



DIGIEDUHACK SOLUTION CANVAS

Title of the solution*	LAKEWISE & PLASTIC FREE	Team Name	PLASTIC FIGHTERS
Challenge Category	Awareness on lake protection and restoration		
Background of the team	Researchers, Higher Education Students		



DIGITAL WAVES FOR CLEAN LAKES: EDUCATION FOR FRESHWATER PROTECTION

This hackathon is a joint activity of DIGIEDUHACK2025 and ProCleanLakes EU project

Solution description

Core Features (visual prototype)

- Learning with a Neride:** Virtual avatar—Nerides, daughters of Nireas—teaches water sustainability, river histories, myths, and the impacts of plastics on aquatic systems through short narrative episodes.
- Plastic Life-Cycle Explorer:** Interactive visualizations reveal hidden plastic sources and why recycling is a *last-resort* rather than a panacea.
- Gamified Missions:** Weekly trackers (e.g., “How much plastic did you *not* consume this week?”), household pathways to becoming plastic-free, and badges for streaks and milestones.
- Action Toolkit:** Step-by-step swaps to **natural materials** (wood, leather, clay); **mindful packaging choices** (prefer carton, metal, glass); **carry a reusable water bottle**; **reusable bags**; **DIY gifts**; **support local markets**; **reduce overall consumption**; and **recycle responsibly**.
- Food & Growing Hub:** **Cooking recipes** for items typically sold in plastic (bread, biscuits, etc.), nutrition tips, and **balcony-garden** micro-guides to grow ingredients.
- Community Connector:** Geolocated listings of nearby NGO clean-ups and citizen-science actions; opt-in dashboards to share progress.
- Impact Analytics (privacy-aware):** Personal and class dashboards estimating plastic avoided and biodiversity benefits.

Learning Goals

Learners will:

- Know:** Hidden sources and full life cycle of plastics; socio-ecological impacts on water systems; limits of recycling.
- Feel:** Cultural and emotional connection to water through mythic storytelling and indigenous/ancient wisdom.
- Do:** Consistently practice plastic-free habits (reusables, mindful packaging choices, DIY/repair, local purchasing, balcony growing), participate in clean-ups, and model a waste-free lifestyle at home and school.

Visual Mock-up/ Prototype of the App



Target group

- Students of all ages but mostly children and young individuals:** engage with interactive missions, storytelling, and gamified challenges that make sustainability learning experiential and emotionally meaningful.
- Teachers and educators:** use the app as a digital companion to environmental education, sustainability, or science curricula. They can design classroom missions, track student progress, and foster discussion on cultural and ecological values.
- Families:** adopt the app as a home-learning and lifestyle guide to cultivate sustainable daily habits together—e.g., cooking, gardening, and reducing household waste.
- Local communities:** access shared knowledge hubs to exchange plastic-free practices, promote local markets, and support circular-economy initiatives.
- Scientists:** use of the app for the evaluation of self-assessed measures in the reduction of plastic waste and consumption

Impact

LAKEWISE & PLASTIC FREE aims to transform environmental awareness into sustained behavioral change through experiential, story-driven, and data-informed learning. The app empowers learners to *know*, *feel*, and *act* for freshwater protection. Users gain literacy on the full life cycle of plastics, their hidden environmental costs, and feasible pathways toward circular consumption and waste prevention.

The app cultivates measurable behavioral shifts—consistent reduction of single-use plastics, mindful purchasing, and participation in clean-ups and citizen-science actions. Teachers and families will integrate its missions into classroom and household routines, amplifying collective impact across generations.

LAKEWISE & PLASTIC FREE aspires to build a community of informed “water guardians.” Within its first implementation phase, it targets 500 active learners, at least 20 local clean-up or awareness events, and a demonstrable 20% reduction in single-use plastic consumption among participants. Integrated dashboards will visualize real-time progress, quantifying plastic avoided, biodiversity benefits, and engagement growth. Ultimately, the initiative nurtures environmental citizenship, turning digital learning into tangible, restorative action for cleaner lakes, rivers, and communities.

