

Active Learning Assignment
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Brittany Nelson-Cheeseman

Topic: **Correlation between energy band gaps, optical properties and electrical properties.**

Active Learning Activity:

- **Active Learning Structure / Questions / Details of Implementation:**
 - Show set-up of circuit (10 sec): Red LED or Green LED hooked up to DC Voltmeter. Red laser pointer.
 - Question 1 (1 min): *Pick what you think will happen when the red LED laserpointer is directed on the red LED.*
 - a) *LED will shine red light.*
 - b) *LED will shine green light.*
 - c) *LED will shine white light.*
 - d) *DC Voltage will be detected.*
 - e) *Nothing.*
 - Demo 1 (10 sec): Red laser pointer directed at red LED gives large voltage (1.3 V) on voltmeter.
 - Reflect 1 (30 sec): *Discuss with your partner what happened and why this occurred.*
 - Group Reflect 1 (15 sec): *Discuss as group what happened and why this occurred.*
 - Question 2 (1 min): *Pick what you think will happen when the red LED laserpointer is directed on the green LED.*
 - *LED will shine red light.*
 - *LED will shine green light.*
 - *LED will shine white light.*
 - *DC Voltage will be detected.*
 - *Nothing.*
 - Demo 2 (10 sec): Red laser pointer directed at green LED gives no voltage change on voltmeter.
 - Reflect 2 (30 sec): *Discuss with your partner what happened and why this occurred.*
 - Group Reflect 2 (15 sec): *Discuss as group what happened and why this occurred.*

- Time Limit for Exercise: Total time is 3.5 min.

- **Possible extensions/variations:**
 - Demo 3: Shine a green laser pointer on a red LED
 - Demo 4: Green laser pointer on a yellow LED.