

DPI 678M A: Product Management and Society
Ola Jachtorowicz

National Science Teaching Association (NSTA) Content Library and Search Product Requirements Document



Search for anything



Contents

[Background](#)

[Goals](#)

[User Personas](#)

[User Stories](#)

[Prototypes](#)

[Functional Requirements](#)

[Non-Functional Requirements](#)

[Future Iterations](#)

[Risks](#)

[Appendices](#)

Background

The National Science Teaching Association (NSTA) was founded in 1944 to promote excellence and innovation in science teaching. NSTA describes itself as “a vibrant community of 40,000 science educators and professionals committed to best practices in teaching science and its impact on student learning. NSTA offers high-quality science resources and continuous learning so that science educators grow professionally and excel in their career. For new and experienced teachers alike, the NSTA community offers the opportunity to network with like-minded peers at the national level, connect with mentors and leading researchers, and learn from the best in the field.”

The NSTA publishes five peer-reviewed journals, up to 20 books per year, and “vetted” teacher resources; provides professional development and networking in the form of Professional Learning Institutes, webinars, workshops, area conferences, a national

conference, and a STEM Forum and Expo; and recognizes excellence via awards and competition such as the “Robert E. Yager Exemplary Teaching Award” and the “Northrop Grumman Foundation Excellence in Engineering Education Award.”

Goals

The goal of this project is to enable NSTA’s 40,000 members and other science educators to access the large collection of lesson plans, journal articles, professional learning units, seminars, e-books, and more that the organization provides online and for mail order.

Teachers have many competing responsibilities and limited time. They must ensure their instruction is aligned with national and state standards, while being engaging and differentiated for a variety of learner needs. There is also growing recognition of the need for teaching and learning to be culturally responsive, especially in the sciences where historically underrepresented populations may not feel welcome. Science education in particular requires subject matter expertise and careful scaffolding to prevent learner misconceptions. It is unrealistic for educators to develop curricula from scratch, instead they must be able to quickly locate resources they can trust and adapt for their learners and educational contexts.

The NSTA’s brand is one of a reputable authority with decades of experience. The case studies, journal articles, and lesson plans come from real practitioners working in the field. While there are many other sources for science education materials, few can claim the same level of trust. Combined with an intuitive way to identify, access, save, and share these resources, NSTA has a strong value proposition.

The vision is a search function and library that teachers can pull up a month, a week, or the night before a lesson and find exactly what they need to engage, educate, and assess learners. Ideally, the content library and search function will advance NSTA’s mission to “transform science education to benefit all” and bring us closer to their vision for “a world where science literacy and education are recognized as vital to the future of our society.”

User Personas

Note: While students are not the direct users of the content library or search function, it is important to keep in mind that **students and their caregivers/families are critical stakeholders**. US student populations are by no means homogeneous. Part of NSTA’s mission is to provide “equitable and inclusive science education” and “provide opportunities for every learner to be successful in science.” Students *are* the ultimate beneficiaries or “end users” based on how this product delivers on that promise, even if they never see it or know it exists.

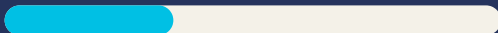


ELLIE THE ELEMENTARY

3rd Grade Teacher

Lincoln Elementary School,
Elk River, Minnesota

Science Expertise



Tech Savviness



Institutional Support



ABOUT

Ellie has a strong background in literacy and math, but feels less confident when it comes to science. She doesn't feel especially passionate about science but she does have to cover certain topics to meet her state's standards.

CONTEXT

- Lincoln Elementary School is 77% White, 8% Hispanic/Latino, 6.2% Black, 2.5% AAPI, 0.2% AI/AN, 0.2% NHPI and 5.8% two or more races
- 23% of students are eligible for free or reduced price lunch

GOALS & NEEDS

- Prepare students for the Minnesota Comprehensive Assessments (MCAs) in math and reading
- Quickly find lesson plans that are easy to understand, engaging, and don't need additional equipment
- Ideally, integrate science concepts into language arts lessons and make connections between subject areas

PAIN POINTS

- Pressure from school and district admin for her students to meet proficiency standards on the MCAs
- MCAs for science not until 5th grade, so it's difficult for Ellie to dedicate instructional time to science alone
- OK teaching animal adaptations but especially uncomfortable teaching electric and magnetic forces



TEO THE TECHIE

*8th Grade Math and
Science Specialist*

High Tech Charter School,
Chula Vista, California

Science Expertise



Tech Savviness



Institutional Support



ABOUT

Teo teaches at a charter school network focused on rigorous, project-based learning. He is always looking for ways to incorporate new technologies into his classroom and connect students to real-world applications.

CONTEXT

- The Chula Vista school is 70.8% Hispanic/Latino, 11% White, 10.1% AAPI, 1.8% Black, 0.6% AI/AN, 0.6% NHPI, and 5.1% two or more races
- 38.4% of students are eligible for free or reduced price lunch

GOALS & NEEDS

- Prepare students for high school and college with a strong foundation in math and science
- Engage students with interactive presentations, online lab simulations, and inquiry-driven projects
- Showcase the wide variety of career paths available to students via virtual field trips and interviews

PAIN POINTS

- Intense workload makes it hard to prioritize professional development above the needs of his students
- Parent involvement requires management and coordination
- High level of scrutiny on charter school outcomes is starting to create burnout, despite his passion for the school mission



IESHA THE INCLUSIVE

*11th Grade Chemistry
Teacher*

Nottingham High School,
Syracuse, New York

Science Expertise



Tech Savviness



Institutional Support



ABOUT

Iesha is an experienced educator and head of her department. She is leading culturally responsive pedagogy efforts to support the growing Bhutanese, Burmese, Somalian, Iraqi, and Afghan refugee populations in her district.

