

**MINUTES**  
**SCIENCE STANDARDS RECOMMENDATION COMMITTEE**  
**MARCH 22, 2016**

The Standards Recommendation Committee met for its first scheduled meeting at the Tennessee School Boards Association office at 10:00 am CDT.

**Present.....9**

**Ms. Marsha Buck**  
**Ms. Jeannie Cuervo (Vice Chair)**  
**Dr. Kent Gallaher**  
**Ms. Lorrie Graves**  
**Ms. Annette Hurd**  
**Ms. Kattie Nash**  
**Dr. Sally Pardue (Chair)**  
**Ms. LaToya Pugh**  
**Mr. Mark Weeks**

**Absent.....1**

**Ms. Jan Allen Brewer**

**Dr. Sara Heyburn** welcomed the group and explained the importance of the standards process. She said that getting the standards right is important because everything is built from them. She thanked the group for their commitment and explained the difference between the State Board and the Department of Education.

**Ms. Laura Encalade** asked each committee member and staff to introduce themselves.

**Mrs. Annette Hurd** lives in west TN and was a former teacher in several places, including Alabama, Spain, and Virginia. She said almost all of her teaching assignments were in grades 6-10 science.

**Ms. Jeannie Cuervo** teaches at Cleveland High School. She was also on the advisory team who wrote the standards.

**Mr. Mark Weeks** is an assistant principal at Lenoir City High School and is a former science teacher. He has also been a technology and curriculum coach.

**Ms. Marsha Buck** is a current eighth grade science teacher. She has a background in science; education is a second career.

**Dr. Sally Pardue** is a product of TN education. She graduated from Hickman County High School. She is a mechanical engineering professor at TN Tech University.

**Ms. LaToya Pugh** is a former seventh grade science teacher and is a former CTE curriculum coach. She also is an instructional coach in science and has been involved in curriculum writing.

**Dr. Kent Gallaher** is a university professor at Lipscomb University. He has taught several science courses. His son will be a middle school science teacher next year.

**Ms. Kattie Nash** is in her eighth year of teaching elementary school. She works at a STEM school and is currently the STEM teacher at her school.

**Ms. Lorrie Graves** teaches at an elementary school and believes that science is a hook to integrate every single subject that we teach.

**Ms. Laura Encalade** is the Director of Policy and Research at the State Board. She has been working with the standards review process since she began in her role.

**Ms. Leigh Cummins** works very closely with Laura on the standards review process. She formerly worked for the Department of Education.

**Ms. Paige Atchley** is a Governor's Management Fellow who works with the State Board and the Department of Education.

**Ms. Andrea Allen** is the science advisory team co-lead. She is a former K-8 school teacher and engaged in curriculum development. She is the science supervisory for Knox County Schools.

**Mr. Andy Hebert** is the science advisory team co-lead. He has an extensive science background and is a full time teacher at Maryville City Schools. He also teaches higher education.

**Ms. Kelly Chastain** will play a large roll in rolling out the new standards. She works as the science coordinator at the Department of Education.

**Ms. Tammy Shelton** is the executive director of Content and Assessment Design and will work heavily with the standards alignment.

**Ms. Laura Encalade** explained the State Board/Department of Education relationship and reiterated the importance of the standards. She also explained the review process (Public Chapter 423), which includes two public review periods, an educator team that makes revisions, and the creation of the SRC. She explained the role of the SRC, which includes reviewing the standards, reviewing feedback, recommending revisions to the educator teams, and recommending the final standards to the SBE.

She then reviewed the science revision process because it is slightly different. In December 2013, a steering committee convened and decided new science standards needed to be drafted. During spring and summer 2014, educators created a new draft of science standards ("Draft A"). In the fall 2014, they gathered feedback from several groups about Draft A, and in the winter 2015, they revised Draft A using the feedback they received. In spring 2015, Draft A was completely revised. Draft A was posted online for feedback pursuant with Public Chapter 423. The teacher advisory teams then used the feedback gathered from the public to revise Draft A. The revisions to Draft A were finalized, creating Draft B. SRC members were provided with Draft B in their binders. For clarification, Draft B incorporates the changes made by the teacher advisory team after they received and incorporated the public feedback.

**Dr. Sally Pardue** Does the state want the formatting of the standards to match the math, reading language arts, and social studies? **Ms. Laura Encalade** No. We are comfortable with each subject having their own formatting that fits the need of that subject. However, we want to be sure that the term "standard" is consistent.

**Ms. Laura Encalade** described the role of the chair, including the responsibilities and expectations. The committee will be managed by Robert's Rules of Order. She then explained the selection process and explained that all nominations must have a second.

**Ms. Leigh Cummins** takes roll. The result is above.

**Ms. Laura Encalade** calls the meeting to order in the absence of a chair.

**Ms. Jeannie Cuervo** nominated **Dr. Sally Pardue**. It was seconded by **Ms. LaToya Pugh**.  
**Dr. Sally Pardue** nominated **Ms. Jeannie Cuervo**. It was seconded by **Ms. LaToya Pugh**.

The active nominations: Dr. Sally Pardue and Ms. Jeannie Cuervo

**Ms. Laura Encalade** asks for each of the nominees to speak.

**Dr. Sally Pardue** is honored for the nomination and excited about this work. She believes she can add a lot of value in the chair role.

**Ms. Jeannie Cuervo** is honored for the nomination, but she stated that she does not know Robert's Rules. She said that she believed Dr. Pardue would be a better chair because of her experience.

**Ms. Laura Encalade** called for a vote. **Ms. Leigh Cummins** took a roll call vote.

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|--------------------|------------------|
| Ms. Marsha Buck    | Dr. Sally Pardue |
| Ms. Jeannie Cuervo | Dr. Sally Pardue |
| Dr. Kent Gallaher  | Dr. Sally Pardue |
| Ms. Lorrie Graves  | Dr. Sally Pardue |
| Mrs. Annette Hurd  | Dr. Sally Pardue |
| Ms. Kattie Nash    | Dr. Sally Pardue |
| Dr. Sally Pardue   | Abstain          |
| Ms. LaToya Pugh    | Dr. Sally Pardue |
| Mr. Mark Weeks     | Dr. Sally Pardue |

**Ms. Laura Encalade** The votes have indicated that Dr. Pardue will serve as the chair for the committee.

**Ms. Kelly Chastain** presented on the current science standards. She explained that the current standards have not been reviewed since 1996. She believes teachers are very excited about this work and the changes that are coming. She also thinks the formatting of the current document also offers an opportunity for improvement. She thinks it can be a little confusing. ("What standard are you teaching?") She went through examples of the current standards and how they are not teacher friendly and where things are getting "lost." She explained the difference between standards (the "what") and curriculum (the "how").

**Dr. Kent Gallaher** Are you asking for a whole new format? **Ms. Kelly Chastain** Yes. We would recommend having a new format, but the decision on format ultimately it is up the SRC.

**Ms. LaToya Pugh** Will we break into grade band groups to look at the standards? **Ms. Laura Encalade** No, the committee is charged with looking at the standards as a whole.

**Ms. Marsha Buck** Should we consider that often science is taught as a part of a literacy block and students are not receiving separate instruction on science. **Ms. Tammy Shelton** Where science standards are taught during the day is a district decision. The current standards call for

the science standards to be taught as a standalone science lesson. However, they can also be taught in an integrated way.

**Dr. Kent Gallaher** Is there an assessment for these science standards? If there is no assessment, there will be no accountability. **Ms. Tammy Shelton** Yes. The state summative assessment starts at third grade.

**Ms. Andrea Allen and Mr. Andy Hebert** began their presentation on the revision work that has taken place thus far.

**Ms. Andrea Allen** gave an overview of the presentation: purpose of the work, key shifts, and grade-band breakdown.

**Mr. Andy Hebert** explained that the TN science standards received a “D,” based on rigor, clarity, lack of specificity, etc., four years ago in a report by the Fordham Institute. We are still teaching those standards today. He announced that the guiding question for this work was, “How will TN be a flagship state in science education?”

**Ms. Andrea Allen** announced that “A Framework for K-12 Science Education” was the guide for writing the standards; it was the “north star” when there was disagreement. The book is divided into three parts: disciplinary core ideas (content), practices, and cross-cutting concepts (run through all sciences). She reminded the group that the current standards are based off of the National Research Council’s framework that was developed in 1996.

**Mr. Andy Hebert** overviews the four categories of disciplinary core ideas: physical science, life science, earth & space science, and engineering, technology, & application science. These help stimulate deeper thinking about a topic. He also reviewed the crosscutting concepts and science practices.

**Ms. Andrea Allen** spoke to both standard shifts and the instructional shifts. She also explained where the elements of the old standards document fall in the new document. She explained that the standards did not have to be taught in the order that is laid out in the document; that is a Local Education Agency decision. The new format is much simpler to look at. She said that K-5 standards are very redundant, and we are switching to less redundancy. This leads to less standards so teachers can go deeper into the content. She challenged the SRC to keep an open mind about the shifts.

**Ms. Marsha Buck** You mentioned another document. What is that about? **Ms. Andrea Allen** There will be a supporting document that we will talk about later. That is not within the scope of the standards work, but we will talk about it. **Ms. Laura Encalade** The supporting documents will not be complete until the SRC recommends the standards to the State Board and they are approved, but they will be developed throughout. **Ms. Jeannie Cuervo** Teachers need to have professional development. I just want that recognized.

**Mr. Andy Hebert** explained that creating the middle school standards needed to be an integrated approach. He said they now stand-alone and are vertically aligned; he is proud of the new TN science middle school standards. He showed examples of misalignment in the current TN standards and explained why their revision was important. He also explained that one of the most challenging aspects was the age-appropriateness, but he said that his developers worked through that. He highlighted that, in the new proposed draft, there are a reduced number of standards while increasing relevance, rigor, and coherence in the middle grades. Several high

school courses reduced the number of standards. It is important to realize that the state cannot prescribe when high school students takes particular courses; this needs to be remembered.

