Public Comments
Science Standards

Science Exhibit 1

Date Submitted: Aug. 12, 2014
Terry Gerber, Parent & Administrator
I like that the science standards are very clearly defined for grades K-5. I extremely dislike that we move from grade-level standards to "content-level" standards in grades 6-12. My thought is that the standards should be grade-level standards through 8th grade.....these are the 6th grade standards that need to be taught, these are the 7th grade standards and these are the 8th grade standards. Kids fall through the cracks as they transition from one school to another in SD. Some schools teach life science at 7th grade, some at 8th grade, etc..... Give us grade level standards K-8! They should have all or most of the standards when they take the 8th grade science test. My other comment is to define high school standards by course. If I'm teaching Physical Science, what content do I teach? If I'm teaching Biology, what do I need to cover? If I'm teaching Chemistry, Physics, Anatomy, etc.....what do I need to teach? I hate this ambiguous 9-12 standards. Although Physical Science and Biology are required to graduate from any school in SD, no guarantee that any 2 schools are doing the same thing. Applaud you for your work K-5.....disappointed 6-12 that we still are being ambiguous about what specifically needs to be taught in each grade/course!

Science Exhibit 2

Date Submitted: August 15, 2014
No Name Provided, Educator (teacher, administrator, curriculum director, SPED director, ect)
The science standards are very clear for the elementary grades and become vague and confusing starting with grade 6 because the standards move from being organized by grade level to being organized by science strand. The standards should be organized by grade level through 8th grade and then by course in high school. Because Physical Science is a requirement for every child to graduate from a school in South Dakota, the standards should be listed for that specific course as well as Biology, Chemistry, etc... This committee is missing an opportunity to get all school districts on the same page!

Science Exhibit 3

Date Submitted: August 16, 2014
No Name Provided, Parent
I am thrilled that South Dakota is adopting clear, appropriate science standards and providing support for teachers to implement them! My eldest son's middle school teacher didn't teach evolution, perhaps because she didn't understand it herself, so he will be at a disadvantage when he gets to college, unless the high school teacher covers the subject better. We need to grow scientists (hopefully like my son) in South Dakota, and that starts with good early science education. Good job, SD!

Science Exhibit 4

Date Submitted: August 28, 2014
Robin Cochran Dirksen, Educator (teacher, administrator, curriculum director, SPED director, ect)
Although, I haven't looked at the Unpacked Stds. yet, I would like to thank you for doing such an impressive job at capturing the spirit of the Framework. In practical terms, I think that SD science educators will be able to translate the standards into their practice effectively. I am in my 20th year of teaching upper-level courses- Adv Bio., Rising Scholar Bio., Chem., and STEM Research and would be proud to use this document to guide my teaching. Congratulations on getting it right!

Science Exhibit 5

Date Submitted: September 9, 2014
Dawn Hilgenkamp, Parent
There is nobody that teaches at a higher level than high school. There should be some science college professors on the panel, to make sure our kids are learning the proper things so they are not behind when they go to college. The ball was dropped with the math standards. Kids are not learning enough before going to college. I think the Common Core Standards are ridiculous. The state of SD needs to join the other states in the push to get rid of the Common Core Curriculum.

Science Exhibit 6

Date Submitted: September 11, 2014
Nicole Keegan, Standards workgroup committee member
As part of the committee that worked to create the SD Science Standards, I fully support the revisions proposed to the Board of Education. The revised standards increase the level of rigor for Science Education across all grade levels. Additionally, they create investigative students who must apply their knowledge instead of being able to rely on factual recall. These standards take our current standards to a new level which will require students and teachers to move beyond textbook work. The standards were taken from multiple documents and revised to what was the best fit for South Dakota students and teachers. There has been concern about the middle level standards (grades 6-8) not being disseminated by grade level. Please note that this was realized by the committee, but we felt that more time was necessary to break down those standards appropriately to fit the various types of middle level systems in place across the state. There will be future work to set the grade level bands, allowing the work to be polished and not rushed.

Science Exhibit 7

Date Submitted: September 11, 2014
Jarzab, Educator (teacher, administrator, curriculum director, SPED director, ect)

First of all a sincere thank you to all of the committee members for reviewing the 2005 standards and enhancing them for the betterment of SD students and the future citizens they will become. Regarding 1-LS1-1, this standard seems more fitting for an older grade level, perhaps second grade. Regarding 2-LS2-1, this standard seems more fitting for a younger grade level, perhaps K. (Especially if they are required to make models of land/water bodies, as in 2-ESS2-2, which I think is very age-appropriate, then they will most likely already know that plants need sunlight and water to grow.) Regarding the Middle School Life Science Conceptual Understanding, please consider adding the following, "Plants use the energy form light AND GAS FROM THE AIR to make sugars through…" (p23.) This is an important misconception and I was glad to see this addressed in 5-LS1-1. This concept should be reinforced in MS. Here are some typos to be considered… 3-LS1-1 add a comma before "but" and add a colon after "common" 3-LS4-3 add the word "of" after the word "evidence" MSLSCU (p23) add an apostrophe to the word "its" before populations (second to last sentence in first paragraph) MS-LS1-2 add the word "the" before the word "ways" HS-LS2-6 reword…..Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms DURING STABILITY, HOWEVER in moderate to extreme fluctuations….

Science Exhibit 8

Date Submitted: September 16, 2014
Frances Linn, Standards Workgroup Committee Member

I believe these new science standards represent where science education needs to go. The practices and cross-cutting concepts teach students to be critical thinkers and prepares them to face the problems of tomorrow.

Science Exhibit 9

Date Submitted: September 17, 2014
Rosa Yellow Boy-Vocu, Parent

One of the many reasons why I chose to use the proposed standards is that they clearly state more reasoning and definition on certain topics. For example in the present standards they only list what is to be essential. On the proposed standards they go into complete detail. While on the present standards they have a standard on cells. Where they just list a section when the standards are to identify basic cells. While the newer, extended edition provides more into depth about cells. They also provide three standards on cells only.

Science Exhibit 10

Date Submitted: September 17, 2014
NM, Representing Self

I think that the proposed standards are more indebt and more informative to helping the teacher/students understand all 3 of the different standards and meanings. Which I think that the proposed standards would be more efficient to teach with in the classroom. I myself would rather use the purposed science standards they are more indebt to the contrast of teaching different levels of science with a better understanding. The proposed standards are completely different from the current standards in giving much more information to learning and understanding the science standards.

Science Exhibit 11

Date Submitted: September 17, 2014
Brice H., Teacher Candidate

When comparing the proposed standards to the current standards, I think the more descriptive proposed standards would be easier to teach because of the good description. In the proposed standard MS-ESS2-1, the teaching of the earths water role is associated with energy. The connection is stated in the proposed standard while in the current standard 6.E.1.2., it is a brief description of the earths water role. The current standard doesn't make any connection to energy. Energy is an important aspect in learning about the earths water role. As a new upcoming teacher, I would prefer to teach with the more clear standard so I can focus on improving my teaching effectiveness.

Science Exhibit 12

Date Submitted: September 17, 2014
Lauretta R., Teacher Candidate

The newly revised South Dakota standards give you list at the beginning about the core ideas that are covered. The standards for Physical Science, Life Science, and Earth and Space science are a lot more descriptive in what is expected. The new standards do however ask for more research and that the student is able to present data in tables and graphical displays. I like the new standards also because they make it a lot easier to plan your units you are teaching.

Science Exhibit 13

Date Submitted: October 9, 2014
Nicomas Dollar, Educator (teacher, administrator, curriculum director, SPED director, ect)

I would like to see examples of activities used to teach the new standards. For example: How would you teach the following standard and what activities could you use? K-2 the standard LS1.A Using plant and animal anatomical function to design a solution to a human oproblem of growth and development.

Science Exhibit 14

Date Submitted: October 19, 2014
No Name Submitted, Educator (teacher, administrator, curriculum director, SPED director, ect)

Kudos to all the people who put these proposed standards together. They look good, and I'm anxious to implement them!

Science Exhibit 15

Date Submitted: October 30, 2014
No Name Submitted, Educator (teacher, administrator, curriculum director, SPED director, ect)

Are you proposing that the MS standards be broken up to physical science in 6th grade, life science in 7th grade, and earth science in 8th? I don't understand how students will be able to transition from one school to the next if the districts are asked to decide what to teach when.

Science Exhibit 16

Date Submitted: November 12, 2014
No Name Submitted, Educator (teacher, administrator, curriculum director, SPED director, ect)

I am a 4th grade teacher. I compared the new standards with what I currently teach. Only about half of them are similar. According to the new ones, I would not teach matter, electricity, magnets, the human body, the water cycle, weather, and the Earth, Sun, and Moon. Instead they have added the

concepts of sound, light, waves, the eye, non-renewable and renewable resources and I am sure more that I have missed. Some of these "new" standards aren't in my book so I will need to spend many hours finding material to teach these concepts...just like I had to do with the older standards. I don't mind transitioning our students to think like engineers, however I do not understand why we shift the concepts around between the grade levels? This is very time-consuming as a teacher when we have to develop whole age-appropriate units for new concepts. If we are going to be trained...than hopefully it is time spent on developing these units as a team.

Science Exhibit 17

Date Submitted: November 17, 2014
Amy Wagner, Representing Self

Amy Wagner
State Coordinator for the National Day of Prayer and
And a Grandmother who helps homeschool two elementary grandkids.

There is an increasing fear among homeschool families that by following the Federal Government wishes their rights, as parent educators will be danger. I would have to agree with them as experience has taught me that when the Federal Government gets involved in a problem the only thing that expands is Government burocracy, Governmental control and the taxes we pay. The problems never seem to go away but only get worse. Our founding fathers did not set up such a sprawling government as the one we have today. We are a Republic; therefore individual States not only have the right but obligation to serve the people of their state. All one needs to do to see the dangers of this Federally run education system is to look at Germany just prior to Would War 2. The people were fooled by the authoritarian government's desire to take care of the people. In fact I agree with our new United States Senator Mike Rounds when he says the National Education Department needs to be dismantled. Control of our schools needs to be returned to the people and the school boards of local communities. When the Federal Government dangles a carrot of dollars in front of any of societies problems the people should run in the opposite direction.

All that aside: As I look back on my educational experience and I believe it follows the majority of people, I do not see standardized requirements and tests as even one of the items that enhanced my education. I do remember taking such tests where we were filling in little circles. Most of the time we gave them little thought or cared much about them. There were those type A students who would become our future valedictorians who did care and took grievous time to complete the test to the best of their ability. But most of us got tired of it and just started filing in the circles with our Number 2 pencils. By the way, of all the valedictorians that I know, personally, both, friends and family members, not one of them invented anything….. It takes creative minds and unlimited gifts to create. When we are told what to think and how to think it, the creative soul becomes inhibited and doubt crowds into the self-image of the child made in the image of God. I will have to say that there is a common denominator for every class or grade in school in which I did well. Further I see that common denominator in the education of my children and grandchildren. The common denominator was the teacher. Good teachers produce good students. Teachers who are bogged down with teaching to a test for fear of their student's scores effecting their standing do not offer

classrooms that are conducive to creative learning. After all before all this standardized testing The United States of America was the leader in creativity and ingenuity. I believe we still are, however,

today, the creativity and ingenuity go untapped. If there are no new inventions it is because the US is not coming up with them. We are the creative innovators of the world. No other nation has the society to foster the creativity that our world needs to better every society. Other societies simply do the work to make what ours creates.

It is not common core nor other standardized curriculum or tests that South Dakota needs to adopt, but we must empower our teachers to teach. We must attract and keep good teachers in our state.

I understand that when a carrot loaded with dollar signs is dangled in front of your nose, it is hard to resist, but I believe in the people of South Dakota. We cannot take the risk of money offered to us by an administration which leans heavy toward Authoritarian Rule. In fact, if given the opportunity' I believe the students of South Dakota could come up with better solutions.

Science Exhibit 18

Date Submitted: November 19, 2014
Brandon Valley Middle School, No Name submitted,(teacher, administrator, curriculum director, SPED director, ect)

We feel these are very broad and non-specific. It would be nice to see 2 or 3 real examples of each to help use them more efficiently. We would like to know to better teach the engineering practices and if IT classes cover those standards for us? With so many school districts having 5-6 buildings, will these standards be 5-8? Why are 5th grade and 6th grade standards so identical?

Science Exhibit 19

Date Submitted: December 4, 2014
Dr. Michael Amolins, Multiple Groups: Parent, Standards Workgroup Committee Member, Educator, Business and/or Industry

My name is Michael Amolins, and I am here representing a number of groups in South Dakota that will be impacted by the adoption of the new K-12 South Dakota Science Standards. I am a parent, a science teacher, school curriculum coordinator, and administrator. As the result of a very unique background and circumstance, I am also an active research scientist at Sanford Research and Augustana College in Sioux Falls. These experiences led me to volunteer as a member of the Science Standards Work Group that helped construct the science standards you are being asked to consider here today. I include these references in my discussion today for no other reason than to paint a picture for you of how vested my interest truly is in the outcome of this Board's decision on whether to adopt new K-12 South Dakota Science Standards. It will affect me both personally and

professionally, and I feel confident that I can provide a voice for both the families and professional institutions that will rely on your decision to impact their paths in the near future.

As a parent and teacher, I want nothing more for the children of South Dakota than for them to be prepared with the best possible STEM education we can offer. I want nothing more, but in fact expect nothing less. As a parent, I have an obligation to my son to provide him with a future full of hopes and aspirations, and to do whatever I can to facilitate that process. As a teacher, my job is to translate the desires of parents into palpable results that leave our children both capable and competitive in the highly advanced and STEM-savy global economic environment of the 21st Century. This is a fundamental value of both parenting and mentoring that we should all be expected to live by. This value should not be part of the political agenda of any party, but instead should be held in high regard by all people who wish to offer the very best future for our children.

Now, it is very likely today that you will hear from individuals who have manipulated this debate into a political issue of local control. They say that this state should not adopt any set of guidelines established by a national consortium because, based on South Dakota SB64, this would in fact be considered illegal. In the process, they have also tried to parallel this document with Common Core, which is simply not accurate. My response to this would be two-fold. First, I can assure you that as a member of the workgroup that authored these standards under the direction of Mr. Shaw, we quite thoroughly established a protocol that not only adhered to the guidelines set forth by South Dakota SB64, but also ensured that we constantly re-assessed our purpose and asked ourselves whether or not the standards we were authoring were in the best interest of our state, and more importantly our children. I would certainly acknowledge that in the process of authorship, we referenced multiple resources, including the Next Generation Science Standards and even some of the educational questions posed in Common Core, to help reach those end points, and would further add that I would be quite concerned if we had been expected not to use available research and resources representative of best-practice, choosing instead to rely entirely on our own opinions and bias. With this in mind, I would argue that the opponents to the adoption of new Science Standards very likely have not asked themselves the key questions that helped drive our work group's efforts. For example, does this document contain guidelines that are in the best interest of our children? Would the implementation of these practices and skill sets prepare our children to be competitive for STEM careers in our communities, state, and region? Would the implementation of SDSS prepare our children to have the critical thinking skills necessary to allow them to be the curious and informed observers of the world that they need to be in order to survive on their own? I am confident that these individuals have not asked these questions, because if they had, there certainly would be no opposition or debate here today. Instead, we find ourselves in the middle of a superficial debate about local control that supersedes the true purpose of adopting science standards and thereby puts the children of South Dakota at a significant disadvantage when compared to their regional and national counterparts. In fact, if the opposing parties would simply take the time to read the science standards, they would quickly realize the extent of local control and flexibility given to school districts, and that their attempt at an argument today is simply null and void. Unlike what you may have heard at your November 17th meeting, what you are being tasked to consider today has nothing to do with the legality of this document, because I can assure you that South Dakota SB64 was closely attended to and followed by the Science Standards Workgroup. What you are being asked to consider instead has everything to do with the educational welfare of our children, which astonishingly has somehow gotten lost by many in this debate of political ideology.

