Next Generation Science Standards Statewide Parent Survey Findings

October 2018

Conducted for the California State PTA
Supported with a grant from S.D. Bechtel Jr. Foundation
Prepared by 2B Communications
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I. INTRODUCTION

The California State PTA is the largest children's advocacy association in the state, whose mission is to improve the lives of all children and families. One of its primary areas of focus is to ensure that all California's public school students have access to a broad course of study, including instruction in science and art. As California embarks on statewide implementation of the Next Generation Science Standards (NGSS), which constitute the biggest shift in how science will be taught in over twenty years, it is critical that parents understand and support the changes that schools will be making. PTA is part of the fabric of the United States' public-education system and a trusted partner to millions of parents, families, educators and community members, as it advocates for education, welfare, health and safety of all children. PTA has been instrumental in establishing programs and services to improve children's lives, and California State PTA has a long and rich history of advocating for a full curriculum.

To inform its efforts to educate and engage parent support for the new standards, in Spring of 2018 the California State PTA undertook a multi-faceted process aimed at developing a comprehensive, research-based messaging platform that is aligned with complementary efforts and will support the successful rollout of the NGSS in California. The project was supported with a grant from the S.D. Bechtel Jr. Foundation, and was designed and implemented by 2B Communications.

Research steps included:

- Conducting a series of one-on-one interviews with identified experts on NGSS at collaborating organizations and partners.
- Gathering and reviewing existing messaging being used to promote and inform teachers, community members and parents about the new standards.
- Convening a series of focus groups with parents from around the state during the PTA’s annual convention in Ontario, CA, supplemented with specially invited graduates of local School Smarts programs/ELAC parents. These groups were used to surface the spectrum of parent perceptions and behaviors relating to science education, and gather feedback and suggested refinements to potential messages regarding the NGSS.
- Development and fielding of a statewide survey among public school parents, to test and validate the directional findings of the qualitative research. These findings will serve as the basis for the California State PTA's comprehensive messaging platform for parent engagement around the NGSS, that will seek to enhance their successful implementation.

This report presents the final deliverable for the project, the findings of the statewide parent survey.
II. METHODOLOGY

Survey Fielding
The online survey was conducted during the month of July, 2018.

Sample Size
A total of 2,056 parents responded to the survey, which slightly exceeded the grant target of 2,000.

Respondent Sources
To obtain a sample size that was large enough to enable subgroup analysis by grade levels, gender and other factors, and would be statistically projectable, respondents were drawn from two sources:

■ A list of 15,000 names was pulled from the California State PTA’s database. This list was comprised of active PTA members who have been involved with the organization via participation in events, online communities, leadership or other activities. The list yielded 1,374 respondents, for a response rate of approximately 9%.

■ An independent market research firm, Research Now, was engaged to provide a supplemental sample of public school parents in California. As one of the largest online consumer research firms in the world, their database provided 682 additional respondents from outside the PTA network. These respondents were pre-screened to reach California public school parents who are not currently active in the PTA, spanned a range of ethnic, economic and educational backgrounds, and expanded the sample to include a broader cross section of parents in the state.

NOTE: Due to the preponderance of respondents from the CAPTA database, the sample is more representative of CAPTA’s membership than the broader demographics of public school parents in California, who are more ethnically and economically diverse.

Survey Languages
Because of the importance of including the opinions of both English and Spanish-speaking parents, survey invitations and questionnaire were provided in both languages. 135 surveys were completed in Spanish, comprising 6.5% of the total sample.

Statistical projectability
The findings of the full sample of 2,056 respondents can be considered statistically projectable to within ±3 percentage points, at a 95% confidence level; that is, there is a 95% likelihood that if the survey were to be repeated with another set of individuals matching these demographics, the results would fall within 3 percentage points of those reported here. Sampling margins of error for the individual sub-groups, whose sample sizes vary from 130 to 620 respondents, range from between ±4 to ±8%. Note that sample of African Americans was too low to be analyzed as a separate subgroup.
### III. RESPONDENT DEMOGRAPHICS – PARENTS

#### Gender
- Male: 17%
- Female: 81%
- Non binary/other/not stated: 2%

#### Age
- Under 18: 1%
- 18-25: 3%
- 26-30: 5%
- 31-40: 34%
- 41-50: 40%
- 50-60: 14%
- 60+: 3%

#### Ethnicity (multiple responses allowed)
- White: 57%
- Hispanic/Latino: 21%
- Asian/Pacific Islander: 14%
- African American: 4%
- Multiple races: 2%
- Native American: 1%
- Prefer not to state: 7%

#### Household Income
- <$20k: 3%
- 20-34K: 6%
- 35-49K: 6%
- 50-74K: 10%
- 75-99K: 14%
- 100-149K: 19%
- 150-199K: 11%
- 200+K: 16%
- Prefer not to state: 15%

