#flo #inclass

1 | so, capacitors.

is there a charge on the terminals of the battery?

yes! but not much. very small surface areas, very far away from eachother

1.0.1 | why resistors?

used to control things, and components behave like resistors

1.0.2 | what doesnt behave like resistors?

batterys, diodes, motors? ect. and capacitors, but those don't exist yet

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title: capacitors something designed to store a significant amount of charge
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how do you do this? spread it over a big surface area represeted as two equal len lines

vs ---

surface area comes from it being wrapped

net charge is zero! but it stores charge because the charges are separated kinda like a very small battery **capacitors are not like a bucket**. they are like a water balloon, in the sense that the more voltage you put across it, the more charge flows until it pops, of course

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C: capacitance
$C = \frac{Q}{V}$
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coulomb per volt is a Farad after Faraday Q is on positive side

$$C = \kappa \epsilon_0 \frac{A}{d}$$

A = area of each plate d = separation between plates ϵ_0 = some constant, $8.85*10^{-12}~\kappa$ = dielectric constant of the material between the plates for air, it's 1. else, for insulators it's between 2 - 4

if you have a material which can get polarized, like the paper we had early on, then it will draw addition opposite charges! and now the charge is a lil bigger then when u just had air

that extra charge is the $\kappa!$ typically 1-4.

title: dialtectic

insulator that polzarisis

turns out, most capacitors are not symetrical! can't connect an arbitrary side

LED: longer goes to positive