**Ms. Marsha Buck** If we need clarification when we are not together, what is the format I use for that? **Ms. Laura Encalade** You can always talk to me. I can help answer your questions when we are not together. **Dr. Sally Pardue** The next time we are together, can we see everyone's questions? **Ms. Laura Encalade** Absolutely.

**Dr. Sally Pardue** What materials can we share with others? **Ms. Laura Encalade** You can share any of these materials, and the meeting minutes will be posted online after you approve them at your next meeting. We want to be as transparent as possible.

**Ms. Laura Encalade** The science standards were posted from September 2015 to December 2015. We received almost 30,000 reviews and over 6,300 comments by more than 1,300 reviewers. She explained the website structure to the SRC.

**Ms. Leigh Cummins** explained the different types of reports that were given to the SRC. She overviewed a summary of the data that disclosed that the three largest role groups that provided feedback: educators (80%), parents/guardians (9%), and community members (4%). Overall there is a pretty high percentage of keep (80%) and the keep percentages were specifically high in the high school courses. The lowest keep percentages were in the seventh and eighth grade.

**Ms. Marsha Buck** What does the term "review" mean? **Ms. Leigh Cummins** Everything from rewording the standard to moving it to another grade.

**Mr. Mark Weeks** Was there a threshold percentage-wise that says we have to change this or we don't? **Ms. Laura Encalade** Great question. The highlighting in the reports gave our teams a place to start and prioritize, but our teams looked at everything. There were no restrictions in place to force or restrict revisions.

**Ms. Laura Encalade** You will see comments in the report exactly as they were submitted.

**Ms. Leigh Cummins** assured the committee that if they want the raw data, we would be happy to provide it.

**Ms. Jeannie Cuervo** We read every single comment and took them very seriously. We really appreciated the feedback.

**Dr. Sally Pardue** Will we know where changes were made at our next meeting? **Ms. Laura Encalade** We have a tracking document, and we can help track the major changes. In the document in this firm, we may not track all the little changes, but we can point out the big things.

**Ms. Marsha Buck** Is there a place that teachers can be told clarifying documents will be included to help teachers understand more specifically? **Ms. Laura Encalade** I think that can go a long way. We can add additional language to the website that includes that information. We can also make that in the in person session.

**Mr. Andy Herbert** You will find contrary comments by reviewers.

**Ms. Lorrie Graves** The final decision to change a standard lies with who? **Ms. Laura Encalade** The SRC.

**Ms. Lorrie Graves** What were the exemplar states to guide our standards? How were they chosen? **Mr. Andy Herbert** They were chosen based on research and data.

**Dr. Sally Pardue** Did you have any other people say that they would provide feedback but not use the website? **Ms. Laura Encalade** I am not sure if we have had that come up at all. The website is the only way we really have to gather feedback at scale because we are a small team. **Dr. Sally Pardue** Do you have examples of helpful feedback vs. not helpful feedback on the website? **Ms. Laura Encalade** I am not sure, but that is a great idea.

**Ms. Laura Encalade** explained the in-person feedback sessions that will take place across the state and the registration process for those sessions. We would love the SRC to attend, if possible. **Ms. Leigh Cummins** gave the dates of each session and announced that the registration is open.

**Dr. Sally Pardue** Is there a toolkit that could be given to other organizations so they could facilitate a similar session? No, but we can create it. **Dr. Sally Pardue** I think that would be very helpful. Also, Andy and Andrea's session was very helpful. Is it being taped? **Ms. Laura Encalade** No, unfortunately. **Dr. Sally Pardue** I think we should film it so we don't have to recreate it every time.

**Ms. Marsha Buck** Can people look at the standards before the in-person session? **Ms. Laura Encalade** Yes, that is a lesson we learned last time. Everyone who is attending will receive a copy of the standards before they arrive.

Ms. Laura Encalade presents a proposed schedule of future meeting dates.

**Dr. Sally Pardue** entertained a motion to accept the schedule as is. **Ms. Jeannie Cuervo** Second. **Dr. Sally Pardue** calls for a voice vote. Vote passes

**Dr. Sally Pardue** asks all members to let Laura know about their attendance, whether in person or remotely. **Ms. Laura Encalade** If you are unable to come, please let me know, and I will do whatever works with you to catch you up.

**Ms. Laura Encalade** went over housekeeping items. She will also send a follow-up email with all of the materials from today's meeting. She confirmed that she is the SRC's contact.

**Dr. Sally Pardue** made a motion to dismiss the meeting. **Mr. Mark Weeks** Second. **Dr. Sally Pardue** All in favor? **All** Aye. **Dr. Sally Pardue** Meeting dismissed.