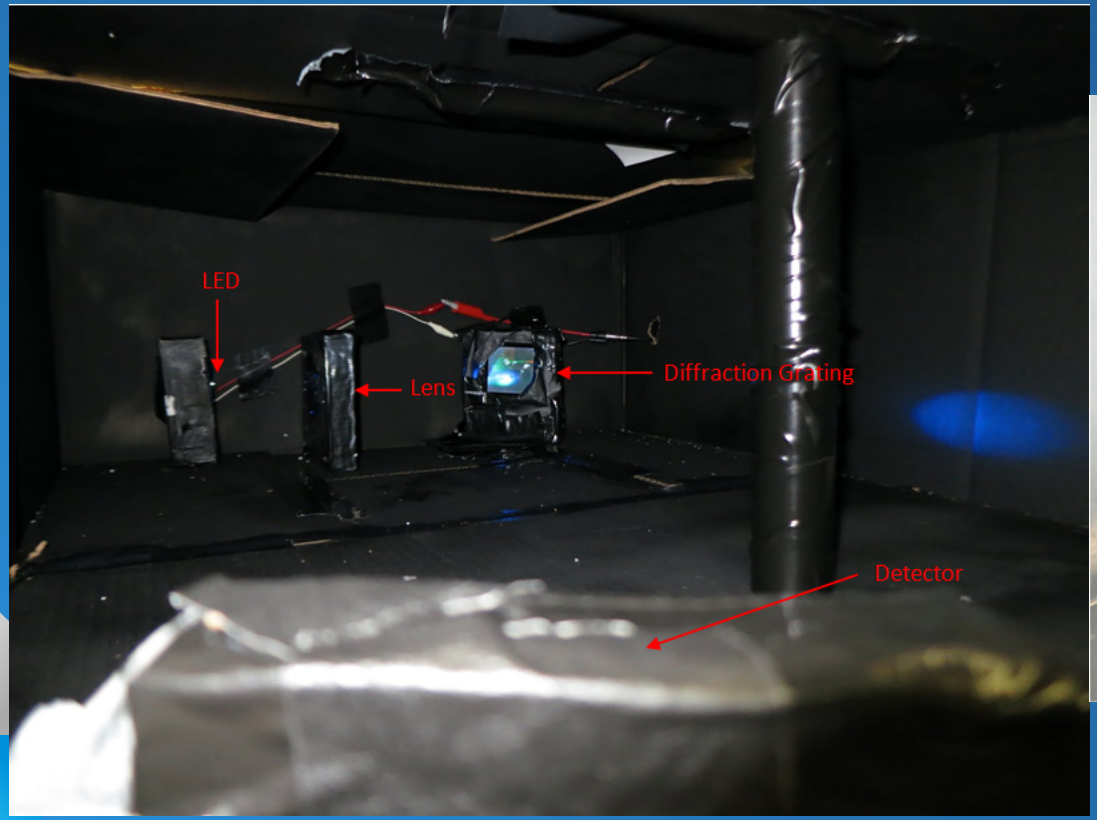
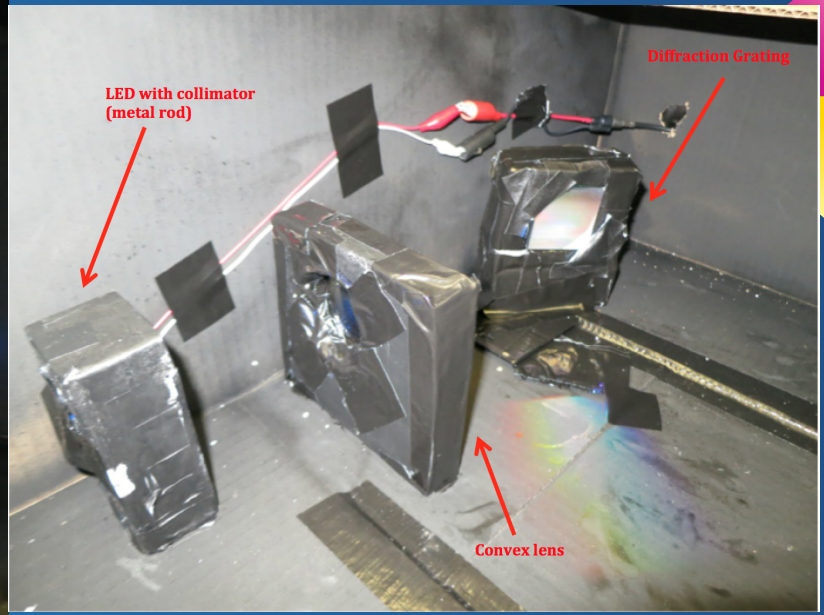
Update #4

