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Investigating Students' Understanding of Light Bulbs and Complete Circuits* *

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Students' difficulties with battery, light bulb and wire circuits have been well documented. Prior research has blamed these difficulties on students' misunderstanding of complete circuits. This talk will present a different reason for these mistakes and a new curriculum that addresses these difficulties. Based on interviews we have found that students' difficulties are not with the concept of complete circuits, but with their understanding of the internal wiring of a light bulb. Students do have a functional, albeit partial, definition of complete circuits. This curriculum includes a series of hands-on, discovery-based activities that are intended to lead students to an understanding of the internal wiring of a light bulb and a more comprehensive definition of complete circuits.

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