



Science Curriculum Adoption Board Update

Cambrian School District
February 15, 2024

"Exploring Infinite Possibilities for Learning"

Science Instructional Materials Selection Committee

K-5 Teachers	6-8 Teachers	Instructional Specialists	Site & District Administrators
<p>Camille Johnson (K) Katie Colon (K) Ellen Rowe (1) Kim Cummings (1) Erick Porter (2) Wendy Olson (3) Jenna Greco (3) David Harris (3) Bhuvana Kannan (4) Renata Feld (4) Lisa Foy (5)</p>	<p>Lisa Landsberg (6) Brianna Taylor (6) Jesse Saenz (6) Lisa Augenstein (SDC) Patty VanCampenhout (7) Emily Burdett (7) Juli Nash (7-8) Thom Stephens (8) Gayathri Ramakrishnan (8)</p>	<p>Courtney Hammett Debbie Clima Christine Katz Emily White Andrea Pickering Chrissy Terwilliger</p>	<p>Michael Kretsch (Principal) Amy O'hehir (Principal) Julie Orlando (Assist. Principal) Lisa MacFarland (Principal) Matt Hill (Dir. Ed Tech) Maggie Spehar (Dir. Stu. Serv.) Linh Nguyen (Asst. Supt. Ed. Services)</p>

What Do We Mean by “Curriculum”?

Unlike a textbook, which serves as a reference tool with a few learning exercises spread throughout chapters, a curriculum provides a more comprehensive learning experience, including the following elements.

- A “scope and sequence” that provides a roadmap for teachers
- Units of instruction that logically group knowledge and skills with instructional tasks/experiences that culminate in the acquisition, application, and authentic use of knowledge and skills
- Daily lessons that provide a range of tools and strategies to support student learning
- Formative assessments that align to grade-level standards and check for student understanding throughout the year
- Instructional resources, including texts, media, lab kits, virtual simulations, and other tools used for teaching science

A high-quality curriculum is comprehensive and cohesive, integrating all of the above elements to support students' preparation for college and career.

Why Now?

Alignment to State Standards

California adopted the **Next Generation Science Standards (NGSS)** in **2013** to better align with the goal of preparing all students for college and career. The standards focus on the teaching and learning of scientific skills and practices, “big ideas” that cut across multiple grade levels and fields, and core ideas within particular disciplines. This is a significant departure from how the standards were written prior to NGSS. CSD has yet to adopt a new curriculum to match the NGSS standards.

Achievement Data

Overall, only **51%** of CSD in grades 5 & 8 students are proficient in science, according to the **2022 CA Science Test**. While a high-quality curriculum is not sufficient on its own to address this, it is most definitely necessary.

Summary of the Next Generation Science Standards

❖ **Scientific Skills**

Does the curriculum promote the learning and reinforcement of key skills, such as asking thoughtful scientific questions, planning and carrying out investigations, collecting and analyzing data, constructing and critiquing conclusions, developing and using models, and obtaining, evaluating, and communicating information?

❖ **Cross-Cutting Concepts (“Big Ideas”)**

Does the curriculum develop an understanding of the concepts and processes that exist across every science field, cause and effect, systems, cycles, patterns, scale, energy and matter, stability and change? Do teachers and students explicitly interact with these concepts in ways that strengthen understanding in meaningful ways across disciplines?

❖ **Disciplinary Core Ideas (Subject Specific Content)**

Does the curriculum provide teachers and students with the necessary lessons and tools to acquire knowledge and understanding of the concepts, language, and ideas that are specific to each discipline?

❖ **5Cs/Literacy**

Do students have opportunities to work in collaborative groups, use critical and creative thinking skills, break problems into smaller parts, and show their learning through multiple modalities? Finally, does the curriculum provide support for enhancing literacy skills?

CSD Curriculum Adoption Process

Per CSD Board Policies & Procedures 6140 & 6160:

- Formation of teacher and administrator committee
- Establish and align the instructional goals to the district's vision
- Review of current program in the appropriate content area
- Review of available material options
- Pilot of materials
- Provide opportunities for evaluation of materials by students and teachers
- Provide opportunities for community review and evaluation of materials
- Synthesis and analysis of evaluations
- Recommendation to the Board and Board approval
- Purchase of materials
- Professional development & implementation

References: [CSD Board Policy 6140 - Adoption](#) & [CSD Board Policy 6160 - Instructional Materials Selection Process](#)

Educational Partners Input process

Science Instructional Materials Selection Committee	Teachers Piloting & Evaluating the Instructional Materials	Students' Input	Community's Input via ThoughtExchange	Community's Input on Instructional Materials Display and Website
<p>The Science Instructional Materials Selection Committee was comprised of teachers, site and district administrators, and Instructional Specialists. It also reviewed finalists and provided feedback.</p>	<p>Teachers pilot and evaluate the curricula against a scoring rubric. While doing so, they considered input from the committee, students, community and testimonials from their colleagues piloting.</p>	<p>Students pilot and provided input per their experience with the different curricula through a survey.</p>	<p>Parents were encouraged to submit feedback via a ThoughtExchange and an online survey.</p>	<p>Finalists (with actual samples) were displayed and posted on the website for the public to review and provide feedback.</p>

Timeline

Establish a Vision

Jan - Jun 2023

Established Instructional Materials Selection (IMS) Committee

IMS Committee Reviews Curriculum Options

IMS Committee Determined of final 2 Curricula options for pilot per Grade Level Span

Review

Aug 2023 - Jan 2024

Communicate to Staff & Community

Pilot of Curricula Options per Grade Level Span

Opportunities for Public Review & Input

Material Display

IMS Committee's Review & Synthesis

IMS Committee's Decision on Curricula Finalists for K-5 & 6-8

Make a Recommendation

Feb 2024

IMS Committee selected curricula is presented to the Board for consideration and Board Approval

Implement

Mar 2024 - 2027

Contract for Purchase of materials & training

Initial Professional Development & Training on March 15, 2024 Teacher In-service Day

Curriculum Information for Parents at School Site Back to School Night - Fall 2024

Staff Professional Development Plan 2024-2027 and provide ongoing professional learning per needs assessment throughout.