CONTEXT

- Nottingham High School is 37% Black, 22% White, 21% Hispanic/Latino, 4% AAPI, 2% AI/AN, 1% NHPI, and 12% two or more races
- 68.6% of students are eligible for free or reduced price lunch

GOALS & NEEDS

- Ensure all students have equal access to educational opportunities and academic achievement
- Introduce ways for students from refugee families to connect with the subject matter to help them succeed
- Provide professional development for herself and colleagues on culturally responsive teaching practices

PAIN POINTS

- Resistance from colleagues or administrators who may not see the value in culturally responsive pedagogy, especially in science ed
- Concerns about unintentionally perpetuating stereotypes or biases via cultural references or activities
- Difficulty finding resources that reflect experiences of her students

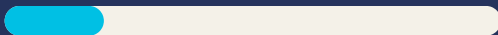


MAX THE MULTITASKER

Administrative Assistant

National Science Teaching
Association

Science Expertise



Tech Savviness



ABOUT

Max is a resourceful professional who supports multiple departments at NSTA, including operations, marketing, sales, and production. They wear many hats throughout the day and pride themselves on being an organizational wizard.

CONTEXT

Max works remotely, with some travel to help with events or to meet their manager at a local coworking space for monthly check-ins. They appreciate being in charge of their own schedule and having a high degree of flexibility.

GOALS & NEEDS

- Manage the content library quickly and efficiently, including uploading, updating, and retiring content
- Be seen as a helpful and reliable team member to build strong relationships
- Maintain a high level of accuracy and attention to detail in all tasks to ensure the quality and integrity of the content library and other deliverables

PAIN POINTS

- Keeping up with a high volume of content and information, as well as managing competing priorities and multiple deadlines
- Remote work can mean unpredictable internet speeds and communication barriers with colleagues
- Lack of science background means delays when requesting clarification



VIVIAN THE VISIONARY

*Director of Publications and
Digital Initiatives*

National Science Teaching
Association

Science Expertise



Tech Savviness



ABOUT

Vivian oversees the development, production, and distribution of all NSTA publications, as well as leading the organization's digital strategy. She spent several years as a teacher before transitioning to educational publishing.

CONTEXT

Vivian is driven by both curiosity and analytical thinking. She is a strategic leader who loves to collaborate with researchers, teachers, and policymakers. Her day-to-day involves many meetings with diverse stakeholders nationwide.

GOALS & NEEDS

- Leverage data analytics to measure impact and inform content decisions
- Continuously improve the quality of NSTA publications and digital content to drive membership rates
- Foster collaboration and innovation among authors, editors, and staff to produce influential content that advances science education

PAIN POINTS

- Adapting to rapidly changing digital publishing technologies and platforms while maintaining quality standards and consistency
- Finding partners who align with values *and* can provide new revenue streams
- Communicating trends and patterns in data in ways that are persuasive for all stakeholders and team members

User Stories

External Users

- S.1 - As an External User, I want to be able to type in search terms and see robust, relevant results in response so that I can quickly find lesson plans.
- S.2 - As an External User, I want to be able to quickly find lesson plans so that I can prepare for my classes when I'm in a time crunch.
- S.3 - As an External User, I want to be able to see alignment with state and national (NGSS) standards at-a-glance so that I can decide what is relevant quickly and not waste my time browsing.
- S.4 - As an External User, I want to be able to filter search results by grade level, topic, and resource type so that I can find resources that are relevant to my specific needs and appropriate for my students.
- S.5 - As an External User, I want to be able to filter search results by included multimedia, such as videos or interactive simulations, so that I can find engaging and varied resources to supplement my existing curricula.
- S.6 - As an External User, I want the content library to have a tutorial or guide so that I can learn how to use the library effectively and understand the differences between resource types.
- S.7 - As an External User, I want a consistent format for content listings and search formats so that I can quickly process information.
- S.8 - As an External User, I want to be able to differentiate between different content types so that I do not click on a case study expecting a lesson plan.
- S.9 - As an External User, I want to be able to browse curated collections of resources in the content library so that I can easily find high-quality materials to use in my classroom.
- S.10 - As an External User, I want to be able to search for and easily identify free resources in the library so that I can find materials that fit within my school's budget.
- S.11 - As an External User, I want to be able to access resources in the content library that feature diverse perspectives and contributions in the sciences so that students can make connections to their own experiences as well as see themselves represented.

- S.12 - As an External User, I want to be able to access the library from any device, so that I can search for content on-the-go or at home.
- S.13 - As an External User, I want to be able to save my favorite content to my account, so that I can easily access it as needed without having to search again.
- S.14 - As an External User, I want to be able to tag and sort saved content using custom tags, so I can organize resources in a way that is meaningful to me.
- S.15 - As an External User, want to be able to save customized searches, so that I can quickly run searches for content that I need frequently without having to set up the same filters and parameters every time.
- S.16 - As an External User, I want to be able to leave comments and ratings on content, so that I can share my feedback and help others make informed decisions.
- S.17 - As an External User, I want to be able to see comments, ratings and reviews so that I can understand how other teachers and students have used and reviewed the resources and use that to inform my choice.
- S.18 - As an External User, I want to be able to sort search results by criteria of my choosing, such as publication date or rating, so that I can see the most recent or highest rated materials to ensure my students are receiving up-to-date and quality instruction.
- S.19 - As an External User, I want to be able to share resources from the content library with other teachers so that we can collaborate and share ideas.
- S.20 - As an External User, I want to be able to make sure I can access resources offline so that if there are any connectivity issues at my school, I will still be able to teach my students.
- S.21 - As an External User, I want to be able to see a news or updates section so that I can stay informed on new developments in the field.
- S.22 - As an External User, I want to be able to see suggestions of related resources once I am looking at a content item so that I can discover new materials I may not have considered.
- S.23 - As an External User, I want to be able to annotate resources saved to my personal library, so that I can debrief after using a resource and save modifications for next use.

