In collaboration with

Catapult
Product +
Market
Development

MCH
Strategic Data

National Survey on STEAM Education

Emerging Technology Edition

Media Edition
January 2019

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National Survey on STEAM Education: Emerging Technology Edition for Businesses, Industry & Associations
The full edition of this report is available for purchase through Catapult X, a market and product development company that consults exclusively with science and education industry partners.

Contact dlong@stemreports.com with questions and pricing.

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Contents highlighted are available for purchase in the Business Edition. Contact dlong@stemreports.com for pricing and information.

STEM Defined

During this research, our favorite definition of STEM was sent to us by Carol O'Donnell from the Smithsonian Science Education Research Center. The definition below comes from Carnegie Mellon University.

" . . . an interdisciplinary approach to learning where rigorous academic concepts are coupled with real-world lessons as students apply science, technology, engineering and mathematics in contexts that make connections between school, community, work and the global enterprise enabling the development of STEM literacy and with it the ability to compete in the new economy" (Tsupros, Kohler, & Hallinen).

Why STEAM?

Educators asked.

Before fielding this survey to over 100,000 educators, we sent a test to 100 science and STEM educators for feedback. More than one educator asked us to include the arts, and we listened.

STEAM also represents our field of respondents. MCH Strategic Data provides lists on educators who identify as STEM/STEAM.

For simplicity, we will use STEM throughout the report unless representing a direct quote.

"We have followed the lead of thousands of other educators around the world in shifting from the use of the acronym "STEM," replacing it with the current acronym "STEAM." We, along with thousands of others, have abandoned the term STEM. The inclusion of the "A" in STEAM refers to "Arts," and that is a very powerful inclusion.

Dr. Larry Anderson
Imagine the Possibilities Career Expo
CREATE Foundation

Executive Summary

This executive summary presents key insights from the Catapult X national survey of K-12 science and STEM/STEAM supervisors and teachers, which was fielded during October of 2018. The survey was conducted in collaboration with MCH Strategic Data, who supplied the list of educator emails. A total of 2,791 educators completed the survey, including 110 district-level STEM/STEAM and science supervisors, 305 school-level STEM/STEAM and science supervisors and 2,533 science and STEM/STEAM teachers.

The *National Survey on STEAM Education: Emerging Technology Edition* is written for businesses, industry, and associations to better understand the needs of STEM educators.

➤ Product Development: How is STEM currently being implemented?

Most importantly for product development, "What is the unmet market need your company can uncover?"

➤ Market Development: "When do STEM educators want new product announcements?" "When do STEM educators want to receive catalogs?" "Is social media an effective way to reach science and STEM educators?"

We asked educators to be our futurists—your market experts. We ask them to look at the horizon of emerging technology—drawing on their knowledge of content, standards, and pedagogy—and to tell us which emerging technologies have the most promise for student instruction.

Key Findings

STEM Educators (28%) mentioned Virtual reality as having the most promise for student instruction in an open-ended question. Coding (23%) and Biotechnology (16%) followed.

These areas provide your organization with exciting opportunities for future innovations.

28%
**Virtual Reality /
Augmented Reality**

23%
Coding

16%
Biotechnology
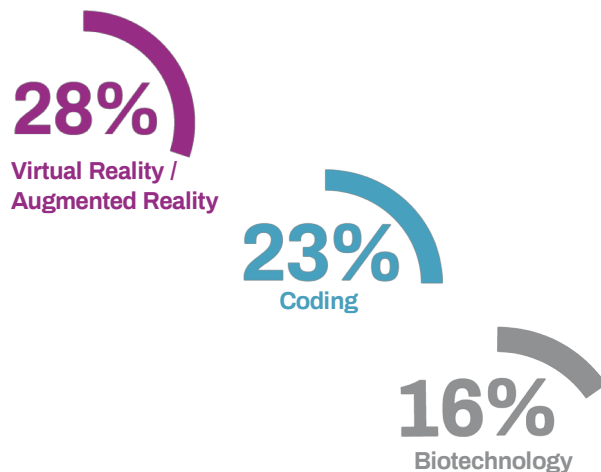
"Virtual and augmented reality for all subject areas help student better learn. Examples: dissecting a heart to view how all chambers function; analyzing how instruments work; becoming involved with math manipulative to discuss area or other features; meeting "people" from the past."*

STEM Educator
Appendix contains 122 pages of STEM educator ideas on emerging technology.

Key Findings

At the top of the list, respondents to the *National Survey on STEAM Education* report that the following best represents their current implementation of STEM into their core curriculum: computer science courses (75.9%), project-based learning (75.2%), intro to technology (72.3%), robotics (70.7%), and career and technical education (69.4%). Ranking toward the bottom were aerospace engineering (16.1%), civil engineering (22.8%), architecture (25%), Pre-K STEM (29.8%), and biomedical technology/medical devices (36.4%).

Elementary

61%
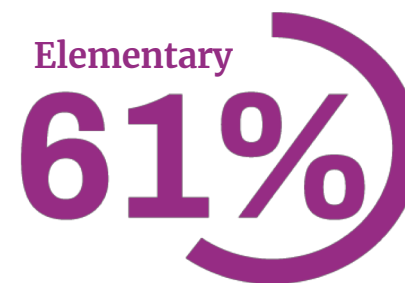
STEM is not reported to be implemented until elementary level (61%), with roughly 30% reporting STEM being integrated into core curriculum at the Pre-K level.

Pre-K

30%

As state standards support STEM at Pre-K, presents a market opportunity worth further research.

Key Findings

According to this survey, civil engineering (22.8%) and architecture (25%) were not likely to be implemented as a part of integration into core curriculum; however, the U.S. Bureau of Labor and Statistics (BLS) projects the largest growth of STEM occupations through the year 2024 to be in "architectural, engineering and related services."[1] Computer-aided drafting (CAD) and design, selected by 62.5% is taught by a large majority of schools. CAD can cover various specialties including civil engineering, aeronautics, architecture, mechanical engineering, and electrical engineering.[2]

Projected percent change of largest STEM occupations in architectural, engineering, and related services, 2014 to 2024

| Occupation	Percent change
Mechanical engineers	19.0%
Civil engineers	11.2
Electrical engineers	11.1
Architectural and engineering managers	9.9
Electrical and electronics engineering technicians	9.8
Architects, except landscape and naval	7.9
Civil engineering technicians	5.3
Surveyors	-2.2
Architectural and civil drafters	-3.2
Surveying and mapping technicians	-8.1

Source: U.S. Bureau of Labor Statistics

1. https://www.bls.gov/spotlight/2017/science-technology-engineering-and-mathematics-stem-occupations-past-present-and-future/home.htm
2. https://study.com/articles/Computer-Aided_Drafting_and_Design_CADD_Salary_and_Career_Info.html

Key Findings

We surveyed educators about their opinion on the impact that national politics would have on science and STEM budgets. Question: "Over the next two years, what impact do you think national politics will have on K-12 education budgets for science and STEM/STEAM education?" The strongest negative feelings were found among Millennials (58%) and Teachers (54%).

The majority of science and STEM educators (74.9%) report collaborative efforts with business/industry. Guest speakers on science and STEM careers are the most prevalent type of business/industry partnerships at each grade level (over 80%) and the majority of respondents at all grade levels report grants, donations, and sponsorships from business/industry collaborations.
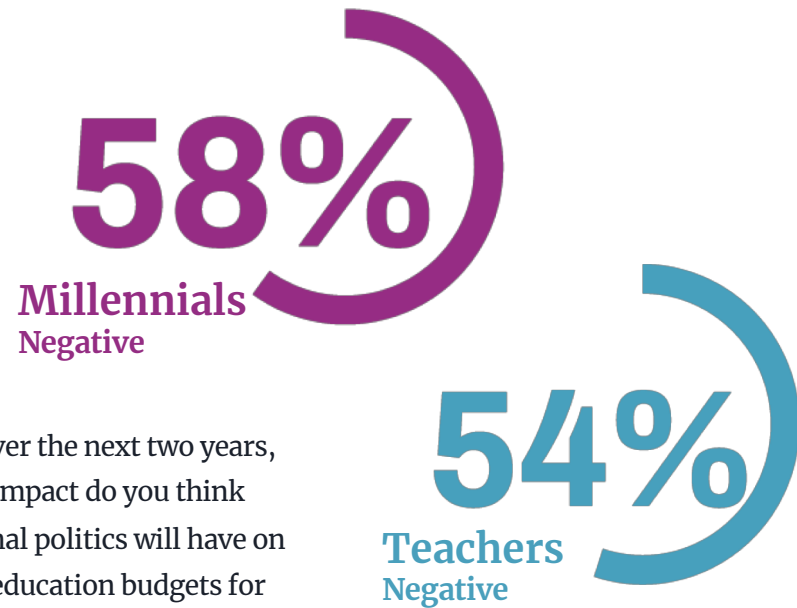
58%
Millennials
Negative

Q: "Over the next two years, what impact do you think national politics will have on K-12 education budgets for science and STEM/STEAM education?"

54%
Teachers
Negative

Insights
Current Implementation of STEM

Product
Development
Insights

STEM Implementation in Core Curriculum

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)? (If you don't have direct knowledge about a school level, please choose "don't know.")

Choices:

- Pre-K STEM
- Elementary STEM
- Aerospace Engineering
- Agricultural Science
- Architecture
- Biomedical Technology/Medical Devices

- Career and Technical Education
- Civil Engineering Courses
- Computer Aided Drafting and Design
- Computer Science courses
- Energy and the Environment
- Engineering Design

- Intro to technology
- Project-based Learning
- Software and App Development
- Energy and the Environment
- Robotics
- Technology and Engineering Education

- Most common STEM implementations during current school year: computer science courses (75.9%), project-based learning (75.2%), intro to technology (72.3%), robotics (70.7%), and career and technical education (69.4%).
- Top five responses for STEM implementations *likely* to be implemented in 2019/2020 school year: project-based learning (11.3%), software & app development (10.9%), elementary STEM (10.6%), robotics (10%), and technology and engineering education (9.9%).

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STEM Implementation in Core Curriculum: Pre-K, Elementary

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"

Pre-K

29.8%

62.3%

8.0%
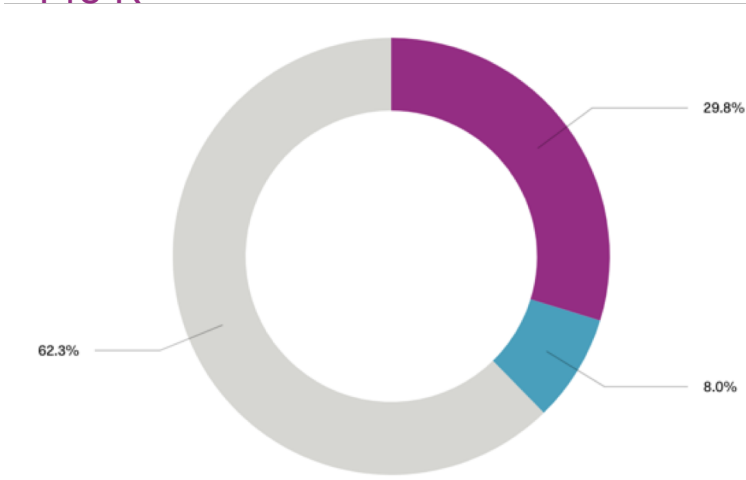
Pre-K
The majority of respondents indicated that Pre-K STEM courses are not implemented.
N=899[1]

Elementary
61% of respondents are currently implementing STEMcourses at the Elementary level with an additional 10% anticipating program growth in the next year.
N=1435[1]

Elementary
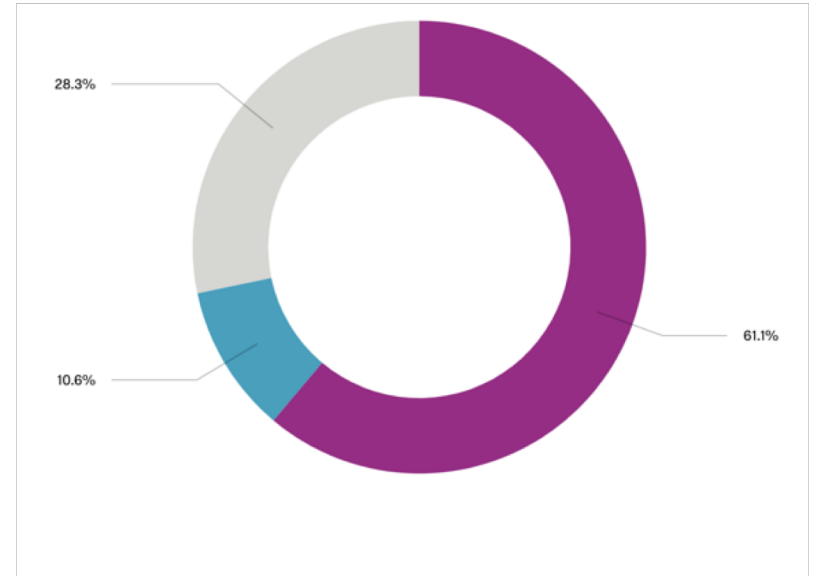
28.3%

10.6%

61.1%

1. Respondents were give the option to check "I don't know," resulting in the variance in number respondents.

STEM Implementation in Core Curriculum:
Aerospace Engineering, Agricultural Science

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"

Aerospace Engineering

16.1%

5.0%

78.9%
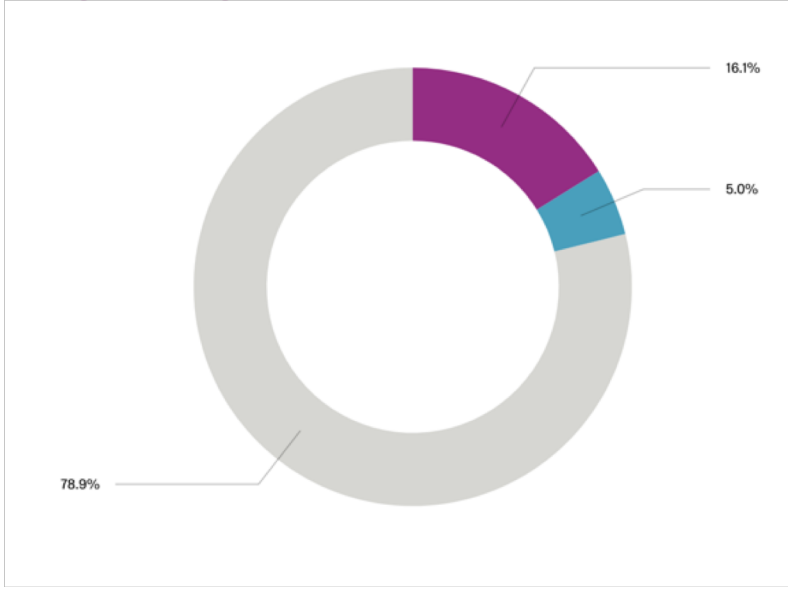
Aerospace Engineering
A small percentage, 16%, of schools in the US offer Aerospace Engineering as part of STEM coursework with only 5% planning to add the course in the next school year.
N=1693[1]

Agricultural Science
Roughly half of respondents reported Agricultural Science as part of their core curriculum with a slight increase anticipated for the 2019/2020 school year.
N=2029[1]

Agricultural Science
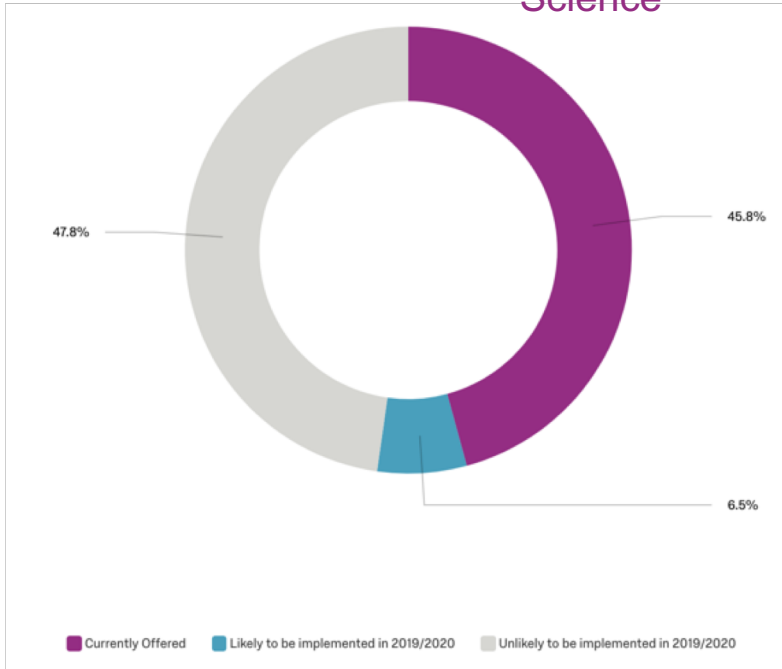
47.8%

45.8%

6.5%

■ Currently Offered ■ Likely to be implemented in 2019/2020 ■ Unlikely to be implemented in 2019/2020

STEM Implementation in Core Curriculum:
Architecture, Computer Aided Drafting and Design

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"

Architecture


25.0%

4.9%

70.1%
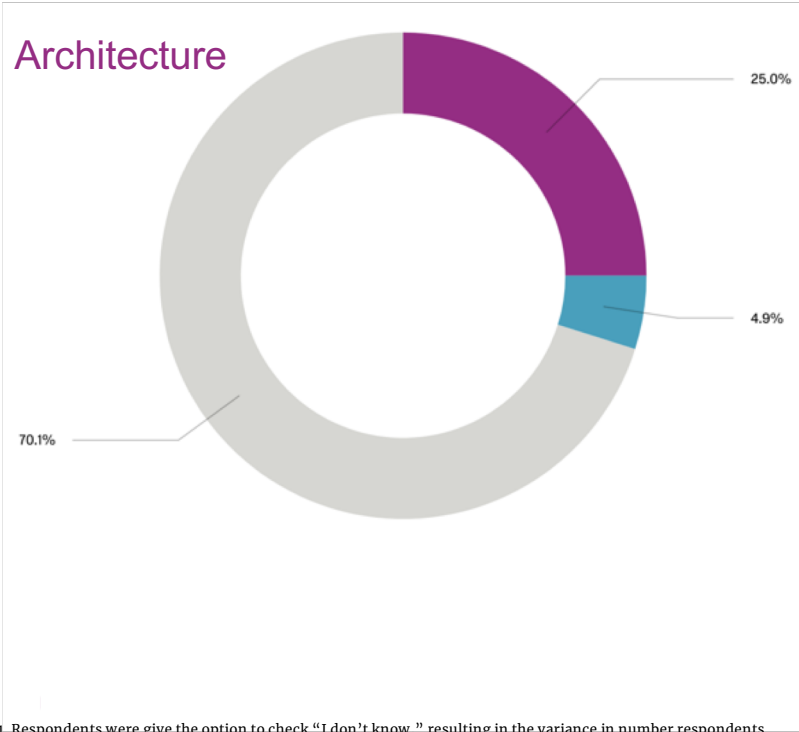
Architecture
Only 25% of respondents reported Architecture to be currently implemented, and it was selected as "least likely to be implemented in 2019/2020" of all courses presented.
N=1737[1]
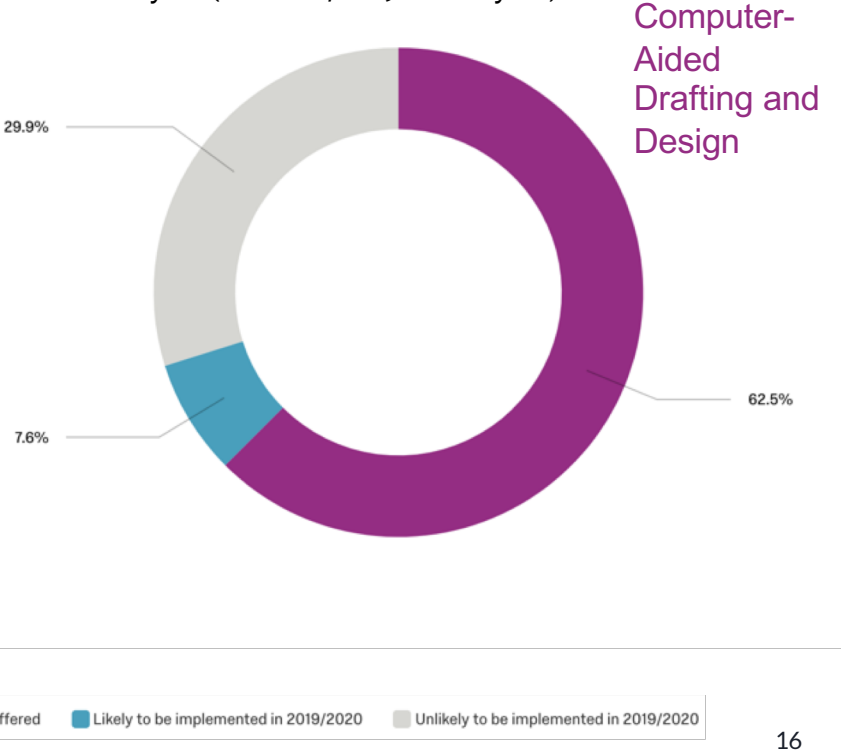
Computer Aided Drafting and Design
Over 70% of respondents currently offer Computer Aided Drafting and Design or are likely to implement the course in the 2019/2020 school year.
N=2071[1]

Computer-Aided Drafting and Design

29.9%

62.5%

7.6%

Currently Offered   Likely to be implemented in 2019/2020   Unlikely to be implemented in 2019/2020

STEM Implementation in Core Curriculum:
Civil Engineering, Energy & the Environment

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"

**Civil Engineering**

22.8%

5.5%

71.8%
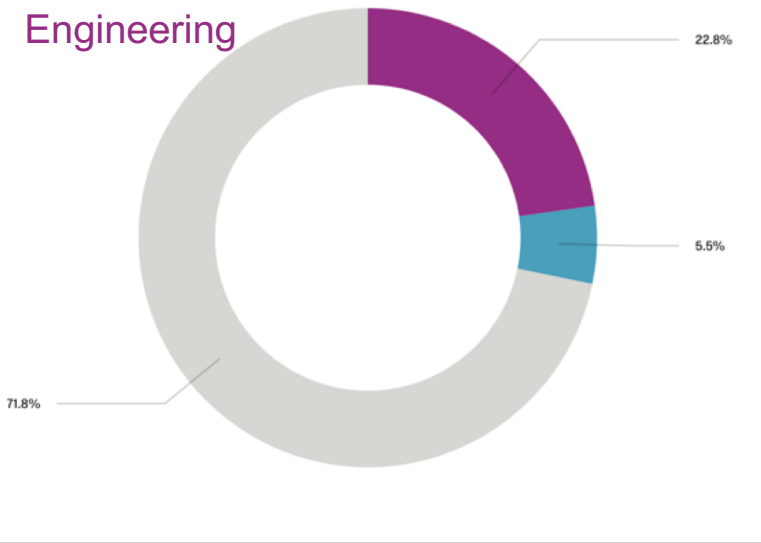
Civil Engineering
22.9% of respondents reported offering Civil Engineering courses.
N=1667[1]

Energy & the Environment
The majority of respondents(62.8%) currently offer courses on Energy & the Environment with an additional (9.7%) likely to implement in 2019/2020.
N=2147[1]

Energy & the Environment
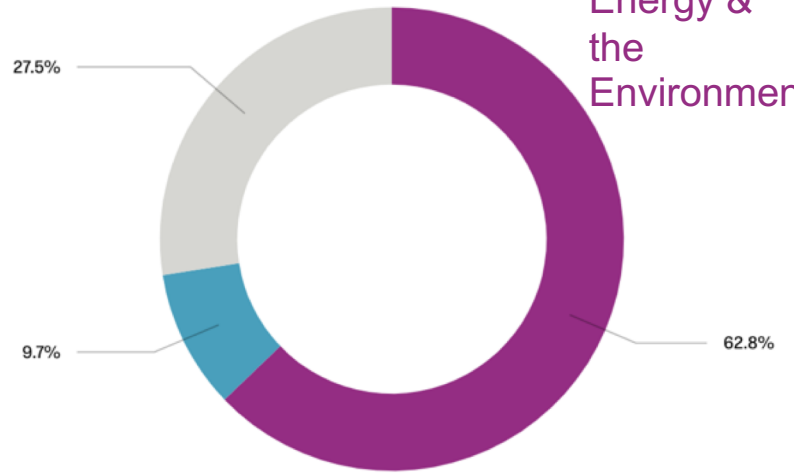
27.5%

62.8%

9.7%

● Currently Offered   ● Likely to be implemented in 2019/2020   ● Unlikely to be implemented in 2019/2020

1. Respondents were give the option to check "I don't know," resulting in the variance in number respondents.

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STEM Implementation in Core Curriculum:
Biomedical Technology/Medical Devices, Career & Technical Education

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"

Biomedical Technology/ Medical Devices

36.4%

55.5%

8.1%
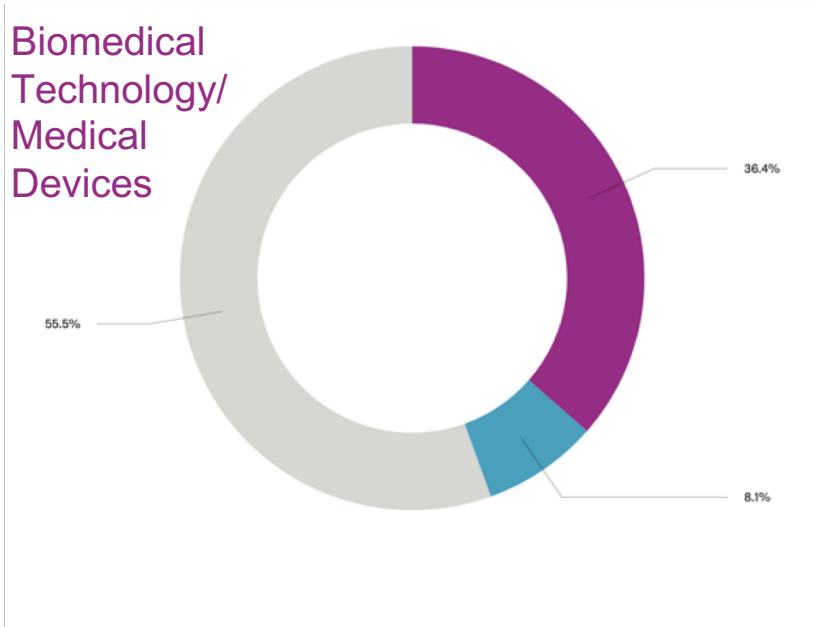
Biomedical Technology/Medical Devices
The majority of respondents indicated that Biomedical Technology/Medical Devices are not being implemented.
N=1908[1]

Career & Technical Education
Nearly 70% of respondents reported currently having career & technical education programs, and another 7.8% plan to implement in the next school year.
N=2241[1]
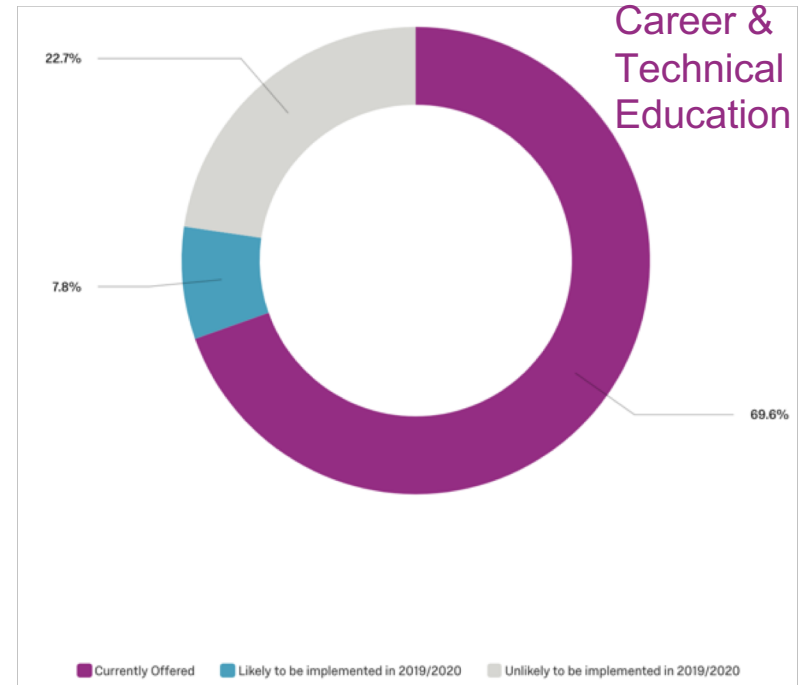
Career & Technical Education

22.7%

7.8%

69.6%

■ Currently Offered ■ Likely to be implemented in 2019/2020 ☐ Unlikely to be implemented in 2019/2020

STEM Implementation in Core Curriculum:
Engineering Design, Robotics

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"
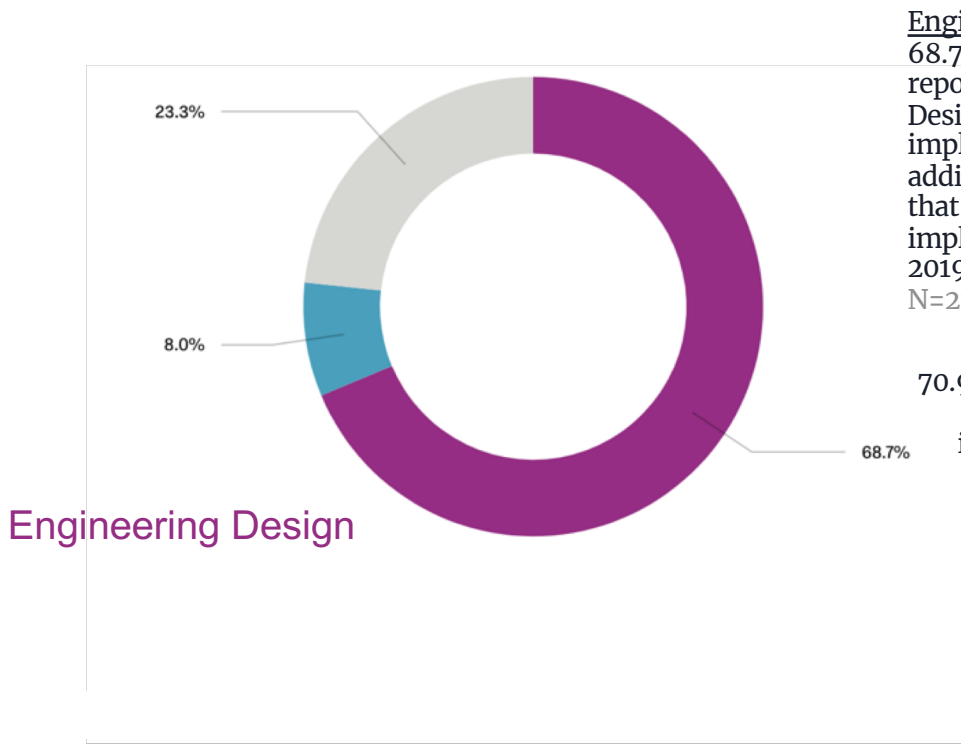
**Engineering Design**
68.7% of respondents reported Engineering Design to be currently implemented with an additional 8% stating that it is likely to be implemented in 2019/2020.
N=2187[1]

23.3%

8.0%

68.7%

Engineering Design

Robotics
70.9% of respondents reported current implementation of robotics programs with 10% likely to implement in 2019/2020
N=2289[1]
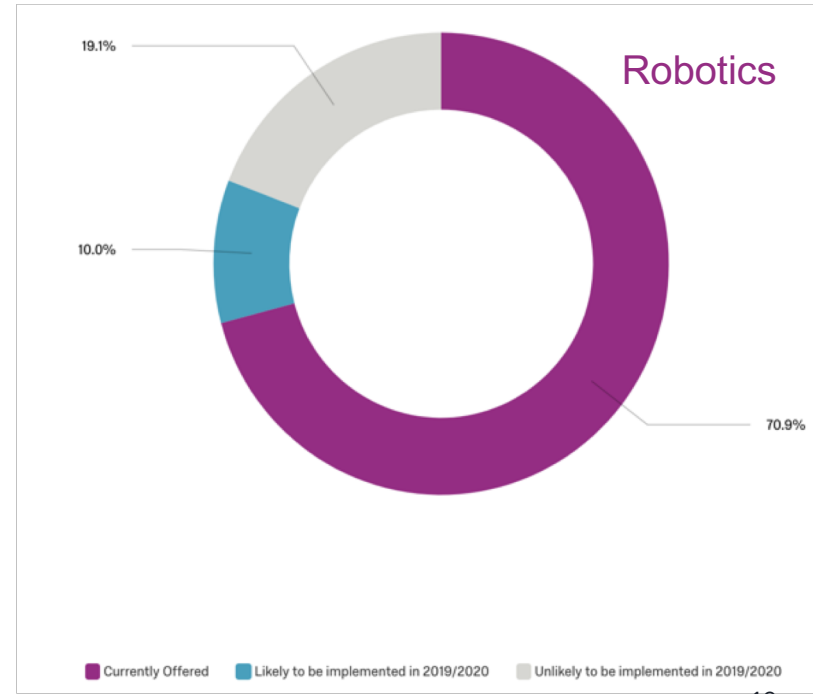
Robotics

19.1%

10.0%

70.9%

■ Currently Offered   ■ Likely to be implemented in 2019/2020   ▨ Unlikely to be implemented in 2019/2020

1. Respondents were give the option to check "I don't know," resulting in the variance in number respondents.

STEM Implementation in Core Curriculum:
Intro to Technology, Project-Based Learning

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"
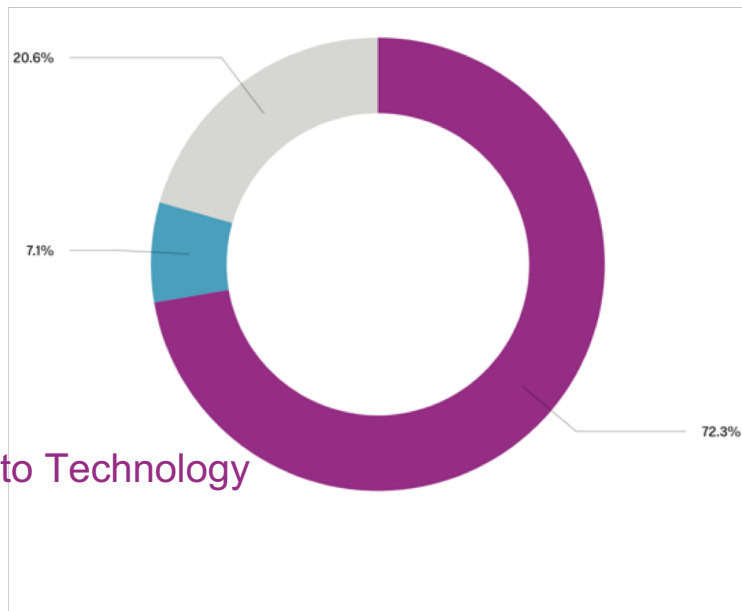
Intro to Technology

Intro to technology was reported by 72.6% of respondents as part of STEM implementation. N=2161[1]

Project–Based Learning was reported by a large majority of respondents (75.4%) as part of the strategy for implementing STEM into core curriculum with an additional (11.4%) planning implementation in the 2019/2020 school year. N=2337[1]
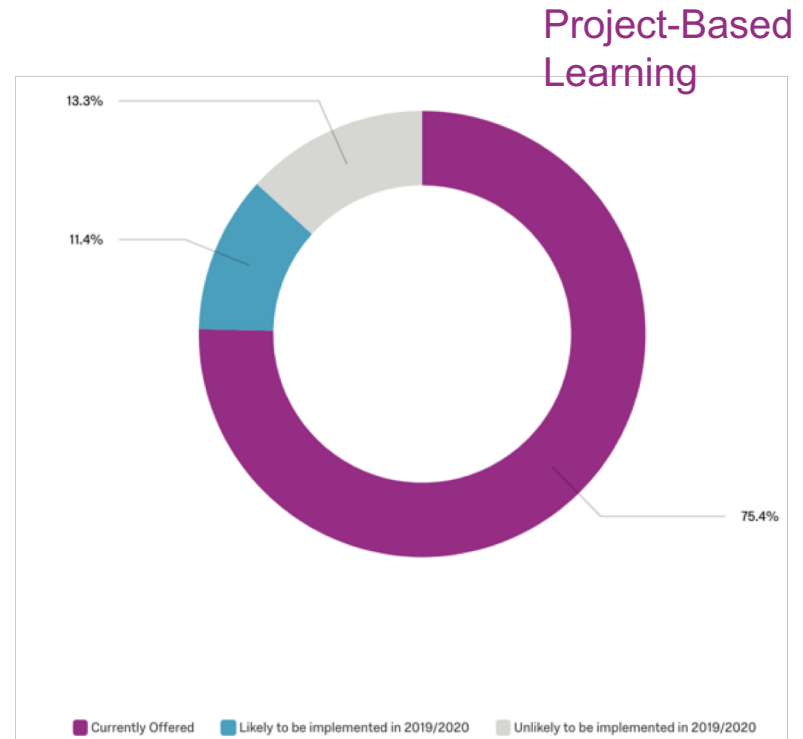
Project-Based Learning

■ Currently Offered   ■ Likely to be implemented in 2019/2020   ■ Unlikely to be implemented in 2019/2020

1. Respondents were give the option to check "I don't know," resulting in the variance in number respondents.

STEM Implementation in Core Curriculum:
Technology & Engineering Education

Q: "Which of the following best reflects your implementation of STEM /STEAM in core curriculum this year (the 2018/2019 school year)?"
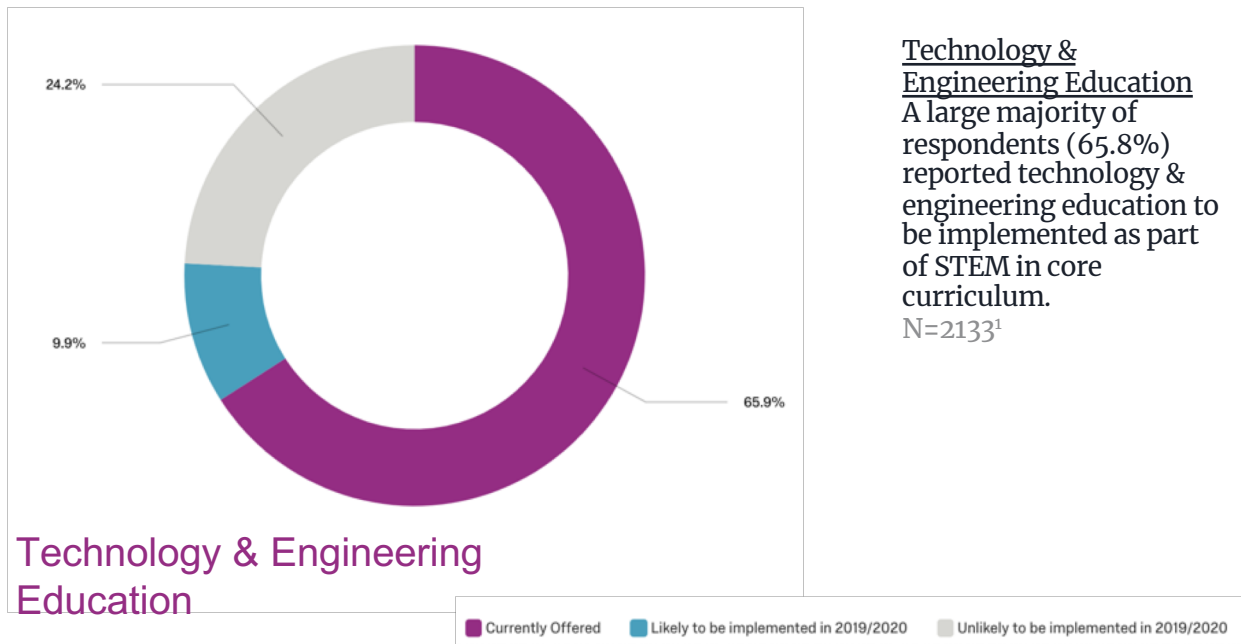
Technology & Engineering Education
A large majority of respondents (65.8%) reported technology & engineering education to be implemented as part of STEM in core curriculum.
N=2133[1]

24.2%

9.9%

65.9%

Technology & Engineering Education

- Currently Offered
- Likely to be implemented in 2019/2020
- Unlikely to be implemented in 2019/2020

Other STEM Implementations

Other: Please specify

- PLTW and specialty courses are being taught. We have several clubs that cover areas mentioned but I did not select them since they are just clubs (robotics and computer design).
- Anything that has been implemented is of my own volition. I teach at a small PK-12 school, and I am the only science teacher. There is no prescribed curriculum beyond the suggested textbook. I have a degree in biotechnology, so I focus on that a little bit more than the average biology teacher.
- We offer Project Lead the Way but have very limited participation. The majority of our students lack the math skills to complete the content.
- IED, Cyber Security, Principles of Engineering , and Digital Electronic
- Agricultural Biotechnology
- We offer MESA and Science Olympiad as a club activity.
- We have an 8 week STEM elective course for middle school that includes a week of code writing.

- We have a game development class, and I run a computer club which creates simulations
- Most of the STEM in my course is engineering that ties into our curriculum. I teach the students basic engineering concepts. They build using recyclable materials. Then occasionally they are offered the opportunity to re-engineer and improve their design.
- None
- We have a medical professions academy
- AP Chem, AP Bio, AP Computer Science
- I am not certain that I am answering those correctly. The answers that I gave were class themes and not full courses.
- I work in a high school only district
- Coding
- Challenged bases
- Forensics
- Life, Earth, and Physical science
- We currently have drones and culinary arts and are planning automotive technology within 5 years.
- Music engineering

- Honors and AP Science classes
- FIRST robotics - after school
- Aquaponics
- STEM club
- Biology, Chemistry and Physics courses
- Science Olympiad Course Focused
- PLTW Engineering and Biomedical Programs offered in high school.
- Digital Composing - music class
- We teach a maker class.
- Biological sciences
- Interdisciplinary courses (Art & Science, Photography & Science)
- anatomy and physiology; forensics; floral design, and grocery Meat prep.
- my school is 50 % technical education-yeah
- Robotics, Drone Program, and competitions/ programs in Future City Challenge, conservation programs with water and energy engineering / STEAM projects.
- More to come
- Robotics is offered as a club not a course.
- digital electronics

Other STEM Implementations, Continued

Other: Please specify

- My school is part of a 5 High School team that has launched a cube-sat(ellite)
- I am teaching an entrepreneurial course where students start a business
- Materials Science Engineering
- Earth science
- These classes are offered now or will be every other year
- Key coding
- Our high school offers some of these courses, just not in elementary.
- I teach chemistry. This includes the above topics I selected and more.
- aSSSD
- Geographic Information Systems and Data Visualization
- Foss Kit
- General Science, TECHFIT
- As of right now, I have moved to the alternative high school. We do not have any stem classes here however, these kids would benefit greatly and I am anxious to incorporate this into our school

- Some of the topics listed above are part of other courses. You are missing a choice that say these topics are incorporated in a different class.
- Astronomy, Oceanography Environmental Science
- Introduction to Biotechnology - currently offered
- Freshman level Biology and Early Admission (college level)Biology I and II.
- Forensic Science
- Physics
- As part of my regular class (integrated 8th-grade science) I implement STEM/STEAM activities approximately 1X per quarter.
- Project Lead The Way
- These are integrated in subject areas.
- Very small school with limited funds, just do stem projects in class
- Forensic Science, Natural Disasters, Anatomy, Astronomy, Physics, Chemistry, Health, Wildlife Management, Zoology

- STEM and STEAM offered at elementary, middle and HS levels
- Material science, engineering physics
- Robotics is not a class, but an afterschool club
- Chem, AP chem, bio, AP bio, Anatomy and physiology, Zoology, forensic science
- PLTW IED, POE, and EDD Classes are currently taught at the high school.
- anatomy & physiology
- I said that we currently offer Engineering Design, because it is an explicit part of our Freshman Physics Curriculum. I selected that we teach courses, when we had an explicit course with that title. Often, we teach some of the listed skills as part of a course with a different overall focus.
- Designing solutions to environmental problems/issues
- Biotech, genetics and a research course
- ngss curriculum
- Extra- curricular activities - solar car team
- AP courses
- Arts/VAPA Pathway (PLTW)
- STEAM class as an elective is offered.
- some basic coding

Other STEM Implementations, Continued

Other: Please specify
- We do offer Google App design in our after school program
- STEM cohort with science content class, english and a technology class grouped by grade level in high school
- We do have some elective classes and clubs that include robotics and computer design, but we don't have it included in the core curriculum of our science courses.
- Earth & Space Science --- Currently offered
- Design and Modeling
- Middle School Spiral Curriculum of STEM
- Chemistry in the environment.
- Virtual Reality
- Automotive Technology
- Many of these programs are ran at at least ONE school within the district. Few of these are offered at all schools in the district.
- science research class
- 7th Grade Science
- Marine Biology
- Just clarifying that I answered the above questions based on my school
- Sustainability course
- Forensic Science

- These are all offered within a course and covered for a week or two. They are not courses in and of their own.
- We have started an engineering and physics in 9th grade
- We do stem activities in every class, it is absurd to keep using the buzzword of "stem" or "steam" some new great way of teaching and learning science
- We offer robotics as a club only, not entire school.
- Would love to implement robotics through the GT program; just looking for funding.
- Robust life and physical science course offerings
- cybersecurity
- The robotics is done as the robotics team and is not a course but we do have a team
- physical science is offered in the middle school.
- K-5 Science Curriculum based on WI state standards with STEM integration and our Library is teaching Robotics, Apps, Engineering as well on our team at our two schools not district wide
- k-8 Steam School

- Fabrication Laboratory
- there is a STEM club at school
- Forensics, Astronomy, Weather, Environmental Science and Oceanography Neuroscience Research
- Academic club
- Biomedical sciences and lab technician
- PLTW modules
- We have offered courses in the past, but school has cut courses. School students to take stem courses at the community college for free. (Benefit to school because they don't have to pay the teacher, but the class isn't as rigorous)
- We are trying this year to stress STEM in our classes; have brand new Science labs, as well as a Virtual Science Lab.
- Next Generation Science Standards 9-12
- Currently offer, in addition to core science content, PLTW engineering and Biomedical science pathways
- SECME is offered as an after-school club activity.
- courses in Project Lead the Way Engineering, Computer Science, and Biomedical

Other STEM Implementations, Continued

Other: Please specify

- Grade 9-12 working towards being a STEM Certified school
- we currently have an engineering internship offered with a large locally operated national business where students have the opportunity to work with engineers on real world projects
- Project Lead the Way
- We use Project Lead the Way for Grades 6-12.
- Marine Boat Building
- We do lots of science that isn't included in the above list (i.e., chemistry).
- Many topics above taught through our STEM lab from "Creative Learning Systems"
- students are able to be tech apprentices in order to help maintain our network, hardware and software used in classrooms
- Some of these are offered after school and at a technical center for the district.
- My 9-12 school, part of a statewide regional tech hs system, offers CADD, Mfg, Auto, autobody, elec, carp, electromech, IT, and other career certifications.

- 3D printing technology, Human Anatomy & Physiology
- some of these courses are offered out a public Career and Technical Center, free of charge to students.
- I marked agriculture - technically its a horticulture course
- Digital electronics, game design both offered currently
- Marine science and oceanography
- Other trade fields
- Dronebotics, Maker
- CCSS-M, NGSS
- Makerspace
- Data collection using sensors & probes, modeling
- Linking literacy and science content through anchor texts
- Health science pathway
- Anatomy; Astronomy; Scientific Research and Design; and AP course in Physics, Biology, Chemistry, and Environmental science
- Forensics

Insights
Emerging Technology

Product
Development
Insights

Emerging Technology for Student Instruction

Q: "Last, we would ask you to be our futurists and look ahead five years. This is your chance to speak directly to the product development companies in science and STEM/STEAM education. When you think about emerging technology (virtual reality, augmented reality, the Internet of things, coding, biotechnology, etc.) what do you believe has the most promise for student instruction?" Please give specific examples.

28%
**Virtual Reality /
Augmented Reality**

23%
Coding

16%
Biotechnology
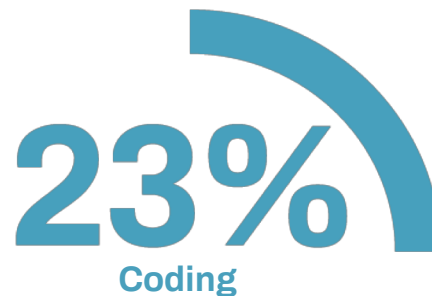
Emerging Technology for Student Instruction

"If companies could offer a coding program that directly aligns to our core standards (ELA, Math, Science, Social Studies) with CS integration, schools would be more inclined to use a coding program."

District-level STEM Supervisor

See Appendix
for 122 pages of responses from STEM educators.

Contact dlong@stemreports.com for more examples.

"I think that biotechnology is a major emerging market and many new jobs will stem from this area. The other areas will need more workers and add workers to the field, but Biotech is where new innovations are being made such as CRISPR technology and new careers will be formed around this such as baby designer, organ maker, organism modifier or designer, Bioenergy technician, ecosystem restorer, and other "stranger than fiction" jobs that don't exist yet."

Science Teacher

Insights
Education &
Business
Collaborations

Market
Development
Insights

Education & Business/Industry Collaborations

25.2%

74.8%

Yes No
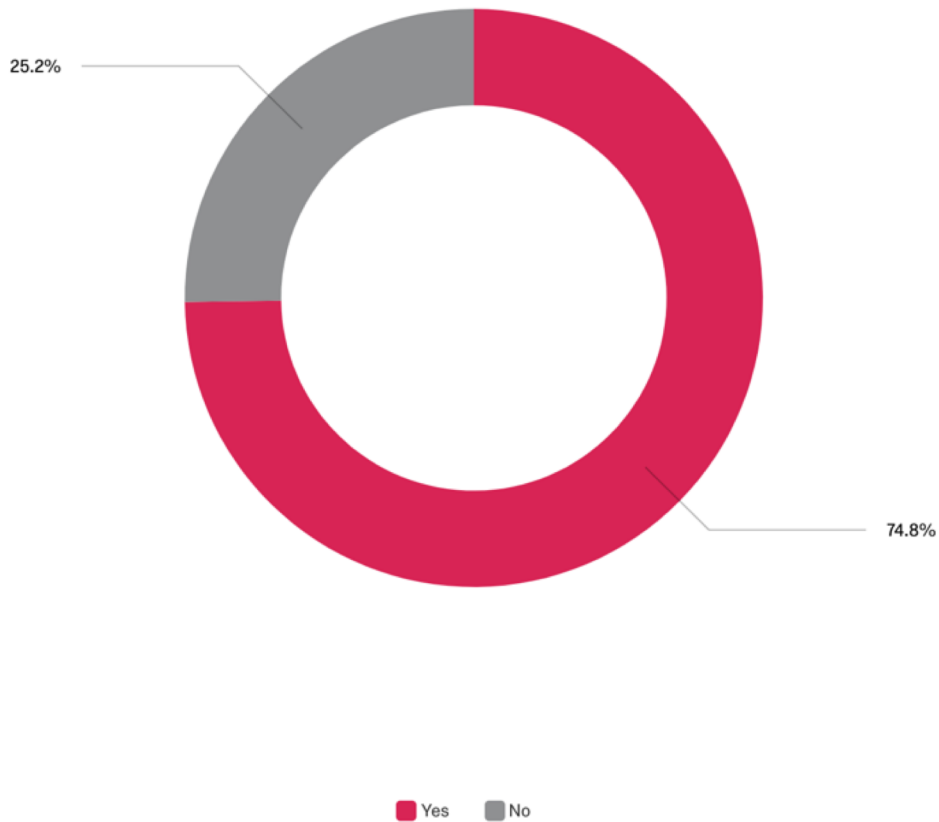
Q: "Does your school or district collaborate with business or industry partners to directly impact student learning? (mentorship, internship, guest speakers, activities, etc.)."

A large majority of respondents (74.8%) report having business/industry collaborations that directly impact student learning.

n=2459

Types of Education & Business/Industry Collaborations

Q: "In which of the following ways does your school or district collaborate with business or industry partners? Please check all that apply."

Collaboration Type	Percentage
Guest speakers on science and STEM careers	83.4%
Field trips to science/engineering companies	69.8%
Grants, donations, sponsorships to enhance STEM	54.4%
Internship programs	40.2%
Job shadowing	38.5%
Mentorship programs	35.5%
Other, please specify	5.5%

Guest speakers, field trips, and financial support dominate the types of collaborations that educators report with businesses and industry.

N=2459

Roughly 75% of STEM educators report collaborating with business & industry to impact student learning.

Insights
Follow the Money

Market
Development
Insights

Impact of National Politics on K-12 Budgets

Q. "Over the next two years, what impact do you think national politics will have on K-12 education budgets for science and STEM/STEAM education?"

4.1%
15.2%
21.9%
21.0%
37.8%

Very negative   Negative   No impact   Positive   Very positive

Overall, the majority of educators (53%) responded negatively when asked about their thoughts on the impact of national politics on K-12 education budgets for science and STEM education over the next two years.
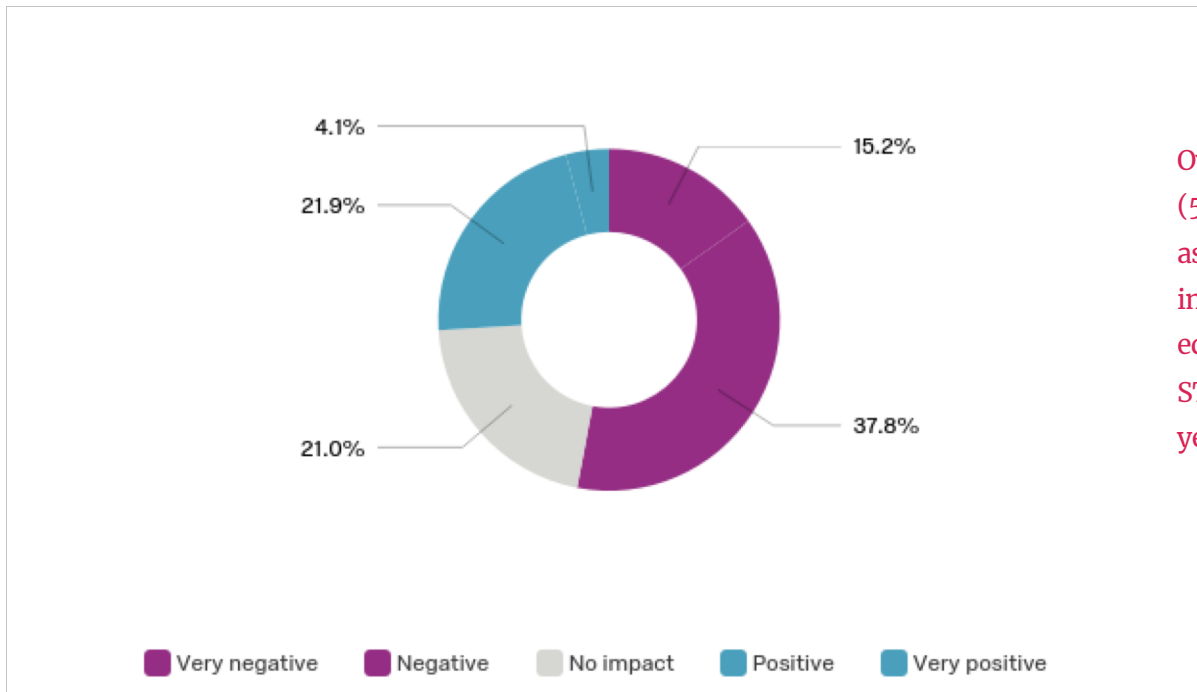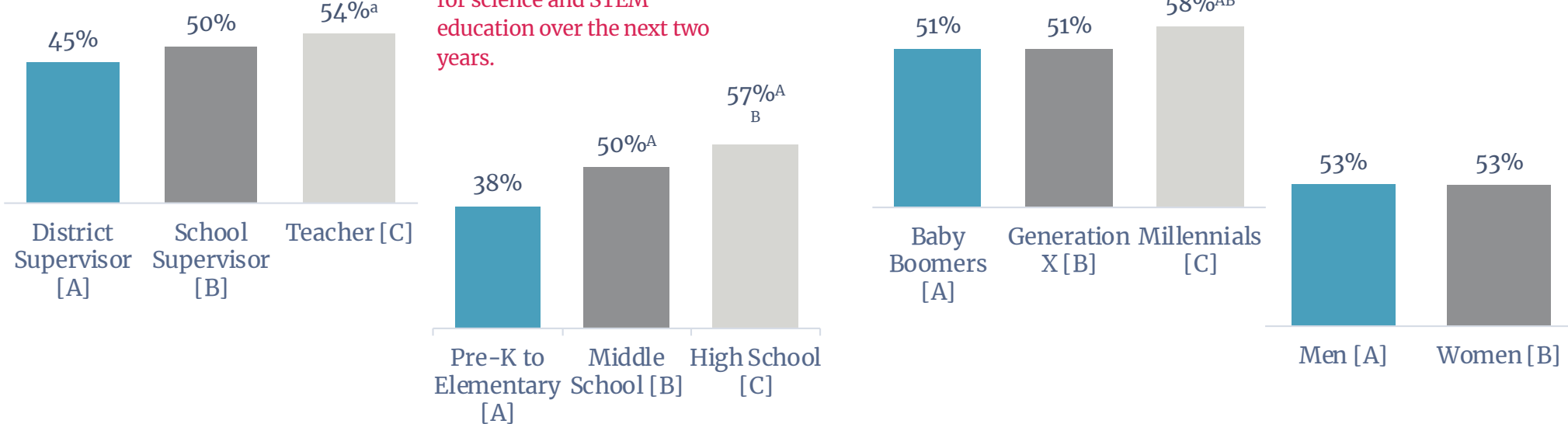
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Impact of National Politics on K-12 STEM Budgets

Q. "Over the next two years, what impact do you think national politics will have on K-12 education budgets for science and STEM/STEAM education?"

STEM teachers and Millennials report the strongest negative feelings regarding the impact of national politics on budgets for science and STEM education over the next two years.

Chart 1:
- District Supervisor [A]: 45%
- School Supervisor [B]: 50%
- Teacher [C]: 54%a

Chart 2:
- Pre-K to Elementary [A]: 38%
- Middle School [B]: 50%A
- High School [C]: 57%AB

Chart 3:
- Baby Boomers [A]: 51%
- Generation X [B]: 51%
- Millennials [C]: 58%AB

Chart 4:
- Men [A]: 53%
- Women [B]: 53%

Uppercase and lowercase letters denote statistical significant differences at 95% and 90% confidence intervals, respectively.

Methodology
& Respondents

Methodology & Respondents

This study was conducted by Catapult X, LLC, an independent product and market development firm that specializes in market research for science and STEM education. MCH Strategic Data provided educator participants below who were emailed a link to an online survey, which was fielded between October 10, 2018, and October 16, 2018.

The survey received 2791 responses from a variety of responsibility levels*, grade levels*, and demographics.**

- District Level STEM/Science Supervisor, n= 110
- School Level STEM/Science Supervisor, n = 305
- Science or Stem Teacher, n = 2553

- Pre-K to Elementary, n = 297
- Middle School, n = 1163
- High School, n = 1624

- Silent Generation, n = 6
- Baby Boomers, n = 544
- Generation X, n = 1305
- Millennials, n = 886
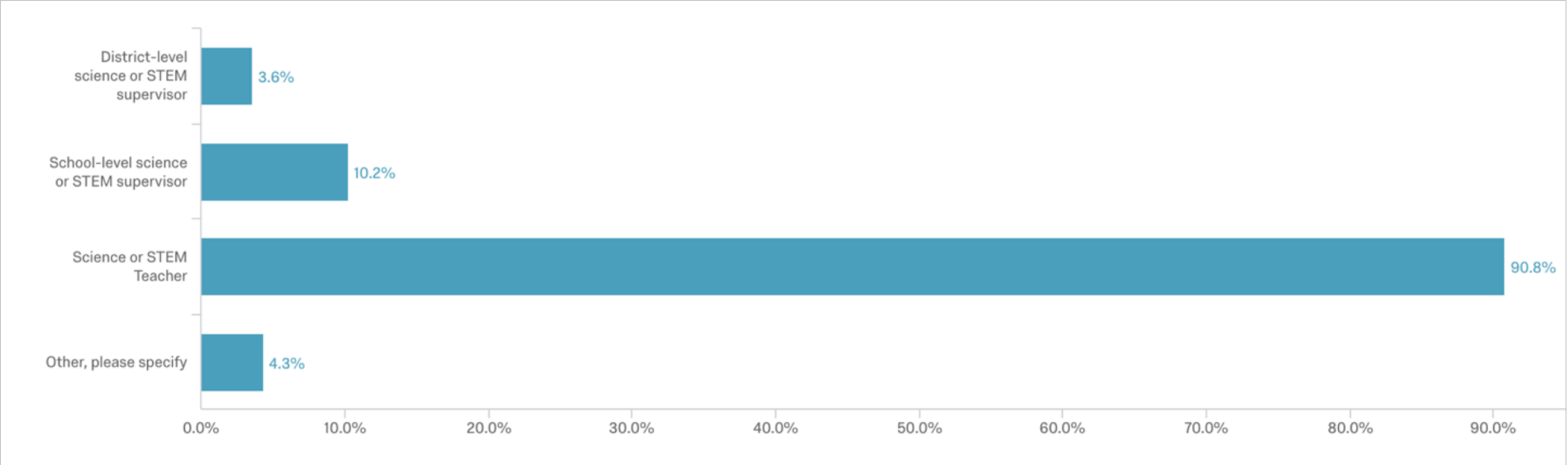
- Male, n = 830
- Female, n = 1878

* Respondents were given the option of more than one education level, and grade level.
** Respondents were given the option of "prefer not to answer."

Respondent Role

Q: "What is your role in science or STEM/STEAM education? (Please select all that apply.)"