CSD Community's Perceptions of Science Education in Cambrian

ThoughtExchange:

“What are your overall thoughts about science teaching and learning being provided in your child's school? Please share your thoughts or ideas about what you think science learning in school should be.”

Satisfaction with current science education

- Positive feedback from some parents and commendation for hands-on projects and real-world applications.

Advocacy for

- More in-class experiments, increased field trips, and additional homework to reinforce learning.
- Emphasis on teaching science in a fun, relevant, meaningful way.
- Focus on Critical Thinking, a shift towards fostering critical thinking skills.
- Desire for Real-life Applications, suggestions to focus on the practical application of scientific concepts.

Concerns raised

- Some express worry about the superficiality of teaching and highlight on the perceived lack of daily engagement.
- Parents express a desire for more information about their children's science curriculum.

Overall, the responses reflect a varied outlook on science teaching and learning and there's a call for an enriched and engaging science education experience.

CSD Community's Input of Science Curriculum Options

Survey Question

"If your child's teacher piloted the science curricula being considered for adoption, based on your responses to the previous questions and your experience with the two pilot programs, which of the following programs met most of your expectations?"

(139 responses)

NOTE: FOSS 6-8 was not a choice included in the ThoughtExchange Survey questions as option

Not Applicable

68% said "My child's teacher did not pilot any of the science programs being considered for board adoption."

Below is the percent of parents whose child's teacher piloted the science curricula being considered for adoption said the "*following programs met most of your expectations*":

K-5

- FOSS - 9%
- Amplify Science - 10%

6-8

- Inspire Science - 10%
- Amplify Science - 7%

CSD's Community's Input for Science Education in Cambrian

What types of science learning activities do you think would be most beneficial for your child?

1. Hands-on experiments and activities **(98%)**
2. Field trips and outdoor learning **(83%)**
3. Group projects and discussions **(52%)**
4. Use of technology to support learning **(52%)**
5. Research and writing assignments **(38%)**

What are the most important things you want your child to learn about science in school?

1. Ability to Think Critically and Solve Problems **(89%)**
2. Knowledge of Scientific Concepts and Principles **(76%)**
3. Skills in Conducting Experiments and Collecting Data **(70%)**
4. Appreciation for the Natural World **(68%)**
5. Understanding of the Role of Science **(60%)**

Elementary School Student Science Learning Preferences Survey

Hello young scientists!

We're excited to hear your thoughts and ideas about learning science in school. Science is a fascinating subject that helps us understand the world around us. It's full of amazing discoveries, exciting experiments, and endless possibilities for exploration.

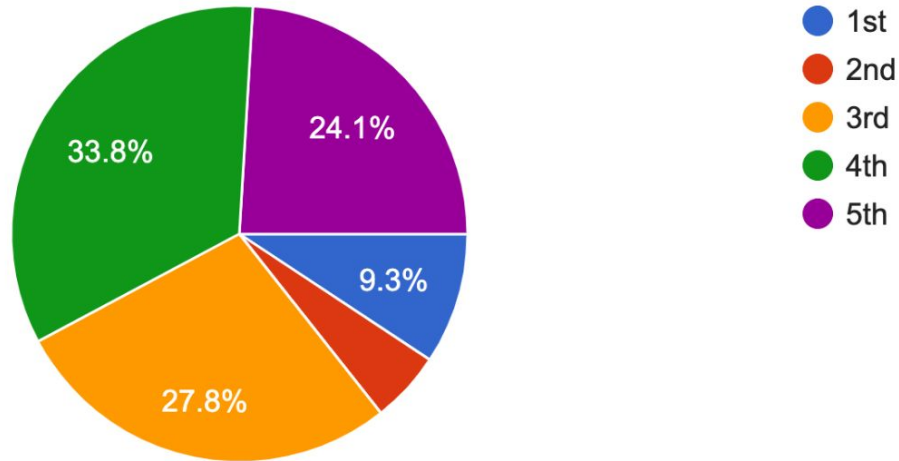
We're curious to know what makes science learning fun and engaging for you. Share your preferences for different activities, teaching methods, and classroom environments. Your thoughts and ideas will help us create a more enjoyable and effective science learning experience for everyone.

Instructions:

Please answer the following questions honestly. Your feedback will help us to improve science learning for all students.

