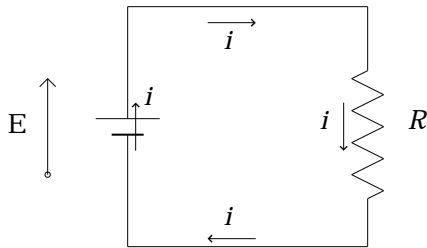


Analogy between electric and fluid circuits

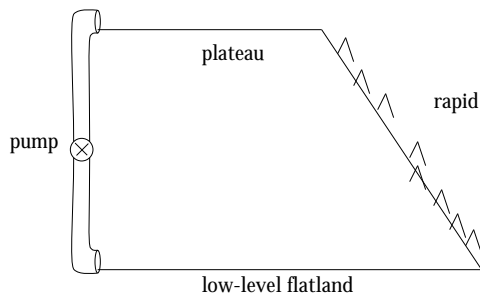
Dan Styer

A simple circuit

Electric circuit



Water flow circuit



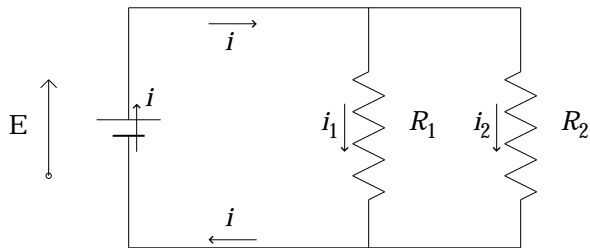
| | | |
|----------------------------------|---|----------------------------------|
| electric current (Coulombs/sec.) | ↔ | water current (gal./min.) |
| emf device | ↔ | pump |
| resistor | ↔ | rapid |
| electric force | ↔ | gravitational force |
| non-electric force of emf device | ↔ | force of pump blades |
| resistive collision forces | ↔ | forces of rock collisions |
| voltage (electric potential) | ↔ | height (gravitational potential) |

Avoid misconceptions!

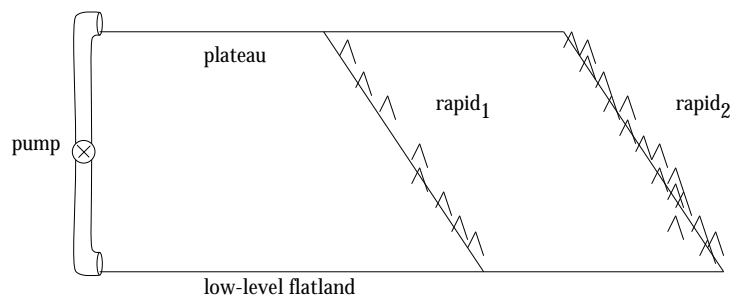
- Current is not speed of charge carriers. (Water flows slow and wide on the plateau, fast and narrow in the rapid.)
- Current is not “used up” as circuit is traversed.

A more complex circuit (two resistors in parallel)

Electric circuit



Water flow circuit



Two rapids between the plateau and low-level flatland, one with more boulders. More water takes the path with fewer boulders, but some water takes the path with more boulders.

Avoid misconceptions!

- Current does not “take the path of least resistance”.