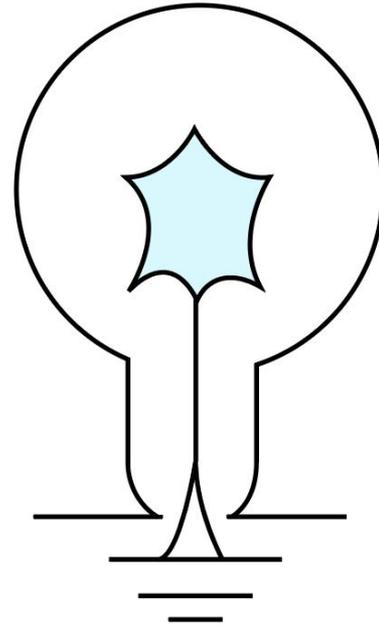


Trapped Light Society

Grace Hwang

Light pollution doesn't just make stars invisible to the naked eye but it also harms wildlife and humans' health and encourages energy consumption.



*"Twinkle, Twinkle, Little Star,
Now I wonder where you are"*

Kid-friendly Toolkit to educate about Light Pollution

- Interactive, educational toolkit for children and adults.
- This toolkit would be built entirely using recycle materials.
- This toolkit would be distributed in schools.
- It can be part of interactive exhibits in an astronomy/science museums. ex: the Griffith observatory (Los Angeles, CA)

Toolbox:

I created the toolbox as a power switch to create a reminder and a message for the people to turn off their artificial light at night.

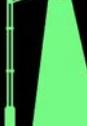


First Tool (zine)

I decided to create a zine that talks about light pollution itself, the harmful effects of light pollution, and the solution to this wicked problem.

For the design aspect, I wanted to make the illustrations look continuous and connected to each other to stress how much the light pollution affects our world. So I made the front cover title like a neon sign and the continuous cord creates the outline of the building, street lamp, light and old type of light switch, a plant with a ladybug, a sleeping person, caution sign and a light switch to highlight the topic.



<p>Crime and Safety</p> <p>Some reasons why people believe it's better to have outdoor lighting at night are for safety and less crime.</p> <p>However, according to some studies, there is no difference in turning off or dimming the street lights. Another study stated that there is no good evidence to prove that increasing lights at night can reduce crimes; instead, crime is encouraged because the victims or properties are more noticeable, due to the overwhelming amount of artificial lights.</p> <p>Also, the glares from outdoor lights can obstruct our view and makes it difficult for the human eye to naturally adjust to low-light conditions.</p> 	<p>Solution</p> <p>The only great thing about light pollution is that it can be easily reversible and doing even the smallest thing can make a huge impact!</p> <p>For starters, turn off the lights when it's unnecessary.</p> <p>Use them only when it's necessary and keep your blinds closed to keep the light from spilling to the outside world.</p> <p>To take a step further, install motion detector lights and timers or use LED bulbs as an alternative light source.</p> <p>Also another solution is to properly shield the all outdoor artificial lights for their intended spot.</p> <p>Also SPREAD THE WORD!! NOT MANY KNOWS ABOUT LIGHT POLLUTION!!</p> 	<p>Crime and Safety</p> <p>The only great thing about light pollution is that it can be easily reversible and doing even the smallest thing can make a huge impact!</p> <p>For starters, turn off the lights when it's unnecessary.</p> <p>Use them only when it's necessary and keep your blinds closed to keep the light from spilling to the outside world.</p> <p>To take a step further, install motion detector lights and timers or use LED bulbs as an alternative light source.</p> <p>Also another solution is to properly shield the all outdoor artificial lights for their intended spot.</p> <p>Also SPREAD THE WORD!! NOT MANY KNOWS ABOUT LIGHT POLLUTION!!</p> 	<p>Crime and Safety</p> <p>The only great thing about light pollution is that it can be easily reversible and doing even the smallest thing can make a huge impact!</p> <p>For starters, turn off the lights when it's unnecessary.</p> <p>Use them only when it's necessary and keep your blinds closed to keep the light from spilling to the outside world.</p> <p>To take a step further, install motion detector lights and timers or use LED bulbs as an alternative light source.</p> <p>Also another solution is to properly shield the all outdoor artificial lights for their intended spot.</p> <p>Also SPREAD THE WORD!! NOT MANY KNOWS ABOUT LIGHT POLLUTION!!</p> 
<p>What is Light Pollution?</p> <p>Light pollution is often disregarded because it's been with us for almost a century but just how detrimental is it? Not only does it make stars invisible to the naked eye and encourage energy consumption, but it also harms wildlife and human's health and safety.</p> <p>Light pollution is when there's an unnecessary, overwhelming amount of unshielded artificial lights and caused by any industrialized civilizations such as streetlights, office buildings, commercial properties, factories, etc.</p> 	<p>Energy Consumption</p> <p>Energy consumption is a frequent problem because of unnecessary usage of unshielded artificial lights.</p> <p>According to IA (International Dark Sky Association), in US alone yearly, the usage of outdoor lightings for streets and parking lots is about 120 terawatt-hours of energy which is the necessary amount of needed energy for NYC alone biennially. About 30% of that energy is unshielded and it costs around \$3.3 billion dollars. With this, it also increases the release of carbon dioxide up to 21 million tons annually, according to IA studies.</p> 	<p>Ecosystem/Wildlife</p> <p>Plastic straws and plastic are not the only things that harms wildlife and the ecosystem. Most animals rely on the night sky in order to function, but artificial light misguides them and disrupts the bio-sustain cycle because night creatures have no right at all due to the light glares that makes them think it's still daytime.</p> <p>Even though newborn baby turtles rely on the stars or sun to guide them to the ocean, driveways and cars nearby have artificial light sources that leads the turtles to their demise. Birds rely on seasonal pattern time, stars, and the moon to migrate, but thanks to artificial lights shining throughout the night, the birds become confused. These are a few examples, but there are other species that are highly affected by the artificial lights.</p> 	<p>Human's Health</p> <p>Humans rely on natural light to sleep, wake, and increase their melatonin, yet artificial light disrupts the day and night cycle (circadian cycle) which lead to sleeping disorders, depression, anxiety, etc.</p> <p>Humans rely on melatonin to keep the body healthy as it has antioxidants, helps with sleeping, strengthens the immune system, lessens the cholesterol, and helps the function process of the human anatomy. But the exposure of artificial light at night harms that melatonin processes.</p> <p>Also the exposure to blue light and glare from outside light increases the harm of human's health by harming light sensitivity of human's eyes and reducing the contrast of the surroundings.</p> 

Second Tool (flashlight)

To make it more fun, interactive, and educational toolkit for children, I decided to make a fun piece where it involves flashlight with a circular plate with star cutouts attached to the front of the flashlight. This projects the shapes of the stars onto the walls or any surfaces they point the flashlight at. For this concept, I wanted to create how it's us who created light pollution and now the artifact lights are now our stars in the sky.



Third Tool (scale)

Though it makes a visually impactful, I feel like it harder for kids to understand the concept by just seeing the scale because it only shows labels of the areas, not the actual environment. So I decided to make a shorter and more conceptual piece of the Bortle scale by creating five illustrations of the different environments and their amount of artificial light. a shorter and more conceptual piece of the Bortle scale by creating five illustrations of the different environments and their amount of artificial light.

Bortle scale, created by John E. Bortle, is a scale that shows nine (numeric) different levels of night sky brightness in different environments.

Bortle scale