Finally, looking at this from my perspective as a professional research scientist, I have the expectation that this state will prepare our future workforce to be competent problem solvers, hard workers, and logical thinkers. I expect that if I hire scientists from South Dakota to invest into research projects funded by millions of dollars in both national grants and local start-up funds from in-state research institutions such as our colleges and universities, and companies such as Sanford, Avera, and POET, I can trust that those individuals will be just as capable as a scientist from out of state. In addition, I expect that a graduate from Rapid City is just as capable as a graduate from Puckwana, Wilmot, or Wessington Springs. To give you a frame of reference, the standards you are being asked to review today are written in a manner that is not content focused, but instead is skills focused. Essentially, they are dedicated to developing the mechanics, laboratory technique, and intellectual prowess that would be necessary for a student in South Dakota to become a competent and independent problem solver. The guidelines established provide local teachers and administrators the flexibility to adopt curriculum that adheres to the needs and interest of their community, while also asking them to shape that curriculum around the concepts of experimental design, data assessment, and time management. This represents a significant conceptual shift from previous versions of this document, in that the adopted standards would cease to exist as a checklist of specific content that we require all children to learn, and instead becomes a means by which children develop specific problem solving skills that any high school graduate should and would need to acquire in order to be successful in a world where STEM topics and STEM economics dominate forward progress.

In closing, I would ask every person in this room to set their political agenda aside, and ask yourself the only relevant question that should be discussed today: Do the Science Standards provide the necessary guidance to prepare our children to become successful and contributing members of a society driven by science and technology? I am confident that if we focus only on this key question, and not the superficial ideologies that surround it, there will be nothing left to debate.

Science Exhibit 20

Date Submitted: January 8, 2015
Parent: No Name Submitted

It is interesting to note that these proposed standards endorse evolution without any acknowledgement of challenges the THEORY faces. These challenges might include the fact that (1) there has not been one single transitionary form confirmed yet even though the fossil record has expanded dramatically since Darwin's time, (2) the fact that evolution cannot account for abiogenesis - the origin of the first life, (3) the fact that the theory is based off an a priori assumption of naturalism which is NOT science but a philosophical assumption, and finally (4) the fact that the Cambrian explosion is a significant problem for Neo-Darwinists.

I feel that these items completely ignored in the standards endorse a secular attempt to commit students to accept naturalism, which is not science, it is a philosophy.

The primary standards to which I am referencing can be found below and should anyone like to discuss the issue, I invite debate as I am well versed on the theory of evolution as well as on competing theories.

HS-LS4-1 Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. (SEP: 8; DCI: LS4.A; CCC: Patterns) HS-LS4-2 Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment. (SEP: 6; DCI: LS4.B, LS4.C; CCC: Cause/Effect)

Science Exhibit 21

Date Submitted: March 12, 2015
Nicole Osmundson, Parent, Representing self.

