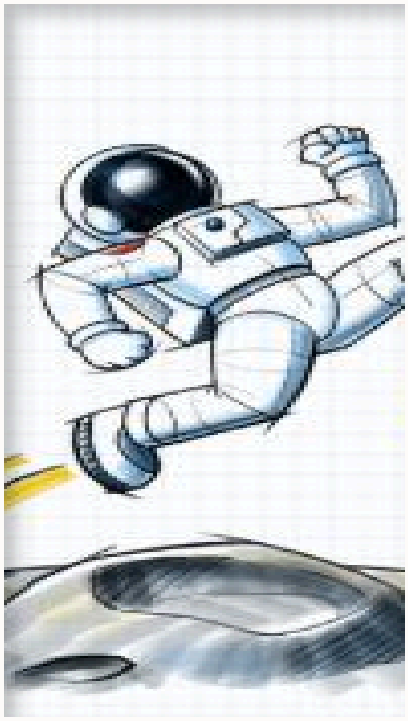


UCI MHCID × CLASS CRUNCHLABS

FINAL REPORT

AVI LOVELACE, ARIANA DAVIES,
MICHELLE HERRERA, YERIM LEE

TABLE OF CONTENTS

EOQ Research Report

EXECUTIVE SUMMARY

Brainstorming new ideas to solve specific user problems

01

EXECUTIVE SUMMARY OF INTERVIEWS

Teachers prioritize student needs and engagement over rigid lesson structures, frequently adapting plans throughout instruction. As a result, they value resources that clearly communicate key details, such as time commitment, materials, and learning objectives, at a glance. Effective resources are easy to find, simple to navigate, and flexible enough to be customized and integrated into existing lesson plans.

RESEARCH INSIGHTS

Our competitive analysis and literature review gave our team a solid foundation for understanding how different LMS platforms and educational resources compare to Class CrunchLabs. However, as we moved into user interviews, we discovered a broader set of problems worth solving.

Common themes that emerged included improvisation in the classroom, AI use in lesson planning, evolving science standards, preparation time, and external lesson plan needs, among others. Identifying and unpacking these themes was critical across our many stages of development, as they shaped the guidelines we used to approach modern lesson planning challenges.

Teachers were expressive about both how they currently create lesson plans and what they wish their tools could do better. In terms of project direction, we also explored whether changes to how Class CrunchLabs resources are distributed could better serve educators. Our interviews revealed that Google Drive is widely used among teachers, a finding that our affinity map further confirmed, ultimately pointing us toward our next direction for ideation.

RECOMMENDATIONS

Search Filters

Having filters on the searching curriculum unit page so that teachers can find what they are looking for faster. This includes searching by science topic, grade level, standards, and science type.

Surfacing Materials

One of the side effects of having a large PDF system to group items, is an extended time to find and locate materials. By embedding them in the unit storyline and surfacing them more, teachers are able to find what they need faster and easier.

Page Navigation

Although this design recommendation did not make it to our final prototype, we found it important to make this a point in our recommendations. Page navigation helped teachers find out where they are in relation to the page, and make it easier to parse and search what they exactly need from the unit.

CONTEXT

Synthesis of existing research and data that establishes foundational context

02

How might we help middle school science teachers **onboard quickly** by improving the engagement process, streamlining lesson plan integration, and **reducing cognitive load** through the Class CrunchLabs website?

EVOLUTION OF PROBLEM

Our original problem focused on PDFs being too large and non-uniform in a Google Drive folder. After our analysis and research, we noticed that this is more related to a problem of teacher onboarding. Rather than re-designing the PDF experience, we decided to come up with a way for teachers to experience an "all-in-one" solution, which includes everything teachers need, only located within the page through search filters, embedded materials, and page navigation tools.

RESEARCH RECAP

ALL IN ONE PLACE

Teachers want to see at-a-glance how lessons are structured, how materials are related, and **what kind of materials are associated with each lesson in the unit.**

SPECIFIC SEARCH

When searching for external lesson plan resources, teachers prioritize organization and structure of content to find materials that **connect meaningfully to learning objectives**.