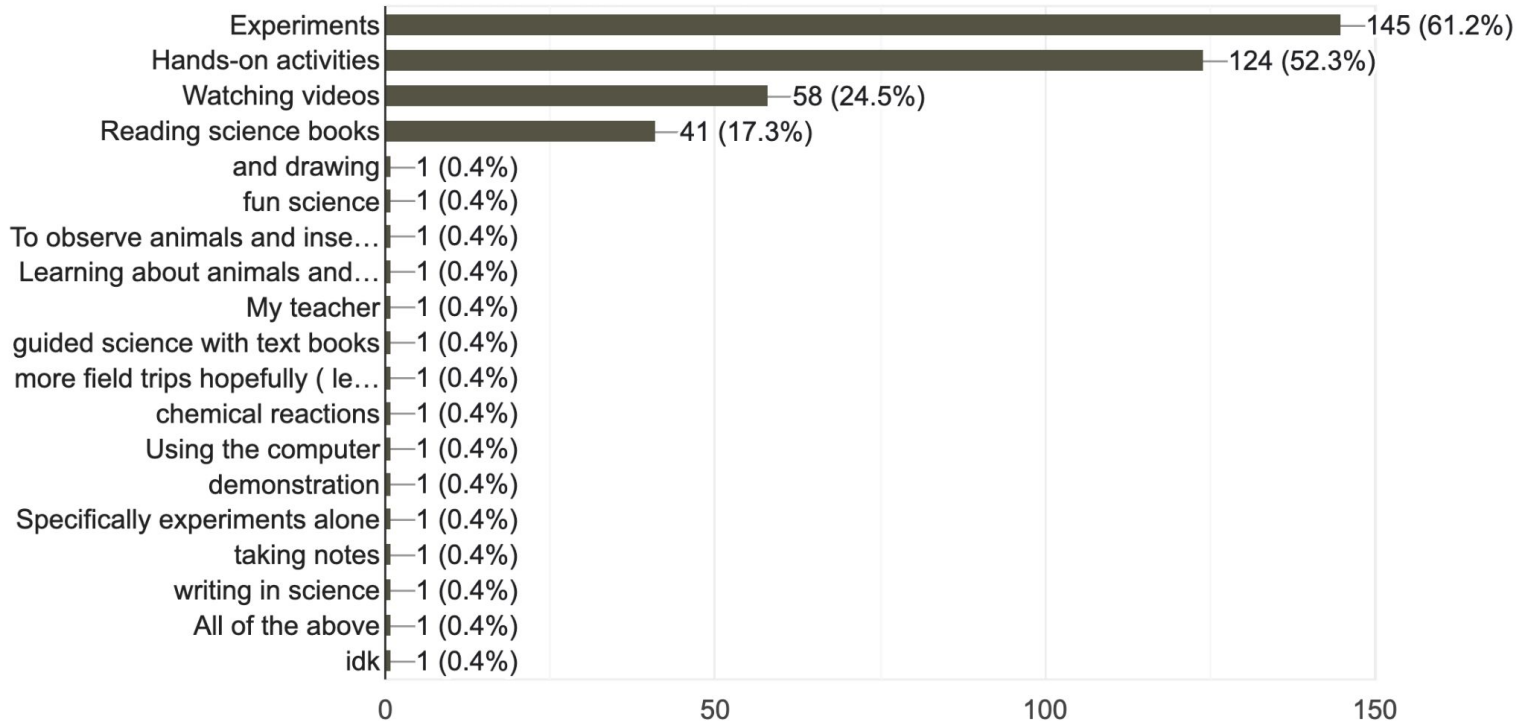
What grade are you in?

237 responses



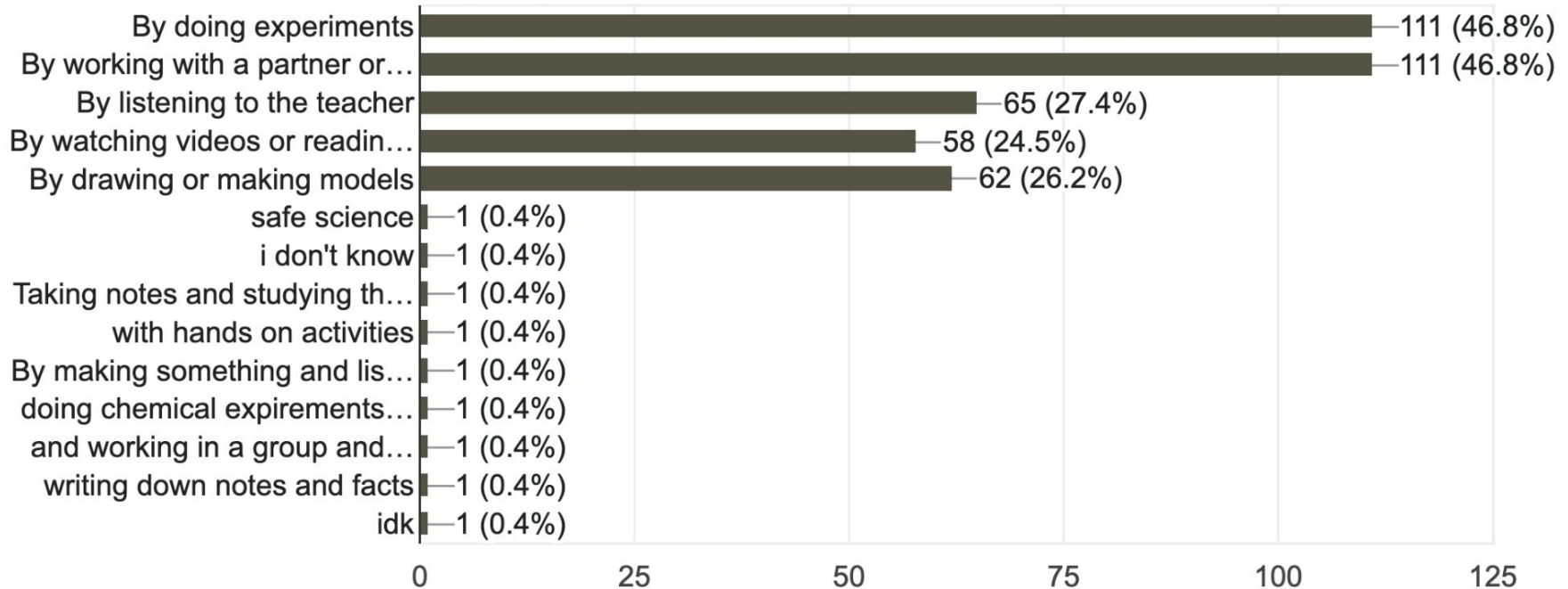
What is your favorite way to learn science in school?

237 responses



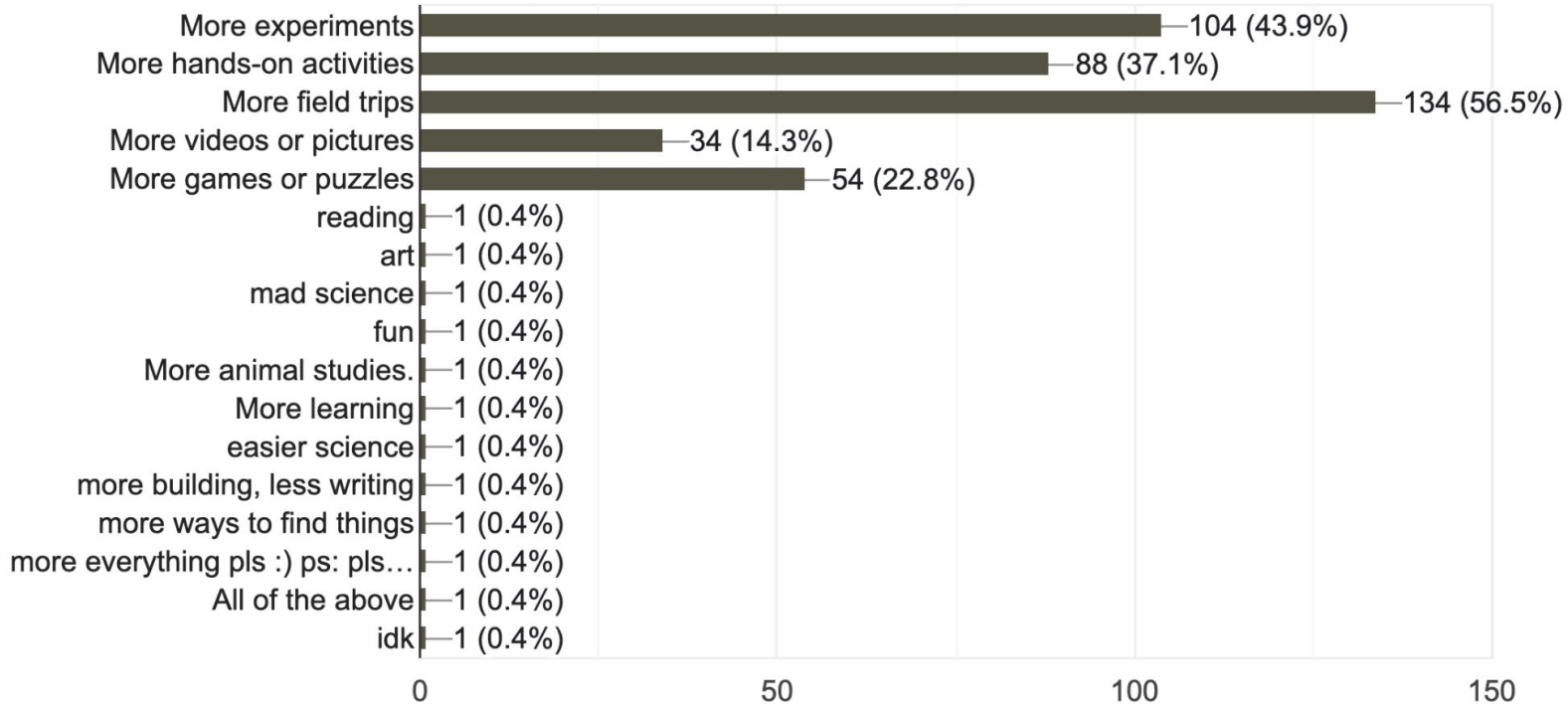
What is the most helpful way for you to learn about science?

237 responses



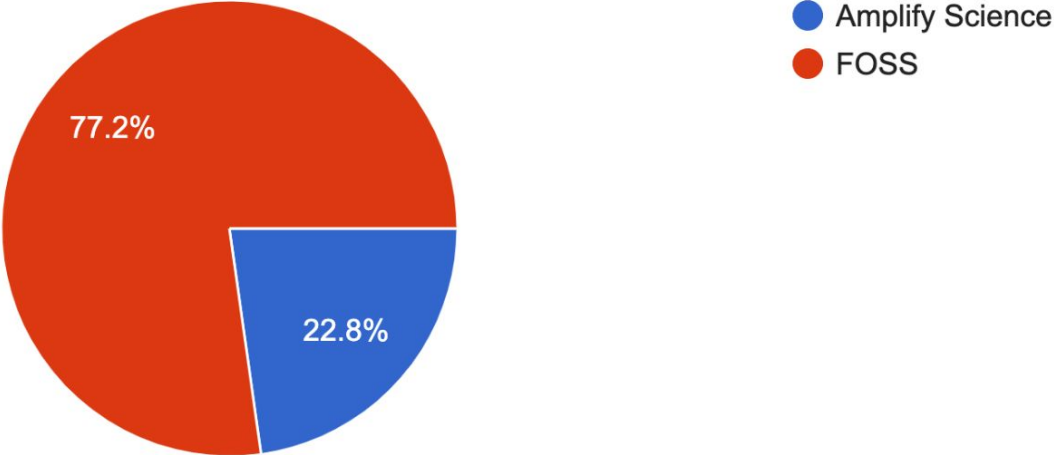
What is one thing that would make your science class more interesting for you?

237 responses



Based on your on your answers to the previous questions and your experience with the two programs your teachers used for science this scho...llowing programs met most of your expectations?

237 responses



Middle School Student Science Learning Preferences Survey

Hello Junior Scientists!

We're excited to hear your thoughts and ideas about learning science in school. Science is a fascinating subject that helps us understand the world around us. It's full of amazing discoveries, exciting experiments, and endless possibilities for exploration.

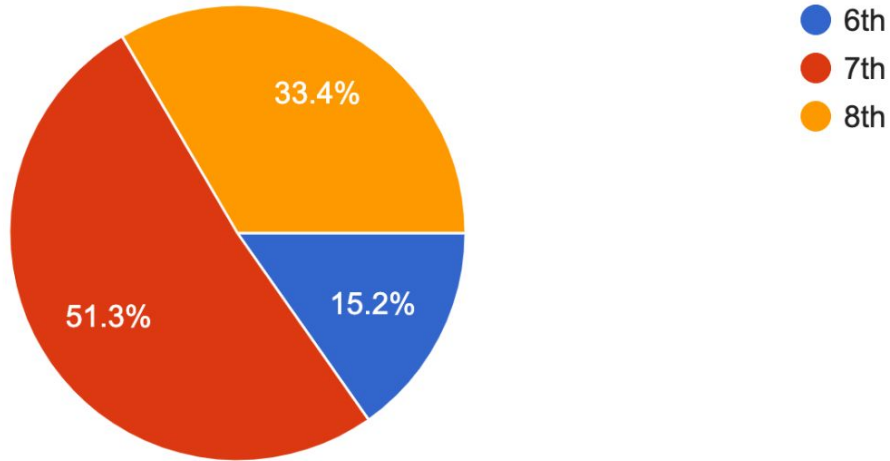
We're curious to know what makes science learning fun and engaging for you. Share your preferences for different activities, teaching methods, and classroom environments. Your thoughts and ideas will help us create a more enjoyable and effective science learning experience for everyone.

Instructions:

Please answer the following questions honestly. Your feedback will help us to improve science learning for all students.

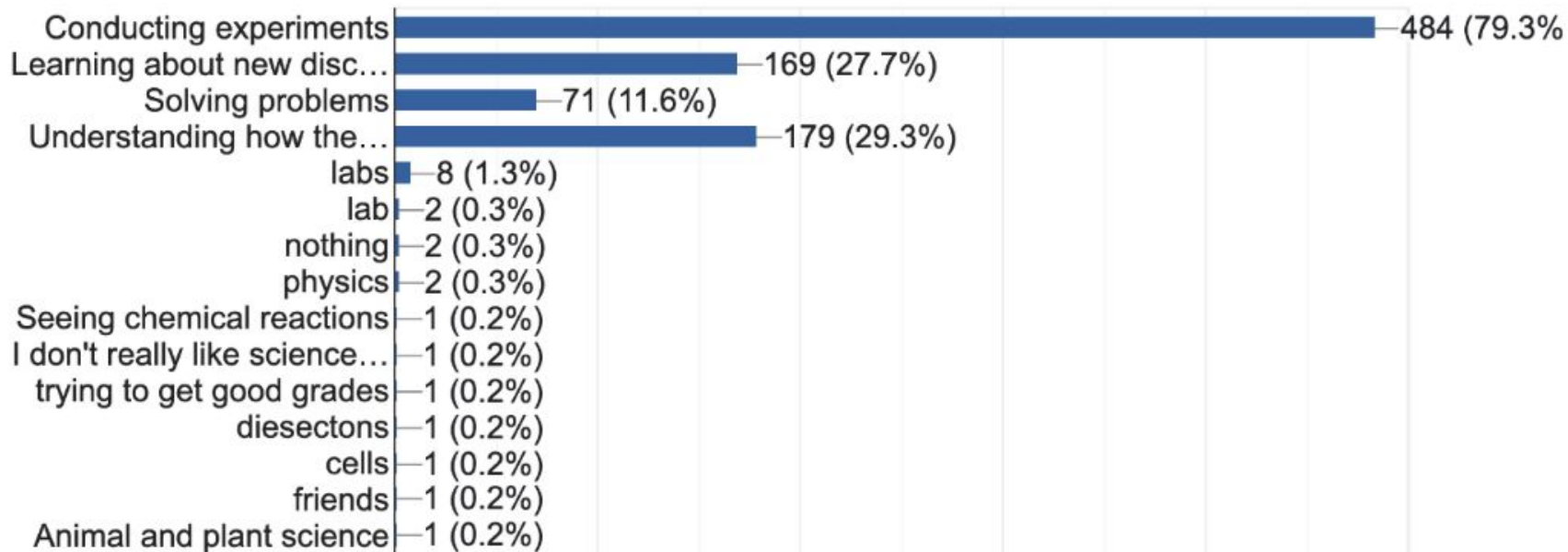
What grade are you in?

