What are the Differences between the Wisconsin Standards for Science (WSS) and Next Generation Science Standards (NGSS)?

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Establishing a Vision for Science Education

"[By] the end of 12th grade, all students have some appreciation of the beauty and wonder of science; possess sufficient knowledge of science and engineering to engage in public discussions on related issues; are careful consumers of scientific and technological information related to their everyday lives; are able to continue to learn about science outside school; and have the skills to enter careers of their choice, including (but not limited to) careers in science, engineering, and technology."



Quick Review - Basic NGSS Format

nextgenscience.org

1-PS4 Waves and their Applications in Technologies for Information Transfer Students who demonstrate understanding can: 1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Confiction Statement: Examples of electing materials that make count could include tuning looks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated. (Clarification Statement: Examples of observations could include those made in a completely dark rooms a clatede box, and a video of a cave exoborer with a fluctuic Blumination could be from an external light source or by an object giving off its own light.) 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. (Carlication Statement: Sumples of materials could include those that are transparent (such as deer plastic), translucent (such as pages), operage (such as cardioant), and reflective (such as a minor).) (Assessment Soundary: Assessment does not include the speed of light.) 1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* (Carlicator Statement: Examples of devices could include a light source to send signals, paper cap and string *elephones,* and a content of drum beats Titlemeasured Soundary. Assessment does not include technological details for how communication devices or The performance expectations above were developed using the following elements from the MSC document A Francescript or K-12 Science Education. 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(1-954-2) Connections to Engineering, Technology, and Applications of Science Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light offuence of Engineering, Technology, and cience, on Society and the Natural World no attempt is made to discuss the speed of light.) (5without technology, (1-PSH-4) Use took and materials provided to design a device that solves a specific problem, (1-454-4) People also use a variety of devices to communicate (send and receive information) over long distances. (1-Connections to Makes of Science Science investigations based with a susttine. (1-95+1) Scientists use different ways to study the world. (1-95+1) Conventions to about PCL's deliver grader. (spl.) Articulation of ICCs across grader-levels: R.ETSC.A. (1-95+1); 2.PSC.A. (1-95+1); 2.ETSC.B. (1-95+1); 4.PSA.E. (1-95+1); 4.PSA.E. (1-95+1); 4.ETSC.A. (1-95+1); 2.ETSC.B. (1-95+1); 4.PSA.E. (1-95+1); 4.PSA.E. (1-95+1); 4.ETSC.A. Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (1-FS+2) Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). (1-954-()(1964-3)(1964-3)(1964-1) With guidance and export from adults, recall information from experiences or gather information from provided sources to answer a question, (1964-1)(1964-3 81.1.1 rative conversations with diverse cartners about crade 1 topics and truts with peers and adults in small and broom croups. //-PS+/1//-PS+/1//-"Use accreanities tools strategicals. (1-954-4) Coder these disjects indirectly by using a third object. (1-954-4) Coder these objects by length; compare the lengths of two objects indirectly by using a third object. (1-954-4) Express the length of an object as a whole number of length units, by layering multiple opins of a shorter object (the length unit) and to end; understand that the length units are of an object as a whole number of length units that the length units are only an account of an object is the number of somewhat length units are units as once or overface. (1-954-4)

1-PS4 Waves and their Applications in Technologies for Information Transfer



Quick Review - Basic NGSS Format

1-PS4 Waves and their Applications in Technologies for Information Transfer

1-PS4 Waves and their Applications in Technologies for Information Transfer

Students who demonstrate understanding can:

- 1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Carlicusor Statement: Examples of vibrating nationals that naive could could include tuning forks and plucking a stretched string. Examples of how could can make matter vibrate could include holding a piece of paper near a speaker making cound and holding an object near a vibrating tuning Sori.]
- 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated. (Carlication Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a case explorer with a flashight. Examples could be from an external light source or by an object plains of its own light.)
- 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. [Cartication Statement: Examples of materials could include those that are transparent (such as deer plactic), translucent (such as example), opaque (such as cardioard), and reflective (such as a minor).] (Assessment Soundary: Assessment does not include the speed of light.)
- 1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* [Cierloston Statement: Examples of devices could include a light source to send signals, paper cap and string "bischoose," and a contemp of drum bests.] [Assessment Soundary: Assessment does not include technological details for how communication devices work.]

The performance apparturious above were described using the following elements from the MC document & Described for E. C. Cristian Education

Science and Engineering Practices

Planning and Carrying Out Investigations

Ranning and carrying out investigations to answer questions or test solutions to problems in 6-2 builds on prior experiences and proprieture to elmote investigations, based on thir tests, which provide data to export explanations or design solutions.

 Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question, (1-454-1)(1-454-2).

Constructing Explanations and Designing Solutions Constructing evoluterions and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of satural phenomena and designing solutions.

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (3-PSe-2)
- Use took and materials provided to design a device that solves a specific problem, (1-454-4).