FAST & EASY ADOPTION

Materials should be easy to pick up, start with a skeleton, and allow for customization based on class needs. Teachers seek **fast adoption and flexible configuration** of lesson plans.

PLANNING FOR TIME

Time is limited when planning for a lesson. Teachers need to be able to see **how long a lesson might take them**, as well as **how long it will take to set up**.

FLEXIBLE PLANNING

Teachers seek **flexible configuration** of lesson plans because plans change and teachers must improvise when necessary.

PICKING & CHOOSING

Teachers often **cherry pick** activities and resources that can be inserted into their existing lesson outlines and cover gaps in the lesson plan.

TESTING AT A GLANCE

Evaluating the user experiences of competing products for opportunities

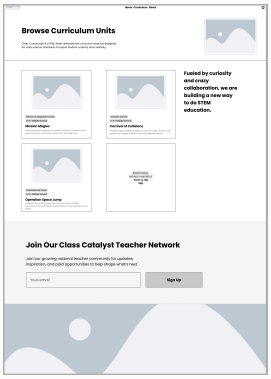
03

ROUND 1: LO-FI

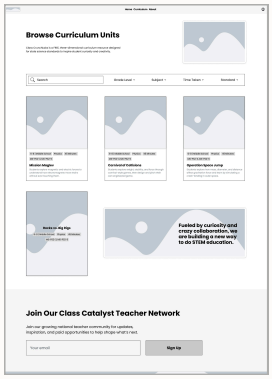
Between May 30 and June 19, 2026, we conducted moderated user evaluation sessions over Zoom with 5 to 10 teachers. Each explored the live site and three prototypes: Mild (similar to the current site with long scroll and basic search), Medium (added modular preview and filter-before-select), and Spicy (Zillow-style filter, dashboard summary, cart-like selection.) After each session, teachers ranked and gave final thoughts, guiding our next step.

No single prototype emerged as a clear favorite. While Spicy received the most first place votes, but teachers wanted a mxi of Mild's familiar layout adn Spicy's modular selection. We combined these ideas for our hi-fidelity prototype, adding a content-saving sidebar and better filters as Class CrunchLabs requested.

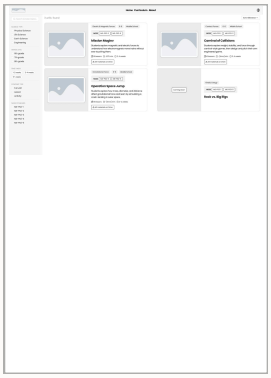
BROWSE CURRICULUM PAGE



Live Site

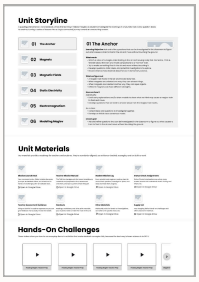


Mild & Medium

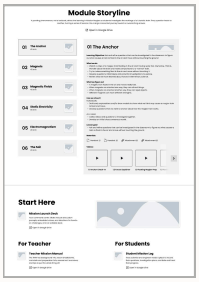


Spicy

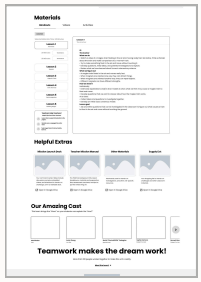
UNIT PAGE



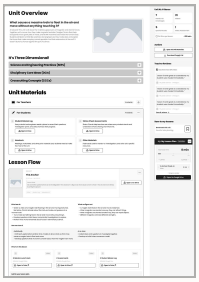
Live Site



Mild



Medium



Spicy

WHAT WAS DISCOVERED?

Lo-fi testing identified four key directions that informed our hi-fidelity prototype.

A Hybrid Direction - Teachers preferred Mild's layout with Spicy's modular, cart-style selection.

Embedded Materials - Teachers favored all lesson materials in one place over searching the page.

Page Layout Needs Rethinking - Teachers wanted all content visible at once and prioritized lesson plans.

Search & Filter - Every session praised the filter system, confirming easy access is essential.

TESTING AT A GLANCE

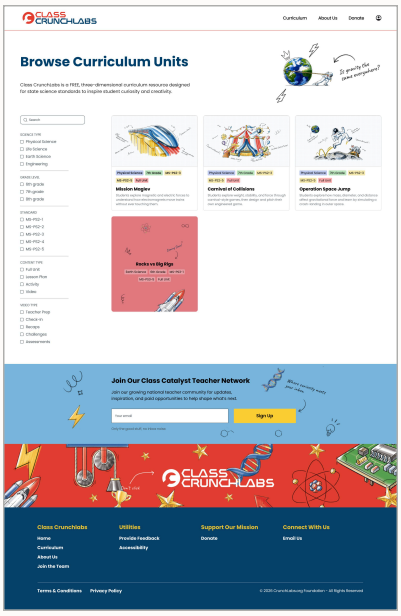
Evaluating the user experiences of competing products for opportunities

04

ROUND 2: HI-FI

Following the lo-fi round, we developed a high-fidelity prototype and tested it with Maze, an unmoderated usability testing platform. This allowed teachers to evaluate the design at their convenience. Although we aimed to test with 20 to 30 teachers, only 6 participated. As a result, these findings are qualitative and focused rather than representative of a large-scale study.

BROWSE CURRICULUM PAGE



UNIT PAGE

TESTED FEATURES

Key features that were tested.

Search & Filter

Unit Storyline

Surfacing Materials

All participating teachers indicated they would use the design to prepare real lessons, and each successfully located a unit. Teachers rated 6.8 out of 7 for trust and credibility, 6.2 out of 7 fro the filter system's helpfulness, and 7 out of 7 for finding materials. As one teacher noted, "it felt well organized and had a good flow to the presentation of information. I could easily decide on using one, some, all of these lessons for my classroom and would be able to review the videos to include in class discussions."

See **page 9** for more results.

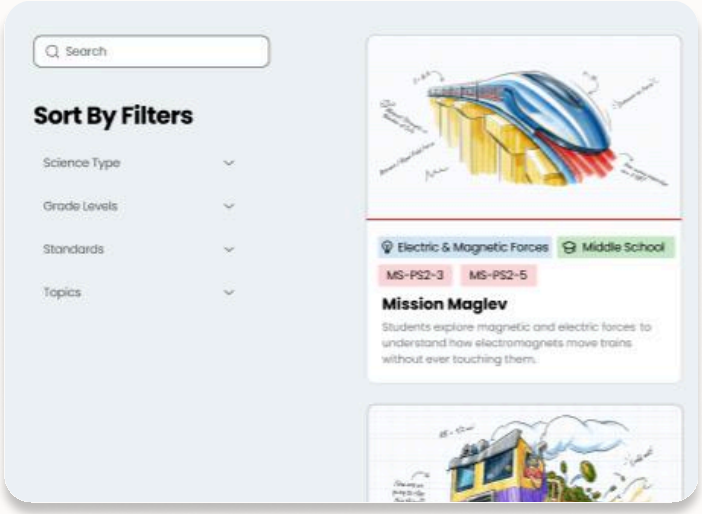
RECOMMENDATION 1: SEARCH FILTERS

Conversations with teachers to uncover qualitative insights from experiences

HOW WE GOT HERE

In our initial conversations with Class Crunchlabs, they plan to have more than **90 units** in their catalog, and expand outside the range of middle school into elementary school. Covering several dozen topics over a variety of grade levels adds a lot of choices for teachers to make when deciding which unit they need for their classroom. This required a system for organization to quicken discovery.

Through teachers, we discovered the most important search filters are to do with science type, grade level, NGSS standard, and topic or main concept covered. An additional category we ruled out was time taken, which could not be accurately estimated at this time. These categories help teachers sort through a scalable amount of units to find what is right for them. The tags listed on the lesson themselves are color-coded for faster identification and expand when clicking on the full unit.



Unit Filter System

EVIDENCE

CLASS CRUNCHLABS

Future-proofed for the expansion of curriculums

90+ units

planned in the catalog

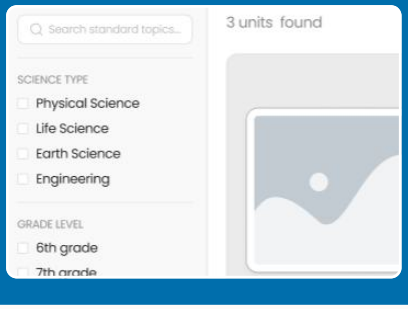
TEACHER INTERVIEWS

Teachers reverse-plan from standards and objectives

> "I've organized all the standards so that I know what builds on each grade so now I just plan my units...

LO-FI PROTOTYPE

Testers reacted positively to having relevant filters



TLDR; A filter system that contains preferred scannable categories by filters and allows more units able to fit on the page.

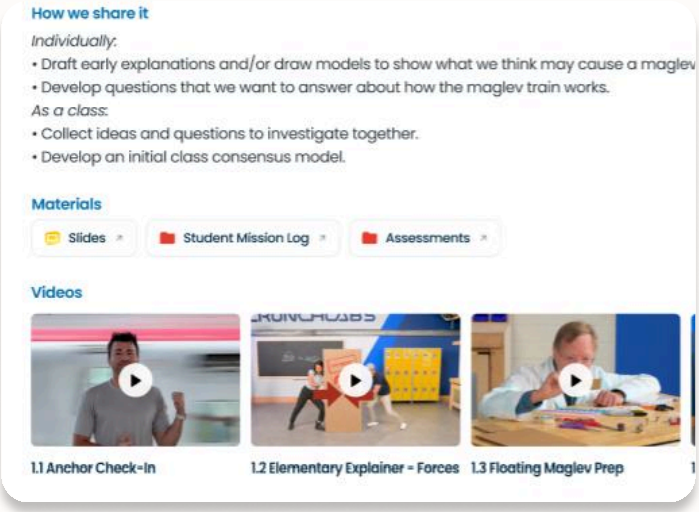
RECOMMENDATION 2: SURFACING MATERIALS

A visual timeline of a user's experience when accomplishing a task

HOW WE GOT HERE

Combing through lesson material to decide if a lesson is worth teaching takes a longer amount of time then actually teaching the subject for more teachers. Through our general dissection of the website, as well as other research that we conducted, we learned that we need a solution that had all the materials teachers needed all in one frame.

Hiding material or spreading material across the page means teachers have to track down relevant material for their classroom. We want to help teachers make faster and more informed decisions about choosing their external materials by surfacing materials. We put the files and videos associated with each lesson within the unit storyline and we organized the unit materials into separate sections for teachers and for students.

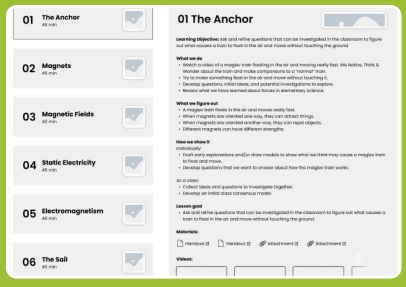


Mission Maglev Unit Storyline

EVIDENCE

LO-FI PROTOTYPE

Testers confirmed, "I like it all in one place"



LITERATURE REVIEW

Content that's quick to pick up & organized is priority

TEACHER INTERVIEWS

Teachers don't want to "dig" when choosing material

> *Sometimes, you know, in our classrooms, if I need to be doing that much digging to get to what I need to teach the next day, I'm going to give up, right?*

TLDR; A redesigned unit page that surfaces materials for each lesson up front, organizes unit materials by teacher resources and student resources, and includes a single link to open every unit resource in Google Drive.

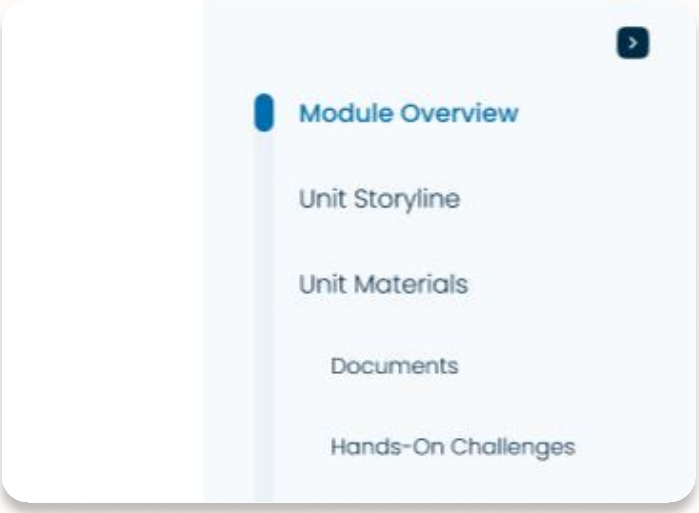
RECOMMENDATION 3: PAGE NAVIGATION

Grouping related user observations, quotes, and pain points

HOW WE GOT HERE

Our third recommendation is not an idea that was adopted by Class Crunchlabs, however, our research proved teachers were overwhelmed by scrolling through large amounts of information and this problem was prominent enough to bring to the surface. We introduced a sidebar that would ground teachers with essential information about what was on the page and in the unit materials.

For the sidebar, we divided it into three parts. We had a scroll system which would indicate what sections were available on the page and what section the user was on. We also included a “unit at a glance” section which allowed teachers understand the density of content at a high level. Finally, we wanted to include a bookmarking feature for teachers to save lessons and units so they did not have to scan the website for materials they previously liked.

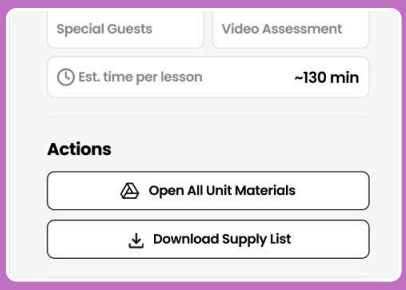


Sidebar Page Navigation

EVIDENCE

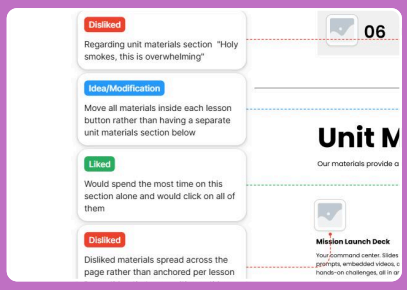
LO-FI PROTOTYPE

Positive reactions to always accessible CTAs



LO-FI PROTOTYPE

Negative reaction to scattered information



COMPETITIVE ANALYSIS

Clearer navigation in other educational resource sites

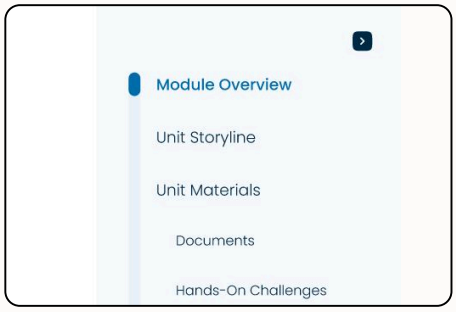
TLDR; A fixed sidebar panel that includes a scroll spy that tells you what section of the page you are on, holds useful CTA shortcuts, and surfaces the unit package summary.

WHAT DIDN'T MAKE IT?

Other items that worked in research, but not in reality.

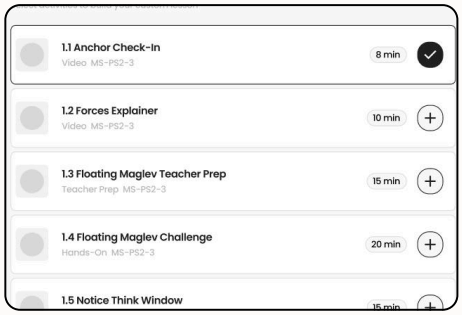
POSSIBLE INCLUSIONS IN FUTURE ITERATIONS

In addition to the previous recommendation that we made to Class Crunchlabs, we had some other ideas that were proven to be effective in research. We understand that it is difficult to implement some UX features in practicality, which is why we plan to give them a guide on long term implementation for later use. This allows them to have the possibility to add features later on, but only when they believe it fits their roadmap.



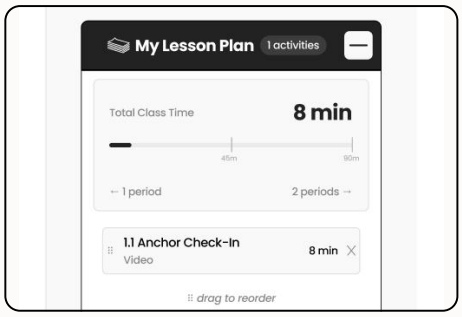
Navigational Side Bar

- Conceptually the fixed bar was a larger change compared to other design features which our partners were not yet ready for



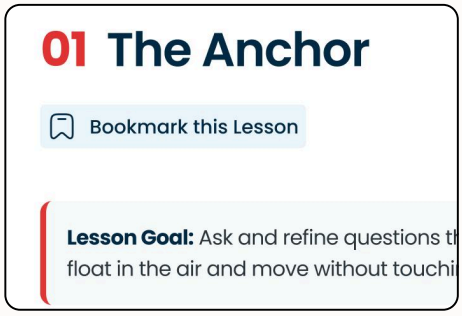
Time Estimates

- Testers made frequent comments about the value of time estimates, but there were concerns over being able to accurately estimate time



Building Customized Packages

- Customization capabilities placing "cherry-picking" control in the hands of users instead of being regulated by curriculum writers bringing hesitation from our partners



Bookmarking Isolated Units or Lessons

- Shelved until backend functionality of saving items to the user's personal account with CrunchLabs could be planned out

VALIDATION & FEASIBILITY

What teachers and Class CrunchLabs thought of our final design

09

RESULTS FROM USABILITY TEST

100
Overall score measuring user sentiment

100%
Completed core browsing and tasks – No drop offs or misclicks

6.8/7
Average rating of perceived platform trust and credibility

100%
Users that stated they would use this site for lesson planning

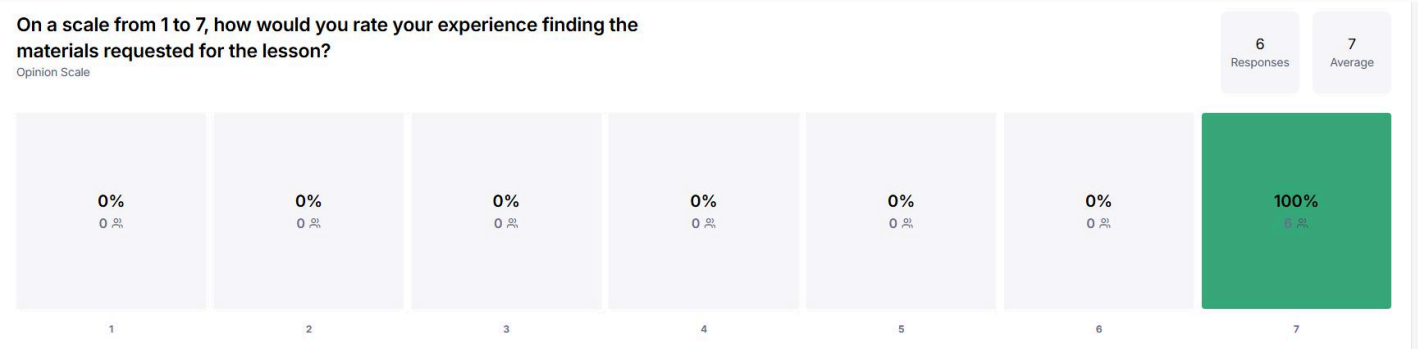
WHAT TEACHERS VALIDATED

"It's exactly enough without being overwhelming. I have enough knowledge to know if its a unit or lesson I want to use in my classroom based on the text of the storyline, without digging too much further."

- 7th Grade Science Teacher

"I would use this unit if I knew that I could have enough supplies for my students to build and explore the concepts presented."

- 6th Grade Science Teacher



FEASIBILITY CHECK

We added a lot of features ot the current Class Crunchlabs website. We knew that not all of them would be feasible. Class Crunchlabs is in a fast moving state where not every change in their company is certain. What they did like that we created, they have expressed great interest in, with others, they have also expressed interest, however, it is not a good fit for them in this current moment.

FUTURE STEPS

Actions the team should take after research

10

WHAT'S NEXT?