#### Educational attainment
- Less than high school: 2%
- High school grad: 7%
- Some college/tech school: 16%
- 2-yr college grad: 8%
- 4-yr college grad: 36%
- Grad school: 31%

#### Country of K-12 Education
- US: 88%
- Other country: 12%

#### Immediate family member employed in science-related job
- No: 56%
- Yes: 42%
- Don’t Know: 2%

#### Number of school-aged children living in their household
- None: 3%
- 1: 39%
- 2: 43%
- 3: 11%
- 4: 2%
- 5: 1%
- 6 or more: 1%
III. RESPONDENT DEMOGRAPHICS – STUDENTS

NOTE: Parents were asked to respond to the survey based on the experience of their oldest school-aged child.

■ Type of school child attends
  Public 90%
  Public Charter 6%
  Private/Independent 3%
  Parochial/religious 1%
  Home schooled 0.3%

■ Gender of oldest child
  Male 53%
  Female 46%
  Non binary/other 1%

■ Grade level of oldest child
  Elementary /K-5 758
  Middle/6-8 505
  High School/9-12 612
  Did not state 181
IV. SUMMARY OF KEY FINDINGS

SECTION 1: PARENT PERCEPTIONS OF THEIR CHILD’S CURRENT SCIENCE EDUCATION

Question 1: How strongly do you agree with the following statements about your child’s science education?

Overwhelmingly, parents believe that science is equal in importance to reading, writing and math.

Learning science is equally important as reading, writing and math.

- **58% STRONGLY AGREE**
- **31% AGREE**
- **8% SOMEWHAT AGREE**
- **4% DISAGREE**

I have the knowledge and ability to help my child with science homework.

- **34% STRONGLY AGREE**
- **34% AGREE**
- **22% SOMEWHAT AGREE**
- **10% DISAGREE**

My child’s teacher is enthusiastic about science.

- **28% STRONGLY AGREE**
- **38% AGREE**
- **23% SOMEWHAT AGREE**
- **12% DISAGREE**

I understand the science requirements my child needs to complete to be admitted to a 4-year college.

- **27% STRONGLY AGREE**
- **28% AGREE**
- **21% SOMEWHAT AGREE**
- **24% DISAGREE**

I understand the science requirements my child needs to complete in order to graduate from high school.

- **26% STRONGLY AGREE**
- **29% AGREE**
- **21% SOMEWHAT AGREE**
- **24% DISAGREE**

My child’s teacher is skilled in teaching science.

- **24% STRONGLY AGREE**
- **38% AGREE**
- **26% SOMEWHAT AGREE**
- **12% DISAGREE**

I know a lot about the science my child is learning in school.

- **22% STRONGLY AGREE**
- **34% AGREE**
- **28% SOMEWHAT AGREE**
- **16% DISAGREE**

I am satisfied with the amount of science education my child is getting in school.

- **21% STRONGLY AGREE**
- **35% AGREE**
- **28% SOMEWHAT AGREE**
- **16% DISAGREE**

I believe the science program at my child’s school is equal to the best schools in California.

- **17% STRONGLY AGREE**
- **29% AGREE**
- **25% SOMEWHAT AGREE**
- **29% DISAGREE**

n=1,948
Question 2: From your perspective, what best describes the amount of science instruction provided in your school district in different grade levels?

Parents feel most informed about science instruction in their district’s elementary schools; a majority also think there is not enough science at that level.

n=1,939

Question 3: How often does your child do the following science-related activities in connection with their school?

72% of parents believe their child has a daily or weekly science lesson at school; less than half report that their child has science homework at least weekly.

Attends a science class/has a science lesson

72% DAILY/WEEKLY

Has homework related to science

46% DAILY/WEEKLY

Works in a science lab at school

36% DAILY/WEEKLY

Participates in school clubs or groups that do science-related activities

14% D/W

Goes on field trips related to science (museum, lab, nature hikes, etc.)

10% D/W

Participates in a school science fair

9% D/W

n=1,938
Question 4: Whose opinion do you value most when it comes to your child's science education?

Their child’s teacher is by far the most influential opinion; college experts also carry significant weight.

- My child’s teacher: 67%
- College/University experts: 46%
- Fellow parents: 33%
- Family: 31%
- My school’s principal: 27%
- Parent groups such as PTA, PTO: 25%
- Business and community leaders: 10%
- Religious leaders: 3%

n=1,924
SECTION 1: SUBGROUP DIFFERENCES OF NOTE

OVERALL: Parents of every grade level, gender, ethnic and educational background are united in valuing science equally with math, reading and writing.

Grade Level Differences
Elementary parents have the least knowledge and have the greatest level of concerns about their child’s science program; opinions become progressively more positive for respondents with middle and high school children.

COMBINED “STRONGLY AGREE + AGREE” RESPONSES

<table>
<thead>
<tr>
<th></th>
<th>K-5</th>
<th>6-8</th>
<th>9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science is equally important as math, reading, writing</td>
<td>89%</td>
<td>89%</td>
<td>88%</td>
</tr>
<tr>
<td>I am satisfied with amount of my child’s science education</td>
<td>43%</td>
<td>55%</td>
<td>72%</td>
</tr>
<tr>
<td>My school's science program is equal to the best in California</td>
<td>37%</td>
<td>46%</td>
<td>60%</td>
</tr>
<tr>
<td>My child’s teacher is enthusiastic about science</td>
<td>57%</td>
<td>67%</td>
<td>74%</td>
</tr>
<tr>
<td>My child’s teacher is skilled in teaching science</td>
<td>51%</td>
<td>64%</td>
<td>72%</td>
</tr>
<tr>
<td>I know the science requirements for HS graduation</td>
<td>42%</td>
<td>48%</td>
<td>77%</td>
</tr>
<tr>
<td>I know the science requirements for college admission</td>
<td>43%</td>
<td>48%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Regarding the opinions they most value regarding their child’s science education, parents at all grade levels named their child’s teacher as #1. Comparatively, high school and middle school parents were more likely to cite university experts (50% HS and 49% MS vs. 41% elementary) while elementary and middle level parents were comparatively more likely to value their principal’s opinion (31% elementary and 28% MS % vs. 21% HS).

Parent Ethnicity Differences
Parents of all ethnic backgrounds feel the same about most aspects of their child’s current science education; White and Asian respondents did not differ in any area asked. Hispanic parents had comparatively higher knowledge than Asians and Whites of the science requirements for high school graduation, and comparatively lower perceptions of the enthusiasm of their child’s science teacher, and their ability to help with science homework. As noted earlier, the sample of African American parents was too small to be analyzed as a subgroup.

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Asian</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science is equally important as math, reading, writing</td>
<td>89%</td>
<td>90%</td>
<td>88%</td>
</tr>
<tr>
<td>I know the science requirements for HS graduation</td>
<td>53%</td>
<td>54%</td>
<td>63%</td>
</tr>
<tr>
<td>I have the knowledge to help my child with science HW</td>
<td>70%</td>
<td>68%</td>
<td>62%</td>
</tr>
<tr>
<td>My child’s teacher is enthusiastic about science</td>
<td>69%</td>
<td>70%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Regarding the amount of science provided in their school district the only area of difference was that Hispanic and Asian respondents were comparatively more likely than White respondents to say there is not enough science in their middle school (30% of Asians, 27% of Hispanics vs. 21% of Whites).
Regarding the opinions they value most regarding their child's science education, all ethnic groups named their child’s teacher as their #1 choice. Asians and Whites were comparatively more likely to value university experts (48% of both these groups vs. 38% of Hispanics).

Parent Gender Differences
Although over 80% of respondents were women, on every measure except the value of science (where results were the same for all), male respondents have comparatively more positive opinions than women.

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science is equally important as math, reading, writing</td>
<td>89%</td>
<td>88%</td>
</tr>
<tr>
<td>I have the knowledge to help my child with science HW</td>
<td>66%</td>
<td>79%</td>
</tr>
<tr>
<td>My child’s teacher is enthusiastic about science</td>
<td>64%</td>
<td>76%</td>
</tr>
<tr>
<td>My child’s teacher is skilled in teaching science</td>
<td>60%</td>
<td>72%</td>
</tr>
<tr>
<td>I am satisfied with amount of my child’s science education</td>
<td>52%</td>
<td>70%</td>
</tr>
<tr>
<td>I know a lot about science my child is learning</td>
<td>53%</td>
<td>71%</td>
</tr>
<tr>
<td>Know the science requirements for HS graduation</td>
<td>52%</td>
<td>69%</td>
</tr>
<tr>
<td>Know the science requirements for college admission</td>
<td>52%</td>
<td>71%</td>
</tr>
<tr>
<td>My school's science program is equal to the best in California</td>
<td>44%</td>
<td>66%</td>
</tr>
</tbody>
</table>

Regarding the amount of science provided in their school district, women were comparatively more likely to state there is not enough science in elementary school (55% of women vs. 40% of men); however, there was no difference in women’s and men’s opinions regarding the amount of science available in their middle and high schools.

Regarding the opinions they value most regarding their child’s science education, both men and women named their child’s teacher as their #1 choice. Women were comparatively more likely to value university experts (48% of women vs. 38% men); men were comparatively more likely to value the opinions of fellow parents (41% of men vs. 32% of women) and family members (50% of men vs. 27% of women).
SUMMARY OF KEY FINDINGS (continued)

SECTION 2: SCIENCE LEARNING OUTSIDE SCHOOL

Question 5: How strongly do you agree with the following statements about science learning outside the school?

9 out of 10 parents say science experiences outside school are important, and more than three-quarters also say they enjoy learning science together with their child.

It’s important for my child to have science-related learning experiences outside of the classroom.

- **54% STRONGLY AGREE**
- **36% AGREE**
- **8% SOMEWHAT AGREE**
- **1% DISAGREE**

I like to learn about science along with my child.

- **39% STRONGLY AGREE**
- **40% AGREE**
- **18% SOMEWHAT AGREE**
- **4% DISAGREE**

My child and I often talk about science topics (e.g. health, nature, etc.).

- **39% STRONGLY AGREE**
- **36% AGREE**
- **21% SOMEWHAT AGREE**
- **5% DISAGREE**

I would like my child to have a career/job that is related to science.

- **28% STRONGLY AGREE**
- **34% AGREE**
- **29% SOMEWHAT AGREE**
- **10% DISAGREE**

I know a lot about science.

- **24% STRONGLY AGREE**
- **31% AGREE**
- **33% SOMEWHAT AGREE**
- **12% DISAGREE**

My child’s teacher gives me ideas about science activities to do at home.

- **10% STRONGLY AGREE**
- **17% AGREE**
- **23% SOMEWHAT AGREE**
- **50% DISAGREE**

n=1,942
Question 6: How often does your child do the following science-related activities outside of school?

The majority of children engage in independent or parent-involved science activities outside school; many do so on a weekly or monthly basis.

Watches TV shows, videos or plays videos about science

- **61%** WEEKLY/MONTHLY
- **18%** DAILY
- **11%** ONCE A SCHOOL YR
- **7%** NEVER
- **4%** DON'T KNOW

Does an activity with a family member that is science-related (e.g cooking, gardening, building, tech, other)

- **70%** WEEKLY/MONTHLY
- **16%** DAILY
- **10%** ONCE A SCHOOL YR
- **3%** NEVER
- **1%** DON'T KNOW

Reads books or magazines about science

- **61%** WEEKLY/MONTHLY
- **10%** DAILY
- **15%** ONCE A SCHOOL YR
- **11%** NEVER
- **3%** DON'T KNOW

Participates in clubs or groups that do science-related activities (e.g. robotics, scouts, church groups)

- **21%** W/M
- **19%** DAILY
- **22%** ONCE A SCHOOL YR
- **35%** NEVER
- **4%** DON'T KNOW

Participates in a science-oriented camp or other special program (e.g. a fee-based program)

- **15%** W/M
- **5%** DAILY
- **30%** ONCE A SCHOOL YR
- **46%** NEVER
- **4%** DON'T KNOW

n=1,933
Question 7: As a parent, what would help you to support your child’s science education?

A majority of parents express a desire to better understand their child’s science curriculum and get ideas for science activities they can do at home.

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better understanding the science curriculum my child is learning</td>
<td>72%</td>
</tr>
<tr>
<td>Ideas about fun science activities to do at home</td>
<td>61%</td>
</tr>
<tr>
<td>Learning how to become a better advocate for science at my school</td>
<td>46%</td>
</tr>
<tr>
<td>More information on the types of careers that involve science</td>
<td>40%</td>
</tr>
<tr>
<td>Advice on how to help with homework</td>
<td>38%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

n=1,889
SECTION 2: SUBGROUP DIFFERENCES OF NOTE

Grade Level Differences
Generally, science activities conducted outside school are most frequently reported by elementary school parents; the amount science homework continues to increase in higher grades.

**COMBINED “STRONGLY AGREE + AGREE” RESPONSES**

<table>
<thead>
<tr>
<th>Activity</th>
<th>K-5</th>
<th>6-8</th>
<th>9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like to learn science along with my child</td>
<td>86%</td>
<td>81%</td>
<td>68%</td>
</tr>
<tr>
<td>My child watches TV /plays games about science daily</td>
<td>60%</td>
<td>55%</td>
<td>51%</td>
</tr>
<tr>
<td>My child does a science-related activity with a family member on a daily or weekly basis</td>
<td>63%</td>
<td>55%</td>
<td>51%</td>
</tr>
<tr>
<td>My child reads books or magazines about science daily</td>
<td>48%</td>
<td>35%</td>
<td>33%</td>
</tr>
<tr>
<td>My child goes on a science field trip at least once a year</td>
<td>78%</td>
<td>71%</td>
<td>55%</td>
</tr>
<tr>
<td>My child has science homework daily or weekly</td>
<td>18%</td>
<td>50%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Regarding how they can better support their child’s science education, parents of elementary school students express a comparatively stronger desire to learn about their child’s science curriculum and how to become a better advocate for science in their schools. Parents of middle and high school students are comparatively more interested in getting information on science related careers.

