**Photoelectric Effect**

**Calculations**

**Materials**
- Homemade electroscope
- Copper wire strung vertically
- Tin straw cut to 2 in. long
- Mount 4 in.
- Electrical tape
- Aluminum foil
- Magnesium sheet
- Aluminium foil
- Strip cut out from can (aluminum can)
- Light-source
- Light bulb
- UVA light (365 nm)
- UVB light (315 nm)
- Light source

**Procedure**
1. Making the Electroscope:
   - Copper wire is strung vertically, with a tin straw cut to 2 inches long.
   - Light-source is used to test the materials.
2. Making the Light-source:
   - Copper wire is strung vertically, with a tin straw cut to 2 inches long.
   - Light-source is used to test the materials.
3. Making the UVA light:
   - Copper wire is strung vertically, with a tin straw cut to 2 inches long.
   - Light-source is used to test the materials.
4. Making the UVB light:
   - Copper wire is strung vertically, with a tin straw cut to 2 inches long.
   - Light-source is used to test the materials.
5. Allowing the light-source to shine on the materials:
   - Copper wire is strung vertically, with a tin straw cut to 2 inches long.
   - Light-source is used to test the materials.
6. Measuring the distance between the materials:
   - Copper wire is strung vertically, with a tin straw cut to 2 inches long.
   - Light-source is used to test the materials.
7. Allowing the light-source to shine on the materials:
   - Copper wire is strung vertically, with a tin straw cut to 2 inches long.
   - Light-source is used to test the materials.

**Data**

**Test 1**
- The first test was our control to make sure that the photoelectric effect was actually taking place and that the light-source was not just giving off light. We measured the distance between the materials and the light-source to ensure that they were not touching.

**Test 2**
- The second test was to see if the light-source was able to affect the materials. We measured the distance between the materials and the light-source to ensure that they were not touching.

**Test 3**
- The third test was completed using aluminum foil as the metal sheet. The light-source was placed on the metal sheet and the light was left on for 30 seconds.

**Test 4**
- The fourth test was completed using aluminum foil as the metal sheet. The light-source was placed on the metal sheet and the light was left on for 30 seconds.

**Conclusion**
- Our experiment was successful in demonstrating the photoelectric effect. We found that the light-source was able to affect the materials, and that the materials were able to emit electrons when exposed to light.

**Possible Source of Error**
- While our homemade electroscope worked well for our purposes, charging it up required a bit of effort. We found that the light-source was not as consistent as we had hoped, and that the materials were not always able to emit electrons consistently. However, our results were consistent with the expected behavior of the photoelectric effect.