Internal Users

- S.24 - As an Internal User, I want to be able to upload new content so that I can keep a steady flow of up-to-date resources available for NSTA members.
- S.25 - As an Internal User, I want to be able to update the metadata of uploaded content to reflect its characteristics and make it easily indexable and searchable, so that external users can find what they need.
- S.26 - As an Internal User, I want to be able to see the number of times content has appeared in search results, been viewed, downloaded, saved, and shared so that I can track its popularity/impact and determine future content strategy.
- S.27 - As an Internal User, I want to be able to generate reports on content usage and engagement, so that I can track the library's performance and report on the impact of NSTA resources to key stakeholders.
- S.28 - As an Internal User, I want to be able to identify the lowest and highest rated content, so that I can understand user preferences and supply more content in line with these preferences.
- S.29 - As an Internal User, I want to be able to track user behavior, such as search queries and content views, so that I can understand user needs and better define user personas.
- S.30 - As an Internal User, I want to be able to see user reviews of content before they are publicly posted so that I can moderate for inappropriate content.
- S.31 - As an Internal User, I want to be able to see user reviews of content before they are publicly posted so that I can be aware of any concerns users have with NSTA content and address these concerns as quickly as possible.
- S.32 - As an Internal User, I want to be able to see what content is rapidly becoming popular over the time span of a few days or weeks so that I can stay abreast of "trending" content and join the conversation via social media or blog posts.
- S.33 - As an Internal User, I want to be able to seamlessly update existing content to newer versions, so that I can issue any necessary corrections without disrupting the external user experience.

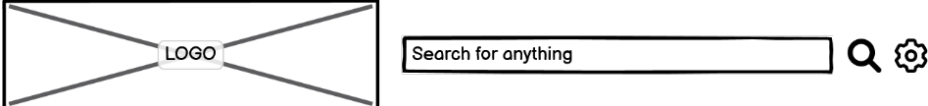
- S.34 - As an Internal User, I want to be able to archive and retire content without creating dead links so that I can prevent junking up internal and external search results and negatively impacting brand perception.
- S.35 - As an Internal User, I want to be able to see common search queries that are returning low numbers of results or no results, so that I can identify gaps in content and supply more content in line with user needs.
- S.36 - As an Internal User, I want to be able to group resources into curated collections so that I can provide comprehensive sets of complementary resources for external users.
- S.37 - As an Internal User, I want to be able to feature certain content, so that I can draw user attention to content co-created with partners and support diverse revenue streams.

Prototypes

Note: for pages/components that already exist on the NSTA website, new elements that are presented in the prototype versions are **bolded**. Elements that exist in the current version that are removed from the prototype versions are ~~crossed out~~.

External Users

Name	Search Bar Widget
Description	Search function that appears across all pages on the website, even those not directly related to content library, such as forums, job board, etc.
Elements	1. Logo 2. Box to type into 3. Button to execute search 4. Button to set filters ahead of executing search / advanced search functions
Existing as of March 2023	

	 Search for anything 
Wireframe	

Name	Search Results Page
Description	Search results listings after user has executed a search
Elements	- Executed search text - Ability to edit without retyping - Button to clear search - Search details - Number of results listed - Time taken to run search - Filters - Elementary, Middle, High School - Resource Type Cost (radio select for "All Content" / "Free for Members" / "Free for All") - Source (Publication) Features - Some are content-specific so greyed out when not applicable - Sort function (dropdown) - Relevance - Date published Rating - Search result listing

	a. Name b. URL snippet c. Blurb d. Rating e. Cost i. Based on whether member is logged in f. Icons to indicate i. Multimedia ii. Differentiation iii. Culturally responsive content iv. Standards alignment v. Resource type g. Tooltip description when mouse hovers over icons h. Hyperlink to content item page 6. Pagination and buttons to navigate from page to page 7. Tutorial button
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Existing as of
March 2023

Grade Level

☐ Elementary ☐ Middle School ☐ High School

Resource Type

☐ Books / E-books
☐ Interactive E-books
☐ Case Studies
☐ Journal Articles
☐ Lesson Plans
☐ Professional Learning Units
☐ Web Seminars

Journal

☐ Science and Children
☐ Science Scope
☐ The Science Teacher
☐ Journal of College Science Teaching
☐ Connected Science Learning

About 2,883 results (0.27 seconds)

Sort by: Relevance

STEM Learning Ecologies | NSTA

[www.nsta.org / connected-science-learning / stem-learning-ecologies](#)

What is a Learning Ecology? Ecological theories of learning are based on the idea that learning develops over time and in multiple settings. Learning ...



Backyard Ecology: High school students participate in urban ...

[my.nsta.org / resource / backyard-ecology-high-school-students-participat...](#)

May 1, 2003 ... Urban ecological research through a university shows students that neighborhoods are dynamic ecosystems they can directly affect.



Designing the Perfect Plant: Activities to Investigate Plant Ecology ...

[my.nsta.org / resource / designing-the-perfect-plant-activities-to-investiga...](#)

Nov 1, 2008 ... The activities also introduce students to general ecological concepts such as biodiversity, environmental disturbance, habitat, competition, and ...



Understanding Invasion Ecology | National Science Teaching ...

[my.nsta.org / resource / understanding-invasion-ecology](#)

Jan 1, 2003 ... It also introduces invasion ecology protocols-- techniques or methods scientists use in research--and beyond protocols--conducting interactive ...

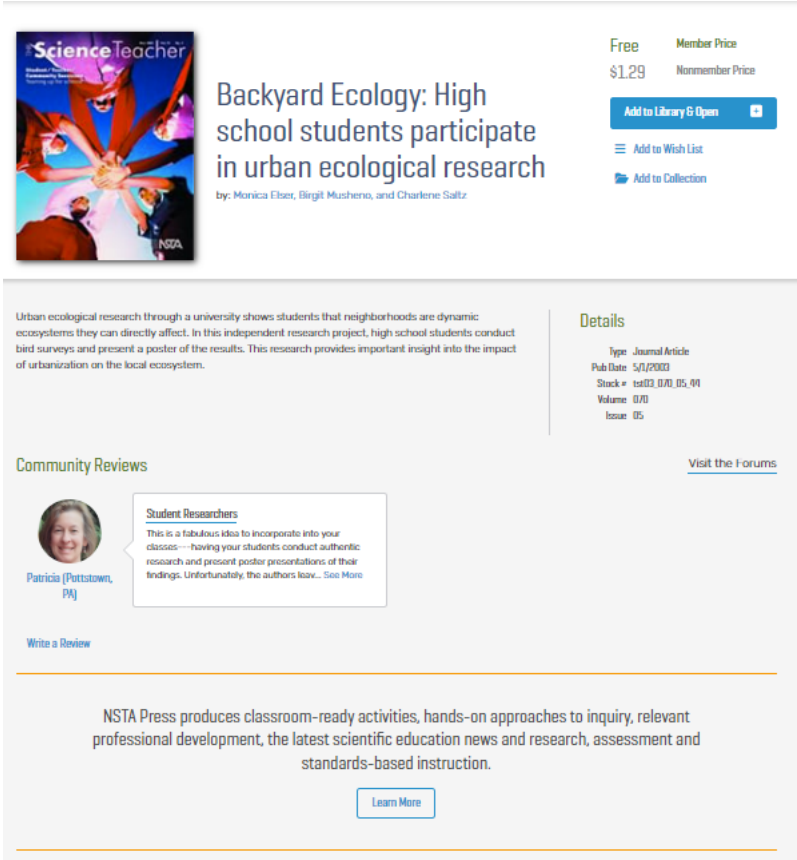


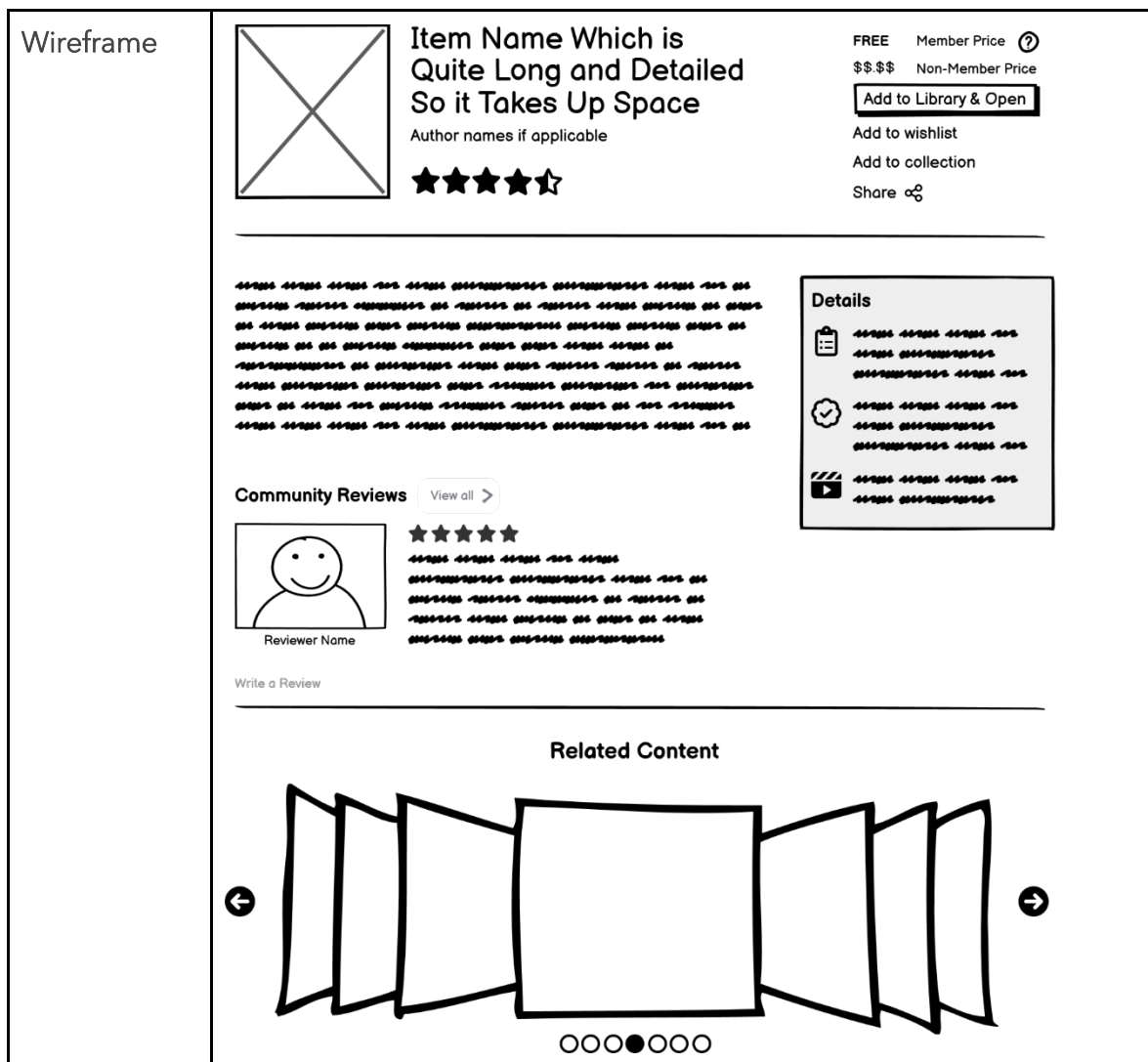
Outdoor Ecology School | National Science Teaching Association

[my.nsta.org / resource / outdoor-ecology-school](#)

May 1, 2004 ... school environmental science students led third graders on a dynamic learning adventure as part of an annual Outdoor Ecology School.



