



# THE WASHINGTON STATE BOARD OF EDUCATION

*A high-quality education system that prepares all students for college, career, and life.*

<b>Title: South Central Washington Perspective on Next Generation Science Standards Implementation</b>	
<b>As related to:</b>	<input checked="" type="checkbox"/> <b>Goal One:</b> Develop and support policies to close the achievement and opportunity gaps. <input type="checkbox"/> <b>Goal Two:</b> Develop comprehensive accountability, recognition, and supports for students, schools, and districts. <input checked="" type="checkbox"/> <b>Goal Three:</b> Ensure that every student has the opportunity to meet career and college ready standards. <input type="checkbox"/> <b>Goal Four:</b> Provide effective oversight of the K-12 system. <input type="checkbox"/> <b>Other</b>
<b>Relevant to Board roles:</b>	<input checked="" type="checkbox"/> Policy leadership <input type="checkbox"/> System oversight <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Convening and facilitating
<b>Policy considerations / Key questions:</b>	How can the Board strengthen its collaboration with other organizations and utilize the Board's advocacy role to advance the continued sustainability and fidelity of implementation of the Washington State Science Learning Standards (WSSLS)/Next Generation Science Standards (NGSS)?
<b>Relevant to business item:</b>	N/A
<b>Materials included in packet:</b>	Memo NGSS Communication Campaign One Pager Science Stories from the Field Template

**Synopsis:**

At the May meeting, members will hear from Mike Brown, ESD 105, Regional Science Education Coordinator and Mark Cheney, ESD 105, South Central Washington STEM Network Director.

The memo helps set the stage for the Board discussion with the panelists. It includes:

1. A review of the work leading up to the May meeting
2. A review of the system components (5 P's: Purpose, Policy, Program, Practice, Partner) needed for sustainable NGSS implementation with a focus on equity
3. Guiding questions provided to the panelists
4. A brief NGSS communication campaign update

The final two materials included in this section are for Board members' use when meeting with partners about NGSS communication efforts. There are also three supplemental items that are posted online. The first document is biographical information on the panelists. The last two documents describe the work of ESDs, the LASER Project, and STEM Regional networks in improving science and STEM education in Washington.

The panelists provided several short videos and webpages as background materials for their presentation. The Engineering Fellows program videos below provide a good description of how we are meeting the NGSS engineering standards at 5th grade, and how the STEM Network is partnering with local businesses, higher education institutions, and statewide organizations to implement NGSS in the region.

- [Engineering Fellows: The Engineers Perspective](#)
- [Engineering Fellows Program: The Student Perspective](#)
- [Engineering Fellows Program: Partnerships](#)

Relevant ESD webpages are:

- [K-5 Science Cooperative](#)
- [The Science Cooperative Is In Transition!](#)



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## **South Central Washington Perspective on Next Generation Science Standards Implementation Memo**

### **Background**

*Please note: The Washington State Science Learning Standards (WSSLS) are based fully on the Next Generation Science Standards (NGSS).*

*January SBE Meeting* – The Board approved a motion directing staff to create a recommendation for a communication plan to utilize the Board’s advocacy role to advance the successful implementation of WSSLS/NGSS and report to the Board. A central feature of WSSLS/NGSS and Board priorities is an emphasis on equity. The Board and SBE staff agree to seek communication partners committed to an effort to implement WSSLS/NGSS with fidelity, including an emphasis on equity.

*January to March* – SBE staff met with various partner agencies to gauge interest in this work, see what work on behalf of WSSLS/NGSS communications was being undertaken already by partners, and to obtain specific commitments from partner organizations to work together on a sustained WSSLS/NGSS communications effort to suggest high-quality science education in the state. Explicit agreements with Ready WA, OSPI, ESDs, WSAC/Governor STEM Ed Innovation Alliance and WA STEM.

*March SBE Meeting* – Community Forum focused on gathering stakeholder input on WSSLS/NGSS implementation and high-quality science education. The Board was briefed on progress in implementing the WSSLS/NGSS Communication Plan.

### *January – May Accomplishments*

- Heard from national/state experts on K-12 Science Framework & NGSS, including equity-focus (Bell & Ebert)
- Recruited local South Central Washington region “subject matter experts” to discuss implementation of WSSLS/NGSS (Brown & Cheney)
- Worked on initial communication products with Ready WA & OSPI (videos)
- Established:
  - 4 communication goals;
  - Targeted communication approaches, strategies, tactics and products;
  - 5 “top level” and 5 “second level” messages about NGSS
- Invited Board to become personally involved in identifying exemplars of WSSLS/NGSS implementation (i.e., tool called Communication Strategy: Science Stories from the Field) to provide “content” for communication products.

*May SBE Meeting* – This meeting affords the Board with the opportunity to interact with “on-the-ground” practitioners (i.e., subject matter experts) regarding the effort to successfully implement WSSLS/NGSS in the Yakima Valley. Additionally, Washington STEM and the ESDs are two of our lead communication partners for the communication campaign.

- Mike Brown – ESD 105 Science Coordinator/South Central LASER Alliance Director
- Mark Cheney – South Central WA STEM Network Director

### **Policy Considerations**

## 1. Setting the Stage for Our Discussion Today: The IF/THEN Proposition

IF/THEN Proposition – IF the Washington State Science Learning Standards (WSSLS) are to be implemented with fidelity, including a strong emphasis on equity, **THEN** this implementation must include the alignment of key components of our education system in ways that support the vision of *A Framework for K-12 Science Education* (National Research Council) and the *Next Generation Science Standards* (National Research Council, National Science Teachers Association, American Association for the Advancement of Science and 26 lead author states-including WA State), with fidelity to the intent described in the 13 appendices of NGSS.

These system components include 1) purpose, 2) policies, 3) programs, 4) practices and 5) partnerships.

- **Purpose** is defined as the aims, goals and rationale(s) for our K-12 WSSLS/NGSS education effort (i.e., scientifically literate citizens, STEM-capable workforce and next generation of scientists and engineers for the 21<sup>st</sup> century).
- **Policy** is defined as those executive actions, adoptions, rules, requirements, resolutions, guidance, etc. that are designed to achieve the WSSLS purpose statement, (i.e., equity policies, graduation requirements, K-8 science requirements, actions to implement OSPI/SBE “lab science” definition, science-CTE course equivalencies, etc.)
- **Program** is defined as a system of elements that, when implemented well, realize the policies and purpose of the WSSLS effort (i.e., curriculum adoption/adaptation, course of study requirements/options, assessment efforts focused on individuals and programs, professional development, materials/equipment, administrative/community supports-including opportunity to learn efforts, etc.)
- **Practice** is defined as specific actions of educators based on their understanding of the purpose, policies and programs (i.e., What do administrators and teachers actually do?)
- **Partner** is defined as the education practitioners and stakeholders within the K-12 system (i.e., administrators, teachers, students, parents, community members, etc.)

Additional policy considerations and how WSSLS/NGSS aligns to SBE’s statutory responsibilities are contained in the NGSS Communication Plan agenda item materials from [January](#) and [March](#).

### Panelists’ Presentation

Panelists have been asked to engage with the Board around the following questions:

- a. **Q1** – How do you think the aims, goals and rationale for K-12 WSSLS is playing out in the South Central Washington region? By this we mean – How is WSSLS implementation preparing all students for the 21<sup>st</sup> century? Is it producing fairness and creating opportunities for everyone to be successful? If not, what still needs to happen?
- b. **Q2** – What kind of administrative actions, policies, rules, requirements, guidance, etc. can you cite as evidence that the schools/districts and communities in the South Central Washington region are taking to ensure WSSLS implementation with fidelity, ensuring equity? What additional "policy supports" are needed to ensure success?
- c. **Q3** – How robust are your "system assets" (i.e., curriculum/instruction, student & program assessments, equipment/materials, professional development, and administrative/community support) for implementing WSSLS/NGSS at the elementary, middle and high school levels? What "system supports" are a particular need at each

grade ban? Is there an area that needs particular support because it could be the "Achilles Heel" of your efforts if not addressed?

- d. **Q4** – How would you describe the state of your "educator assets" vis-a-vis WSSLS/NGSS in South Central WA? Can you describe your "business/community" assets (includes parents)? Part B - What are the most needed supports, in your opinion, for educators, business/community and parent stakeholders in order to advance and amplify successful WSSL/NGSS implementation in South Central WA?
- e. **Q5** – The SBE's stated role in K-12 education is to lead the development of state policy, provide effective oversight of public schools and advocate for student success. Given SBE's role, in what ways do you think we can be an "asset" to you in the areas of state policy, oversight and advocacy/communication in your efforts to implement WSSLS/NGSS with fidelity in South Central WA?

Panelists will leave the last fifteen minutes of the allotted time for questions and discussion.

### Brief WSSLS/NGSS Communications Campaign Update

Our communications campaign with Ready Washington focused on the WSSLS/NGSS has kicked off. Ready Washington has released the [video](#) we helped produce. We have worked with OSPI to film another video (forthcoming) focused on how Sherman STEAM Elementary in Tacoma is implementing the WSSLS/NGSS.

Here are a couple of examples of social media posts from the campaign so far:

**WA Board of Ed.** @WA\_SBE

Tweets	Following	Followers	Likes	Lists	Moments
2,475	2,812	6,207	930	4	0

You Retweeted

**Next Generation Science Standards** @OfficialNGSS · Apr 13



Appendix D of the #NGSS explains how the standards are for \*all\* students, including traditionally underserved groups. It says convergence across subject areas, like science and math, offers multiple entry points for students: [nextgenscience.org/sites/default/...](http://nextgenscience.org/sites/default/...) #MathStatMonth

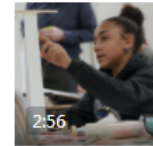
Integration of subject areas strengthens science learning for all students, particularly for students who have traditionally been underserved. In the current climate of accountability policies, which are dominated by reading and mathematics, science tends to be de-emphasized. This is due to the perceived urgency of developing basic literacy and numeracy for students in low-performing schools including, but not limited to, English language learners and students with limited literacy development. Thus, allocation and utilization of instructional time across subject areas will benefit these students. Furthermore, the convergence of core ideas, practices, and crosscutting concepts across subject areas offers multiple entry points to build and deepen understanding for these students.

You Retweeted

**Partnership4Learning** @Part4Learning · Apr 12

New guest post on @ReadyWA's @Medium page 📄 Today's #Science Classroom: Puzzling, Questioning, Wondering, Cooperating, Problem Solving. [goo.gl/yo4ksU](http://goo.gl/yo4ksU) #WAedu #STEM @WA\_SBE @waOSPI @OfficialNGSS @FPSD402 @PSESD


 **WA Board of Ed.**  @WA\_SBE · Apr 17  
"The Washington State Science Learning Standards have really improved engagement for our students." – Stephanie Clark, principal @CedarcrestMS  
[readywa.org/science-educat...](#) @ReadyWA #WAedu #STEM #WAScience4All



**Ready Washington** @ReadyWA  
Thank you to @msd25 @CedarcrestMS @YakimaSchools for partnering with us to create our new video about #science education in WA! WATCH: Learning with 'Hands and Minds': [goo.gl/6fsjcT](http://goo.gl/6fsjcT) #WAedu #STEM

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You Retweeted


 **Ready Washington** @ReadyWA · Apr 17  
The Washington State Science Learning Standards are designed to make sure every WA student gets a high-quality #science education. Learn more from @WA\_SBE: [sbe.wa.gov/wsslsresources...](http://sbe.wa.gov/wsslsresources...) #WAedu #STEM

🗨️ 3 ❤️ 3 📊

Provide leadership for a system that personalizes education based on each student's needs • Promote achievement of state goals for basic education


🗨️ 3 ❤️ 3 📊

You Retweeted

 **Washington STEM** @washingtonstem · 13m  
WA's #science learning standards build on students' natural curiosity to help them learn how to act like scientists. WATCH from @ReadyWA: Learning with 'Hands and Minds': [ow.ly/8zom30jyARK](http://ow.ly/8zom30jyARK) @WA\_SBE @waOSPI #WAedu #STEM

🗨️ 1 ❤️ 📧



You Retweeted

 **WA Roundtable** @waroundtable · 1h  
The Washington State Science Learning Standards are designed to make sure every WA student gets a high-quality #science education. Learn more from @WA\_SBE: [pjj52.app.goo.gl/xwCaKfbKyivPuH...](http://pjj52.app.goo.gl/xwCaKfbKyivPuH...) #WAedu #STEM



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You Retweeted

 **Next Generation Science Standards**  @OfficialNGSS · 21h  
See students and educators describe how the #NGSS helps learners understand the world and prepare them for future careers in this new video from @ReadyWA [readywa.org/science-educat...](#) #NGSSchat @WSTASci

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- Josh Simondet, one of the Science Fellows Board members heard from at the March community forum, wrote a blog post about the WSSLS: <https://www.facebook.com/WashingtonSBE/posts/10156175568637159>

Additionally, as part of our communications effort, we have launched a webpage on our SBE website as a one-stop-shop for WSSLS/NGSS information and resources. We have begun gathering resources which you can see here: [www.sbe.wa.gov/wsslsresources](http://www.sbe.wa.gov/wsslsresources).

**Action**

No formal action will be taken on this agenda item. If you have questions regarding this memo, please contact Alissa Muller at [alissa.muller@k12.wa.us](mailto:alissa.muller@k12.wa.us).



# THE WASHINGTON STATE BOARD OF EDUCATION

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## NGSS = WASHINGTON STATE SCIENCE LEARNING STANDARDS

### WHY NGSS?

  
Includes a focus on critical thinking & communication skills

  
Internationally benchmarked to help students prepare for college & careers

  
Reviewed by teachers, academic & business community

### PRINCIPLES OF THE FRAMEWORK

  
Children are born investigators

  
Understanding builds over time

  
Science & Engineering require both knowledge & practice

### PRINCIPLES OF THE FRAMEWORK

  
Connecting to students' interests and experiences is essential

  
Focusing on core ideas & practices

  
Promoting equity: all students can learn science

### FOR STATES, BY STATES



FOR REFERENCE:

[WWW.SBE.WA.GOV/WSSLSRESOURCES](http://WWW.SBE.WA.GOV/WSSLSRESOURCES)

## WASHINGTON STATE SCIENCE LEARNING STANDARDS (WSSLS) COMMUNICATION CAMPAIGN

### Purpose

The Washington State 2013 K-12 Science Learning Standards (WSSLS) are the Next Generation Science Standards (NGSS). These standards describe what students should know and be able to do at each grade level. They are also based on the latest research on how students learn science effectively ([A Framework for K-12 Science Education](#)). The State Board of Education strongly believes in the importance of the successful implementation of Next Generation Science Standards (NGSS) and the continued sustainability of high-quality science education in the state of Washington.

### SBE will work with partners to promote the WSSLS:

Key partners in this communication campaign will include:

- Ready Washington
- OSPI and the Association of Education Service Districts
- Other education stakeholders
- Washington STEM
- Governor's STEM Education Innovation Alliance

### SBE WSSLS Resources Webpage

SBE has created a webpage to collect WSSLS/NGSS resources for teachers, administrators, parents, and students all in one place: <http://www.sbe.wa.gov/wsslsresources>

### Share your WSSLS implementation story with us:

SBE is seeking stories from school districts to be used in SBE's communication efforts to promote the implementation of WSSLS/NGSS with fidelity, with an emphasis on equity. Information gathered may be shared on the SBE's website or social media channels.

### We would like to hear from you:

What are your district assets and supports needed regarding WSSLS? What would be helpful to you that the SBE could provide? We'd like to gather feedback this spring so we could come back with a resource for you this fall.

*To share your story or send feedback, please email our Communications Manager: [alissa.muller@k12.wa.us](mailto:alissa.muller@k12.wa.us)*



# THE WASHINGTON STATE BOARD OF EDUCATION

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## Do you know of a NGSS implementation story?

