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I took my pet guinea pig out to graze on the grass in my backyard today, since the weather was pleasantly warm. We went out around 6:20 pm, when the sun was starting to set. It quickly became dark and the solar powered lamps I have plotted around the edge of my garden turned on. The warm weather and the shining of the lights in the dark reminded me of how in addition to the light produced from the lamps, I'd see fireflies flickering in the air during the summer.

I began to think about harnessing the light that bioluminescent organisms produce for human use. I remember seeing an article about glowing ocean waves caused by bioluminescent phytoplankton present in the water.

An invention that utilizes biomimicry is a night light that uses bioluminescent phytoplankton, also known as dinoflagellate, to create light. One obstacle that I had to overcome while designing it, is the fact that dinoflagellate will not glow, unless the cell membranes are slightly disturbed through motion. I decided to use a natural constant force to overcome this issue – gravity. My design will be shaped similarly to an hourglass. Drops of water will slowly accumulate at a point, and drop into the water below, disturbing it and causing it to glow!

This will benefit the environment and consumer, not only by using less electricity, but also producing more oxygen and capturing carbon dioxide. Since dinoflagellates are photosynthetic, they take in carbon dioxide to produce oxygen, just like plants. Although the amounts are quite small, every bit counts. As long as they are given the proper nutrients and light exposure, they require almost no care, similar to plants. These plankton and the nutrients they need can be easily ordered online.

Not only will these night lights produce light, save money, and the planet, but they will be beautiful, relaxing and interesting to look at. This should make them favorable amongst consumers, despite the fact they will be priced higher than your typical night light.

https://www.instagram.com/p/Cy5v3XBrRCy/?igshid=MzRlODBiNWFlZA==

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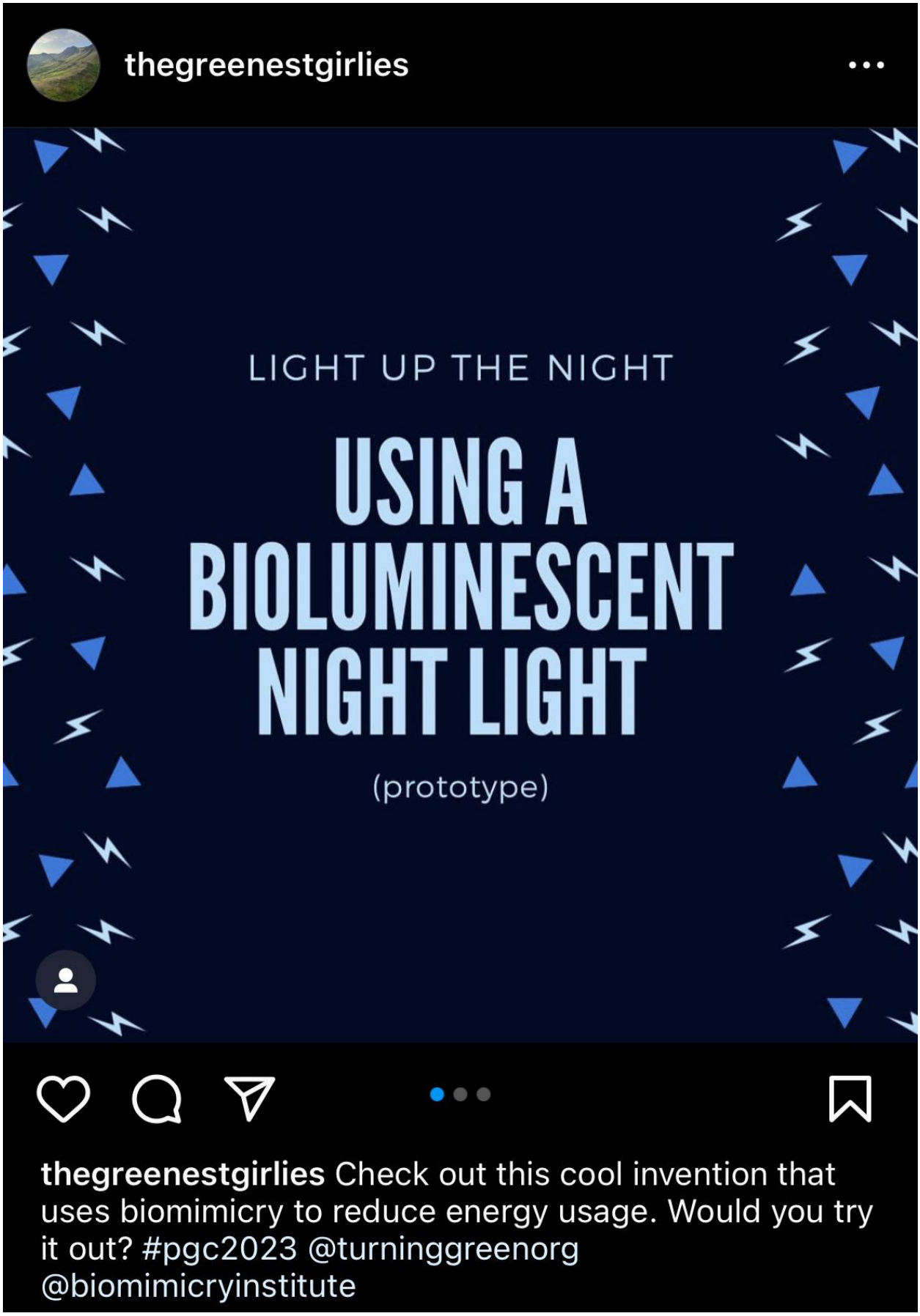

