

DAY-22

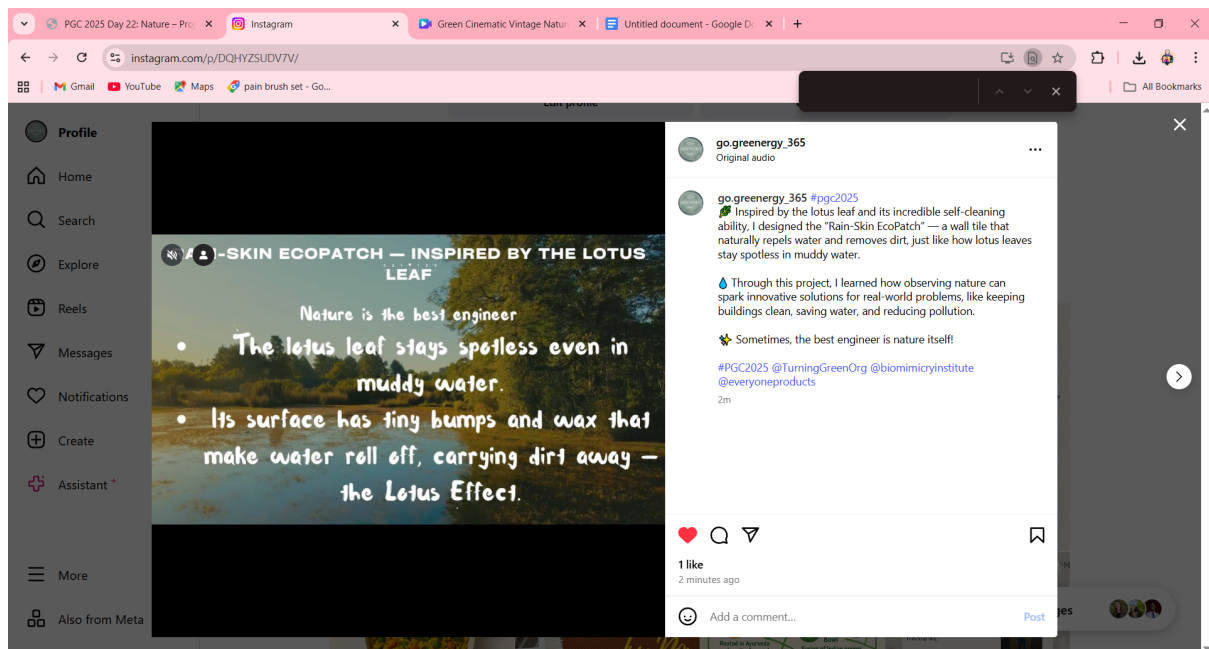
NAME: NICHETHA.D

CHALLENGE: GREENEST

SCHOOL NAME: National Public school, Agara

INSTAGRAM ACCOUNT: [go.greenenergy_365](#)

While researching natural solutions on AskNature.org, I came across the lotus leaf and its incredible self-cleaning ability. I learned that its microscopic surface structures and waxy coating allow water to roll off, taking dirt and debris with it — a phenomenon known as the Lotus Effect. This inspired me to explore how such biological strategies can be applied to real-world problems. Working on the Rain-Skin EcoPatch not only deepened my understanding of biomimicry, but also taught me how observing nature closely can spark creative, sustainable solutions for urban challenges like pollution and water waste. Through this project, I realized that many of the smartest engineering solutions already exist in nature, waiting for us to study and adapt them thoughtfully.



Instagram post(link)(vedio)

https://www.instagram.com/reel/DQHYZSUDV7V/?utm_source=ig_web_copy_link&igsh=MzRIODBiNWFIZA==

Caption

🌿 Inspired by the lotus leaf and its incredible self-cleaning ability, I designed the “Rain-Skin EcoPatch” — a wall tile that naturally repels water and removes dirt, just like how lotus leaves stay spotless in muddy water.

💧 Through this project, I learned how observing nature can spark innovative solutions for real-world problems, like keeping buildings clean, saving water, and reducing pollution.

✨ Sometimes, the best engineer is nature itself!

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ABOUT MY PROTOTYPE IN DETAIL



Rain-Skin EcoPatch — A Bio-Inspired Self-Cleaning Tile

Nature has always been the greatest engineer, solving complex problems in simple and efficient ways. One natural phenomenon that fascinated me during my research is the **lotus leaf**. Despite growing in muddy water, lotus leaves always remain clean. This happens because their surface has tiny microscopic bumps and a waxy coating, which makes water roll off and carry away dirt and debris. This amazing property is known as the **Lotus Effect**. Studying this taught me how closely observing nature can inspire innovative solutions for human challenges.

Inspired by this, I created the **Rain-Skin EcoPatch**, a self-cleaning tile designed to keep buildings clean naturally. To test the concept, I used two

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small tiles: one left plain, and the other coated with candle wax to mimic the lotus leaf's water-repellent surface. When I poured muddy water on both, the plain tile became dirty, while the wax-coated tile stayed clean as the water rolled off, carrying the dirt with it. This simple experiment demonstrated how a natural design can be translated into a practical, sustainable solution for urban spaces.

Through this project, I learned the value of **biomimicry** — applying strategies from nature to solve real-world problems. The Rain-Skin EcoPatch could reduce water use, cut cleaning costs, and limit chemical use in city buildings. More importantly, this project showed me that sometimes, the most effective solutions already exist in nature; we just need to observe carefully and apply them thoughtfully. Working on this project has been an eye-opening experience, teaching me that creativity, sustainability, and innovation often come hand-in-hand when we learn from the natural world.