I would like to see standards written in a manner that allows evidence to be presented for and against theories. For example: MS-ESS3-5- Ask questions to clarify evidence for and against factors that may have caused a change in global temperatures over the past century. HS-ESS1-2 Construct an explanation for and against the Big Bang Theory ..... HS-LS4-1 Communicate scientific information that common ancestry and biological evolution are supported and disputed. MS-ESS3-4- I wonder how this standard can be taught without bias to population control, etc? Can it be worded in a way that would allow free discussion of all sides of this issue?

Science Exhibit 22

Date Submitted: March 12, 2015
Florence Thompson, Retired School Psychologist, Representing self.

I object to the adoption of the standards for the following reasons:
1. Adoption of new standards at this time is in violation of the intent of South Dakota State Law (SDCL 13-3-48.1). The South Dakota legislature has wisely passed a law requiring the State Board of Education to pause development of new standards until 2016. It makes sense to wait, because Common Core is running into many implementation problems and into growing opposition across the country. At least two issues of constitutionality are headed for the US Supreme Court. Congress has legislation pending which could significantly weaken Federal interference in Education which would give the states more freedom.
2. These standards are not South Dakota standards but are a cynical Rebranding of the national Common Core Standards (CCSS). This same strategy of Rebranding has occurred in other states as the Common Core hierarchy struggles to maintain control. Using common sense, how can these be

independently derived South Dakota standards? Is it just a coincidence that the proposed SD Standards still conform to the common core template in order to qualify for funding, align with the Common Core tests and textbooks and are nearly identical with every other state's Common Core standards?

3. Common Core is an unproven, radical, top-down-imposed transformation of the American education system. It moves US Education from a Knowledge system to a Process system. Its core tenet is called "Critical Thinking" but is not true critical thinking. This so-called "Critical Thinking" is constantly drilled into every lesson as the only acceptable thinking style. This "Discovery" method deliberately ignores the accumulated knowledge of civilization. Instead it forces children to constantly "reinvent the wheel" and then to verbally justify their findings. This method is radically experimental. It is the wrong learning style for many children, particularly visual learners (many Native Americans), simultaneous learners and those with poor short-term memory function. It is neuro-developmentally inappropriate for young children. Young children need to absorb and learn their knowledge base from adult example and instruction. This knowledge, they will later be able to use, as young adults, for true critical thinking or logical reasoning. Common Core methodically slows and fragments the learned acquisition of Knowledge. Instead it makes children dependent on constantly changing computer information for Knowledge base.

4. The extreme over-emphasis on "collaboration" forces conformity or "groupthink" on children. Individualism is discouraged. Individuals are not allowed to excel except through the group.

5. The Common Core compliant texts and materials/media reveal a political agenda with a pervasive bias against Western civilization, American values, Judeo-Christian morality, national sovereignty, constitutional rights, private property, economic freedom (capitalism), etc. Propaganda replaces truth in Science, History and Economics. Common Core is designed to indoctrinate children into conformity and political activism in accordance with the global/socialist agenda.

6. How can you be so blind as to cooperate with this monstrosity? What is the harm in waiting?

Science Exhibit 23

Date Submitted: March 12, 2015
Standards Workgroup Members

In regards to Public Comment #7 from Jarzab, educator.

Workgroup Response #1 - Mark Iverson

1-LS1-1

Like others have stated I think the idea was that pine needles have waxy coatings to protect like armor or leather coats, flowers attract pollinators similar to perfumes, clothing etc. I believe its viable for 1st graders to make the connection between the two. To move this to 2nd grade would require an entire shift in the standards, and I really don't think it would fit the higher level thinking.

2-LS2-1

To plan and carry-out an investigation requires the higher level thinking second graders have. They need the foundation from first grade to start this level of questioning and

planning.

Middle School Conceptual Understanding
I like the use of "gas from the atmosphere." Air is such a vague word.

The "spelling and grammar errors" all depend on how you look at it. It is stated the same way in the NGSS. But….I don't teach English for a reason!