**COMBINED “STRONGLY AGREE + AGREE” RESPONSES**

<table>
<thead>
<tr>
<th>Activity</th>
<th>K-5</th>
<th>6-8</th>
<th>9-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better understand the curriculum</td>
<td>77%</td>
<td>74%</td>
<td>62%</td>
</tr>
<tr>
<td>Ideas about doing science at home</td>
<td>70%</td>
<td>63%</td>
<td>50%</td>
</tr>
<tr>
<td>Learning to be a better advocate for science at school</td>
<td>52%</td>
<td>48%</td>
<td>36%</td>
</tr>
<tr>
<td>Information on science-related careers</td>
<td>33%</td>
<td>45%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Parent Ethnicity Differences
Overall, Asians and Whites were comparatively more likely to strongly agree or agree that they know a lot about science (58% of Whites, 55% of Asians vs. 46% of Hispanics).

Regarding how they can better support their child’s science education, 54% of Asians expressed interest in learning how to be a better advocate for science at their child’s school, followed by Whites (48%) and Hispanics (38%).

Parent Gender Differences
Overall, men were comparatively more likely to strongly agree or agree that they know a lot about science (72% of men vs. 51% of women) and that their child’s teacher gives them activities to do at home with their child (51% of men vs. 22% of women).

Regarding how they can better support their child’s science education, women expressed a comparatively stronger interest in learning how to be a better advocate for science at their child’s school (48% of women vs. 36% of men).
SUMMARY OF KEY FINDINGS (continued)

SECTION 3: PARENT AWARENESS OF EDUCATION REFORM INITIATIVES

Question 8: How familiar are you with the following terms that are sometimes used by educators and schools?

STEM and STEAM are recognized by about three-quarters of respondents; NGSS is currently familiar to less than one-third.

<table>
<thead>
<tr>
<th>Term</th>
<th>Very Familiar</th>
<th>Familiar</th>
<th>Some familiarity</th>
<th>Not familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM Education</td>
<td>47%</td>
<td>31%</td>
<td>17%</td>
<td>6%</td>
</tr>
<tr>
<td>STEAM Education</td>
<td>43%</td>
<td>29%</td>
<td>17%</td>
<td>10%</td>
</tr>
<tr>
<td>Common Core Standards</td>
<td>40%</td>
<td>35%</td>
<td>21%</td>
<td>4%</td>
</tr>
<tr>
<td>School Dashboard</td>
<td>23%</td>
<td>29%</td>
<td>22%</td>
<td>26%</td>
</tr>
<tr>
<td>NGSS (Next Generation Science Standards)</td>
<td>15% VF</td>
<td>16% FAMILIAR</td>
<td>17%</td>
<td>51%</td>
</tr>
</tbody>
</table>

n=1,935
SECTION 3: SUBGROUP DIFFERENCES OF NOTE:

**Grade Level Differences**
There were no notable differences for this question.

**Parent Ethnicity Differences**
Overall, White and Asian respondents were comparatively more familiar with the terms Common Core, STEM and STEAM than Hispanic respondents.

There were no meaningful differences in familiarity with the term NGSS.

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Asian</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Core</td>
<td>80%</td>
<td>71%</td>
<td>66%</td>
</tr>
<tr>
<td>STEM</td>
<td>83%</td>
<td>78%</td>
<td>65%</td>
</tr>
<tr>
<td>STEAM</td>
<td>78%</td>
<td>71%</td>
<td>60%</td>
</tr>
</tbody>
</table>

**Parent Gender Differences**
Both genders were equally familiar with the term “Common Core” (75% of women, 77% of men). Men were comparatively more familiar with the term “NGSS” (47% of men vs. 29% of women).
V. PARENT REACTIONS TO NEXT GENERATION SCIENCE STANDARDS MESSAGING

Methodology notes:
Parents were first presented with a brief introductory description regarding the NGSS. They were then asked to carefully read and rate a set of 12 messages describing different aspects of the standards, on how personally appealing each was. After reading all the statements, parents were asked to give an overall impression of how favorably they felt about the NGSS, based on the points they had read.

SUMMARY OF OVERALL APPEAL

STRONGEST MESSAGES: RATED AS “EXTREMELY APPEALING” BY OVER 50% OF RESPONDENTS

Good news!! All messages tested were appealing to a high percentage of parents.