	6. Save and Open button ("Add to Library and Open") 7. Collection button ("Add to Collection") 8. Wishlist button ("Add to Wishlist") 9. Share button 10. Related content 11. Price a. Question mark next to member price to articulate membership value and pull non-members into funnel 12. Item Details a. Add same feature icons as in search results 13. Item Blurb 14. Subscription call-to-action (CTA) a. Remove from member view only, place below recommended content for non-members 15. Tutorial button
Existing as of March 2023	 The screenshot shows a digital article page from NSTA Press. At the top, there's a header with a cover image of the article, the title "Backyard Ecology: High school students participate in urban ecological research" by Monica Elzer, Birgit Musheno, and Charlene Saltz, and pricing information: Free (\$1.29 member price, nonmember price). Below the header are buttons for "Add to Library & Open", "Add to Wish List", and "Add to Collection". The main content area includes a summary of the article, a "Details" sidebar with metadata (Type: Journal Article, Pub Date: 5/1/2023, Stock # 1st03, 0/10, 05, 491, Volume: 0/10, Issue: 05), and a "Community Reviews" section featuring a review by Patricia (Pittsstown, PA) under the heading "Student Researchers". At the bottom, there's a footer with a description of NSTA Press and a "Learn More" button.



Name	My Library
Description	Personal collection of saved content items associated with external user account, allowing user to organize according to their own system.
Elements	- Categories - Collections - Resources - Professional Learning - Recently Added

	3. Resource count 4. Dropdown filter for resource type 5. Upload button 6. Search of saved resources only 7. Table of resources a. Filter categories i. Title ii. Custom tags 1. When clicked, act as filter 2. Button to create new tag iii. Type iv. Date Added b. Expandable item listing i. Image ii. Open button iii. Link to details page iv. Share v. Add to collection vi. Add to learning plan vii. Create personal note viii. Write review ix. Delete 8. Tutorial button
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Existing as of
March 2023

My Library

[Collections](#)
[Resources](#)
[Professional Learning](#)

Recently added

How Does Your Garden Grow?

Science 101: What Causes Friction?

Fraught With Friction

The Poetry of Science: Poetry in Motion

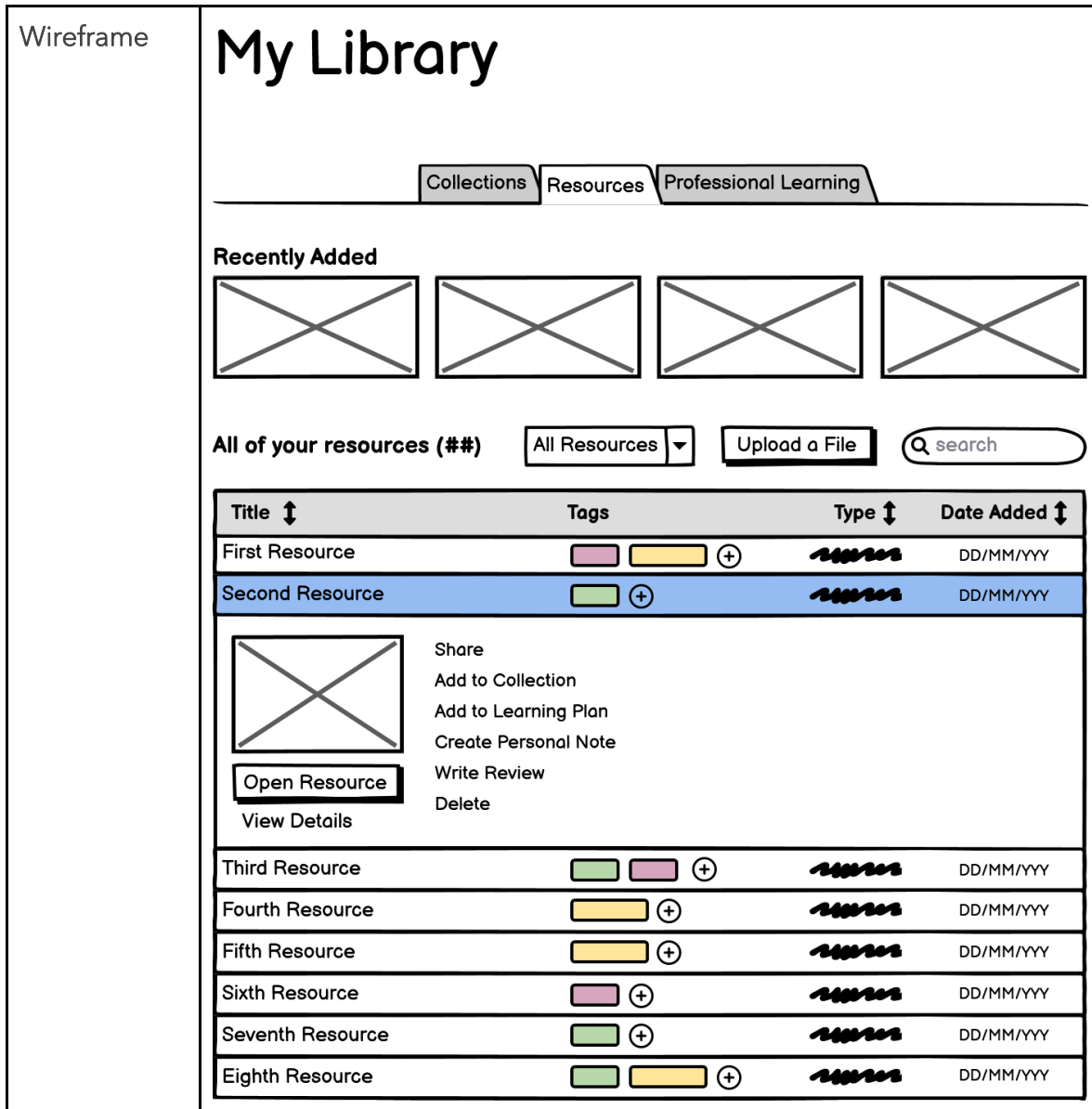
All of your resources [48]