Respondents' Other Roles

Other: Please specify
- Science teacher
- LD Resource Teacher
- School Counselor
- STEM Education Consultant
- literacy interventionist
- Instructional coach
- Air Force Junior ROTC Teacher
- Classroom teacher
- STEM Instructional Coach
- 3rd regular teacher including science
- Language Arts Teacher
- Special Education Science teacher
- Special Education support to general education
- FIRST
- None
- Gifted and Talented Teacher
- STEM TEAM Coach
- Curriculum and technology developer
- Intervention Specialist
- Instructional Resource
- Co-Department Head
- Pre-K to 12 Science Department Chair
- Talented and Gifted
- Outreach Teacher

- Engineer working with teachers to bring engineering into the K-8 curriculum at our school
- Random science freshman educator
- Assessment specialist
- Club Sponsor
- Inclusion Teacher
- Science Teacher/ Department Coordinator
- Math Teacher
- STEM counselor for Cub Scouts
- Consultant, writer
- STEM Consultant
- Gifted STEM Regional HS program serving 7 school divisions
- College Chemistry faculty.
- Administrator
- Curriculum writer
- K12 Tech Market provider
- Curriculum Director
- Trainer, Steelcase Education
- Consultant
- CTE Director
- District enrichment program coordinator
- Challenge teacher
- Instructional Coach
- CTE Teacher

- Teacher/librarian and Makerspace monitor
- Professional Development provider
- Math teacher
- Principal
- Director of Secondary Education
- High school counselor
- K-8 Principal
- Science Teacher
- K-12 Gifted Support Teacher
- Mathematics teacher, Robotics Coach
- GATE Educator
- Director of College Career Readiness and Intervention
- High school agriculture teacher
- Math teacher
- math coach
- TOSA supporting all contents, especially Science
- Special educator
- Mathematics
- STEM Director for Boy Scouts as well
- Classroom science instructor
- curriculum Director
- Ag Education- FFA, Food
- Science Sustainability Coordinator
- Robotics Coach

Respondents' Other Roles, Continued

Other: Please specify

- High school agriculture teacher
- Math teacher
- Math coach
- TOSA supporting all contents, especially Science
- Special educator
- No role
- Mathematics
- STEM Director for Boy Scouts as well
- Classroom science instructor
- Curriculum Director
- Ag Education- FFA, Food Science
- teacher
- Developer of District Curriculum and Standards for STEAM/STEM classes
- Technology teacher and Technology Integrationist
- former STEM teacher/Ham Radio club advisor
- Special Needs
- Academic Coach that uses STEM standards
- Science curriculum team-district level
- Science Chairperson
- I used to teach science, I am currently the graduation specialist
- Special education Science and Math teacher

- Art
- Special Ed resource STEM
- Robotics Coach
- Science dept head private school
- Assistant Principal of Instruction
- Science Teacher / Department Chair
- Science Olympiad Coach
- English Teacher
- Teacher Assistant
- Math Teacher
- Science Lab Assistant
- Academic Intervention Coach
- Math 7 grade
- Algebra 1
- Science Fair Advisor/Organizer for Local School District
- superintendent
- Science Coordinator
- math teacher
- Coach LEGO Robotics Team
- Provide STEM/STEAM/NGSS training and workshops nationally
- Was a science teacher am now computer science personal finance teacher
- No role
- Teacher

- In Charge of a STEM Club after school
- STEM Coach (K-8)
- Math teacher
- Teacher/librarian and Makerspace monitor
- Gifted Resource Teacher
- Science Fellow
- Grade-level Science Chair
- Regular ed teacher
- Science advocate
- Teacher, STEM elective
- VEX Robotics Coach
- Science Fair Advisor
- Curriculum/IT Coordinator
- Math teacher and Gifted Ed.
- Science Olympiad Coach
- Principal
- Instructional Support Teacher
- GT Teacher
- Athletic Director
- Gifted & Talented Teacher
- curriculum writer
- Industrial Technology Instructor
- Director of Student Services
- STEM Camp/Club Director
- Science Special Education Teacher/Liaison
- Industrial Technology Teacher 7-12

Respondents' Other Roles, Continued

Other: Please specify
- Separate school
- Science Dept Head
- FIRST Robotics Coach & Mentor
- Science Club adviser
- Instructional Technology Coach
- Science Dept Chair
- Technology Coordinator
- District Science Resource Teacher
- Navy Education Liaison
- Science/STEM teacher educator
- Advisor
- Computer Science Teacher
- District Level STEM Staff Developer
- Researcher
- PPD provider
- Department chair engineering
- Science supervisor
- PD Provider

For which education level(s) are you responsible? (Please select all that apply.)
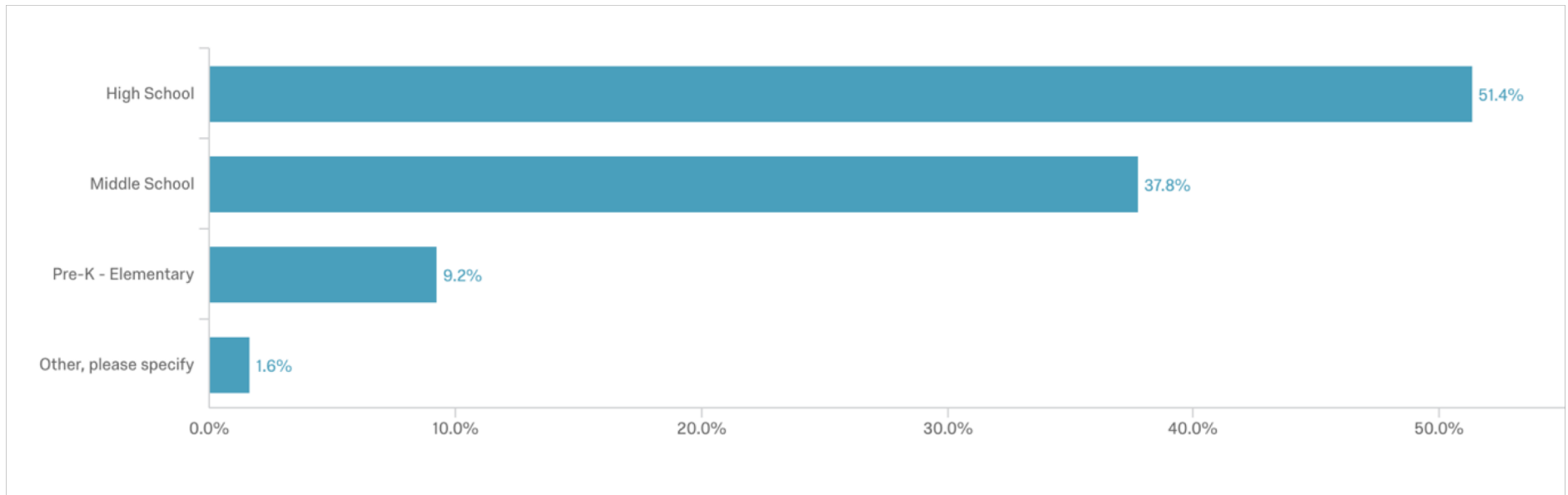
Other Grade-level Responsibility

Other: Please specify
- 7th grade
- FIRST FRC Mentor
- Junior High
- College
- K-12
- 6th grade
- Dual Credit Instructor as well
- Duel Enrollment Biology
- College
- 11th and 12th grades gifted college program
- College
- K12
- K-12 and Higher Education
- Program evaluation
- Project mgr. STEM grant K-12
- Community College
- AP classes
- K-12
- Dual credit college courses, also
- K-12
- Pre-K - 12
- K-12
- After school STEM
- College

- College credit high school
- Boy Scouts ages 5-22
- Grades 4-6
- 9th grade only
- Enrichment
- K-5
- 4th
- I teach part time at the college level (anatomy and physiology)
- College professor
- AP and IB
- K-12
- Pre-service science teachers
- Community College
- Community College
- High school math, K-12 gifted ed
- K-4th
- Junior college
- AP or College level
- Dual Credit
- Some college
- Early Middle College
- Jr. High 7th and 8th grade
- College Credit Plus
- College Credit Chemistry

- Community college
- College courses
- Post-secondary ed
- Post-secondary
- 2-yr college
- University
- College
- College level teacher preparation
- College adjunct
- Graduate school teacher prep
- 12-7
- Middle & High School
- A.P. Environmental Science

About Catapult X
and
MCH Strategic Data

Founded by Daylene Long, Catapult X is a market and product development company that consults exclusively with STEM education industry partners to *catapult* them forward using data-driven insights.

Long served as Chief Marketing Officer and Partner for Vernier Software & Technology for 15 years, launching the company's first marketing, public relations, and outreach departments. She has consulted on projects for the Howard Hughes Medical Institute, Smithsonian Science in the Classroom, and Learning.com. Most recently, she has helped an international client pilot augmented reality curriculum. Long also regularly publishes national surveys on STEM education at stemreports.com.

Long is an affiliate member of the Council of State Science Supervisors, a member of the National Science Educators Leadership Association, and a 16-year member of the National Science Teachers Association. She serves as a judge for Re-imagine Education, an international competition for education entrepreneurs supported by Wharton Business School. In her local community, Long serves as Board Chair for In4All, whose mission is to mobilize community to create opportunities for students who have been historically underserved.

Daylene Long, President, Catapult X

MCH is a leading provider of data and technology solutions. The K-12 education market has been a focus of ours for over 90 years. Our commitment to providing superior solutions is evidenced by ongoing investment and development in people, data, technology, and services.

Our solutions range from licensing our quality data to providing custom software development, integration, analytics, and data delivery services. For more information, contact info@mchdata.com or call 800-776-6373.