What we have compiled for Class Crunchlabs is a step in the direction for them to pivot their website to contain more features for easier accessibility. For the features that they felt did not match with their current mission, we are providing them with a guide on how to implement them, and best practices on when to implement them.

Create a Guide for Future Additions

Some of our features aren't being added but are still backed by research. We plan to make a guide on how to implement them.

Longer Usability Testing Sessions

We are giving Class Crunchlabs a hint in the right direction. Some of the more experimental features require longer usability testing to ensure teacher satisfaction.

Proposing a Pilot with a Class

Suggest a pilot before launch on any of the new materials in order to make sure there is no confusion of newer features.

Usage Analytics

Create a way to see what features are used more often than others. This allows us to see what features are important vs less important and what needs more attention.

APPENDIX A

Literature Review Sources

These are the sources behind our literature review. We pulled from teaching research and from teacher communities like r/Teachers.

Literature Review Sources

Sources (Title & Author)	Type
Sharma, R., Tan, C., Gomez, D., Xu, C., & Dubé, A. K. (2025). Guiding teachers' game-based learning: How user experience of a digital curriculum guide impacts teachers' self-efficacy and acceptance of educational games. Teaching and Teacher Education (Elsevier). Link	Peer-reviewed article
Greeves, S., & Oz, M. (2024). YouTube in higher education: comparing student and instructor perceptions and practices. Frontiers in Education. Link	Peer-reviewed article
Tran, D., & O'Connor, B. R. (2024). Teacher curriculum competence: How teachers act in curriculum making. Journal of Curriculum Studies (Taylor & Francis). Link	Peer-reviewed article
DeBarger, A. H., et al. (2017). Investigating Purposeful Science Curriculum Adaptation as a Strategy to Improve Teaching and Learning. Science Education (Wiley). Link	Peer-reviewed article
Ubisoft. Assassin's Creed Discovery Tour: Ancient Egypt (curriculum guide). Link	Educational resource
r/AskTeachers: 'Teachers of 3rd graders, what YouTube videos do you use?' Link	Teacher forum (Reddit)
r/Teachers: 'How do teachers decide on curriculum?' Link	Teacher forum (Reddit)
r/teaching: 'How do teachers design their curriculums?' Link	Teacher forum (Reddit)
r/TeachersInTransition: 'Creating your own curriculum' Link	Teacher forum (Reddit)
r/Teachers: 'How do you lesson plan quickly?' Link	Teacher forum (Reddit)

APPENDIX B

Competitive Analysis Sources

12

We looked at ten tools that teachers and schools already use, to see where Class CrunchLabs fits. This tbale lists each tool, it's categories, and what it is.

Competitive Analysis Sources

Tool	Category	What It Is
Exploratorium Link	Institution-made resource	Free hands-on 'Science Snacks': short activities, videos, and demos that can be stretched into longer lessons.
California Academy of Sciences Link	Institution-made resource	Big library of NGSS-aligned lesson plans, editable handouts, worksheet cards, and notes on how to teach each one.
OpenSciEd Link	Institution / open resource	Free, open-source NGSS-aligned middle and high school science units.
Teachers Pay Teachers Link	Teacher-made resource	Marketplace where teachers buy and sell their own lesson materials.
Khan Academy Link	Online education platform	Free video lessons and auto-graded practice across subjects.
Code.org Link	Online education platform	Free computer-science courses with guided, step-by-step lessons.
Brilliant Link	Online education platform	Interactive online courses in math, science, and computer science, built around hands-on problem solving.
Curipod Link	Gen AI lesson-planning tool	AI that builds interactive, slide-based lessons with student activities.
Diffit Link	Gen AI lesson-planning tool	AI that makes leveled readings and ready-to-use materials from a topic or text.
MagicSchool AI Link	Gen AI lesson-planning tool	AI assistant with a set of tools for planning, differentiating, and admin tasks.

APPENDIX C

Usability Testing Sources

13

We conducted final testing and design validation to see if teachers would use our Class CrunchLabs product in their lesson preparation.

Usability Testing Sources

Tool	Purpose	What It Is
Maze Link	Prototype Final Usability Test	We conducted a final testing of our design to validate our findings. These were the results and original test.