Workgroup Response #2 – Donna DeKraai

My understanding of why 1-LS1-1 was put into first grade was we felt a first grader could discuss/mimic how different types of clothing could protect a human like a turtle shell or clam shell would protect those animals; they could discuss/mimic how thorns on bushes, quills on a porcupine help protect. The reasoning for 2-LS2-1 was that a second grader was more capable of doing the actual planning of an investigation to determine if plants need sunlight and water to grow. While a younger student may be able to conduct the an investigation, we were not sure he/she would be able to plan it.

Workgroup Response #3 – Nicole Keegan

In response to comment 6 (D. Jarzab) pertaining to the "Regarding the Middle School Life Science Conceptual Understanding, please consider adding the following, "Plants use the energy form light AND GAS FROM THE AIR to make sugars through…" (p23.)" This pertains to standard MS-LS1-6 (Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. (SEP: 6, Nature Science/Empirical Evidence; DCI: LS1.C, PS3.D; CCC: Energy/Matter)) I feel that in order to teach the cycling of matter and flow of energy you would need to address the use of the gases from the atmosphere by plants. I would support the addition of the phrase "and gas from the atmosphere" to make sugars…. In the introduction on pg. 23 of the standards document.

In regards to Public Comment #18 – NA - Parent

Workgroup response #1 – Molly TenBroek –

First of all, the standards are just standards. They are "expectations for student outcomes". They are meant to "guide the planning of instructions and the development of assessments". At no time were they intended to be curriculum. With that said, the theory of evolution is just that…it is a theory and should be taught accordingly. Yes, it is supported by multiple lines of empirical evidence—the fossil record, comparative anatomy, comparative embryology and biochemistry and these should be presented to students. That doesn't mean it is concrete. If the teaching of the Cambrian explosion stimulates student questions, GOOD. That is what science is about. We want our students to question. Even scientists can't agree on their interpretation of the Cambrian explosion. As stated earlier, standards are guidelines. Not only is it OK for a teacher to inspire questions by bringing up holes in theories, (any theory) it is expected of a teacher. We want students to question, research and then engage in arguments using their research, not just because the teacher said so. The origin of life is not addressed in the standards. That doesn't mean different theories can't be discussed. Throw some ideas out there, let the students do their own research and draw their own conclusions. These standards are broad enough to allow teachers to approach

concepts in whatever way he/she chooses. The best thing we can do for the students of SD is to inspire them to examine, discuss, converse, debate and become lifelong learners. That was our goal when developing these standards.

Workgroup response #2 – Nicole Keegan –

In response to comment 18 (No name left) pertaining to evolution and the high school life science standards. Clarify, there seems to be no issue with the middle school life science standards which reference evolution and evolutionary relationships. (MS-LS4-2 is the only standard that uses the word "evolutionary" specifically, the rest of the LS4 standards an some of the LS3 standards deal with genetic variation for survival and are closely related to evolution.) A natural progression would be to build off of what is learned in middle school. My defense for HS-LS4 would be that it is important for students to understand that populations change over time (evolve) to adapt to changes in the environment and survive. The use of fossil records is used to prove how species, not just humans, have changed over a span to time due to environmental factors.

In Regards to Public Testimony from Terri Jorgenson – Concerned Women of America – From public testimony at January 2015 hearing

Workgroup Response – Matt Miller –

My statement is that yes, the NGSS wrote standards that involve global warming concepts, but the SD workgroup understands that it is important for individuals to decide for themselves regarding this issue. The standard as written in the SD document to my understanding in no way supports/denies the existence of global warming. It merely states the need for the teacher to address the issue and allow students to examine the data and generate their personal conclusion. I think it will be important in the implementation that the state/local school boards acknowledge that the global warming standard is present to inform that students of issues that exist that that they must formulate personal beliefs based on data. The implementation should therefore be that this standard is an opportunity for debate, not for requiring students to specifically believe any particular idea.