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Curriculum Council Committee Meeting Minutes January 15, 2020

Present: Justine Alexander, Ann Berry, Ethan Castillo, Darlynn Childress, Vivian Ding, Fran Doucedame, Bella Echols, Clara Finneran, Lisa Hatfield, Mary Hazlett, Craig Hochhaus, Christina Hoppe, Erin Howard, Laila Jorns, Kiyomi Kowalski, Kristen Lapiner, Tyler Lee, Amy Levy, Sue Levy, Thomas Liu, Linda Menges, Emily Ritchey, Mike Roberts, Bridgette Stevenson, Steve Scifres, Mathy Wasserman, Vicki Willig

The meeting was called to order by Mr. Steve Scifres at 3:30 pm.

Mr. Scifres welcomed the Curriculum Council and explained that the meeting would be focused on science adoptions. The science curriculum for K-8 and a high school course would be presented for the Curriculum Council to review.

He explained that the LVUSD Board of Education members rotate committee assignments via the calendar year. Beginning in January 2020, Ms. Linda Menges and Ms. Mathy Wasserman would be the Board of Education members on the Curriculum Council.

Elementary (K-5) Science Adoption

Mr. Scifres reported that typically, a K-5 adoption would utilize the same curriculum. However, the proposed science adoption that was being presented was a three-pronged adoption which would include Mystery Science for grades K-2, Twig Science for 3rd grade, and a homegrown curriculum for 4th and 5th grades.

A 20-person committee of teachers and district representatives reviewed the K-5 science curriculum and piloted new potential programs to align with current Next Generation Science Standards (NGSS). Eight LVUSD elementary schools were represented. All elementary schools, with the exception of Mariposa, were a part of this process. Mariposa opted out of this new curriculum adoption because of its Waldorf-based curriculum.

Each school site had representation on the committee. There were two teachers from each school - one from each grade span: K-1 and 2-3 and a special education teacher. Non-voting members included the 4/5 grade science team and two site principals. The 4/5 team served in an advisory role and led the process.

The pilot process began in Spring 2019. The pilot team reviewed various options and selected two programs to pilot. Twig Science was piloted from 8/26/19-10/18/19. Mystery Science was piloted from 10/28/19-12/20/19.

On January 8, the Science Team met and voted 13-2 to move forward the following recommendation to Curriculum Council:

- Kindergarten - 2nd grade: Mystery Science
- 3rd grade: Twig Science
- 4th and 5th grade: Homegrown Curriculum

Suzanne Kirkhope presented the Next Generation Science Standards (NGSS). The NGSS provide a different approach to how science was taught in the past. It is not just about learning facts. There is a three-dimensional focus on:

- What students do
- What students know
- How students think (crosscutting concepts)

As a result of the NGSS model, students are now figuring things out for themselves, not just learning facts in isolation. They are more focused on asking more questions and analyzing experiments. