MEMORANDUM

TO: Members, Utah State Board of Education

FROM: Brad C. Smith
Chief Executive Officer

DATE: August 6-7, 2015

ACTION: Utah Science and Engineering Education (SEEd) Standards - 90-day public feedback

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Background:

1. The Utah Science and Engineering Education (SEEd) Standards were released to the public April 10, 2015 to July 10, 2015 for a 90-day public feedback period. Members of the public were invited to provide feedback and suggestions through an online survey, public meetings throughout the state, and by email.
2. Writing teams have met, reviewed, and responded to all feedback and suggestions from the 90-day public review and based on their findings have prepared suggestions for how they would like to improve the standards in preparation of a final draft.

Key Points:

1. A summary of feedback from the 90-day public review will be presented with examples and suggestions on how the writing teams desire to move forward.
2. Approval of the suggestions made by the writing teams will give the direction needed to prepare a final draft of the Utah Science and Engineering Education (SEEd) Standards that will be presented for adoption in the October 2015 State Board of Education meeting.

Anticipated Action:

It is proposed that the Standards and Assessment Committee consider approving the suggestions made by writing teams so that a final draft of the Utah Science and Engineering Education (SEEd) Standards can be prepared and, if approved by the Committee, the Board will consider approving the suggestions for writing teams to move forward.

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Summary of 90-Day Review Period for Utah Science and Engineering Education Standards for Grades 6-8

Prepared by the

Utah State Office of Education

August 6-7, 2015

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Summary of 90-day Review Period for Utah Science and Engineering Education Standards for grades 6-8

Purpose and Time line of 90-day Review for Science

Utah law requires that any new core standards are released to the public for a 90-day review period and at least 3 public hearings are held throughout the state on the standards (HB 342). The 90-day review for the draft Utah Science and Engineering Education (SEEd) Standards for grades 6-8 occurred between April 10 and July 10, 2015. During this time feedback was collected from five public hearings and an online feedback tool as well as other forms of communication such as email, petitions, formal letters, and several news reports, articles, editorials, and op-eds.

Public Hearings on SEEd Standards

Five public meetings were held throughout the state focusing on the draft 6-8 SEEd Standards after approval at the April Board meeting.

April 23, 2015	St. George	abt. 50 in attendance
April 28, 2015	Vernal	abt. 35 in attendance
May 6, 2015	Provo	abt. 100 in attendance
May 13, 2015	Logan	abt. 40 in attendance
May 19, 2015	Salt Lake City	abt. 60 in attendance

Feedback from these meetings was added to feedback from the online feedback tool data for writing teams to review. Analysis, response and suggestions to the Board are included later in this report.

Online Feedback Tool Data

The feedback tool was made available through a link on the USOE website. There were a total of 1011 responses recorded using the online feedback tool. Of the total number or responses, 464 responses 45.8%) answered questions and gave feedback regarding the standards. There were however, 547 of the responses that only entered personal information and gave no feedback for the standards. Most of the feedback responses made with the online tool (65.2% of responses) were received in the first 30 days, 28.3% of responses came in the next 30 days, and only 6.5% of responses came in the last 30 days.

The online tool collected the following data:

- Location
- Primary role of the person reviewing the standards (e.g. teacher, parent, admin, etc.)
- For each section of each grade's standard document (Overview Paragraph, 3 Dimensions of Science Instruction, and each Root Question) the reviewer chose one of two options:
    - "I have read [Standards Section] and think it's appropriate"
    - "I have read [Standards Section] and suggest the following changes"
    - The reviewer was then given space to provide comments, feedback, and suggestions in a text box (limited to 1000 characters)

Based on the data collected from the online feedback tool there was strong support for the standards as they are written in the draft (see Tables 1-3). Moreover, based on the response options of the feedback tool there was no way to approve the standards and also provide feedback. There were many teachers who were in favor of the standards but wanted to provide feedback, therefore the overall approval rating is lower than would have been the case had there been an option to make suggestions and also approve. The overall weighted average of the 6th Grade SEEd Standards is 73.0%, 7th Grade is 72.8%, and 8th Grade is 74.4%.

Table 1 – Percent of 6th Grade SEEd Standard reviews that were are in favor of each section of the standard draft based on how each reviewer selected their primary role

	% of Responses	Avg. Approval as written	6th Overview	6th 3D Intro	6th Root 1	6th Root 2	6th Root 3	6th Root 4
6-8 Science Teacher	28.6%	58.4%	66.0%	68.0%	50.5%	58.8%	52.6%	54.6%
Teacher	9.4%	**62.0%**	59.4%	65.6%	65.6%	59.4%	59.4%	62.5%
Admin	2.4%	**97.9%**	100.0%	100.0%	100.0%	87.5%	100.0%	100.0%
Higher Ed	8.3%	**81.0%**	85.7%	85.7%	85.7%	75.0%	75.0%	78.6%
Informal Ed	4.7%	**87.5%**	81.3%	93.8%	81.3%	93.8%	87.5%	87.5%
Parent	31.3%	**76.3%**	73.6%	75.5%	84.0%	72.6%	78.3%	73.6%
Public	8.6%	**93.7%**	93.1%	96.6%	96.6%	93.1%	89.7%	93.1%
Vendor	0.9%	**88.9%**	100.0%	33.3%	100.0%	100.0%	100.0%	100.0%
Other	5.9%	**78.3%**	80.0%	85.0%	80.0%	75.0%	80.0%	70.0%
Weighted Total	100.0%	**73.0%**	**74.3%**	**76.7%**	**74.0%**	**71.1%**	**71.1%**	**70.5%**

Table 2 – Percent of 7th Grade SEEd Standard reviews that were are in favor of each section of the standard draft based on how each reviewer selected their primary role

	% of Responses	Avg. Approval as written	7th Overview	7th 3D Intro	7th Root 1	7th Root 2	7th Root 3	7th Root 4	7th Root 5
6-8 Science Teacher	29.3%	**57.3%**	60.8%	68.6%	55.9%	55.9%	58.8%	49.0%	52.0%
Teacher	11.8%	**64.8%**	61.0%	75.6%	58.5%	61.0%	70.7%	65.9%	61.0%
Admin	2.3%	**94.6%**	100.0%	100.0%	87.5%	75.0%	100.0%	100.0%	100.0%
Higher Ed	7.8%	**83.6%**	88.9%	85.2%	85.2%	88.9%	77.8%	85.2%	74.1%
Informal Ed	4.9%	**93.3%**	100.0%	94.1%	100.0%	94.1%	94.1%	82.4%	88.2%
Parent	30.7%	**77.2%**	76.6%	79.4%	73.8%	74.8%	76.6%	80.4%	78.5%
Public	7.2%	**96.6%**	96.0%	96.0%	100.0%	88.0%	100.0%	96.0%	100.0%
Vendor	0.9%	**61.9%**	33.3%	33.3%	100.0%	33.3%	100.0%	33.3%	100.0%
Other	5.2%	**76.2%**	72.2%	83.3%	83.3%	83.3%	72.2%	66.7%	72.2%
Weighted Total	100.0%	**72.8%**	**73.6%**	**78.4%**	**71.8%**	**70.7%**	**73.9%**	**70.4%**	**70.7%**

Table 3 – Percent of 8th Grade SEEd Standard reviews that were are in favor of each section of the standard draft based on how each reviewer selected their primary role

	% of Responses	Avg. Approval as written	8th Overview	8th 3D Intro	8th Root 1	8th Root 2	8th Root 3	8th Root 4	8th Root 5	8th Root 6
6-8 Science Teacher	29.6%	**59.5%**	61.7%	62.6%	58.3%	65.2%	60.0%	54.8%	56.5%	56.5%
Teacher	12.4%	**66.7%**	60.4%	75.0%	66.7%	70.8%	64.6%	66.7%	64.6%	64.6%
Admin	2.6%	**86.7%**	90.0%	90.0%	81.8%	81.8%	90.0%	90.0%	90.0%	80.0%
Higher Ed	8.0%	**86.7%**	83.9%	83.9%	87.1%	87.1%	87.1%	80.6%	90.3%	93.5%
Informal Ed	4.4%	**93.4%**	94.1%	100.0%	88.2%	100.0%	88.2%	94.1%	94.1%	88.2%
Parent	30.4%	**79.6%**	78.8%	78.0%	80.5%	81.4%	80.5%	74.6%	82.2%	80.5%
Public	7.2%	**93.3%**	92.9%	89.3%	92.9%	96.4%	96.4%	85.7%	96.4%	96.4%
Vendor	0.5%	**68.8%**	50.0%	50.0%	50.0%	100.0%	100.0%	50.0%	50.0%	100.0%
Other	4.9%	**80.9%**	89.5%	89.5%	78.9%	89.5%	78.9%	73.7%	78.9%	68.4%
Weighted Total	100.0%	**74.4%**	**74.2%**	**76.0%**	**73.8%**	**78.1%**	**74.7%**	**70.1%**	**74.5%**	**73.5%**

Online Tool Feedback Summary

Each grade level writing team, made up of teachers, district science specialists, and science higher education representatives from Utah universities, met and spent more than 14 hours carefully reviewing the feedback provided during the 90-day review. To help organize the feedback, take suggestions, and provide clear responses the writing teams chose to group all feedback into general categories. The percent of responses in each grade and category is provided in Table 4.

Table 4 – Percent of responses for each grade based on categories made by the writing teams. Teams felt that this data helped them to see where most of the suggested concerns came.

	6th Grade	7th Grade	8th Grade	**Average**
Shifts in Content	24.9%	28.5%	25.9%	**26.3%**
Clarity of Standards	27.0%	31.9%	18.6%	**25.7%**
Sequencing of Standards	4.7%	10.5%	20.9%	**11.7%**
Multiple Categories in a Response	10.9%	4.0%	12.1%	**9.3%**
Political Motivations	8.2%	4.8%	7.6%	**7.0%**
No Clear Response	6.2%	5.6%	5.8%	**5.9%**
Age Appropriateness	7.3%	4.8%	2.0%	**4.8%**
Positive/Supportive Comments	3.0%	6.5%	1.8%	**3.6%**
Resource Needs of Teachers	5.6%	0.6%	1.3%	**2.7%**
Nature of Science	1.1%	2.5%	2.0%	**1.8%**
Other	1.1%	0.3%	2.0%	**1.2%**

Generally, the writing teams describe the feedback from each category in the following ways and offer the following feedback for how they hope to make improvements. See Appendices A-C (pages 9-14) for the writing team leader feedback summary reports prepared after reviewing feedback with their teams.

Shifts in Content (26.3% of all feedback):
Many recognized that specific content ideas that are in one grade in the current Utah science standards are proposed to be in another; or, they commented about how different ideas should be tied together. We have worked hard to make sure that the organization of core scientific ideas all tie together within each grade. **We value keeping the courses organized around big ideas and integrated across disciplines, but we also are now considering how to incorporate ideas suggested to make the themes even more coherent.**

Clarity of Standards (25.7% of all feedback):
Most of the feedback referenced details of the performance expectations and either their meaning, their wording, or a lack of background information. For example, "models" and "modeling" can be interpreted in many different ways, and this is not clear in the standards documents. Individual performance expectations could be taught at lots of different levels or depths and how crosscutting concepts, practices, and core ideas are interrelated is not immediately clear. **We propose to clarify these issues and to consider different formats to display the standards that will provide more information about the expectations for student learning.**

Sequencing of Standards (11.7% of all feedback):
There are many different ways of sequencing standards from one grade to the next and many suggestions were given that could help the progression of science learning from 6th to 8th grade. **We have been striving to make sure that all the pieces fit into the broader context, but we are also considering all possible sequences to improve the over sequence of learning. More time will be spent on this topic based on feedback.**

Multiple Categories in a Single Response (9.3% of all feedback):
Some feedback contained comments and suggestions from multiple categories. These main ideas have been added to the general categories they belong to.

Political Motivations (7.0% of all feedback):
Some feedback questioned the motivation for the standards revision. The writing committee wanted to create the best set of standards possible, to help our own children to grow up in the 21st century with the skills they need to participate as citizens and in the workforce. We based our decision to deliberately use the K-12 Framework for Science Education (NRC), Taking Science to Schools (NRC), performance expectations from Next Generation Science Standards (NGSS Lead States), and other resources, because these represented the best, most comprehensive and up-to-date research available to us. **We've catered and adapted these to our own Utah needs, and we will continue to adapt these as we work on the next draft. As scientists and educators here in Utah, we want to make it clear that we are pulling in all of the best possible resources for our students and fellow Utahans.**

No Clear Response (5.9% of all feedback):
Some feedback was abbreviated or without context that made it impossible to understand what the reviewer was trying to say. Others simply copied and pasted the performance expectations without any description.

Age Appropriateness (4.8% of all feedback):
Some feedback questioned if some students would be capable of understanding content as presented in these standards. **We've based the standards documents on what is developmentally appropriate; however, we also have in mind the level at which these understandings are assessed. We are working to make sure that these are more clear and better fit the developmental understanding of students.**

Positive/Supportive Comments (3.6% of all feedback):
Those in favor of the standards did not need to make a comment but a few chose to do so. These include comments like: “Keep these standards strong and science based” or “I like the emphasis on using evidence to support arguments”.

Resource Needs of Teachers (2.7% of all feedback):
Some sentiments that came from teachers with fears of teaching new science content in a new and more engaging way. In particular, these comments pleaded for support from the state and their schools for resources and professional development to teach these standards effectively. **Although the writing teams cannot address these concerns directly, we empathize with them. The Utah State Board of Education and legislators should be aware of this significant need.**

The Nature of Science (1.2% of all feedback):
Some feedback had questions about our most current and useful understandings of science, especially with regards to evolution. Many of these comments suggested that evolution was "only a theory." "Theory," in science is the deepest and most useful level of explanation, based on all data, analysis, and tests to date. This is emphasized in current USOE policy, by science education scholars, and by practicing scientists in Utah and beyond. **We continue to emphasize these ideas and the practices of analyzing evidence, and we intend for students to engage in this process.**

Other (1.2% of all feedback):
Some feedback provided feedback to improve grammatical errors or made claims about the standards process such as “Adopting entire NGSS when we’ve only seen grades 6-8” or “We can’t change these standards if we adopt them”. **We clearly marked areas that had grammatical errors to make necessary changes. The Utah State Board of Education will be free to change and adapt any standards they choose to adopt.**

Feedback through other communication

Beyond feedback from the five public hearings and the online feedback tool, other communication was made with comments, support, or suggestions for the 6-8 SEEd standards.

- Email correspondence came with comments against using the NGSS standards, teaching Darwinian Evolution or Climate Change, and changing science content from where they are in the current standards. There were other emails that came in support of the standards and praise how the standards focus on learning by doing, importance of evidence in creating an argument, and promoting a more scientifically-literate society.
- A two page letter of support of the 6-8 SEEd standards came from the Deans of Science and Engineering Departments from six Utah institutes of higher learning (Salt Lake Community College, Southern Utah University, University of Utah, Utah State University, Utah Valley University, and Weber State University). In this letter they describe how the standards contain strong science content and are based on sound scientific education research.
- Two petitions were sent in favor of standards with a specific emphasis in teaching current science concepts like climate change. One included 239 and the other 112 signatures.
- There were several articles, news reports, editorials, and op-eds written about the standards with thousands of comments.

Main 3 areas of community discussion

Based on all forms of feedback regarding the Utah SEEd Standards three main topics became areas of discussion: The use of the Next Generation Science Standards, teaching climate change and environmental advocacy, and teaching evolution. There are two sides to each of these topics that are illustrated in Table 5.

Table 5 – shows arguments from both sides of the three main topics

Use of Next Generation Science Standards	
Against – - "Contains controversial content" - "The standards are not Utah written or Utah controlled" - "The NGSS show no evidence they improve student learning" - "The NGSS limit a parent's ability to help their child." - "NGSS proposes we deliberately teach less science content"	For – - "Inclusion of the Next-Generation-Science-Standards in Utah's science curriculum will prepare Utah students, like my son, for an ever-changing world and an increasingly competitive workforce." - "Science is an ever-evolving field. I was pleased to see the science standards updated and I feel these changes will lead students to a more accurate understanding of more scientific processes"
Climate Change and Environmental Advocacy	
Against – - "I do not think global warming and human impact on the environment should be core standards. There are much more important, fundamental concepts that should take priority over environmental education." - "I am philosophically opposed to what is in the SEEd standards, specifically, emphasis on of the still-debated theory of man-made climate change and assumption that this theory is fact"	For – - "I strongly support the teaching of evidence-based science about human-caused climate change. It's incredibly important that Utah students be taught the evidence about climate change, because it is an issue that is affecting us now, and will have a great impact on our children's future." - "I am very happy to see climate science and climate change being addressed and would encourage a non timid approach to studying the anthropogenic influence on climate."
Biological Evolution	
Against – - "The fossil record does not show the gradual branching tree that is usually shown in our science classes." - "Evolution is not fact and is only to be taught as a theory." - "So we are taking God out of the class room and teaching evolution of man as a fact. Get rid of it." - "Until and unless we observe a transformation through generations from one species to another, evolution remains a theory, and should be taught as such."	For – - "Evolution is a core principle in biology. It is so fundamental to understanding life. Students need to understand the process of evolution and the many lines of evidence which support it." - "I think biological evolution is a topic that should be touched on again in 8th grade. Many of the standards are taught in 2 grades, and as of now, biological evolution is only barely touched on in 7th grade." - "I am happy to see evolution in the new core."

Suggestions for SEEd Standards

The following bullets and tables contain the main public feedback and suggested changes that the writing teams propose be made to the Utah Science and Engineering Standards for grades 6-8. They ask the Standards and Assessment Committee and Entire State Board of Education approval to move forward. A final draft with these changes will be made in August and a final draft will be presented to the State Board of Education in the September board meeting.

- Clarity of Standards – many expressed a need for more clarity in the standards documents

Public Feedback	**Proposed suggestions in response**
An explanatory introduction that describes the new standards, process, and design is needed	Writing team has drafted an outline of the proposed introduction for SEEd standards. (See Table 6)
Individual standards are not clear as to what content needs to be taught to students	Writing team will work to clarify each standard so that it is clear what the expectation is for student learning
Engineering standards do not include content and so are difficult to integrate with the other standards	Writing team will add specific content that will give context and clarity to the engineering standards

Table 6 – Suggested Introduction materials

Introduction	A statement of how science is a way of knowing which leads to an introduction to the components of the standards document.
Students Doing Science	A discussion on: 1. How students do science. 2. Facts alone are not enough 3. Integration of learning
Understanding the three-dimensions of Science	Understanding the research base for three-dimensional science. This section will provide necessary background knowledge on the 8 practices of science and engineering, 7 crosscutting concepts, and Core Ideas.
How to read this document	How to read and use the standards document. This may include screen shots, graphics (Table of components), or short descriptions.
Grade Level Design	A specific grade level description of how the strands and standards are connected to each other (Grade specific Storyline). Clarify the specific practices, CCC, and DCIs for the particular grade level. Description of how Practices, CCC, and DCIs specifically integrate within this grade level to form a three-dimensional science experience.

- Shifts in Content and Sequencing of Standards – comments were made about how content is shifting from one grade to another and improving the sequence of standards to better help students

Public Feedback	**Proposed suggestions in response**
Teachers were concerned about the shifting of content in what they teach rendering their classroom lessons and materials useless	The shift in content was made to help improve the progression of students learning the main science concepts from grades 6 to 8. Progressions will remain strong in student learning while also working to move some concepts back to where they are found in our current standards.

- Political Motivations

Public Feedback	**Proposed suggestions in response**
Use of the Next Generation Science Standards	The science community and writing teams have heavily elected to use the Next Generation Science Standards as a reference for our state standards. Writing teams will change and improve the verbiage of some standards to best meet the needs of Utah students.

- Age Appropriateness

Public Feedback	**Proposed suggestions in response**
Debating climate change and human effects on the environment in 6th grade would not be age appropriate.	Writing teams agreed that all 6th grade students may not have the capacity for these topics and removed these topics leaving them only in the 8th grade standards.
6th grade standard topics should be more concrete science content to help elementary teachers that may not have a degree in science.	Writing teams will adjust content found in the 6th grade standards to help teachers be more successful

End of Suggested Changes

Appendix A - Feedback Report Summary from 6th Grade Team Leaders

To Whom It May Concern:

At the conclusion of the 90-day public review for the draft Utah SEEd standards, the 6th grade writing committee has met and analyzed all the responses provided during the public review. Numerous suggestions and positive comments were included from the public. This input is valuable in refining and revising the standard document. This input is appreciated. Some comments were very illuminating to the writing committee and those suggestions will be implemented. Other comments did little to provide concrete suggestions that improve science for Utah students.

Based on the analysis of the feedback (465 line items for 6th grade) the following themes emerged in frequency and importance:

- Lack of clarity (27%)-requests for additional information in the document including examples or format
- Fear of change (25%)-change in content as well as the need for resources and materials
- Progression and flow of standards
- Science as a way of knowing and understanding
- Political concerns regarding NGSS
- Age appropriateness for the 6th grade content

Based on the feedback, the writing team suggests the following changes to the 6th grade standards document.

- Additional clarification statements are needed in the document to help identify specifics within the content, vocabulary as well as connections to engineering.

- Introductory material that gives background information about the standards, the reasons behind integrating science disciplines, three-dimensional science understanding of cross cutting concepts, science and engineering practices as well as disciplinary core ideas.

- Recommendation to move human impact and climate change to older grade levels

Sincerely,

Max Longhurst
Stephanie Wood
6th Grade Writing Team Leaders

Appendix B - Feedback Report Summary from 7th Grade Team Leader

The 7th Grade Writing Team has reviewed all public comment generated during the 90-day review period. We appreciate the detailed, substantive comments that many individuals brought up, and we are using these in our work to improve the drafts. We were also heartened to see so much public support for the extensive work done so far and for the drafts as they are currently written.

As we have responded to each of the submitted comments, we have found that there are some general categories of concern. Those are as follows:

Clarity of Standards (112 of 359 comments):
Most of the feedback referenced details of the performance expectations and either the meaning of them, their wording, or a lack of background information. For example, "models" and "modeling" can be interpreted in many different ways, and this is not clear in the document. Individual performance expectations could be taught at lots of different levels or depths. And, how crosscutting concepts, practices, and core ideas are interrelated is not immediately clear. We propose to clarify these issues and to consider different formats to display the standards.

Shifts in Content (101 of 359 comments):
Many recognized that specific ideas that used to be in one grade are now in another; or, they commented about how different ideas should be tied together. We have worked hard to make sure that the organization of core scientific ideas all tie together within the 7th grade, as well as with the other grade levels. We value keeping the courses organized around big ideas and integrated across disciplines, but we also are now considering how to incorporate ideas suggested to make the themes even more coherent.

The Nature of Science (10 of 359 comments):
Some feedback had questions about our most current and useful understandings of science, especially with regards to evolution. Many of these comments suggested that evolution was "only a theory." "Theory," of course, is our deepest and most useful level of explanation in science, based on all data, analysis, and tests to date. This is emphasized in current USOE policy, by science education scholars, and by practicing scientists in Utah and beyond. We continue to emphasize these ideas and the practices of analyzing evidence, and we intend for students to engage in this process.

Sequencing of Standards (35 of 359 comments):
There are many different ways of sequencing standards from one grade to the next. We have been striving to make sure that the 7th grade pieces fit into the broader context, but we are also considering all possible sequences in concert with the 6th and 8th grade writing teams.

Age Appropriateness (16 of 359 comments):
Some feedback questioned if 7th graders were capable of understanding content as presented in these standards. We've based this document on what is developmentally appropriate, but we also have in mind the level at which these understandings are assessed. We are working to make sure that these are clearer.

Political Motivations (17 of 359 comments):
Some feedback questioned the motivation for the standards revision. To be clear, the writing committee wanted to create the best set of standards possible, to help our own children to grow up in

the 21st century with the skills they need to participate as citizens and in the workforce. We based our decision to deliberately use materials from Next Generation Science Standards (NGSS Lead States), the K-12 Framework for Science Education (NRC), Taking Science to Schools (NRC), and other resources, because these represented the best, most comprehensive and up-to-date research available to us. We've catered and adapted these to our own Utah needs, and we will continue to adapt these as we work on the next draft. As scientists and educators here in Utah, we want to make it clear that we are pulling in all of the best possible resources for our students and other fellow Utahans.

Resource Needs of Teachers (2 of 359 comments):
Though we were not informed of the sources for the comments, there were many sentiments that seemed to come from teachers with fears of teaching science in a new and more engaging way. In particular, these comments pleaded for support from the state and their schools for resources and professional development to teach these standards effectively. Although the writing teams cannot address these concerns directly, we empathize with them. The Utah State Board of Education and legislators should be aware of this significant need.