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Science investigations begin with a question, (1-PS4-1).
- Scientists use different ways to study the world. (1-PS4-1).
 Connections to other DCIs in that grade: NJA

Disciplinary Core Ideas

PS4.A: Wave Properties

 Sound can make matter vibrate, and vibrating matter can make sound. (1-99+1)

PS4.8: Electromagnetic Radiation

- Objects can be seen if light is available to illuminate them or if they give off their own light, (1-954-2)
- Some materials allow light to case through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Minors can be used to redirect a light beam, (lioundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-204.3)

PS4.C: Information Technologies and

Instrumentation

 People sito use a variety of devices to communicate (send and receive information) over long distances. (1-PGI-4)

Crosscutting Concepts

Course and Effect

 Simple tests can be designed to gather evidence to support or refute student ideas about causes, (1-PS+1)(1-PS+2)(1-PS+3)

Connections to Engineering, Technology, and Applications of Science

Influence of Engineering, Technology, and Science, on Society and the Natural World

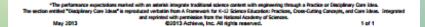
 People depend on various technologies in their lives; human life would be very different without technology. (1-PSH-II)



Attivition of CCs acres grade from: E-IT\$1.4 (1-761-4); 2.P\$1.4 (1-761-4); 2.IT\$1.8 (1-761-4); 4.P\$4.C (1-761-4); 4.P\$4.B (1-761-4); 4.IT\$1.4 (1-761-4)

Quick Review - Basic NGSS Format

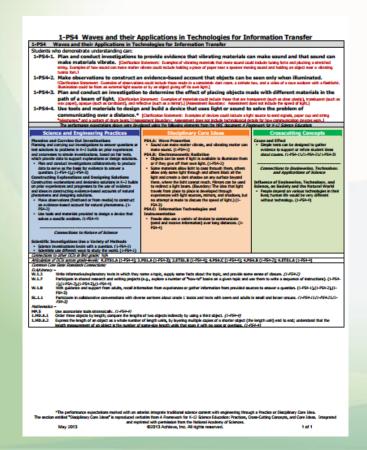
1-PS4 Waves and their Applications in Technologies for Information Transfer 1-PS4 Waves and their Applications in Technologies for Information Transfer Students who demonstrate understanding can: 1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clariforios Solvenet: Examples of sibrating materials that make sound coats include tuning lake and placing a directived entry. Examples of how sound can make matter vibrate could include holding a piece of paper near a specier making sound and holding an object near a vibrating 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated. 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. (Carlication Statement: Examples of nutwisk could include those that are transparent (such as dear placin), translatent (such as appre), opaque (such as cardicate), and reflective (such as a minor).) (Assessment Bounday): Assessment does not include the speed of light.) 1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* [Carlicaton Statement: Examples of devices could include a light source to send signals, paper cap and string "electrones," and a content of draw basis Tribeseasest Soundary. Assessment does not include technological details for how communication devices or The performance expectations above were developed using the following elements from the MSC document A Franceson for 6-12 Science Education. Science and Empiricating Practices Hassins and Cornviso Out Trevelocations Ranning and comping out meetigations to answer questions of the debitions to problems in 1-0 holds on prior experiences and moreovers to sincle investigations, based on this test, which provide state support explanations or design eductions. - Plus and conduct investigations collaboratively to produce a debit of the state of debit of the state of the state of debit of the state of constructing Explanations and Developing Solutions Constructing Explanations and Services exhibitors in -0 holds on prior experience and progresses to the use of evidence and ideas in contracting evidence-based accounts or assura prescribes and designing solutions. - Plair observations (Institute of the state of Plair observations (Institute of Plair observations (Cause and Effect - Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-994-1\(1-994-2\(1-994-2\)) PS4.A: Wave Properties - Sound can make matter vibrate, and vibrating matter can PS4.8: Electromagnetic Radiation Objects can be seen if light is available to illuminate them. or if they give off their own light, (1-954-3) Some materials allow light to past through them, others allow only some light through and others block all the Connections to Engineering, Technology, and Applications of Science Bobt and create a dark shadow on any surface beyond Influence of Engineering, Technology, and Science, on Society and the Natural World travels from place to place it developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light 3 (1without technology, (1-PSN-4) Use tools and materials provided to design a device that solves a specific problem, (1-PS4-4) Instrumentation People also use a variety of devices to communicate (send and receive information) over long distances. (1-Connections to Nature of Science Scientific Investigations Use a Variety of Nethods - Science investigations Use a Variety of Nethods - Science investigations below the curriety. 1-(56-4) - Science investigation of Science and Science (1-(56-4)) - Science investigation of Science (1-(56-4)) - Articlates of SCience post-denice (1-(56-4)) - Articlates of SCience post-denice (1-(56-4)) - Science (1-(Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (I-PS+I) Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). (I-PS+I W.1.7 1)(1954-3)(1-954-3)(1-954-3) (1-954-3) (1-954-3) (1-954-3)(1-954-3 W.1.8 \$1.1.1 ste in collaborative conversations with diverse cartners about oracle 1 tools; and texts with overs and adults in small and larger oracles, //-PS+/1//-PS+21//-

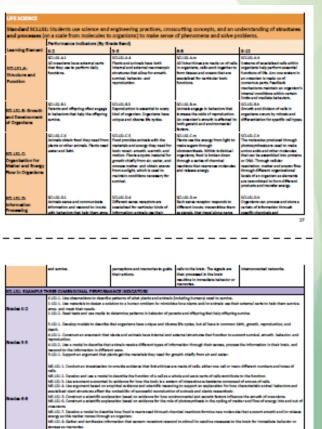




Split out the 3 dimensions into progressions.