Buffy and Stephanie

Inside of Spectrometer



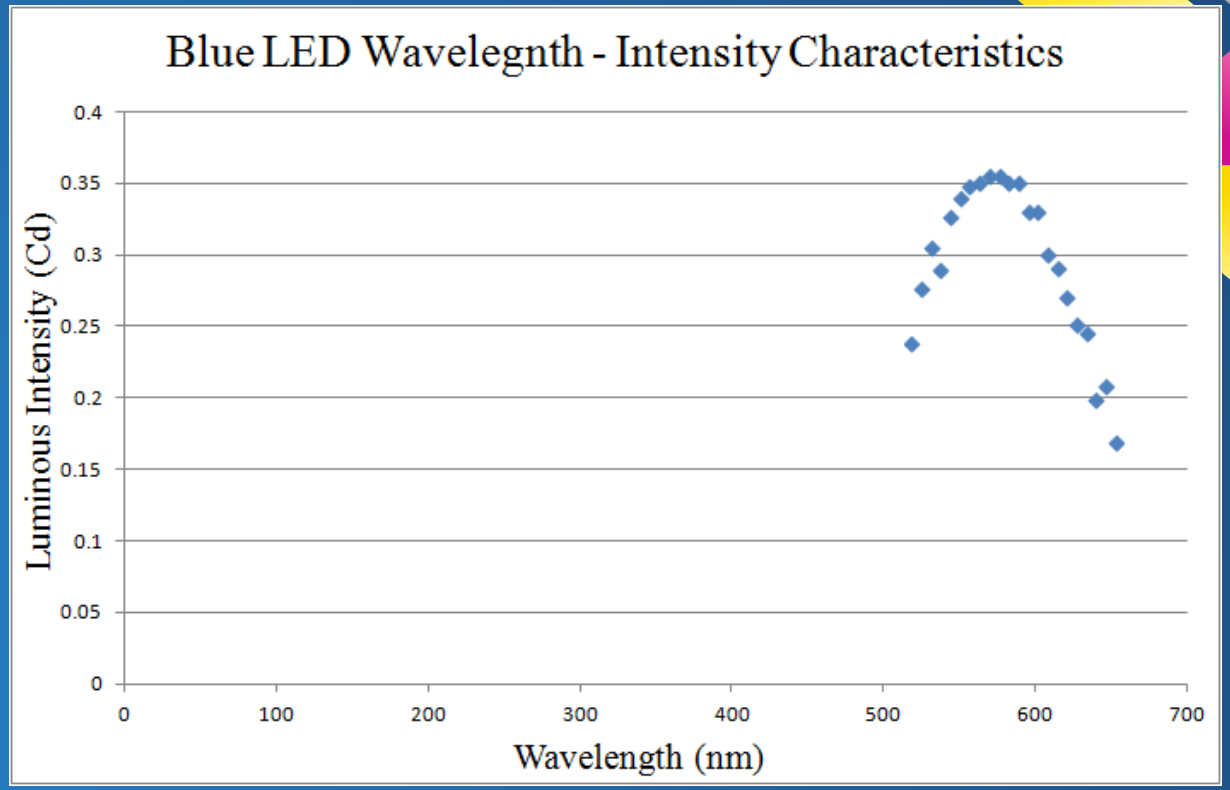


Outside Setup

Data Collection

Test #1

- Systematic error - wavelength off by about 100



Mercury-Vapor Lamp

Calibration

$$\lambda - \lambda_0 = \frac{d\,(sin\theta_m + sin\theta_i)}{m}$$

$$\lambda = -a\,sin\theta_i + b$$

$$b \sim \frac{d}{m} sin\theta_m + \lambda_0$$

$$a \sim \frac{d}{m}$$

- Collimator for mercury lamp

Wavelength (nm)	Name (see photoresist)	Color
184.45		ultraviolet (UVC)
253.7		ultraviolet (UVC)
365.4	I-line	ultraviolet (UVA)
404.7	H-line	violet
435.8	G-line	blue
546.1		green
578.2		yellow-orange

Arduino

- More accurate wavelength measurement and decrease uncertainty/error
- Arduino Uno, Stepper Motor, and Motor Shield