



# Lesson Plan: Energy Conservation in Circuits

This lesson plan includes the objectives, prerequisites, and exclusions of the lesson teaching students how to apply Kirchhoff's laws to circuits to find the values of currents and potential differences in these circuits.

## ■ Objectives

Students will be able to

- ▶ use the fact that the current flowing into a circuit junction equals the current flowing out of the same circuit junction to determine currents in circuit branches,
- ▶ use the fact that the sum of the emfs of voltage sources across a circuit loop equals the sum of the potential drop across the components in the loop to determine emfs and potential drops.

## ■ Prerequisites

Students should already be familiar with

- ▶ the fact that  $Q = It$ ,
- ▶ the fact that  $R = \frac{V}{I}$ .

## ■ Exclusions

Students will not cover

- ▶ calculations involving internal resistance.