

# Milestone 1 Completion Report

## Database & Authentication

**Completed:** December 19, 2025

**Preview:** <https://science-canvas-creator.vercel.app>

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## What Was Delivered

### Database Infrastructure

#### Database Reset Workflow

- Fixed migrations to support repeated database resets without errors
- Created seed script that populates all required data after reset
- Established development database for testing separate from production

#### Seed Data

- 12 icon categories (Chemistry, Biology, Physics, Medical, etc.)
- 28 sample icons distributed across categories
- Blog content (5 categories, 10+ tags, 3 sample posts)
- 4 researcher testimonials
- Admin role assignments and site settings

#### RLS Policy Improvements

- Expanded and fixed Row Level Security policies across all tables
- Fixed critical bug preventing authenticated users from accessing icon library
- Enabled public access to icons for landing page showcase
- Verified all permission scenarios work correctly

## Authentication & Email System

### Email Delivery

- Set up Resend for branded email delivery
- Created email templates for signup verification and password reset
- Deployed edge function to handle all authentication emails

- Built admin email preview page at /admin/email-preview for template testing

## User Experience

- Built dedicated email verification page
- Implemented auto-resend for unverified email attempts
- Improved error and success handling with custom toast notifications
- Smooth signup → verification → login flow

## Testing & Verification

### Comprehensive Test Coverage (56 tests)

- Database seeding verification (7 tests)
- RLS policy enforcement for all user types (15 tests)
- Complete authentication workflow (22 E2E tests)
- Email delivery function (5 tests)
- Manual testing procedures (7 documented procedures)

The custom toast notifications were critical for testing - they provide consistent, testable feedback for all user actions, allowing complete verification of features and edge cases.

### Development Environment

- Preview deployment: <https://science-canvas-creator.vercel.app>
  - Connected to development database for safe testing
  - All features verified in production-like environment
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## Additional Work (Beyond Scope)

### Performance Optimization

#### Stress Testing

- Added stress tests to diagnose Supabase query performance
- Identified optimization opportunities in existing code










#### Optimizations Applied

- Refactored existing logic to reduce database queries
- Improved query efficiency across admin features
- Expanded test suite to verify optimizations didn't break functionality

All changes documented in git commit history.

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## Deliverables Summary

-  Database migrations fixed for reset workflow
-  Seed script with all required data types
-  Development database established
-  Preview deployment live at <https://science-canvas-creator.vercel.app>
-  RLS policies expanded and verified
-  Complete authentication system with email verification
-  56 tests covering all requirements
-  Custom toast system for reliable testing
-  Performance optimizations (bonus)

**Status:** Ready for review and approval to proceed to Milestone 2