<table>
<thead>
<tr>
<th>Message</th>
<th>EXTREMELY APPEALING</th>
<th>APPEALING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To be successful in life, children need to be equipped with critical thinking, problem solving, and analytical skills.</td>
<td>66%</td>
<td>24%</td>
</tr>
<tr>
<td>2. The new standards encourage students to ask lots of questions and emphasize hands-on investigation and discovery.</td>
<td>53%</td>
<td>31%</td>
</tr>
<tr>
<td>3. Science is central to how we understand and make sense of the world around us.</td>
<td>51%</td>
<td>33%</td>
</tr>
<tr>
<td>4. The new standards fuel kids’ innate curiosity by introducing science at an early age.</td>
<td>51%</td>
<td>32%</td>
</tr>
</tbody>
</table>

MESSAGES RATED AS “EXTREMELY APPEALING OR “APPEALING” BY MORE THAN 75% OF RESPONDENTS

<table>
<thead>
<tr>
<th>Message</th>
<th>EXTREMELY APPEALING</th>
<th>APPEALING</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. The new standards are designed to ignite curiosity and interest in science and engineering, especially among students who don’t think of themselves as “science kids”</td>
<td>49%</td>
<td>34%</td>
</tr>
<tr>
<td>6. This new approach to teaching science is more engaging and interactive to align with how kids learn best.</td>
<td>49%</td>
<td>33%</td>
</tr>
<tr>
<td>7. We need to support our schools so that the standards can be successfully implemented.</td>
<td>49%</td>
<td>33%</td>
</tr>
<tr>
<td>8. The new standards will allow teachers to be more innovative and creative in the ways they teach science.</td>
<td>47%</td>
<td>35%</td>
</tr>
<tr>
<td>9. A strong science education is essential for college and/or career readiness.</td>
<td>46%</td>
<td>34%</td>
</tr>
<tr>
<td>10. The new standards will improve the way science is taught at all grade levels in all schools.</td>
<td>46%</td>
<td>33%</td>
</tr>
<tr>
<td>11. It is important that science learning also takes place out of school.</td>
<td>41%</td>
<td>37%</td>
</tr>
<tr>
<td>12. The whole community is needed to strengthen science education.</td>
<td>34%</td>
<td>36%</td>
</tr>
</tbody>
</table>

n =1,834
DETAILED MESSAGE RATINGS AND SUB-GROUP DIFFERENCES

MESSAGE #1: To be successful in life, children need to be equipped with critical thinking, problem solving, and analytical skills.

90% of respondents found this message “Extremely Appealing” or “Appealing.”

Statistically meaningful differences in percent of “Extremely Appealing” responses

Grade Level – No meaningful difference
Parent Gender – Women: 68%  Men: 58%
Parent Ethnicity – Comparatively, this message is somewhat more compelling to White respondents than Hispanic respondents:  White: 70%  Hispanic: 59%

MESSAGE #2: The new standards encourage students to ask lots of questions and emphasize hands-on investigation and discovery.

84% of respondents found this message “Extremely Appealing” or “Appealing.”

Statistically meaningful differences in percent of “Extremely Appealing” responses

Grade Level – Message is comparatively more appealing to elementary and middle level parents: K-5: 59%  6-8: 53%  9-12: 45%
Parent Gender – Women: 56%  Men: 41%
Parent Ethnicity – Comparatively, this message is somewhat more compelling to White respondents than Asian and Hispanic respondents:  White: 58%  Asian: 50%  Hispanic: 48%

MESSAGE #3: Science is central to how we understand and make sense of the world around us.

84% of respondents found this message “Extremely Appealing” or “Appealing.”

Statistically meaningful differences in percent of “Extremely Appealing” responses

Grade Level – no meaningful differences
Parent Gender – no meaningful differences
Parent Ethnicity – Comparatively, this message is somewhat more compelling to White respondents than Hispanic respondents:  White: 55%  Hispanic: 44%
MESSAGE #4: The new standards fuel kids’ innate curiosity by introducing science at an early age.

83% of respondents found this message “Extremely Appealing” or “Appealing.”

Statistically meaningful differences in percent of “Extremely Appealing” responses

Grade Level – Message is comparatively more appealing to elementary and middle level parents: K-5: 58%  6-8: 50%  9-12: 41%

Parent Gender – Women: 53%  Men: 40%

Parent Ethnicity – Comparatively, this message is somewhat more compelling to White respondents than Hispanic respondents:  White: 55%  Hispanic/Latino: 46%
MESSAGE #7: We need to support our schools so that the standards can be successfully implemented.

82% of respondents found this message “Extremely Appealing” or “Appealing.”

