

Using a Terminal Block as a Protoboard for the Development of Concepts related to Simple Direct Current Circuits

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A protoboard is a thin plastic board used to hold electronic components such as resistors, transistors, and chips that are wired together, and is used to construct prototypes of electronic circuits. Although a protoboard is an appropriate tool for simply testing a prototype circuit or hooking up a quick experiment, it is difficult for students to use because they become confused about the connection pattern of the join holes along the horizontal and vertical lines and the differences between a real circuit constructed on a protoboard and a schematic diagram in a textbook. This study used a terminal block as a protoboard and involved 30 students in grade 11 in the second semester of the academic year 2014 at Loeipittayakom School, Amphur Muangloei, Loei province. The research tools consisted of an experimental kit, lesson plans using the predict-observe-explain technique, and the Interpreting Resistive Electric Circuit Concepts Test (DIRECT). Data were analyzed by t-test and normalized gain. Results showed that the mean post-test score was significantly higher than the mean pre-test score at a statistical level of .01. The average class normalized gain was at the medium gain level (0.35). The study illustrated that a terminal block can be used to develop students' concepts.

Primary author: Mr JUNTANA, Phusit (Department of physics, Faculty of Science, UbonRatchathani University, Thailand, 34190)

Co-author: Dr WUTTIPROM, Sura (Department of physics, Faculty of Science, UbonRatchathani University, Thailand, 34190)

Presenter: Mr JUNTANA, Phusit (Department of physics, Faculty of Science, UbonRatchathani University, Thailand, 34190)

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