

Science Standards Points 2-14-18

Thank you for the opportunity to testify – my name is Chris Taylor and I am the current K-12 curriculum supervisor of science and social studies in the Boise School District. I am also a member of the committee that has worked on these new science standards the last three years. I am here to testify in favor of the new Idaho science standards by offering a few points about Supporting Content sections in the standards.

- The Science Standards Committee which consisted of K-12 science educators, representatives from higher education, Idaho's STEM industries, and parent stakeholders have spent 100s of hours the last three years creating robust performance standards coupled with supporting content written in an unbiased way that encourages scientific inquiry, problem solving, and critical thinking. The performance standards outline how students will perform to demonstrate mastery while the supporting content provides details by highlighting concepts of science to help teachers make instructional decisions. Our proposed standards ensure that K-12 students will interact with a full complement of scientific concepts through their education - To provide one without the other truly leaves teachers and students at a disadvantage. - I like use the analogy of science is like a coin - one side is the processes and the other side is the content - you can't have one without the other.
- I want to give you an example of what I mean by the two sides of science: Here is a 4th grade performance standard - Analyze and interpret data from maps to describe patterns of Earth's features (This is the assessment for students, what they need to do) but it is a vague statement- Here is the supporting content for this standard - The location of mountain ranges, deep trenches, ocean floor structures, earthquakes and volcanoes occur in patterns. Most

earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features on Earth (This is what teachers need to teach student to prepare to perform the standards) - As you can see there is a wealth of scientific information and direction for both teachers and students. If teachers just had the performance standard alone because of its broadness it would add burden for teachers to interpret.

- While conducting professional development on the new standards to over 400 elementary and secondary teachers the last three years, the supporting content has been huge help to prepare teachers for the content and processes their students need to demonstrate at each grade level. The supporting content shows the progression of what K-12 students are learning and doing and this content helps teachers build on what students have learned in previous grade levels.

Take out
Pre-service teachers have also been using these standards and the supporting content ~~and~~ After speaking to a recent pre-service class, they explained how the supporting content has helped provide clarity of the standards and provided more equitable access for all students

- As you know last year the committee was asked last year to rework 1 standard and 4 supporting contents. Our committee did this diligently as asked but then last week the proposed standards were stripped not 5 items, but close to 25 pages from the entire document! Even after we allowed public ^{Comment} ~~content~~ from around all regions of the state (over 1000 pieces of input) there was an overwhelmingly 99% in favor of the science standard being proposed.
- Finally, after spending time talking to ~~some of the~~ Representatives the last two weeks, they kept bringing up that other disciplines like Social Studies and Math do not have supporting content standards in their

documents. I disagree - if you look at the other content standards you see so much content - For example In social studies (a 64 page document) I was on this standards committee also, we use the word goal which is like the performance expectation and under the goal there are specific content objectives. For Example ~~Under the Goal of~~ Build the understanding of democracy, the supporting content ~~explains~~ - The United States is a republic and students need to understand the differences between direct democracy and the constitutional republic of today's United States. Also concepts such as popular sovereignty, majority rule with minority rights, respect for the individual, equality of opportunity, rule of law, and personal liberty need to be discussed.

One goal states

In Math (a 93 page document) One goal states - students will relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. The supporting content underneath ~~gives specifics~~ ^{that goal states} - Students will find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base and represent threefold whole-number products as volumes. The students will also apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. Our Science standards (76 pages) need this supporting content also - you just can't have the goal/standard without supporting content - teachers and students deserve this explanation.

Thank you for always being willing to listen to me these last three years as we attempt to prepare our students to be ^{come} science literate, critical thinkers, and successful as 21st century citizens. I stand for any questions.