<table>
<thead>
<tr>
<th>Extremely Appealing</th>
<th>Appealing</th>
<th>Unclear</th>
</tr>
</thead>
<tbody>
<tr>
<td>49%</td>
<td>33%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Statistically meaningful differences in percent of “Extremely Appealing” responses

Grade Level – Message is comparatively more appealing to elementary and middle level parents: K-5: 52% 6-8: 48% 9-12: 43%

Parent Gender – Women: 50% Men: 44%

Parent Ethnicity – No meaningful differences

MESSAGE #8: The new standards will allow teachers to be more innovative and creative in the ways they teach science.

82% of respondents found this message “Extremely Appealing” or “Appealing.”

<table>
<thead>
<tr>
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<th>Appealing</th>
<th>Unclear</th>
</tr>
</thead>
<tbody>
<tr>
<td>47%</td>
<td>35%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Statistically meaningful differences in percent of “Extremely Appealing” responses

Grade Level – Message is comparatively more appealing to elementary and middle level parents: K-5: 50% 6-8: 49% 9-12: 38%

Parent Gender – Women: 49% Men: 34%

Parent Ethnicity – Comparatively, this message is somewhat more compelling to White respondents than Asian and Hispanic respondents: White: 50% Asian: 43% Hispanic: 40%

MESSAGE #9: A strong science education is essential for college and/or career readiness.

80% of respondents found this message “Extremely Appealing” or “Appealing.”

<table>
<thead>
<tr>
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<th>Appealing</th>
<th>Unclear</th>
</tr>
</thead>
<tbody>
<tr>
<td>46%</td>
<td>34%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Statistically meaningful differences in percent of “Extremely Appealing” responses

Grade Level – Message is comparatively more appealing to elementary and middle level parents: K-5: 50% 6-8: 46% 9-12: 40%

Parent Gender – No meaningful difference

Parent Ethnicity – No meaningful differences
MESSAGE #10: The new standards will improve the way science is taught at all grade levels in all schools.

80% of respondents found this message “Extremely Appealing” or “Appealing.”

- **46% EXTREMELY APPEALING**
- **33% APPEALING**
- **12% NOT APPEALING**
- **2% SOMEWHAT APPEALING**
- **6% UNCLEAR**

Statistically meaningful differences in percent of “Extremely Appealing” responses

- **Grade Level** – Message is comparatively more appealing to elementary parents:
  - K-5: 52%
  - 6-8: 45%
  - 9-12: 40%
- **Parent Gender** – Women: 48% Men: 39%
- **Parent Ethnicity** – No meaningful differences

MESSAGE #11: It is important that science learning also takes place out of school.

78% of respondents found this message “Extremely Appealing” or “Appealing.”

- **41% EXTREMELY APPEALING**
- **37% APPEALING**
- **17% NOT APPEALING**
- **3% SOMEWHAT APPEALING**
- **2% UNCLEAR**

Statistically meaningful differences in percent of “Extremely Appealing” responses

- **Grade Level** – Message is comparatively more appealing to elementary parents:
  - K-5: 47%
  - 6-8: 39%
  - 9-12: 34%
- **Parent Gender** – No meaningful difference
- **Parent Ethnicity** – No meaningful differences

MESSAGE #12: The whole community is needed to strengthen science education.

70% of respondents found this message “Extremely Appealing” or “Appealing.”

- **34% EXTREMELY APPEALING**
- **36% APPEALING**
- **20% NOT APPEALING**
- **6% SOMEWHAT APPEALING**
- **4% UNCLEAR**

Statistically meaningful differences in percent of “Extremely Appealing” responses

- **Grade Level** – Message is comparatively more appealing to elementary parents:
  - K-5: 38%
  - 6-8: 31%
  - 9-12: 29%
- **Parent Gender** – No meaningful difference
- **Parent Ethnicity** – No meaningful difference
OVERALL MESSAGING IMPACT

After reading the statements, 86% of parents had a “Very Favorable” or “Favorable” impression of the NGSS.

Statistically meaningful differences in percent of “Very Favorable” responses

**Grade Level** – Message is comparatively more appealing to elementary parents:
- K-5: 55%
- 6-8: 48%
- 9-12: 41%

**Parent Gender** – No meaningful differences

**Parent Ethnicity** – No meaningful differences

n=1,816
ADDITIONAL PARENT FEEDBACK AFTER READING NGSS MESSAGES

Over 400 parents responded to this question. Key themes and representative comments are listed below:

- There is an excitement about the new standards.
  “I am excited for my students – can’t wait to see the new standards implemented.”
  “I’m glad to see that science will be prioritized, instead of being on the back burner.”
  “These will better equip our children for the future.”
  “I support any efforts to have a better standardized STEM policy for all public schools.”
  “I wish this was around when I was young – I might have done better in school.”
  “I love the NGSS. They are inquiry-based and encourage creative thinking.”

