \frac{k_C q_j}{\left|\vec{r} - \vec{r}_j\right|}$$

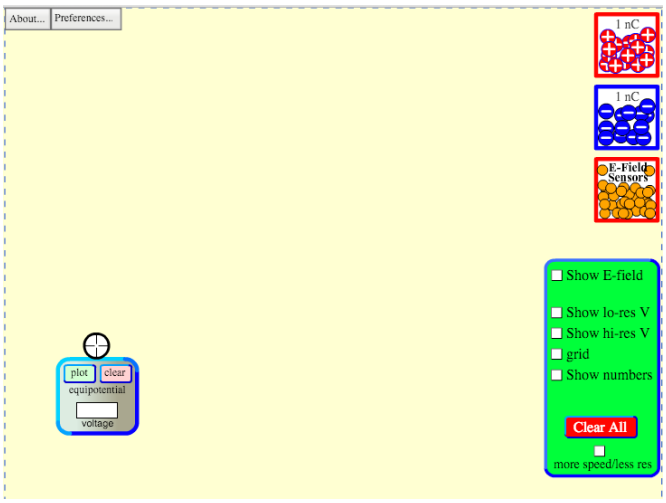
Physics 132

Foothold idea: Fields

- *Test particle*
  - We pay attention to what force it feels. We assume it does not have any affect on the source particles.
- *Source particles*
  - We pay attention to the forces they exert and assume they do not move.
- *Physical field*
  - We consider what force a test particle would feel if it were at a particular point in space and divide by its coupling strength to the force. This gives a vector at each point in space.

$$\vec{g} = \frac{1}{m}\vec{W}_{E\to m} \qquad \vec{E} = \frac{1}{q}\vec{F}_{\text{all charges}\to q} \qquad V = \frac{1}{q}U^{elec}_{\text{all charges}\to q}$$

Explore the potential near a point charge



https://phet.colorado.edu/sims/charges-and-fields/charges-and-fields_en.html