All Resources

Upload a File

Search your resources

Title	Type	Date Added
How Does Your Garden Grow?	Lesson Plan	03/12/2023
Science 101: What Causes Friction?	Journal Article	01/27/2021
Fraught With Friction	Journal Article	01/27/2021
The Poetry of Science: Poetry in Motion	Journal Article	01/27/2021
May the Force Be With You!	Journal Article	01/27/2021
Teaching Through Trade Books: Plants, Animals, and Earth Processes, Oh My! Changes to the Environment	Journal Article	06/09/2020
Science 101: Where Do Fossil Fuels Come From?	Journal Article	06/09/2020
Talking Science	Journal Article	06/09/2020

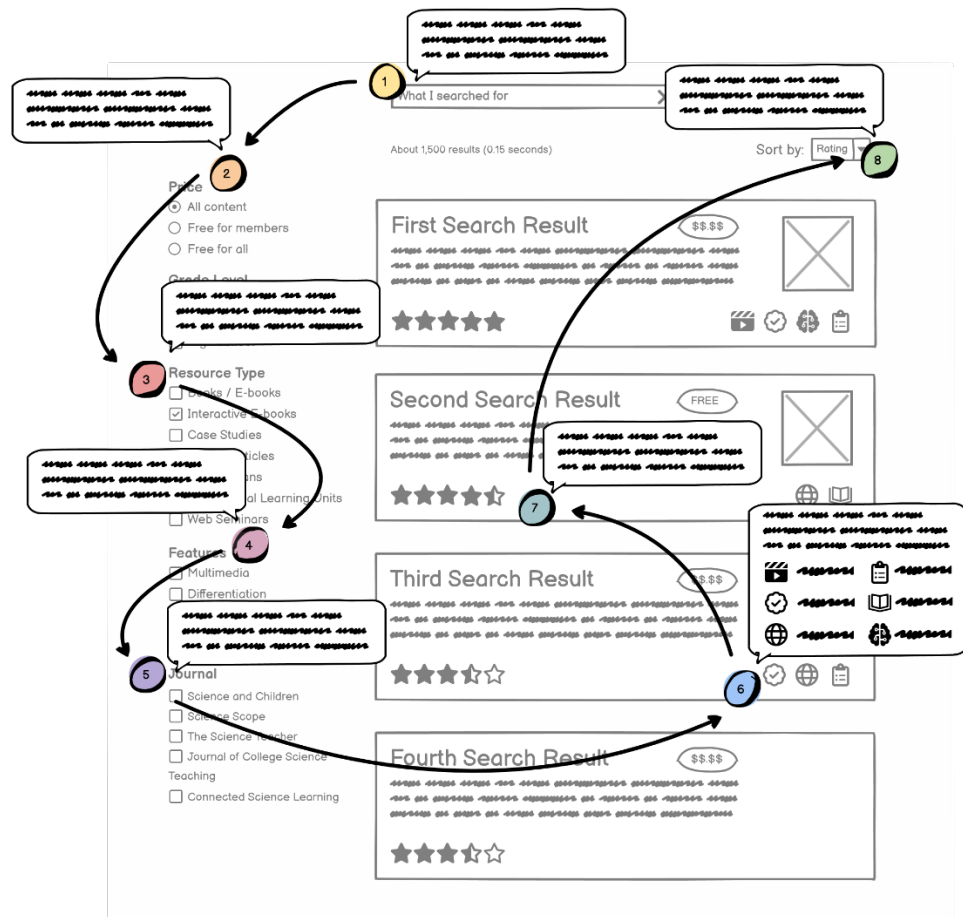


Name	Content Tutorial
Description	Guided tour via series of interactive overlays that highlight specific elements of the interface, with accompanying text. Prototype below is for Search Results, but the item details and content library would have their own similar tutorials
Elements	1. Numbered items for following features:

- a. Search bar and advanced functions
- b. Pricing
- c. Resource Type
- d. Features
- e. Journals
- f. Icons in item listing with visual key explaining each icon
- g. Rating
- h. Sort options

2. User click to the next number (or anywhere on the screen) to progress to next text pop-up

Wireframe



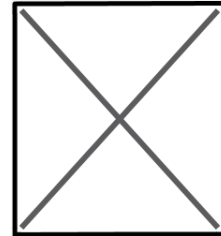
Name	CMS: Add New Content
Description	This page is used to add new content to the content library and add all associated metadata needed for indexing. Ideally this could also be done in a programmatic way where the system uses natural language processing to populate fields with appropriate keywords, descriptions, grade level, year of publication, and other metadata when a file is uploaded. The internal user can then check all the generated metadata to make sure it is correct and add anything that is missing manually.
Elements	1. Upload selection and button OR enter URL a. Items can also drag and dropped into the box from local system file manager or user can click "Browse" b. Description of allowed filetypes 2. Thumbnail preview a. Option to manually replace auto-generated thumbnail 3. Fields a. Title b. Author(s) c. Publication Date d. Description e. Keywords 4. Categories (dropdowns and multi-selects); tabs with check marks to confirm when completed; logic of previous selections determines next option (for example, selecting "Journal Article" under "Type" updates the "Details" section to prompt for journal title and publication details (volume, issue, page numbers, etc.) a. Grade b. Type c. Details

	d. Features e. Standards Alignment 5. Pricing a. Free for all (if checked, both member and non-member price are set to "\$0.00") b. Member price and non-member price c. Associated promotional code and promotion value 6. Publish and preview options a. Preview details page b. Publish now c. Schedule publish d. Save draft
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Add New Content

Drag and drop file here or **Browse**

Acceptable file types: PDF, MP4, EPUB



Or:

Submit URL

Change Thumbnail

Description

Keywords

Author(s):



Publication Date:



