

Case Study

Scaling Inquiry-Based Science Investigations into Digital Learning Experiences



The Client

The client is a K–12 science curriculum provider offering investigation-led programs across elementary and middle school grades. The organization wanted to make more of its hands-on science experiences available digitally while preserving its instructional model and creating a practical way to scale development across a large portfolio.

The Challenge

The client’s investigations relied on physical materials, teacher preparation, and live classroom setup. This made activities harder to deliver in schools with limited lab resources and difficult to repeat for remote, asynchronous, or follow-up learning without setting up the physical investigation again.

The product team also needed to digitize a broad portfolio spanning different science topics, visual styles, language versions, and classroom contexts. Building every investigation separately would increase cost, slow portfolio delivery, and create inconsistent learner experiences. The client needed a common set of interaction patterns and components that could support realistic labs, game-like experiences, and investigation-specific pedagogy without requiring a full rebuild each time.

Critical Success Parameters

- ✓ Preserve the core inquiry cycle, including changing variables, collecting evidence, and interpreting results.
- ✓ Reduce dependence on physical kits and repeated classroom setup.
- ✓ Allow students to revisit investigations independently.
- ✓ Establish consistent interactions while supporting different visual treatments and science topics.
- ✓ Support bilingual versions and varied device or classroom contexts.
- ✓ Coordinate curriculum, design, and development across the portfolio while controlling cost and scope.

Our Approach

- ✓ Reviewed the investigations to identify recurring student actions, instructional sequences, and data interactions.
- ✓ Converted common interactions into reusable design patterns and development components.
- ✓ Created a flexible visual and interaction framework that could support realistic laboratory environments, game-like interfaces, and bilingual variants.
- ✓ Worked across curriculum, design, and development teams to reuse shared elements without losing the scientific intent of each investigation.
- ✓ Managed the work as a coordinated portfolio, helping releases share a coherent experience rather than becoming disconnected, one-off products.

For more details, visit: www.magicedtech.com



Key Result Highlights

Delivered **70+** virtual investigations across elementary and middle school science.

Reduced per-investigation development costs by **25%** through reusable patterns and components.

Extended the same delivery model across a broad range of science topics.

Supported bilingual versions with Spanish-language content.

Enabled remote, asynchronous, and kit-constrained use.

Reduced the need for fresh physical setup when students repeated or reviewed an investigation.