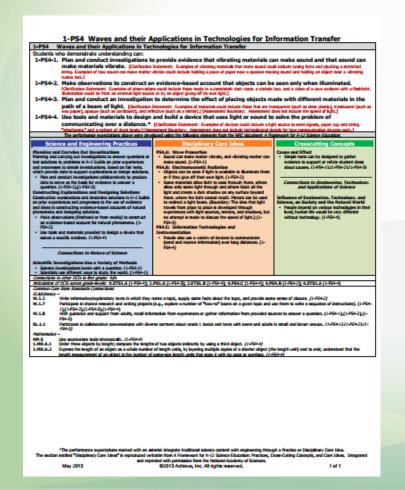
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Performance expectations are de-emphasized.

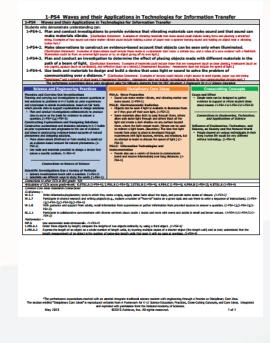


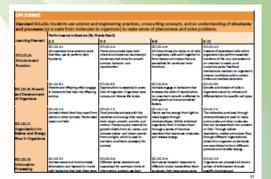
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Students use science and engineering practices, crosscutting concepts, and an understanding of disciplinary core ideas to make sense of phenomena and solve problems.

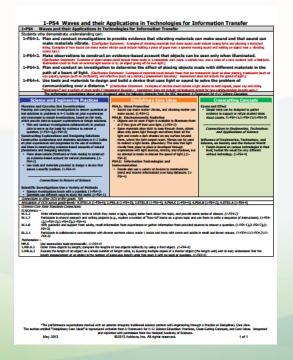


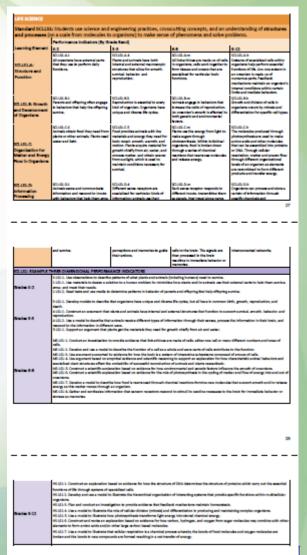


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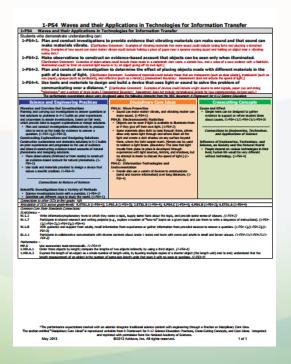


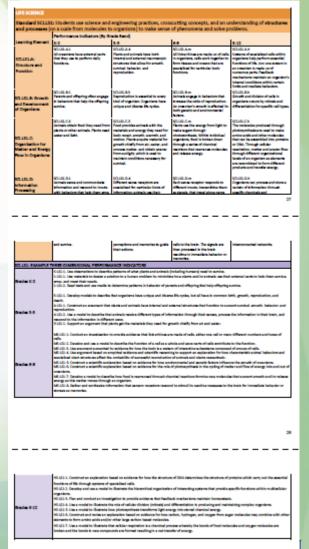
 Higher level DCIs (not all details from NGSS orange boxes)





 Addition: ETS3: Nature of Science and Engineering





Helpful Appendices!

Appendix A - Example connections to Wisconsin contexts and connections to Engineering, Technology, and Society

The vision for the new Wisconsis State Sciences Standards confinent the importance of providing opportunistics for modest to apply sciencific thesing, using, and understanding part and-world phenomena and providence. In order to achieve this page, appeals in falls on the shed connections to that are specific to invisionary, as well as connections to engineering and technology, for most science content standards (a plane based as the based water practical connections toud to work in any content, on plan through their connections were standard as goods based progression, but most could be used at any goods beach. The connections rate which is been applied to the content of plane and the standards to the content of plane and the content of incinent designations, to the content of incinent designations, to the contents intend for understand and plane and the content of incinent designations, to the containts intend for incinent and contents are contents and the content of incinent designations of the containts intend for incinent and contents are contents are an expensed part of the contents are contents are accessed as a proposed or the contents are contents are contents are contents are an expensed part of the contents are contents are contents are contents.

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Final Thoughts

What would help you?

What resources have you developed that you could share?

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Reflection

Questions to consider in your K-12 science work:

- How is our work with science standards going to move us close to our vision?
- How will we know we're moving students closer to this vision?

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