Grade



Type



Details

Features

Standards

☒ Science and Children

☐ Science Scope

☐ The Science Teacher

☐ Journal of College Science Teaching

☐ Connected Science Learning

Volume

Issue

Stock#

Pricing

☐ Free for all

Non-Member Price

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Promotional Code

Member Price

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Promotion

20% OFF



Settings

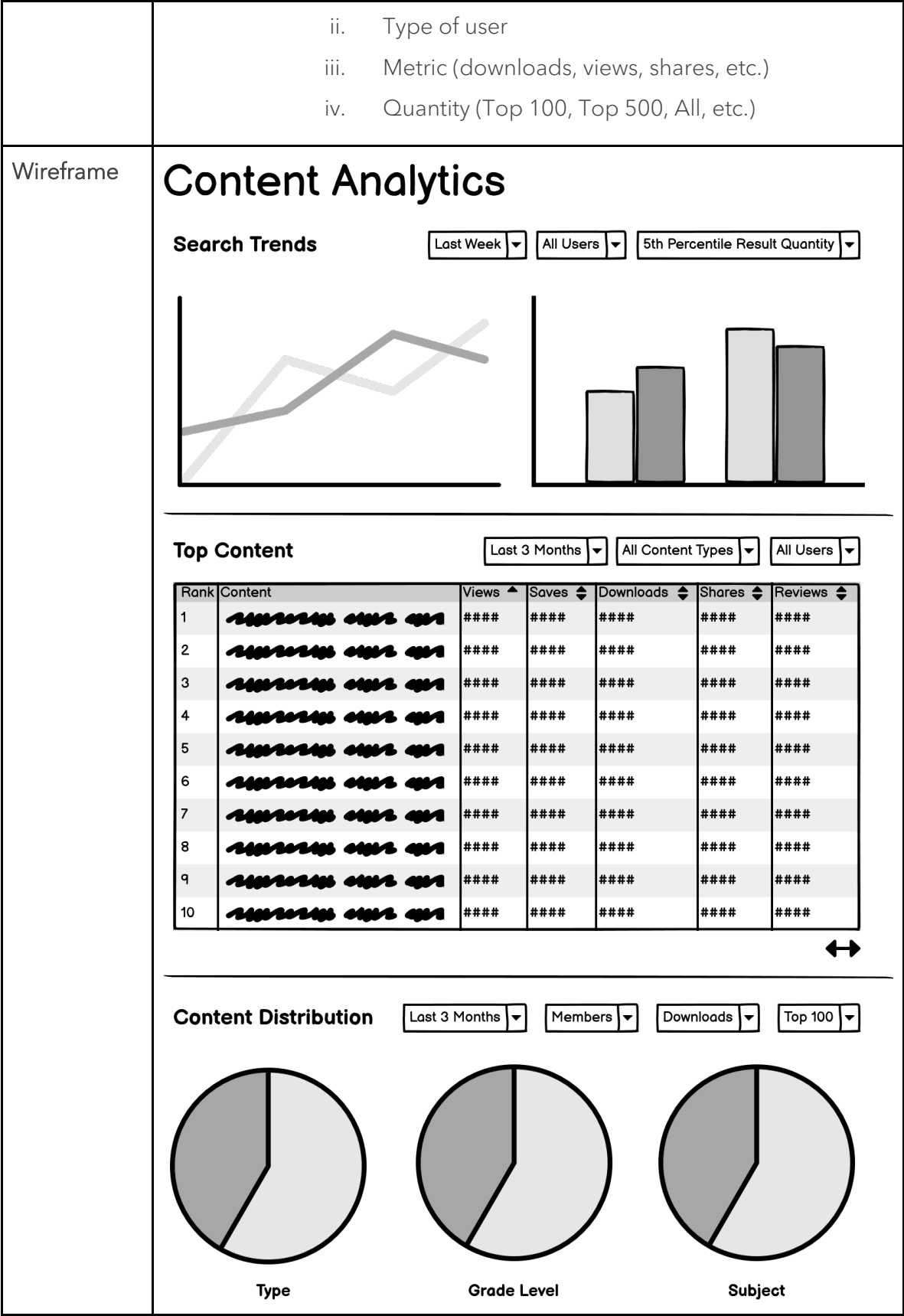
Preview Details Page

Save Draft and Close

Schedule Publish

Publish Now

Name	CMS: Analytics Dashboard
Description	This page allows data analysts and content strategists to access, explore, and synthesize data about NSTA content, user behavior, and search trend.
Elements	1. Search keywords over time a. Filter by: i. Time period ii. Type of user iii. How many search results returned (organized by percentiles of result quantity) 2. Top content (interactive table of individual content items) a. Sort by (ascending or descending) i. Views ii. Saves iii. Downloads iv. Shares v. Reviews b. Filter by i. Time period ii. Type of content iii. Type of user 3. Content distribution (pie charts of aggregate trends) a. Organized by: i. Type of content ii. Grade level iii. Subject area (as determined by keyword tags) b. Filter by i. Time period



Functional Requirements

1. User search metadata storage, in order to generate trend reports for analysis.
2. The content management system must have excellent and intuitive version control so that files can be updated without creating broken links.
3. Scheduled tasks for the internal system, such as periodically generating reports or performing database maintenance.
4. Accessibility features, such as screen reader support or high-contrast mode.

Non-Functional Requirements

1. The content library and search function must be implemented in HubSpot and integrate with HubSpot's CRM, marketing, and payment processing functions.
2. The website must be able to support monthly traffic loads between 200-500,000 visits¹ and minimize latency by optimizing server capacity, code efficiency, caching, load balancing, and database performance.
3. The website must be hosted on AWS.
4. The website must be fully responsive, with particular attention to mobile compatibility as there is no corresponding mobile app.
5. The website must work in Chrome, Firefox, Safari and Edge.
6. The content library must be indexable by Google and other search engine crawlers to drive traffic to the content. Sufficient available information/metadata must be balanced with maintaining the membership paywall.

Future Iterations

1. Integration with popular learning management systems (LMS) such as Google Classroom and Canvas.
2. API operations and endpoints for third parties to easily incorporate NSTA resources into databases.

¹ According to similarweb.com, NSTA.org had 249.6K monthly visits in January 2023, up 7.47% from December and 33.33% from November

3. Personalized recommendations using a more advanced algorithm than just keyword based, but instead taking into account user behavior and characteristics.
4. Mobile app to make the content library more accessible on-the-go.
5. Gamification for users who are members, such as badges or points for reviewing content or creating collections from resources.
6. Language support for navigating the website in Spanish and highlighting resources available in other languages.

