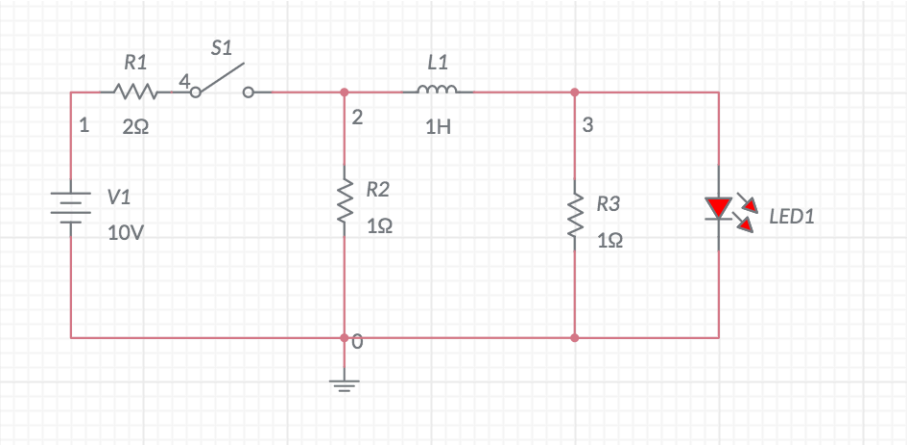
EXPERIMENT 8

Aim: Observing that an inductor can store electrical energy and transfer this energy to a load, examine current directions during the inductor charging and discharging.

Experiment: Set up the circuit as shown in the figure.



1. Turn the S1 switch on and observe the filling of the inductor by using an avometer. Put another probe to connection 3.

   a) When the voltage increases on the inductor, how much voltage is there on it? Meanwhile, what is the value of the current flowing through the inductor and observe the voltage across the led.

   b) As the voltage on the inductor increases, does the current through it increase? Why?

   c) When is the led on? Why?

   d) After the led is on, does its voltage increases? Why?

2. Turn off the S1 switch.

   a) When was the led off? Why?

   b) Is the voltage on the inductor decreasing? Meanwhile, what was the direction of the current flowing through it?

   c) During the discharge of the inductor, does the current decrease as the voltage on it decreases?

   d) When the inductor is completely discharged, what is the voltage on it and the current values passing through it?

   e) In this case, what can be done to make led be on for a longer time?