Next Steps:
To address the most substantive feedback from the public comment period, the7th Grade Writing Team is actively working on a redraft of the SEEd Standards that will add clarity for parents and educators. Along with the other writing teams, we intend to develop preface materials to explain the design, vocabulary, sequence, and use of the SEEd Standards. We can also work on edits of Performance Expectations to increase clarity and to ensure that design will be an asset to teachers, parents, stakeholders, and (especially) students. We have submitted these suggestions to the Utah State Office of Education.

Again, we're grateful that so many have given feedback and positive support for these standards. We are looking forward to continuing to move forward on continuing to revise these standards in the near future.

Adam Johnston
7th Grade Writing Team Leader

Appendix C - Feedback Report Summary from 8th Grade Team Leaders

Executive Summary of
8th Grade Science Writing Team
Review of Public Comments

July 14, 2015

To Whom It May Concern:

The 8th Grade Science Writing Team met on July 13th-14th at Thanksgiving Point for a total of 14 hours. During this time, we read and responded to the public comments that were received through the survey instrument used by the Utah State Office of Education during the 90-Day review period. The writing teams appreciate the detailed and substitutive comments received. There were several general themes within the feedback and the writing teams have developed a plan to address these issues. The themes are as follows:

Nature of Science Understanding: 2% of responses
These comments pertained to a misunderstanding of the nature of science as a way of knowing and understanding the natural world on the part of the reviewer. For example, a comment stated that Utah should refrain from teaching 'theories' and focus on only 'facts.' In these cases, it is clear that the reviewer does not understand how science uses these terms and that theories are heavily grounded to facts or data gathered through research. We feel that greater clarity in the SEEd Standards will help with this concern.

Political Motivations: 7.5% of responses
Comments of this nature referred to these new standards as a 'government takeover' or a United Nations conspiracy. These comments show a clear misinformation regarding the source of these standards, Next Generation Science Standards, and the current standards used in the state of Utah.

Shifts in Content: 25.5% of responses
Many recognized that specific ideas that used to be in one grade are now in another, or commented about how different ideas are tied together. We have worked hard to make sure that the organization of core ideas all tie together within the 7th grade, as well as with the other grade levels. We value keeping the courses organized around big ideas and integrated across disciplines, but we also are considering how to incorporate ideas suggested to make the themes even more coherent.

Age Appropriateness: 2% of responses
A few reviewers were concerned that the expectations placed upon 8th graders by these new standards are not appropriate. There is a significant body of research that states quite the opposite. The design of these proposed standards reflects these established findings and while they represent a significant 'raising of the bar' for Utah students, our teams are confident that students can reach these standards.

Clarity of Standards: 18% of responses
Most of the feedback referenced details of the performance expectations and either the meaning of them, their wording, or a lack of background information. For example, "models" and "modeling" can be interpreted in many different ways, and this is not clear in the document. Individual performance expectations could be taught at lots of different levels or depths. And, how crosscutting concepts, practices, and core ideas are interrelated is not immediately clear. We propose to clarify these issues and to consider different formats to display the standards.

Sequencing of Standards: 20% of responses
Many recognized that specific ideas that used to be in one grade are now in another, or commented about how different ideas are tied together. We have worked hard to make sure that the organization of core ideas all tie together within the 8th grade, as well as with the other grade levels. In fact, we are heavily considering grades K-5 and 9-12 while we construct and sequence these draft standards. We value keeping the courses organized around big ideas and integrated across disciplines, but we also are considering how to incorporate ideas suggested to make the themes even more coherent.

Resource Needs of Teachers: 1% of responses
Though we were not informed of the sources for the comments, a number of them obviously stemmed from teachers with fears of teaching science in a new and more engaging way. These comments pleaded for support from the state and their schools for resources and professional development to teach these standards effectively. While the Writing Teams cannot address these concerns directly, we felt that the State Board of Education and legislators should be aware of this significant need.

To address the most significant concerns with the drafts, the 8th Grade Writing Team suggests a rewrite of the SEEd Standards that add far more clarity for parents and educators. They include the creation of preface materials to explain the design, vocabulary, sequence, and use of the SEEd Standards. We also suggest that the Performance Expectations be edited to add greater clarity and to ensure that design will be highly beneficial to educators. We have submitted these suggestions to the Utah State Office of Education of appending to this document.

Sincerely,

John R. Taylor
Barbara Gentry
8th Grade Writing Team Leader