610 responses



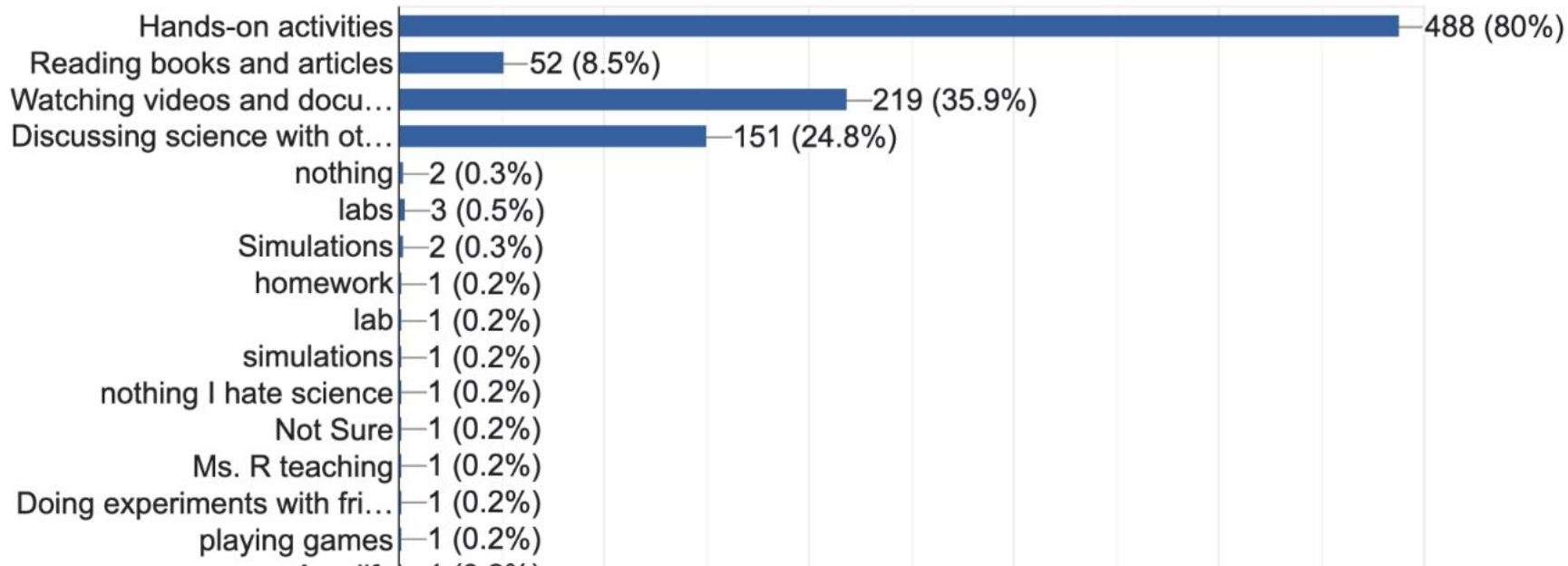
What do you like most about learning about science?

610 responses



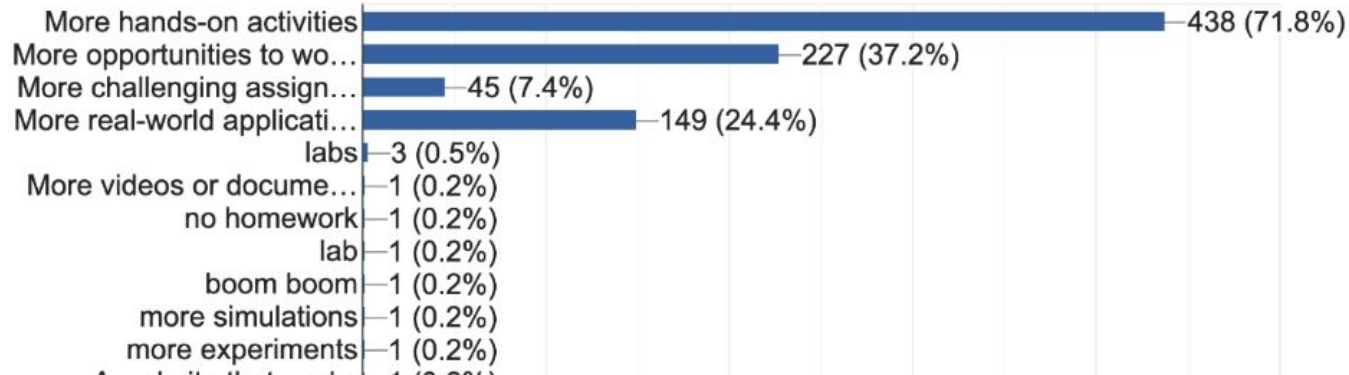
What is your favorite way to learn about science?

610 responses



What is one thing you would like to see more of in your science class?

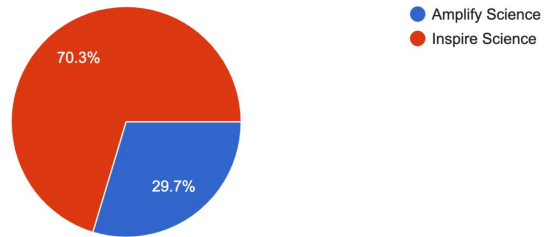
610 responses



Steindorf & Price

Based on your on your responses to the previous questions and your experience with the two programs your teachers used for science this scho...llowing programs met most of your expectations?

