Name:_____ Date:_____

An Illumination Investigation

Student Worksheet

With a few guidelines and some innovative thinking, we can design spaces to have sufficient light and be energy-efficient!

Your Challenge

Today you are going to visit one or more places around your school to:

1. Measure the illumination in each place and compare it to the Recommended Light Levels handout to determine if it is too high or too low.

2. Design a solution to fix one space's over-illumination if it is too bright, or to increase illumination in an energy-efficient manner if it is too low.

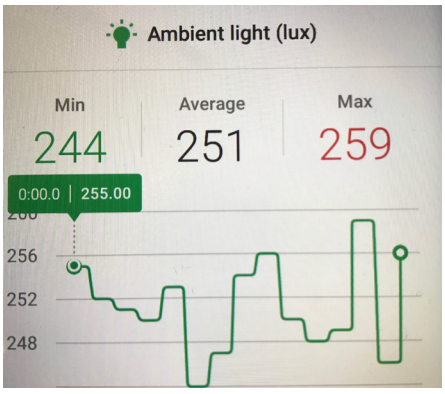
Today I will be measuring and analyzing illumination in the following place(s):

_____

Illumination Investigation

1. Open the Science Journal app on your smartphone and start a new experiment. Make sure the ambient light sensor is displayed on your screen. The ambient light sensor measures illuminance, which is measured in 'lux'.

2. As a group, decide how you are going to collect data. How does the reading on the sensor change depending on where/how you hold the smartphone, or where you are in the space? Consider collecting data for a certain number of seconds, then taking the *average* illumination over this time period. Science Journal will show you the average, minimum, and maximum of your recorded measurements. Be sure to take repeated measurements, and in more than one spot!



3. Record your data in your notebook or export it from Science Journal to your Google Drive if you have access to a computer.

4. Compare your data to the **Recommended Light Levels** handout. Are the places you measured over-illuminated, under-illuminated, or just right? Choose one of the places you analyzed. If it is improperly illuminated, design a solution to fix it, keeping energy-efficiency in mind. If it is already properly illuminated, how could you re-design it to use less energy while maintaining its current light level?

5. Outline your solution on poster board to share with your classmates.

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Notes, sketches, and observations: