



Report Findings

Status of Science Implementation in California 2019-2020



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Executive Summary and Recommendations

As California and the nation grapple with big societal challenges such as climate change, the COVID-19 pandemic, disparities in quality and access to health care, and lack of racial equity, it is abundantly clear -- now more than ever -- that there is an urgent need to make sure that students emerge from our TK-12 education system equipped to understand and mediate these challenges. Ensuring that all of California's students receive a high-quality, rigorous science education is key to accomplish this goal. Despite adoption of the CA Next Generation Science Standards (CA NGSS) in 2013 and coordinated efforts to support implementation across California, numerous anecdotal reports from the field began to emerge suggesting inequitable implementation of the CA NGSS state-wide, yet there was no empirical evidence to support the claim. As a result, the California Association of Science Educators (CASE) Board of Directors engaged the CASE NGSS committee to survey California educators to gather data on implementation. In the second half of 2020, CASE administered a survey to educators throughout the state to gauge the level of implementation of the CA NGSS, below is the summary of the data collected from 594 educators across the state.



The results of the survey provide strong evidence that:

- NGSS Implementation has not been evenly prioritized or supported by districts and administrators in California.
- Even though the State Board of Education approved NGSS-aligned instructional material in 2017, the majority of teachers work in settings without materials aligned to the NGSS.
- Teachers have not received adequate professional learning in the NGSS or in their adopted instructional materials (if they've adopted).

Therefore CASE recommends three key actions:

- The State of California must directly fund CA NGSS implementation. The state of California has never done so, despite releasing \$1.25 billion in one time funds to support the implementation of the CCSS in Mathematics and English Language Arts (ELA) in 2013 (Fensterwald, 2013). Not releasing funds to explicitly support CA NGSS implementation forces school systems to negotiate priorities that inevitably compete with funding science implementation with their limited Local Control Funding Formula (LCFF) monies. In addition, for the current year's state budget, California state policy leaders should ensure district and school access to TK-12 professional learning funds including science education.
- Results of the California Science Test (CAST) must be added to the California School Dashboard to incentivize school systems and administrators to support science as a core subject on par with English Language Arts and Mathematics.
- School systems must provide support to engage their educators in tools and processes for curriculum-based professional learning that supports educators to evaluate, select, and implement instructional materials designed for the CA NGSS.

There is strong evidence that NGSS implementation can be successful with adequate funding and supports (Tyler, et al., 2020a, 2020b). It's time for the State of California and school systems to take the actions needed to ensure that ALL of California's students have access to a high-quality science education.

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Background

In the second half of 2020, the California Association of Science Educators (CASE) surveyed educators throughout the state of California by administering the CA NGSS Professional Learning and Needs Survey developed by the CASE's NGSS Committee. The intent of the survey was to gauge the level of implementation of the California Next Generation Science Standards (CA NGSS or NGSS). Concerns around the inconsistent implementation of CA NGSS across various parts of the state warranted a comprehensive look at implementation. Despite grappling with the impacts of the COVID pandemic on teachers and students, 594 educators made the time to respond (see Appendix A for survey questions).

The CA NGSS was adopted by the State Board of Education (SBE) on September 4, 2013. A statewide plan to implement the CA NGSS for transitional kindergarten through grade 12 (TK-12) was subsequently approved by the SBE on November 13th, 2014. Based upon legislation that was passed calling for the revision of the science framework to align with CA NGSS, the California Department of Education launched a committee that would eventually produce the 2016 Science Framework, adopted on November 3, 2016. The CDE then launched the science instructional materials adoption process which would result in the review of and recommendation of K-8 science instructional materials for the state. Assessment of students' NGSS knowledge at the statewide level for the California Science Test (CAST) began with field tests in 2018 (see below).

Throughout these years, Local Educational Agencies (LEAs) have had the opportunity to align science instruction to the CA NGSS. The California Department of Education, County Offices of Education provide technical assistance to support LEAs in their implementation. Organizations including CASE as well as other statewide science education leadership groups and collaborations like the California Science Project (CSP), WestEd's K-12 Alliance, California County Superintendents Educational Services Association (CCSESA), and the California Partnership for Math and Science Education (CAPMSE) have been active in providing ongoing professional learning for the implementation of the CA NGSS and supporting California teachers in providing high-quality science education to ALL students.

What follows is a report of the survey that was conducted. It is intended to provide a snapshot of CA NGSS implementation across the state, identify opportunities for progress and advancements, and consider increased areas requiring continued and additional support. The report is divided into multiple segments to provide information on: the mode of survey execution; demographics of respondents; understanding of NGSS professional learning opportunities for teachers; perspectives on assessment through the administration of the California Science Test (CAST); resources and instructional materials accessed by teachers; and, based upon the unique timing of the survey during the global COVID-19 pandemic, an opportunity to gauge perspectives on teaching science in the time of COVID-19.

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About the Survey

The survey tool was conducted using the digital SurveyMonkey platform. Questions were developed by statewide science education leaders in an effort to gather practical and timely information that also provided respondents with an opportunity to consider the implementation of the CA NGSS since their adoption. Survey questions were both quantitative and qualitative in nature. The survey consisted of 33 total questions in different formats including opportunities for free form responses as appropriate (Appendix A).

In order to receive the largest number of responses possible, CASE circulated the survey to over 11,000 contacts in the Association's database. CASE also reached out to partner with other science organizations requesting their assistance in circulating the survey as well as reaching out to other education advocacy organizations including the California Teachers Association and California Charter Schools Association. Survey promotion was also conducted via numerous social media channels requesting teacher's responses and assistance in understanding the implementation of the CA NGSS. The survey was held open for just over 2 months and respondents were incentivized by an opportunity to win a complimentary registration to the 2020 Virtual California Science Education Conference.

A sub-committee of CASE's NGSS committee with expertise in qualitative analysis worked with technical support from the San Joaquin County Office of Education to code and thematically analyze the qualitative responses of the survey. They undertook a thematic analysis of the responses that were qualitative in nature to ensure that their presentation in this report was accurate and presented appropriately.

Survey Results

Upon the close of the survey, 594 respondents had participated. It should be noted that this survey was distributed during a pandemic and many teachers were challenged with their day to day teaching in a remote environment. As a result, CASE was not expecting a high rate of return. Of those respondent's 56% completed the entire survey (see Table 1 for demographic summary of respondents). It should be noted that not all questions presented in the survey were pertinent to all grade levels and could have impacted question response rates. The average time for completion of all 33 questions was 17 minutes.

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Table 1: Demographic summary of respondents

Participant counts in parentheses, total respondents = 594

Community that participants teach in	Grade band that participants teach in	Length of time participants have taught science in California
57.26% Suburban (339)	36.99% Secondary School (219)	65.09% more than 10 years (386)
28.04% Urban (166)	31.76% Middle School (188)	16.53% 6-10 years (98)
11.15% Rural (66)	20.61% TK to 5th (122)	17.03% 1-5 years (101)
3.55% Varied (21)	10.65% Varied (63)	1.35% less than one year (8)

About the Respondents

Respondents to the survey came from various locations and school types throughout the state. Approximately 51.5% or 305 respondents came from non Title 1 schools, 27.7% or 164 respondents came from Title 1 schools. Additional groups came from Charter schools (5.41%), Private schools (3.21%) and “Other,” which is comprised of respondents from various types of educational institutions (6.9%). The balance of respondents came from magnet (1.5%), alternative (1.5%), no school affiliation (1.5%), and neighborhood schools with no specification (0.68%). For the rest of this report, the organizational structure of schools will be referred to as the “school system”.

Most survey respondents identified their community as suburban with 57% or 339 respondents identifying, followed by urban teachers with 28.4% or 166 respondents, and the third largest group being rural teachers with 11.15% or 66 respondents. Just over 3.5% of respondents identified themselves as “Other” (Table 1).

As shown in Table 1, grade levels at which respondents teach were divided by range, with the largest respondent category from secondary teachers (grades 9-12) at 36.9% followed closely by middle level (grades 6-8) at 31.76%. The next highest levels dropped dramatically with intermediate (grades 3-5) at 13.7%, primary (K-2) at 6.42% and “Other”, comprising 9.7%. The balance consisted of a mix of higher education faculty, transitional kindergarten, and pre-service teachers – all under 1% and presented in ranked order of respondent participation.

The majority of educators responding to the survey had been in the profession for longer than 10 years (75.3%). Respondents to the survey tended to decrease with tenure in the profession and were represented as follows: 5-10 years teaching (14.7%), 3-5 years (6%), 1-3 years (3.4%), and under 1 year (0.5%) (Table 1). The vast majority of respondents had been teaching science in

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California for over 10 years (65%), followed by 6- 10 years (16.5%), 1-5 years (17%), and under 1 year (1.4%). It should be noted that those teaching science 6 years or greater had been teaching prior to the adoption of the CA NGSS, while those 5 years or less have been teaching since adoption.

Science Teaching Model

The survey asked respondents at the high school level which science course model was being implemented (as described by the 2016 Science Framework for California). Respondents shared the following information: almost 59% are teaching the 3-course model (a course model described by the 2016 Science Framework comprised of three courses, The Living Earth, Chemistry in the Earth System, and Physics in the Universe), while 11.7% of respondents identified as teaching the 4 course model (a course model described by the 2016 Science Framework comprised of four courses, Biology, Chemistry, Physics and Earth and Space Science as separate courses). Almost 8% noted that their schools had not yet made a decision on the model to teach. It should be noted that nearly 22% of respondents selected “Other” with comments noting that the question does not apply or that they “teach to the student’s needs,” amongst others.

For middle school respondents (teachers in grades 6-8), 67% responded that the California Preferred Integrated Model had been chosen; 19.4% identified that their school had not yet decided on a model and a total of 13% identified that their school had selected the alternative, Discipline Specific Model.

In elementary school, the survey asked how many colleagues at a school site regularly plan to teach science. The goal of the question was to understand the level of collaborative planning and support at a given site. Over 48% of total survey respondents selected either N/A or “Other”. Of those identifying responses, 22.5% selected “About half” of their colleagues regularly plan for science education, while 15% selected “Most-all,” and 14.8% selected “few-none.”

Understanding the State of CA NGSS Professional Learning (2013 – Spring 2020)

The survey sought to gain information about the support for science professional learning (PL) since the inception of the CA NGSS in 2013. Participants were asked how many total days since 2013 of PL did they experience. Almost 61% identified that over the last 7 years more than 5 days of PL had been supported, while both 3-5 days and 1-3 days were selected by just over 15% each, and just under 9% noted that there was less than 1 day of PL focused on NGSS support since 2013.

The **California NGSS Collaborative**, composed of statewide science education groups, has sought to support ongoing learning and implementation of the CA NGSS through the hosting of statewide “Rollout” events since 2014. PL events developed by these leaders have been provided each year in an effort to support the ongoing PL and implementation of the CA NGSS. A total of 6 years of rollout and other events (8 events total) have been hosted by the CA NGSS Collaborative and the survey sought to find how many respondents had taken advantage of these opportunities. The respondents identified the following levels of participation: None – no attendance (39% or 232 respondents), 15% - 91 respondents attended 1 event, 12.7% or 75 respondents participated in 2 events,

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and 9.85% or 58 participated in 3 events. Forty-seven respondents or almost 8% attended 4 events, 5 events saw 38 respondents participating (6.45%). Just over 8% of the total respondents participated in 6 or more events with 20 respondents identified that they attended all 8 events.

Further PL opportunities are hosted at the California Science Education Conference (hosted by the California Association of Science Educators) on an annual basis of which, the conference committee and CASE Board of Directors have sought to support CA NGSS implementation needs. To better understand the further engagement with various PL opportunities the survey asked about attendance over the past number of years. Of the 586 respondents that answered the question, 233 had never attended the conference (comprising nearly 40% of all responses). Of the remaining 60%, respondents had participated in the conference throughout various years with the largest number of respondents noting their attendance in 2016, 2017, 2018 and 2019, which are the conference years after adoption of the CA NGSS.

In addition to these state-wide efforts, the survey sought to identify other workshops or training opportunities that respondents remember as having had the most value to their professional learning of NGSS (Table 2). Only four types of PL services had any responses greater than 5%.

Table 2: Workshops/training opportunities that California educators most valued for their NGSS professional learning.

District Level Training	17.5%
Misc.	14.6%
County Office of Education Training	9.4%
WestEd	6.4%

Respondents were also asked to consider the past two years, prior to the Fall of 2020, and the source of content they had accessed for their professional learning needs (Table 3).

Table 3: Professional learning content that California educators accessed prior to Fall of 2020.

National Science Teachers Association Resources	57%
Professional learning providers	56%
YouTube	51%
TED Talks	50%
Online teacher communities	46%
Professional organizations	41%
State or County Office of Education	39%
California Association of Science Educators (formerly, California Science Teachers Association)	36%
Open education resources	36%
Trade websites	34%
Local science informals	29%
Podcasts	21%
Other/s	13%

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California Science Test (CAST)

To better understand the respondent's engagement with the CA NGSS and state-level assessment, the survey asked about whether or not respondents taught in a grade that the California Science Test (CAST) is administered. Of the respondents, the results were almost evenly split with 49.6% noting "Yes" and 50.3% answering "No." The CAST is administered in grades 5 and 8 and once in high school. For high school students the test must be completed by the end of grade twelve, but there is an option to administer in grade 10, 11, or 12. The CAST exam was first field tested in 2018 and then operational in spring of 2019 (skipping administration in 2020 due to the pandemic).

To understand how 2019 CAST results are being used to inform instruction and decision making, the survey asked if student results were reviewed, analyzed, and discussed. 67% of respondents noted that at their school site science teachers did not meet to review, analyze and discuss student's results, while almost 33% noted that they did.

Recognizing that the review of CAST results is good practice for the broader school system, the survey asked about who else was engaged in the discussion. Of the 561 respondents to this question, about half indicated that they taught in a grade where the CAST exams were administered. Just over 49% of all participants noted that results were not discussed at all. Looking at the total responses, those noting others participating in review, the results were as follow: Principal (18%), Science TOSA/Resource Teacher (14%), Assistant Principal (12%), district or charter network academic lead or curriculum specialist (8.7%), Science specialists (6.7%) and Counselors (1%). 15.5% of respondents noted that only the classroom teachers were present. It should be noted that of those participants that administered the CAST only 42% of them discussed the results with their teacher teams or principals. Fourteen were 3-5th grade teachers, 38 were 6-8 grade teachers and 32 were 9-12th grade teachers.

The CAST results are a tool for understanding where school systems are with respect to CA NGSS implementation, and can therefore be used to engage in discussions around whether or not implementation is equitable for all students and general implementation needs that impact student learning, and an area for reflection on professional learning for educators. With this in mind, the survey inquired about the respondent's interest in further NGSS professional learning. Table 4 identifies needs of respondents (multiple answers could be chosen).

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Table 4: NGSS professional learning needs identified by California educators.

Strategies for improving science learning of lowest performing student ethnicity demographic group	65%
Building an effective classroom assessment system	50%
Performance Expectations (PEs)	32.7%
Science and Engineering Practices (SEPs)	32.7%
Incorporation of the Environmental Principles and Concepts (EP&Cs) into instruction	29%
Pedagogical shifts	28%
Crosscutting Concepts (CCCs)	25%
Disciplinary Core Ideas (DCIs)	21%

Implementation of CA NGSS Instructional Materials

The California State Board of Education (SBE) approved instructional materials that met criteria identified by the 2016 California Science Framework for grades K-8. The survey provided the approved list and asked respondents to identify whether their school system has adopted any of the materials. 56% of the 512 respondents to the question answered “No” while 44% said that there had been materials adopted.

Research shows that high quality professional learning is essential to teachers using NGSS aligned materials otherwise the research shows that we fail to achieve substantial positive impacts on teacher performance or student outcomes (Short, J. & Hirsh, S. 2020). With this in mind, the survey inquired about school system’s purchase of state-approved K-8 CA NGSS instructional materials. In this case, just over 60% responded “No” while just under 40% identified that there had been an investment in such materials. Of the 40% of teachers where materials are available based upon the investment of their district or leadership, only a mere 38.2% had received any training or professional learning for the adopted K-5/6 or 6/7-8 instructional materials (Figure 1).

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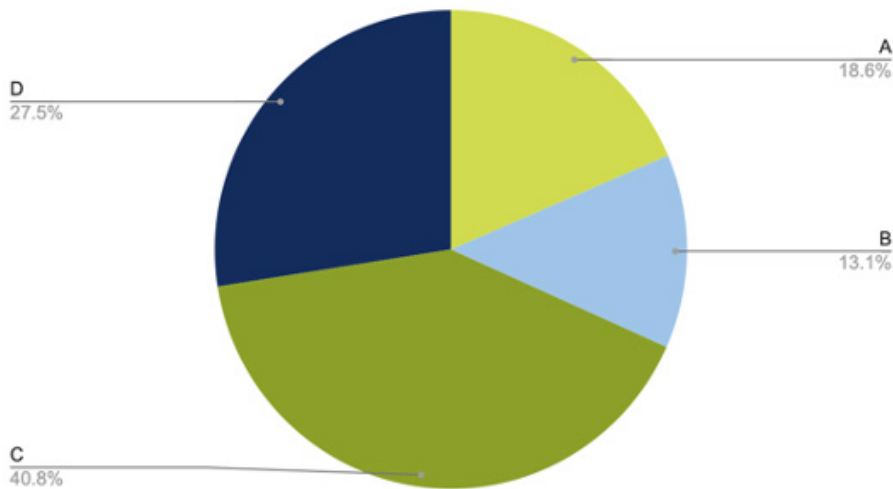
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A=Our district has been in financial distress and is unlikely to prioritize NGSS professional learning and the purchase of instructional materials any time soon without dedicated State funding for NGSS.

B=Our district is still working on the implementation of Math or ELA and not adopting science.

C=Since there has been no State dedicated funding for NGSS instructional materials, NGSS purchases must compete with other district/Network needs in the budget, and it has been losing to other priorities (for example, we are focusing on another content area).

D=Our team has not made the decision yet because...

Figure 1: Percentage of California school systems that have adopted CA NGSS instructional materials and whether or not professional learning on the instructional materials was provided for those with positive responses.

To better understand the perceptions and opinions of respondents about the reasons why their school systems have not taken any action on SBE adopted CA NGSS instructional materials, a follow-up question was asked to provide an explanation. The results varied from noting that the “districts are still working on implementation of ELA and Math and not adopting science” (13% of respondents), to a few respondents noting that the quality of available materials (in high school) are not acceptable. However, the overwhelming majority of respondents noted financial constraints of one form or another. 27% of respondents noted that with no dedicated State funding for CA NGSS instructional materials, CA NGSS purchases compete with other content areas that are the focus, and an additional 18.6% noted that districts are in financial distress and unlikely to

27% of respondents noted that with no dedicated State funding for CA NGSS instructional materials, CA NGSS purchases compete with other content areas that are the focus, and an additional 18.6% noted that districts are in financial distress and unlikely to prioritize CA NGSS without State funding

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prioritize CA NGSS without State funding. California disseminates funding to districts via the Local Control Funding Formula (LCFF) funds and requires the customization of a Local Control Accountability Plan (LCAP) where districts decide how to allocate funds. Science is not specifically called out in the State's LCAP priorities, resulting in many districts choosing not to include specific language for science. Nearly 41% of respondents qualified the response that decisions have not yet been made about the purchase of science instructional materials due to continued piloting of materials or changes in priorities from leadership or in-district development of curriculum (Figure 2).

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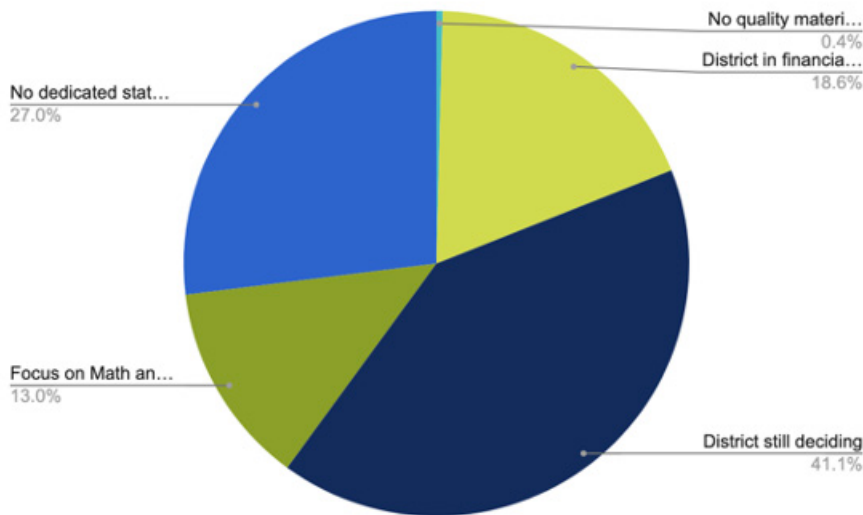


Figure 2: Reasons for not adopting CA NGSS instructional materials.

Respondents were asked to gauge where they believe their systems are with respect to CA NGSS implementation if they had identified that no action had been taken. Of the 421 respondents, 33% identified as “I don’t know” while 25% noted that COVID-19 closures had halted the process. The response of “No plans for adoption” was selected by 76 respondents (18%). The remaining 23% of survey respondents noted that the school district/charter network was either in the review process or planning to begin the review process within the next year or two.

In an effort to gauge the progress of aligning courses and instructional materials to the CA NGSS for grades 9-12, the survey provided respondents with options to identify where the school system was. There were 307 respondents to the multiple option question with the breakdown of answers identified in Table 5.

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Table 5: Status of high school courses and instructional material alignment to the CA NGSS.

Individual teachers or the science department have or are revising their own instructional materials to align to the NGSS	55%
Science courses are in the process of being revised to align to the NGSS.	37%
Instructional materials aligned to the NGSS have been adopted or are in the process of being adopted..	35%
Science courses have gone through a recent A-G approval (<i>the University of California's entrance subject requirements</i>)	27%
An individual or a team from the the school system is leading the process for reviewing, or has reviewed, science instructional materials for high school using the state-approved process for review (<i>CA NGSS TIME</i>).	20%
An individual or a team from the school system is reviewing science instructional materials for high school using a district process for review.	17%
Some courses will adopt new instructional materials, but others will not due to insufficient alignment to the NGSS.	12%
They had refused to adopt new instructional materials as none are sufficiently aligned to the NGSS.	9%
Science courses have not changed since 2013 (are not aligned with NGSS).	8.5%
An outside partner is supporting an individual or a team in the school system in reviewing science instructional materials for high school using the state-approved process for review (CA NGSS TIME) - this is being led by an external expert (County Office of Education or partners such as WestEd's K-12 Alliance or California Science Project).	6%
Science instructional materials will not be revised to align to the NGSS.	~2%

In order to understand the resources and tools being utilized by teachers to teach science to students, the survey provided an opportunity to list resources and access points. There were a total of 640 references provided by the respondents (who could identify multiple responses) with Table 6 identifying categories receiving the most common notations.

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Table 6: Resources and tools California educators use to support science instruction (number in quantity of responses).

Private companies	397
Informal science institutions and non-profits	58
Institutes of higher education	47
Professional associations	28
School systems, County Offices of Education or the State	17
Other governmental agencies	12
News sources	8
Social media	5
Not specified or categorized	59

64% of elementary respondents do not feel that science is being prioritized or supported as much as ELA and Math

For elementary teachers, it is important to understand the support and prioritization given to science by principals, especially as it relates to the instruction of ELA and Math. The survey asked how respondents felt about their principal's level of support and 45 responses were provided. 64% of elementary respondents do not feel that science is being prioritized or supported as much as ELA and Math.

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Conclusion

The results of the CA NGSS Professional Learning and Needs Survey provide strong evidence that the CA NGSS has not been adequately supported at either the state or school system levels. Although the state allocated one-time funds of \$1.25 billion in 2013 to support the implementation of the CCSS in Mathematics and ELA (Fensterwald, 2013), the state has never done so for NGSS implementation.

As a result, CA NGSS Implementation has not been evenly supported by districts and administrations in California. Even though the State Board of Education approved CA NGSS aligned instructional material in 2017, the majority of teachers work in settings without state approved materials. Furthermore, teachers have not received adequate professional learning in their adopted instructional materials or on the NGSS in general.

A focus on building teacher capacity in the state's TK-12 education system by increasing funding over the next three years presents an opportunity for the state and LEAs to ensure science teachers have the professional learning and materials they need to effectively implement California's Next Generation Science Standards. This is especially critical for those teaching in schools where students have been historically underserved by science (The Education Trust-West, 2017).

Therefore CASE recommends three key actions:

- The State of California must directly fund CA NGSS implementation. The state of California has never done so, despite releasing \$1.25 billion in one-time funds to support the implementation of the CCSS in Mathematics and ELA in 2013 (Fensterwald, 2013). Not releasing funds to support CA NGSS implementation forces school systems to negotiate priorities that inevitably compete with funding science implementation with their limited Local Control Funding Formula (LCFF) monies.
- Results of the California Science Test (CAST) must be added to the **California School Dashboard** to incentivize school systems and administrators to support science as a core subject on par with English Language Arts and Mathematics.
- School systems must provide support to engage their educators in tools and processes for curriculum-based professional learning that supports educators to evaluate, select, and implement instructional materials designed for the CA NGSS.

It's time for the State and school systems to take the actions to provide this support.

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Appendix A: Survey Questions

Questions below have been modified to fit on the document so check boxes and open response boxes have been removed.

NGSS Professional Learning & Needs Survey 2019-2020

Welcome!

The California Association of Science Educators (CASE) is committed to supporting teachers of science in California by giving them voice, arranging professional learning to meet identified needs, and advocating for more State and other funding for NGSS implementation. We know this is a stressful time, but your willingness to take time to answer this brief survey will inform CASE's 2020 and beyond priorities and support for you.

Please Tell Us About Yourself!

Question Title

1. Describe your school type? Select all that apply. If multiple, please select main and add others in comment.

- Traditional
- Title I
- Immersion
- Magnet
- Alternative
- Private
- Charter
- Neighborhood Schools with no specification
- no school affiliation
- Other (please specify)

2. What type of community do you teach in?

- Urban
- Suburban
- Rural
- Other (please specify)

3. Which of the following best describes the level at which you currently teach?

Select all that apply.

- Pre-K
- Primary (K-2)
- Intermediate (3-5)
- Middle Level (6-8)
- Secondary (9-12)
- Pre-service teacher
- Higher education faculty
- Other (please specify)

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4. Length of time in profession?

- < 1 year - new educator
- 1-3 years
- 3-5 years
- 5-10 years
- > than 10 years

5. How long have you taught science in California?

- < 1 year - new educator
- 1-5 years (just since NGSS was adopted)
- 6-10 years (prior to NGSS adoption)
- > than 10 years

6. Number of colleagues in your school's science dept (6th-8th and/or 9th-12th)

7. If High school, which of the following high school models are you implementing:

- 3 course model (biology, chemistry, physics with Earth and space science embedded in each one)
- 4 course model (biology, chemistry, physics, Earth and space science as separate courses)
- have not yet decided
- Other
- Other (please specify)

8. If middle school (grades 6-8), which model did your school adopt:

- Integrated
- Discipline Specific
- have not yet decided

9. If elementary, how many colleagues are at your site would you say regularly plan for teach science?

- Most-all
- About half
- few-none
- N/A
- Other (please specify)

Please address the questions below for the time period from fall 2013 to fall 2019 only.

At the end of the survey we'll ask you about NGSS During the Time of COVID-19

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NGSS Professional Learning Questions

NGSS was adopted by the California State Board of Education in 2013.

10. Approximately how many Professional Learning days focused on NGSS have you had since the adoption of NGSS in 2013?

- < 1 day
- 1-3 days
- 3-5 days
- > 5 days

11. How many CA NGSS Rollouts and CA NGSS Collaborative events you've attended?

These included CA NGSS Rollout 1: CA NGSS Awareness (April - December 2014), CA NGSS Rollout 2: From Awareness to Transition (April - December 2015), CA NGSS Rollout #3: From Transition to Implementation (April - December 2016), CA NGSS Rollout #4: Using the CA Science Framework (April - December 2017), Accelerating Into NGSS #1.5: (Winter 2017 - Spring 2018), CA NGSS High School Summit (May 2018), CA NGSS TIME Toolkit Trainings (2018-ongoing), CA NGSS Rollout #6: Environmental Literacy (Fall 2019)

- None
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

12. Which of these year(s) did you attend the California Science Education Conference(s) - (hosted by CSTA/CASE)?

- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- Never attended

13. Have there been workshops or trainings that you remember as having had the most value to your professional learning of NGSS? Please identify by name and date, if you can or give a brief description.

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14. In the past two years, prior to this semester, have you accessed any of the following content for your professional learning needs (select all that apply):

- Local science informals
- Professional learning providers (California Science Project, K-12 Alliance, County Office of Education, etc.)
- Trade websites (Edutopia, MindShift, etc.)
- Online teacher communities (Edmodo, BloomBoard, CSTA Facebook groups, etc.)
- Open Education Resources (Science Lessons and Units reviewed by the Achieve Peer Review Panel, OpenSciEd, etc.)
- Podcasts
- TED talks
- YouTube lesson demos
- State or County Office of Education
- Professional Organizations: ASCD, CSTA/CASE, others
- CSTA Resources (archived conference presentations, Climate Summit Resources)
- NSTA Resources
- California Environmental Phenomena Summit
- Other

The California Science Test (CAST) is given in grades 5, 8, and once in High School.

In Spring of 2019, district NGSS implementation levels for the 2017-2018 pilot test were posted, and school and district CAST scores posted in January of 2020 for the 2018-2019 operational test.

15. Do you teach a grade that takes the CAST test?

- Yes
- No
- If yes, which grade in 2019?

16. Did the science teachers (including elementary, if appropriate) at your school meet to review, analyze and discuss their students' CAST results?

- Yes
- No

17. Who else at the school or district or charter network met with science teachers (including elementary, if appropriate) at your school to review and discuss the results?

- School's principal
- School's assistant principal
- District or charter network academic lead or curriculum specialist
- Counselor(s)
- Science specialists
- Science TOSA/Resource Teacher
- None, only the classroom teachers met to discuss
- Results were not discussed

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18. Based on your school or district CAST results from the 2018-2019 school year (administered in spring of 2019), what NGSS areas would you be most interested in getting NGSS professional learning in the next year?

- Pedagogical Shifts
- Performance Expectations (PEs)
- Disciplinary Core Ideas (DCIs)
- Science and Engineering Practices (SEPs)
- Crosscutting Concepts (CCCs)
- Building an effective classroom assessment system
- Incorporation of the Environmental Principles & Concepts (EP&C's) into instruction
- Strategies for improving the science learning of our lowest performing student ethnicity demographic group

The California State Board of Education's (SBE's) NGSS instructional materials for grades K-8 were adopted in 2018.

19. Has your district or charter school/network board of directors officially adopted any of these materials for K-8 approved by the SBE? ([Click here for list](#))

- Yes
- No

20. Has your district or charter school /network officially purchased state adopted K-8 NGSS instructional materials?

- Yes
- No
- If yes, which publisher/materials?

21. If yes to Q. 20, have you received any training or professional learning for the adopted K-5/6 or 6/7-8 instructional material? [Click here for list](#)

- No
- Yes

22. If your district or charter network board of directors has not taken action to adopt any of the SBE adopted NGSS instructional materials prior to COVID-19 shutdowns, in your opinion what might be the reasons why?

- Since there has been no State dedicated funding for NGSS instructional materials, NGSS purchases must compete with other district/Network needs in the budget, and it has been losing to other priorities (for example, we are focusing on another content area).
- Our district has been in financial distress and is unlikely to prioritize NGSS professional learning and the purchase of instructional materials any time soon without dedicated State funding for NGSS.
- Our district is still working on the implementation of Math or ELA and not adopting science.
- Our team has not made the decision yet because...

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23. If no action has been taken, where is your school or district/charter network in the instructional materials adoption process?

- No plans for adoption
- Review process halted by COVID-19 closures
- In review process now
- Plans to begin review process within the next year
- Plans to begin review process in two years
- I don't know

24. For grades 9-12, where is your district or charter school/network in the process of updating courses and instructional materials (select all that apply)?

- Science courses have not changed since 2013 (not aligned with NGSS)
- Science courses are in the process of being revised (to align to the NGSS)
- Science courses have gone through a recent A-G approval (post-NGSS)
- Someone or a team in the district or charter school/network is reviewing science instructional materials for high school using a district process for review
- Someone or a team in the district or charter school/network is reviewing (or has reviewed) science instructional materials for high school using the state-approved process for review (CA NGSS TIME) - this is being led by the district
- Someone or a team in the district or charter school/network is reviewing (or has reviewed) science instructional materials for high school using the state-approved process for review (CA NGSS TIME) - this is being led by an external expert (County Office of Education or partner such as K-12 Alliance or California Science Project)
- We have adopted (or are in the process of adopting) new instructional materials aligned to the NGSS
- We have refused to adopt new instructional materials as none are sufficiently aligned to the NGSS
- Some courses will adopt new instructional materials, but others won't due to insufficient alignment to the NGSS
- Teachers of science courses or the science department have or are revising their own instructional materials to align to the NGSS
- Science instructional materials will not be revised to align to the NGSS
- Other (please specify)

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NGSS in the Time of COVID-19

First and foremost, we hope you and your family remain healthy and safe as you work hard to ensure your students continue to get science education.

25. If you were in a school that was completely closed this last term, is your school making up instructional time this summer? Or is your school planning to deliver instruction virtually and with distance to continue in the coming term?

Please describe your school's and district or charter network's approach:

26. Based on the grade span you are teaching, describe to us the techniques and tools you are using now or planning to use this coming term, if needed, to deliver science to your students.

27. What resources have you been able to draw from that you have found useful in preparing distance learning lessons? Please list.

28. How much time in a day or week are you distance teaching science?

29. How are you collaborating/coordinating with other science teachers at your school in regards to teaching science?

30. If you teach in elementary, do you feel your principal is prioritizing and supporting science instruction as much as math and English? Please elaborate.

31. If you are teaching High School, how are you ensuring all students get access to or can complete the Area D Science courses they need to be eligible for UC and CSU admissions consideration?

32. If the science content you've been able to deliver since the March school closures has been limited, what student skills and knowledge gaps in science will the students have missed that will need to be made up and refreshed in the fall (i.e. content, SEP's, CCC's, etc.)?

33. May we follow up with you if we have questions or suggested resources? If yes, please give your name and email address. We will not share your answers by name with anyone outside of CASE staff/leadership.

- No thank you
- Yes please
- Please provide your name and preferred contact (phone/e-mail)

Thank you!

Your participation in this survey helps CASE to have vital data to aid in education and advocacy as well as identify those resources, information, and areas of support that we can work on as we continue to be The Voice for Science Education in California.

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