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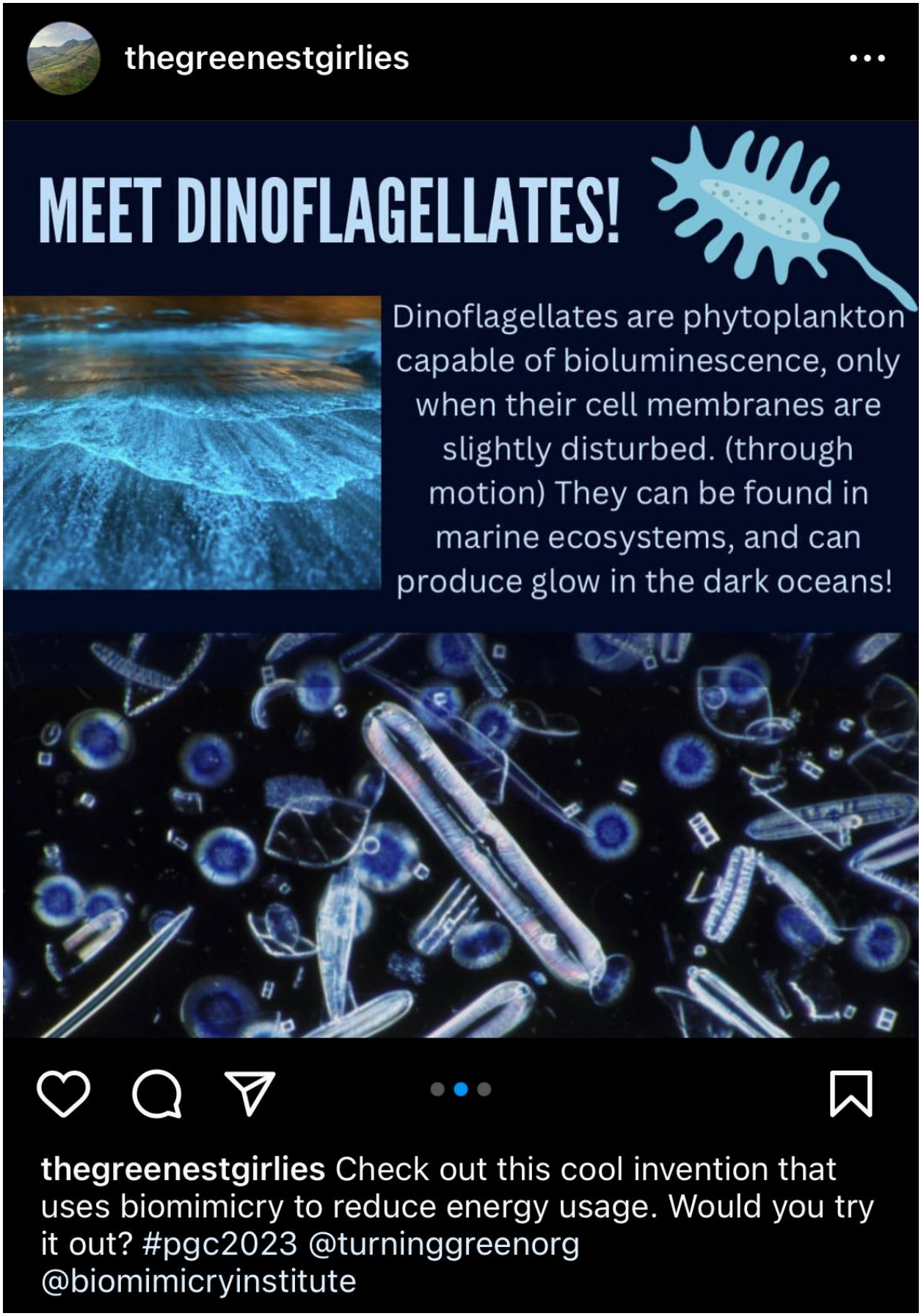

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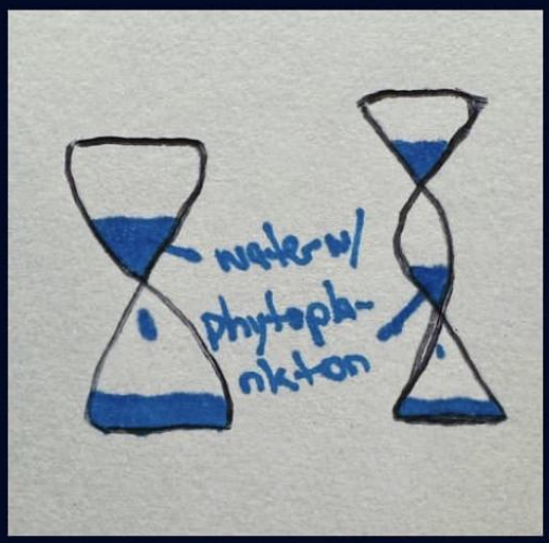
MY INVENTION

My night light would utilize the power of dinoflagellates. I overcame the obstacle of creating motion, by using gravity to create disturbances in the water. This would mean it uses no electricity, and also produces oxygen and captures carbon dioxide while it works! All that's necessary is proper care and feed, similar to a house plant.



I was inspired to create this after observing fireflies glowing on summer nights. I was wondering if there is a way to harness the light and energy they produce, and then became fascinated by bioluminescent organisms.

thegreenestgirlies Check out this cool invention that uses biomimicry to reduce energy usage. Would you try it out? #pgc2023 @turninggreenorg @biomimicryinstitute

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Another invention that I would love to see come to life, but would take lots more research and development, would be to create bioluminescent plants using genetic engineering. By inserting the right genes that code for light-producing enzymes, plants could hopefully produce enough light to illuminate streets. This would make street lamps obsolete, and we'd be capturing carbon whilst reducing energy use and lighting up the world!