### Communications Strategy: Science Stories from the Field

*Do you know of a NGSS implementation story?*



Component	Operational Definition	Selected Examples of District/School Efforts
Purpose	<ul style="list-style-type: none"> <li>Aims, goals and rationales of a K-12 NGSS education effort</li> </ul>	<ul style="list-style-type: none"> <li>NGSS as part of preparing students for 21<sup>st</sup> century               <ul style="list-style-type: none"> <li>Next generation of scientists &amp; engineers</li> <li>STEM-capable workforce</li> <li>Scientific literate citizens</li> </ul> </li> </ul>
Policies	<ul style="list-style-type: none"> <li>Executive actions, adoptions, rules, requirements, resolutions, guidance, etc. designed to achieve the NGSS purpose statement above</li> </ul>	<ul style="list-style-type: none"> <li>District/school:               <ul style="list-style-type: none"> <li>Policies to support NGSS implementation, including "All Standards, All Students"</li> <li>Commitments to implement K-8 science, as well as HS graduation requirements (3 credits)</li> <li>Actions to implement the OSPE/SBE definition of "lab science"</li> <li>Decisions to implement science-CTE course equivalents</li> </ul> </li> </ul>
Programs	<ul style="list-style-type: none"> <li>System elements that, when implemented well, realize the policies and purposes of this NGSS effort</li> </ul>	<ul style="list-style-type: none"> <li>System-wide implementation of elements (K-12 or at EL, MS, HS):               <ul style="list-style-type: none"> <li>NGSS aligned curriculum adoption/adaptation</li> <li>Course of study requirements/options</li> <li>Assessment efforts (individual &amp; program)</li> <li>Professional development for educators</li> <li>Materials &amp; equipment commitments</li> <li>Administrative and community supports (including opportunity to learn efforts)</li> </ul> </li> </ul>
Practices	<ul style="list-style-type: none"> <li>Specific actions of educators based on an understanding of the purpose, policies and programs.</li> </ul>	<ul style="list-style-type: none"> <li>Three dimensional (3D) learning &amp; teaching focused on "All Students, All Standards"               <ul style="list-style-type: none"> <li>Administrators</li> <li>Teachers</li> </ul> </li> </ul>
Partners	<ul style="list-style-type: none"> <li>K-12 education practitioners &amp; stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>What were their roles, responsibilities, authorities &amp; accountabilities?</li> </ul>

The State Board of Education is seeking stories from school districts about their successes in implementing the Washington State Science Learning Standards (based fully on the Next Generation Science Standards.) These stories will be used in SBE communication efforts to promote the importance of equity-focused WSSLS/NGSS implementation. Information gathered may be shared on the SBE’s website or social media channels.

1. What efforts have school district staff taken to understand and adapt to the needs and learning styles of students with diverse learning styles and who have different cultural and linguistic backgrounds. For instance, how many educators do you have who are either bilingual or bicultural? Has your district offered any equity trainings? Have relationships been developed with students such that educators understand how family, culture, and community influence how students learn or how motivated they are to learn?

How can school districts better collect, examine and understand data that informs them of important environmental data – home and community factors and conditions -- that should be used to determine the kinds and amount of resources that students need to be successful



learners. For example, are educators and school or community facilities available during non-school hours?

2. When evaluating system-wide program implementation of the WSSLS/NGSS effort and its key elements, how is an equity-focused lens being used? For example, how do educators work to include all students, especially those students who suffer a crisis of confidence when it comes to understanding scientific concepts, or students whose first language is not English?
3. The effort to use a three-dimensional approach to implement WSSLS/NGSS with fidelity (i.e. scientific/engineering practices, crosscutting ideas, and core disciplinary ideas) make this effort very challenging for learners and educators.

How are administrators and teachers building relationships and trust with students, families, and communities, to ensure an equity-focus in WSSLS/NGSS implementation?

What do you hear from students about their individual learning and how they're enabled by their teachers to be successful with the WSSLS/NGSS?

4. The success of this effort will likely be strongly impacted by what partners (education practitioners and their community stakeholders) do. Can you provide some examples of the partners you are working with?