Risks

While a snapshot of NSTA.org's online traffic indicated a growing number of monthly visitors, the organization is facing declining membership rates. In 2017, NSTA boasted 55,000 members versus 40,000 in 2023.²

According to NSTA's strategic plan announced in 2022 (see appendix), they plan to "cultivate non-dues revenue," "redefine membership value for all stakeholder groups," and "expand and diversify revenue streams" in order to establish a sustainable business model. This strategy may bring with it risks on top of existing market conditions and the competitive environment for digital science education resources:

- **Innovation vs. Tradition Balance.** Teachers have varying levels of comfort with tech. It is a difficult balance to provide enough features for users who expect sophisticated interfaces without overwhelming users who don't have this expectation. More tech-savvy users could see NSTA content as too "traditional" and outdated. At the same time, teachers seeking classic, familiar lesson plans could be turned off by a focus on technology integration. It is important that different modalities, such as printable worksheets as well as virtual quizzes, are presented. It is also key that NSTA works towards customizing the search function and content library for these user preferences.
- **Advertisements.** The website features prominent 3rd party ads as banners that take up to 40% of the visual real estate on the website upon loading. These ads are visible even to members who are paying dues, not just non-member visitors. While ad revenue is clearly needed to make up for declining dues revenue, these ads may interfere with usability and frustrate users. This may result in users abandoning the website and turning to competitors.

² Interview with then Executive Director, Dr. David Evans, in *Scientia* on Sep 13, 2017. <https://www.scientia.global/national-science-teachers-association/>

- **Opaque pricing.** Some NSTA resources are completely free and available to the public. Some are free only for members who pay annual dues. Some are available for purchase and have a discounted price for NSTA members. Members already paying dues. Encountering a “purchase” option where a “view” or “download” option is expected can lead members to question the value of their membership. It can also cause frustration during the search process when it is unclear which resources are free or available for purchase and might drive users away from NSTA.
- **Fractured landscape.** There are seemingly limitless resources available for science educators online, including:
 - home school bloggers
 - teacher-generated content marketplaces like Teachers Pay Teachers
 - curated non-profit science education content hubs such as Subject2Climate and LabXchange
 - free content from companies such as Scholastic, Pearson, and Amplify.

Google and other search engines allow users to search this much broader (although more unpredictable) collection of content. If NSTA does not provide a smooth user experience and clearly communicate the quality of its resources, users may decide to fend for themselves.

- **Competitors.** School districts often purchase subscriptions to vendors (such as Scholastic, Pearson, and Amplify) who have their own collections of resources and lesson plans which are not available via public search. NSTA must remain competitive so that users seek out resources outside these “walled gardens.”
- **Decline of print media.** Historically, much of NSTA’s revenue must have come from print subscriptions to their publications (Science and Children, Science Scope, The Science Teacher, Connected Science Learning, etc.) and order of physical books. NSTA offers digital editions and ebooks but items in the content library with physical equivalents are available for mail order. If print media continues to decline, this will continue to impact NSTA’s revenue and viability.

Our Guiding Principles

Build Community

We believe that the community of science educators extends beyond the classroom, and that together science educators influence and advance change.

Include All

We believe that all educators have a critical role in cultivating science literacy and that all learners deserve access to a high-quality science education.

Foster Passion

We believe that an appreciation for science can be fostered in every student and a passion for professional growth lies within every educator.

Champion Science

We believe that science literacy is essential to our collective wellbeing.

Pursue Learning

We believe that science learning never stops.

Vision

Science literacy and education are recognized as vital to the future of our society, enabling us to make informed decisions about the collective challenges we face.

Mission

Transform science education to benefit all through professional learning, partnerships and advocacy.



Diversity, Equity & Inclusion

Equip and empower all educators to provide students access and opportunity to be successful in science.



Be the leading source for strategies to provide equitable and inclusive science education.



Develop and provide opportunities for every learner to be successful in science.



Recruit and empower diverse teachers who are equipped to create inclusive and equitable learning opportunities.



Identify and remove barriers to becoming a science educator to diversify the workforce.



Knowledge & Practice

Advance the knowledge and practice of all educators of science through a research-based, learning-first initiative.



Promote science teaching strategies that put equity at the center of learning.

Develop, deliver and convene research-based professional learning opportunities for all educators of science throughout their career.

Develop pathways for educators of science to become leaders in their field.

Partner with like-minded organizations to develop sustainable programs and resources to promote science literacy.



Community

Create a nurturing and inclusive community of educators.



Recruit a diverse volunteer leadership pool. .



Partner with diverse organizations to foster inclusiveness and community.

Provide opportunities for educators of science to connect and convene to foster a sense of community.

Provide mentoring opportunities within our community.



Advocacy



Raise the profile of science education to promote respect and ensure investment that supports an equitable, high-quality science education.

Serve as the nexus for the breadth of science education disciplines, creating an undeniable, unified voice advocating for science educators and learners.

Collaborate with organizations to advocate for adequate funding for science education at the local, state and federal level.

Advocate for science literacy for early childhood and elementary-age learners to foster an interest in science.

Empower, guide and support educators to advocate for funding and resources that support professional learning and engage learners in science.

Partner with education organizations to promote an integrated learning approach to science that bridges multiple disciplines, especially for elementary students.



Sustainable Business Practice

Promote sustainable business practices to build organizational capacity.



Model the principles of inclusion, sustainability and environmental responsibility in all business operations, products and services.

Cultivate non-dues revenue that positions and underscores NSTA's role as the leading voice on science education.

Redefine membership value for all stakeholder groups.

Expand and diversify revenue streams to safeguard financial stability and strengthen NSTA's capacity for enhancing state-of-the-art science learning.

Engage in best practices in data collection and management to ensure data-informed decision-making.