Why The Night Sky Never Sleeps:

The Harmful Effects of Light Pollution & Our Proposed Product to Educate on the Topic

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Skyglow...Never Heard of It?

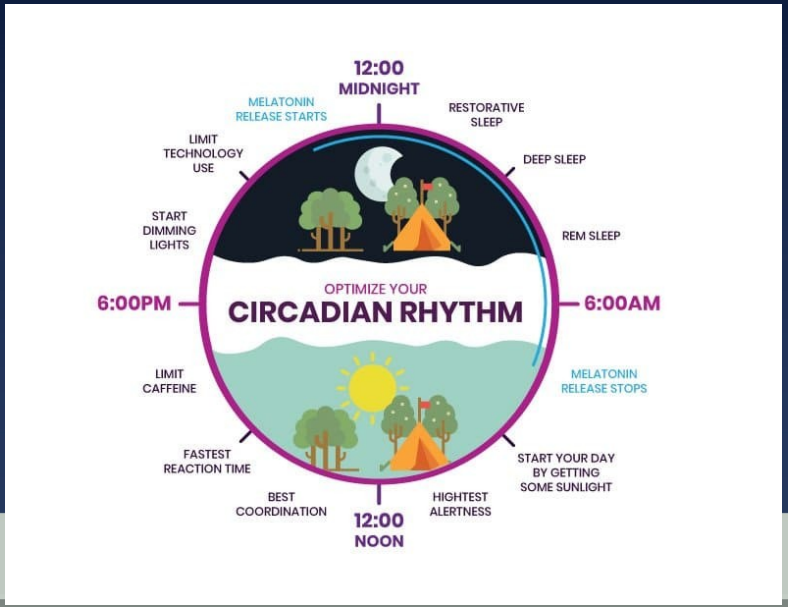
Skyglow is the artificial brightening of the sky due to manmade light being scattered into the atmosphere and it is directly contributed to by a few things, most notably:

- Homes with outdoor lighting that stays on throughout the night or interior lighting that is left on especially considering the number of homes that exist in the United States alone
- Street lamps and outdoor lighting within cities meant to light up walkways also produce a damaging amount of light to both humans and animals alike
- Outdoor spaces and venues that use lighting or art light fixtures that are unshielded add unnecessary light to an already crowded atmosphere

But Is It Really That Bad?

Yes it really is!

Even if you don’t care about the environment, the effect light pollution has on human beings is detrimental. By being exposed to an excessive amount of light during the time in which you are supposed to rest, it disrupts the circadian rhythm - a thing that helps regulate multiple things within your body - which can then in turn lead to health problems such as sleep disorders, psychiatric diseases, diabetes, and certain cancers.



What About the Environment?

Well, beyond humans, plants and animals are also deeply affected by the excessive amount of light during the nighttime including but not limited to:

- animals & insects being confused during migratory and mating procedures that use the sky or light level as a reference
- Nocturnal predators struggling to catch prey because they no longer have the cover of darkness
- Trees not knowing whether the sun is out or not and starting their seasons of shedding and growth at the wrong time of year

And these are just a few things that contribute to permanently damaging the ecosystem in these communities.

Where We Come In:

We are student researchers and were tasked with creating a product of some sort that could be used by a local official to educate people on the harmful effects of light pollution. So we needed to develop clear objective questions that when answered would be the most effective way to execute this task.

Using Critical Analysis to Develop Our Idea

A variety of questions arose amongst ourselves and our peers about how best to communicate light pollution - specifically skyglow - through a government lense, but these were what we narrowed it down to after weeks of research through reading and discussion:

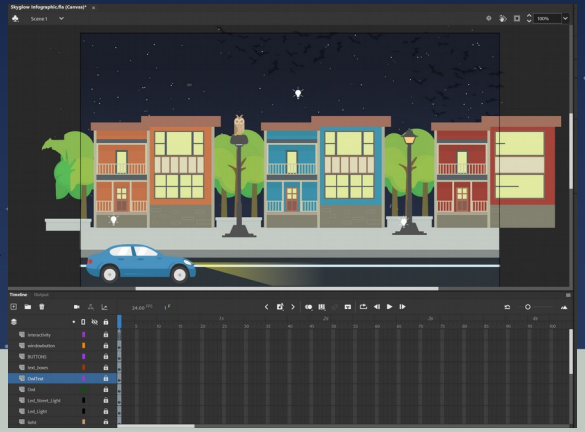
- ★ What is the best way to educate the local community and beyond on the negative effects light pollution has?
- ★ What information is most important and how do we condense it into an easily digestible product while not taking away from the research?
- ★ What is the ideal outcome of our learning apparatus and how do we measure those metrics in order to consider it a success?
- ★ What tools, resources, and softwares will we use to implement our agreed upon idea of an interactive infographic?
- ★ How do we make the product easy to use and accessible especially if it were to be used by a local government?

