Physics 100
Introduction to Electric Circuits and Current
Notes and PhET DC Circuit Activity

Name: Key

1. There are AC circuits and DC circuits. Right now we are focusing on DC electricity. What do AC and DC mean?

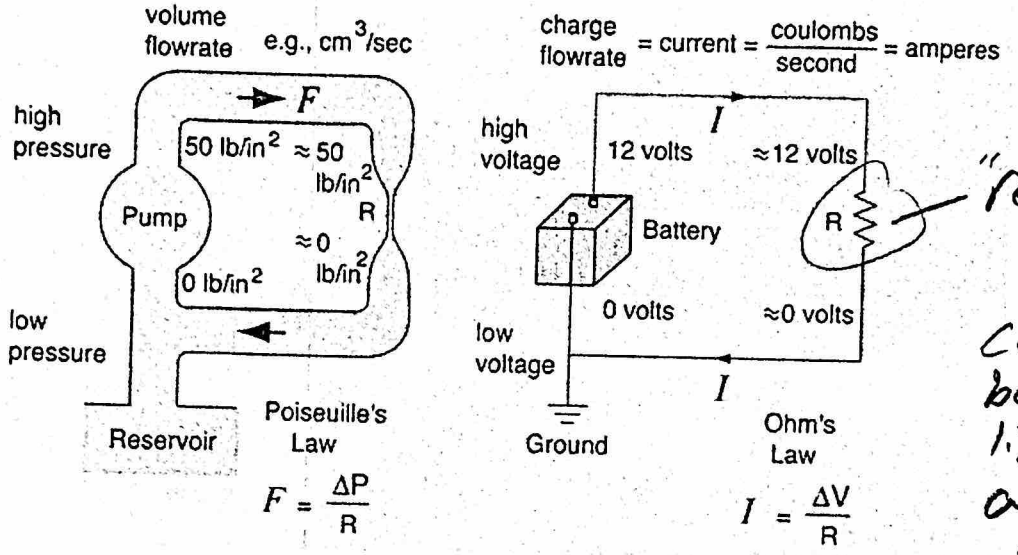
DC = Direct Current (one way) AC = Alternating Current (switches direction)

2. What is an electric circuit?

A closed loop that electrons can travel in

DC Circuit Water Analogy

This is an active graphic. Click any part of it for further details.



"resistor" } Could be a lightbulb, a hair dryer, etc.

3. In the water circuit, above, what makes the water move?

The pump creates pressure that pushes the water.

4. In the electrical circuit, what makes the electricity move?

The battery creates Voltage that pushes the charges.

5. In the electrical circuit, what is the word that we use for the amount of charge that flows around the circuit?

Current (it's like the flow rate of a river)

6. In the water circuit, what slows down the water during its trip around the circuit?

The narrow spot resists the flow of water

7. What slows down the electrical current as it travels around the electrical circuit?

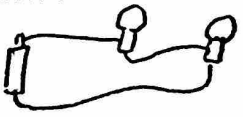
The resistor (R). Anything that slows down current is a resistor. (Examples:

Playing with Circuits: pHet Simulation Circuit Construction Kit: DC

8. Build a simple circuit with one light bulb and one battery. Then find a way to cause **more** current to flow by adding another bulb to the circuit. Sketch what your final circuit looks like.

← "Parallel" circuit

9. Build a simple circuit with one light bulb and one battery. Then find a way to cause **less** current to flow by adding another bulb to the circuit. Sketch what your final circuit looks like.



← "Series" circuit

10. Find two ways to speed up current. Describe them here.

More batteries (more voltage)

More or easier paths (less resistance)

11. We say current flows from positive to negative. This sort of current is called "conventional current." In reality, electrons move from negative to positive. Change the current mode from electron flow to conventional current and observe what happens. You don't have to write anything here.

12. Use the voltmeter to measure the voltage of a battery. Do this by touching the probes to opposite ends of the battery. What is the voltage of one battery?

9V

13. Use the ammeter to measure current. What unit is current measured in – what is it's letter?

A ("Amps" or Amperes)

14. What causes fires to occur?

Too much current

15. What other types of objects (other than wire) can you find that can be used to build circuits?

Pencil, Paper Clip, Coin?

16. What is the purpose of the fuse? Find out and then explain here. If you want a hint, search it up on the internet.

The fuse breaks the circuit when there's too much current, so that a fire won't start.