- More information and/or parent education is needed to better evaluate and support the standards.
  “I want to learn much more and take a class on this with other parents.”
  “I need to know more about what is changing and when.”
  “We need to know what will be different from what they are learning now?”
  “I would like parent info as to what they are doing at that time in school, so I can be more involved in it with my son. The more I know the better I can help him and we can learn fun things together.”
  “If it’s going to be new to our children it is also going to be new to the parents and some understanding will be helpful.”
  “A lot of parents grew up with different ways of learning – need to be sure we can help them when everything is changing so fast.”

- Thoughtful implementation, particularly teacher training will be needed.
  “The standards are great. Successful implementation requires funding to train teachers, supplies, tools and equipment for a new approach and follow up to see what works, what doesn’t and adjust as necessary.”
  “It all depends on implementation – I trust educators, and think standards should be designed for students, not tests.”
  “I have noticed that some teachers embrace change while others are reluctant and prefer to teach in their same old way. All students, regardless of their GPA, need opportunities to experience those inspirational teachers.”
  “So much depends on how the teachers are trained to teach and their willingness/ability to share knowledge and teach concepts.”
  “Science education should not JUST be kids asking questions and exploring. It also requires teachers who are trained in science and understand it themselves.”
  “We need to ensure proper professional development for all teachers and then ongoing professional development to help teachers implement new curriculum.”
Questions and concerns exist about funding and financial implications.

“Money will be needed to implement all these standards – where is it coming from?”
“How will the schools be able to do this when they already lack funding.”
“The State needs to provide funding to school districts to support the new standards.”
“The State cannot expect PTAs and parents to fund the new standards. This is imperative.”
“Funding to support teachers and classroom activities is critical. Not just training but $$ for supplies and bonuses for teachers who do good work.”
“How will these new standards be affectively implemented in low-income schools where children have little to no support?”
“I have extreme doubts that the CA school system can make this work for the lowest income schools without drastically increasing the budget they give them. Parents in those schools can’t afford to send students on field trips.”

There are some concerns regarding the time taken away from other subjects.

“Science is such a broad area but it needs to overlap with language and math and art for students to benefit and for science to be PART of their whole child education, not just another silo/period/teacher/checklist item/requirement.”
“I want to make sure the standards are age appropriate, especially in regards to introducing sex ed.”
“Be cognizant of how much you ask teachers and parents to take on above and beyond their current workloads.”
“I just hope that teachers will be able to adequately cover the science standards with how much is already required in such little time.”

A small number of parents expressed concerns about the values and content that might be embedded in the standards.

“It’s OK as long as creationism, abstinence-only are not part of the curriculum.”
“I would greatly respect a science program that saw scientific theory as just that and not “the end all be all” answers to either the questions or conclusions on life itself.”
“I appreciate the delineation of science and religion immensely.”
VI. Big Takeaways and Implications

- Parents overwhelmingly believe in and value science as a central part of their child’s education, equally important to reading, writing, and math.

  *Implication: The timing is right to make this a priority focus of education reform.*

- Only slightly more than half of parents think their child is currently receiving enough science instruction.

  *Implication: There is a hunger for more science and a recognition that a new focus and new approaches are needed.*

- Even comparatively involved parents such as the California State PTA membership do not have pre-conceived notions of what the NGSS encompasses.

  *Implication: CAPTA and other partners have the opportunity to be leaders in introducing and framing the conversation in accurate, constructive and positive ways.*

- A majority of parents expressed a desire to learn more about the new science curriculum and find out how they can support it at home.

  *Implication: There is an opportunity to develop organized parent education programs that meet these needs.*

- A majority of parents recognize that they play a role in helping the standards be successfully implemented; many expressed a desire to learn how to become better advocates for science at their school.

  *Implication: If schools take the time to explain the new standards, address their questions and tap into their enthusiasm for science inside and out of school, parent support for the NGSS standards will likely be strengthened.*

- Breaking with historical patterns of parent involvement, men show a comparatively stronger interest in NGSS than women.

  *Implication: Science and NGSS may represent a new area of opportunity for the California State PTA to engage men.*

- All messages developed and tested appear to resonate positively with parents – and can be incorporated into the messaging platform. Strongest messages, that can become the core pillars, are:
  - Science is a foundational subject equal in importance to reading, writing and math – and is central to how we understand and make sense of the world.
  - Science plays an important role in building critical thinking, problem solving and analytical skills that are essential for life success.
  - The new standards emphasize hands-on learning and encourage students to ask questions.
  - The new standards provide an engaging gateway for children to become engaged in learning at an early age, by harnessing and building on their innate curiosity.