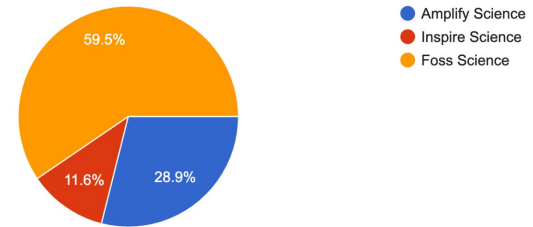
610 responses



Steindorf ONLY

Based on your on your responses to the previous questions and your experience with the two programs your teachers used for science this scho...llowing programs met most of your expectations?

121 responses



Key Elements the IM Selection Committee Looked For

Hands-On, Question-Based Learning

- Emphasizes active student participation.
- Multiple hands-on (or equivalent virtual) experiences for students to ask questions, make observations, analyze data, and draw conclusions
- Values the exploration of scientific concepts through questioning.

Phenomenon-Driven and Real-World Application

- Emphasizes the use of phenomena to captivate student interest.
- Engages students with real-world problems to enhance relevance.

Student-Centered Approach

- Acknowledges the dynamic nature of the world, promoting a continual learning process.
- Encourages students to take initiative and try new approaches.
- Provides access & equity by maximizing the learning opportunities for students with special needs and students from culturally and linguistically diverse origins.

NGSS Alignment

- Centers on student perspectives and engagement.
- Reflects the principles of the Next Generation Science Standards.
- 3-dimensional learning that includes scientific practices, cross-cutting concepts, and disciplinary core ideas (DCI)

Embracing Messiness

- Recognizes the inherent messiness of science.
- Utilizes meaningful phenomena and real-world problems.

Multifaceted Learning

- Incorporates writing in science to enhance communication skills.
- Promotes student discourse as a crucial element of the learning process.
- Encourages the creation of models to deepen understanding.

Key Elements the IM Selection Committee Looked For

Resources & Supports for Teachers

- Digital availability, with ease of downloading and editing, including the ability to make pacing/sequencing adjustments, and to address local and state standards
- Digitally interactive curriculum features, including virtual simulations, models, texts, videos, adaptive quizzes
- Comprehensive units with detailed lesson plans
- Lessons and units that are based upon the 5E model of instruction
- Supplemental materials that support the learning and reinforcement of skills associated with scientific investigation
- Specific tools that show and/or can support correlation of the content to the NGSS Standards
- Lessons that include suggestions for scaffolding and enrichment of the focus content
- Embedded assessments to monitor formative and summative student progress
- Opportunities to assess students' mastery of content through standards-aligned performance tasks

Science Instructional Material Program Review Tool

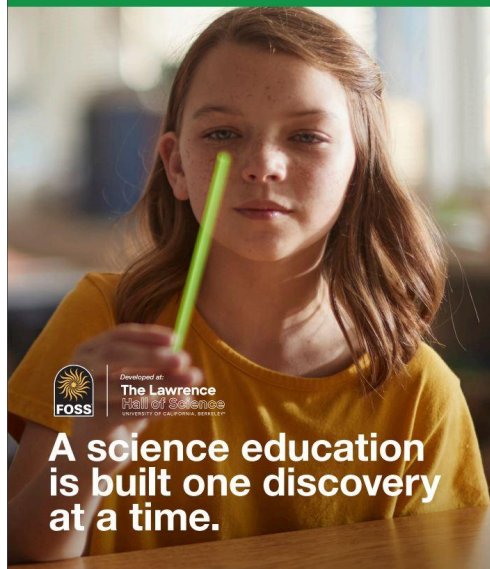
Using the three gateways below, teachers reviewing the programs are then able to ensure that the review will convey the extent to which materials are designed for the NGSS, and are usable by educators.	Number of Criteria	
	K-5	6-8
<p>Gateway 1: Designed for NGSS</p> <ul style="list-style-type: none"> Are the materials designed for three-dimensional learning and assessment? (4 Criteria) Do the materials leverage science phenomena and engineering problems in the context of driving learning and student performance? (6 Criteria) 	10	10
<p>Gateway 2: Coherence and Scope</p> <ul style="list-style-type: none"> Are the materials coherent in design, scientifically accurate, and do they support grade-band endpoints of all three dimensions? 	12	24
<p>Gateway 3: Usability</p> <ul style="list-style-type: none"> Do the materials support teachers to fully utilize the curriculum, understand the skills and learning of their students, and support a range of learners? 	25	25
<p>The EdReport Science Instructional Program Review Tool is built from the experience of educators, curriculum experts, and leading rubric developers and organizations that have conducted reviews of instructional materials, lessons, and tasks.</p>		

Pilot Teachers' Review of the Science Curricula Finalist Options

Science Instructional Material Program Review Results	K-5 Programs Piloted Final Rating		6-8 Programs Piloted Final Rating		
	The following rubric was used to determine whether the program met the criteria for each gateway: 0 - Did Not Meet; 2 - Partially Met; 4 - Fully Met				
Gateway	Amplify	*FOSS	Amplify	*Inspire	*FOSS (Steindorf ONLY)
Gateway 1 Designed for NGSS	2.5	3.9	1.9	3.7	4.0
Gateway 2 Coherence and Scope	2.4	4.0	1.9	3.8	4.0
Gateway 3 Usability	2.4	3.8	1.9	3.0	4.0
Overall Rating	2.4	3.9	1.9	3.5	4.0
Finalist		X		X - Price MS	X - Steindorf 6-8

