GOAL:
Remove/retire the "Sustainability Education Hub" feature and replace it with a new feature called:

✅ "OceanGuard School Scoreboard"
A classroom-friendly sustainability competition that lets schools "adopt" one of the 20 monitored cities, earn points through actions, and appear on a live leaderboard.

NON-NEGOTIABLE REQUIREMENTS:
1) Completely remove Education Hub pages/routes/nav items/components and any references in copy.
2) Add Scoreboard feature end-to-end (frontend + backend + database schema + seed + API).
3) Keep design consistent with the rest of the app (Tailwind + Framer Motion, cards, clean layout).
4) Must feel like "Best Hack for Sustainability in Education": schools + classroom action + sustainability outcomes.

FEATURE SPEC:
A) Core UX
- New nav item: "Scoreboard"
- Main page shows:
  - Global leaderboard of schools (ranked by total points)
  - "Adopted city" for each school
  - Weekly points + all-time points toggle
  - Badges for milestones (e.g., "First Cleanup", "$100 Funded", "100kg Removed")
  - Quick filters: City, Region, K-12 vs College

B) School Profile Page
- Clicking a school opens a profile:
  - School name, type (K-12 / College), location (optional), adopted city
  - Points breakdown by category with a simple chart (no custom colors)
  - Timeline of actions (recent activities)
  - Impact summary: trash removed estimate, volunteers, funds raised, CO2 equivalent (simple conversion is OK)
  - "Join/Submit Action" button (creates a pending action)

C) Actions that earn points
Create a simple, auditable action logging system:
Action types (minimum):
1) "Classroom Mission Completed" (teacher-run activity)
2) "Cleanup Event Logged"
3) "Donation Raised" (ties to your existing cleanup operations + Solana donation receipts if available)
4) "Awareness Activity" (e.g., presentation, poster campaign)

Each action has:
- id, school_id, action_type, city_id, timestamp
- points_awarded
- evidence fields: description + optional URL + optional Solana tx signature
- status: PENDING / APPROVED / REJECTED

D) Scoring rules (implement as code constants)
- Classroom Mission Completed: +50 points
- Cleanup Event Logged: +200 points + (2 points per kg trash removed)
- Donation Raised: +1 point per $1 (cap 500 per donation)
- Awareness Activity: +75 points
Add milestone badges:
- First Action
- 500 points
- 1,000 points
- $100 raised
- 100kg removed

E) Admin review (simple)
- Add a lightweight admin screen (can be hidden behind an ENV var or a hardcoded dev check) to approve/reject pending actions.
- When approved, points are added to school totals and leaderboard updates live.

F) Real-time updates
- Use your existing SSE patterns to push leaderboard updates (every 30–60s OR on action approval).

DATABASE (Postgres + Drizzle):
Add tables (names flexible):
- schools
  - id (uuid)
  - name
  - type (ENUM: K12, COLLEGE)
  - adopted_city_id (references cities table you already have)
  - created_at
- school_actions
  - id (uuid)
  - school_id (fk)
  - action_type (ENUM)
  - city_id (fk)
  - description
  - evidence_url (nullable)
  - solana_tx_sig (nullable)
  - kg_trash_removed (nullable numeric)

  - donation_usd (nullable numeric)
  - status (ENUM: PENDING, APPROVED, REJECTED)
  - points_awarded (numeric)
  - created_at
  - reviewed_at (nullable)
- school_point_totals (optional materialized table; OK to compute on fly if performant)
  - school_id
  - total_points
  - weekly_points (points in last 7 days)

If you already have a cities table, reuse it. If not, create a simple cities table with the 20 cities already tracked in the globe view.

API (Node/Express):
Implement REST endpoints:
- GET /api/scoreboard/leaderboard?period=weekly|alltime&city_id=&type=
- GET /api/scoreboard/schools/:id
- POST /api/scoreboard/schools (create school) [optional for demo]
- POST /api/scoreboard/actions (submit pending action)
- GET /api/scoreboard/actions?status=pending (admin)
- POST /api/scoreboard/actions/:id/review { status: APPROVED|REJECTED } (admin)
All endpoints should validate input and return clear errors.

FRONTEND (React/TS):
- Create pages/components:
  - /scoreboard (leaderboard view)
  - /scoreboard/schools/:id (school profile)
  - /scoreboard/admin (pending actions review) — only shown if ADMIN_MODE=true
- Use existing UI components if present (cards, tables, buttons).
- Add filters + toggle (weekly/all-time).
- Leaderboard should update live via SSE or polling to match backend.

SEED DATA:
- Seed at least 8 example schools with different adopted cities
- Seed at least 25 actions, including some pending for admin review
- Ensure leaderboard is non-empty on first run.

CLEANUP:
- Remove all “Education Hub” routes/components/nav links and delete dead code.
- Update README or in-app “About” copy to reflect Scoreboard instead of Education Hub.

DELIVERABLE:

- Working feature in the existing codebase with no broken routes
- Scoreboard page reachable from nav and looks polished
- Admin approval updates points and leaderboard live

Proceed to implement now. Do not ask me questions—make reasonable assumptions and document them briefly in a CHANGELOG.md.

Also, the ElevenLabs feature is currently working like this: When I get the call, they ask about the site in context to the site we're calling about (good). When I respond, the live transcript logs my response along with the initial explanation (good). Then, the transcript updates with an actual response to my answer (good). BUT, on the voice call, it just says an internal server error occurred. This is where the issue is happening.

Create an interactive educational visualization that explains how kelp forests and marine algae influence climate change through the ocean food chain. The centerpiece should be an interactive flowchart-style food chain that starts with phytoplankton and zooplankton and progresses through small fish, mid-level predators, and apex predators such as sharks.

The food chain must be presented as a horizontal or vertical flowchart with connected arrows showing energy transfer. Each organism should be represented by a clean silhouette icon. Users should be able to hover over or click on each silhouette to open an information panel that explains:

• the organism’s ecological role
• how it contributes to regulating populations below it in the food chain
• how it is affected by climate change (warming oceans, acidification, habitat loss)
• how changes in its population impact the rest of the chain

The visualization should clearly demonstrate trophic cascades. Show how declining shark and other apex predator populations disrupt the balance of mid-level predators, which then overconsume species that normally regulate zooplankton. Explain how this imbalance can affect phytoplankton populations and why

phytoplankton are critical for global oxygen production and carbon sequestration.

Include a dedicated section explaining the role of kelp and algae as carbon sinks, nurseries for marine life, and stabilizers of marine ecosystems. Visually connect kelp forests to the food chain to show their supporting role.

Add interactive scenario toggles that allow users to simulate climate change effects (e.g., rising temperature, predator loss). When toggled, the flowchart should animate population increases or decreases and display short explanations of the environmental consequences, especially impacts on oxygen production and global climate regulation.

The overall design should be visually engaging, scientifically accurate, and suitable for students learning about marine ecology and climate systems. Use clear labels, concise educational text, and smooth animations to make cause-and-effect relationships easy to understand.