Challenge Addressed

- Freshwater ecosystems—including lakes, rivers, and wetlands—are increasingly threatened by plastic pollution, unsustainable consumption patterns, and limited public awareness of the true life-cycle of plastic waste (which is longer than we can expect). Plastic is deeply embedded in everyday life, and we often consume or use it unconsciously, without realizing its far-reaching consequences, such as biodiversity loss, ecosystem degradation, and long-term risks to human health.
- The core challenge, therefore, lies not only in plastic pollution itself but also in the lack of informed behavioral change. Education and the gamification of sustainable practices can serve as powerful tools to reduce plastic consumption and foster pro-environmental habits, particularly among students and young people. Reducing plastic waste ultimately contributes to the protection of both freshwater and marine ecosystems, as well as the preservation of global biodiversity.

Innovativeness

LAKEWISE & PLASTIC FREE is an innovative pedagogical ecosystem that integrates environmental science, mythic storytelling, gamification, and community participation into a unified digital experience—an approach still absent in Greece. While existing applications focus on isolated aspects of sustainability, none adopt this holistic, freshwater-centered philosophy that connects emotional engagement with cognitive learning.

Mythic avatars—the Nereids, daughters of Nereus—personify aquatic ecosystems, transforming abstract sustainability concepts into experiential, story-driven learning. Through narrative episodes and interactive missions, learners form emotional bonds with local lakes and rivers, while gamified mechanisms translate knowledge into concrete daily actions.

The app merges environmental literacy with lifestyle transformation, offering interactive cooking and growing hubs, plastic life-cycle exploration tools, and community action mapping. It thus functions as a living laboratory for behavioral change, where learning and acting coexist within measurable, real-world impact. Reaching students, educators, families, and scientists, the platform creates a transgenerational learning network that bridges formal and informal education, as well as citizen science. By uniting cognitive knowledge, cultural identity, and ecological responsibility within a single digital framework, **LAKEWISE & PLASTIC FREE** emerges as a pioneering digital model for sustainability education—where myth, science, and action converge to inspire collective environmental stewardship.

Sustainability

The app is extremely useful and relevant with overall sustainability because it is grounded in a combination of educational integration, institutional partnerships, community engagement, and scalable business modeling that ensures continued relevance and measurable environmental impact beyond the hackathon phase.

The funding strategy of the app will include a hybrid funding model by seeking:

- Institutional Grants and EU Programs:** Applications to Horizon Europe, Erasmus+ (GreenComp, Education for Sustainable Development), and LIFE Environment programs.
- Public-Private Partnerships:** Collaboration with environmentally responsible companies (water utilities, local markets, zero-waste brands) for sponsorships and co-branded educational challenges.

The app will operate under an open educational resource philosophy, allowing educators and learners to co-create new missions, mythic stories, and local environmental modules. This participatory framework ensures continuous content renewal, localized relevance, and peer-driven innovation without high maintenance costs.

Team work

The **LAKEWISE & PLASTIC FREE** project, coordinated by **Anna-Maria Kanzola**, integrates behavioral science, environmental sustainability, and digital learning. She leads the project's pedagogical and research design. **Dionysia Samita**, manages administration, NGO coordination, and stakeholder engagement. **Ioannis Lomis** and **Dimitrios Lomis** ensures the app's analytical rigor and data quality. **Konstantina Papaoianou**, supervises digital infrastructure, focusing on methodological and technological integrity. **Nikoleta Stylianidi**, a biologist, contributes biodiversity content and develops ecological awareness tools. **Paris Kazakis**, an Electronic Engineering student at designs and implements the app prototype, emphasizing interactivity and usability. **Stefanos Bourmpoulas**, with a background in Archaeology and Philosophy, curates mythological and cultural narratives, blending traditional ecological wisdom with modern sustainability education. Together, the interdisciplinary team combines expertise in economics, ecology, technology, and pedagogy to create an innovative educational tool promoting behavioral change, environmental responsibility, and the protection of freshwater ecosystems.