K-5 Curriculum Option

FOSS NEXT GENERATION: PreK-5 MODULE DESCRIPTIONS



- **Students Learn Science by Doing Science**
 - FOSS engages students in scientific and engineering practices. Students construct an understanding of science concepts through their own investigations and analyses, using laboratory equipment, student readings, and interactive technology. Students exercise logical thinking and decision-making skills appropriate to their age levels. Students explore phenomena.
- **Integrated Reading, Writing, and Mathematics**
 - The FOSS active investigations, science notebooks, FOSS Science Resources articles, and formative assessments provide rich contexts in which students develop and exercise thinking and communication.
- **Access & Equity**
 - The FOSS Program has been designed to maximize the science-learning opportunities for students with special needs and students from culturally and linguistically diverse origins. FOSS is rooted in a 30-year tradition of multisensory science education and informed by recent research on UDL.
- **Assessment System**
 - The assessment system uses a number of formative and summative strategies to help teachers and students monitor students' progress and measure students' abilities to apply the concepts they have learned. The formative assessment system includes observation of students engaged in scientific practices and review of notebook entries.
- **Interactive Technology**
 - FOSS developers have developed a series of interactive activities for use by students at home and at school. These include online extension activities, virtual investigations, and student tutorials, which support students who have difficulties or who have been absent. Multimedia is integrated into the program.
- **Program Support**
 - Teachers of FOSS receive a comprehensive Investigations Guide in print and as an eGuide, teacher preparation videos, extensive resources online, a national consultant network, and the FOSS newsletter.

6–8 Science Curriculum Options

Steindorf

Price Middle School

Full Option Science System – Integrated

- Designed around the principle of collaborative active investigation.
- Engages all students by inviting them to interact with observable phenomena.
- Carefully create a level playing field so that all learners have a logical context to recognize the significance of each phenomenon as it is introduced.
- Student-centered approach meets the goals of NGSS by ensuring that all learners can make sense of phenomena and solve problems.



Inspire Science by McGraw Hill – Discipline Specific

- Provides an in-depth, collaborative, and project-based learning experience.
- Designed to spark student interest and empower students to think critically and ask more questions.
- Built for California NGSS, and it ensures all students are actively building mastery of the Performance Expectations.
- User-friendly instructional model that blends the 5E approach with key California NGSS goals, it makes the transition easy and exciting.



Implementation and Training

Timeframe	Content	Audience
Mar 15, 2024	<p>Grade Level Orientation</p> <p>Teachers will take deep dives into the texts, digital platforms, hands-on materials, scope & sequence, and strategies of the curricula, including opportunities for vertical & horizontal planning.</p>	<p>All Teachers Administrators Instructional Specialists</p>
Summer 2024	<p>MTSS Strategic Planning</p> <ul style="list-style-type: none"> • Curriculum Guides • Assessment Schedules 	<p>Partner Representatives Teacher Leaders Administrators Instructional Specialists</p>
Aug 8, 2024	<p>Grade Level Band Orientation for New Teachers</p> <p>New teachers will take deep dives into the texts, digital platforms, hands-on materials, scope & sequence, and strategies of the curricula.</p>	<p>New Teachers Instructional Specialists</p>
<p>Sep 2024 Jan 2025 Apr 2025</p>	<p>Districtwide Professional Learning Wednesdays</p> <p>Trainings focused on current needs, future planning, and delving deeper into the curricula.</p>	<p>All Teachers Administrators Instructional Specialists</p>

Implementation and Training

Timeframe	Content	Audience
Monthly	<p>Instructional Leadership Council Monthly ILC meetings to learn the new science curricula that are being adopted and how to lead implementation</p>	Administrators Instructional Specialists
Trimester	<p>Instructional Specialists & Teacher Leaders Trimester meeting to learn the new science curricula</p> <ul style="list-style-type: none"> • Scope & sequence • PD plan and establishment of cross-district PLCs & roles 	Teacher Leaders Instructional Specialists
Ongoing	<p>Coaching for Administrators & Teachers Curriculum reps and Instructional Specialists will design coaching protocols based upon feedback & observations.</p>	All Teachers Administrators Instructional Specialists
Ongoing	<p>Optional Training for Teachers Teachers will have the option to take part in virtual trainings focused on the essentials of implementation, from the basics of navigating units and lessons to the larger theoretical underpinnings of the pedagogy.</p>	All Teachers Administrators Instructional Specialists
Ongoing	<p>Asynchronous Training & Office Hours Resources will be open to teachers and administrators as soon as licenses are turned on. Both curricula have large libraries of training resources that can be accessed at the discretion of the teacher. Regular opportunities for teachers to ask questions, troubleshoot, and plan with curriculum representatives, content specialists.</p>	Partner Representatives Teachers Principals Instructional Specialists

Projected Budget

Program	Full Option Science System	Full Option Science System	Inspire Science by McGraw Hill
Grade Span	K-5	6-8 Integrated	6-8 Discipline Specific
School Site	All K-5 School Sites	Steindorf 6-8	Price Middle School
Number of Years	8 Year Bundle	8 Year Bundle	8 Year Bundle
Components	Comprehensive, including Professional Development	Comprehensive, including Professional Development	Comprehensive, including Professional Development
Estimated Total (Based on Current Enrollment Projections for 2024-25)	\$616,630	\$39,963	\$356,370
Grand Total	\$616,630+\$39,963+\$356,370 = \$1,012,963		
Funding	One-time Instructional Materials Block Grant (060-6762)		

Staff recommends the Board approves the adoption of the following science curricula:

- Full Option Science System Pathway Program for K-5
- Full Option Science System Integrated Program for Steindorf 6-8
- Inspire Science Discipline-Specific Program for Price 6-8