An In-Depth Look Into How We Created An Interactive Infographic

We began by first creating vector graphics that represented the various elements of light pollution. The style of the graphics was chosen in order to make it an enjoyable experience visually for consumers of all ages and decrease visual clutter that usually arises from street scenes. This includes a set of three houses in the background and various elements in the foreground such as different types of streetlights, nocturnal animals, and a car.

An In-Depth Look Into How We Created An Interactive Infographic

After the graphics were completed, they were imported into Adobe animate so that the interactive portion could be made.



Each of the interactions were designed so that users can understand the effect light pollution has on communities. For example, when the sodium vapor light is turned on, the night sky in the background lights up.

Interaction

Each interaction has a button that triggers an animation or change to the screen. These buttons have been represented using light bulbs as well as an owl in one case.

When the first lightbulb is clicked, it opens an info box and turns on the LED street light.

When the second lightbulb is clicked, it opens an info box and turns on the sodium street light and the sky lights up.

When the third lightbulb is clicked, it opens an info box and causes black out curtains to appear in the middle house's windows.

When the owl is clicked, it opens an info box.

Purpose

Through our interactivity, we hope to make audiences aware of the significance of light pollution and its effects. After thorough research on the many effects of light pollution, we decided to make it clear in the infographic that light pollution's effects are not purely visual but instead that are many unseen factors.

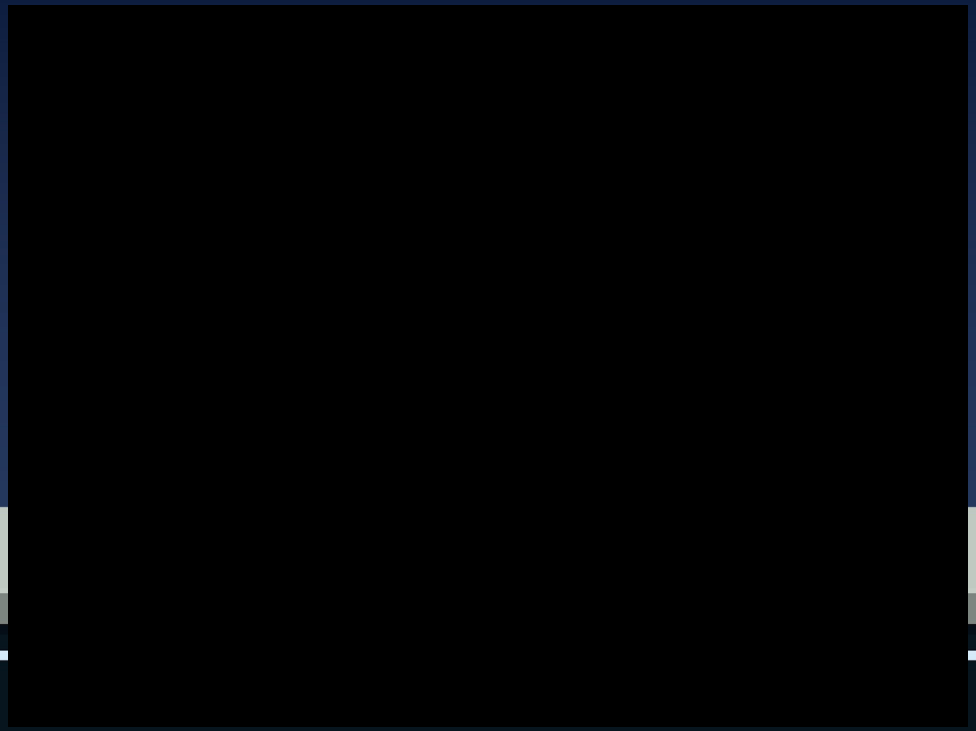
Visual consequences

- Skyglow caused by the amalgamation of unrestricted ALAN.
- Insects attracted to LED streetlights can be seen by predators.
- Light trespass causes visual disturbances in residential areas.

Unseen consequences

- The lack of clear a clear skyview can affect nocturnal species and cause abnormal behavior
- Due to an inability to hide from predators, some nocturnal animals see a significant population decrease.
- Long term exposure to ALAN is not only irritating but affects circadian rhythm causing other concerns.

Interaction



Local Official Audience

During the process of creating the product, we considered the position of a local position who would use the infographic to educate members of a community. This influenced the way we designed the product because we wanted it to be easy to navigate, not overwhelming, and most importantly, an educational tool. For those with little knowledge on the topic, this infographic is a great start to becoming informed about an issue that affects communities around the world. By condensing the information we gathered and using it alongside interactive graphics, our intention was to allow audiences to quickly understand why change must be made to combat light pollution.

What We Learned and Our Experience

- Overall we both learned a lot about the different forms of light pollution that plague both the United States and the world
- Neither one of us had much prior experience in regards to a research project like this, so all of our reports and processes to produce a final product and report has been a new experience
- We would also like to take a moment to share our individual experiences throughout these ten weeks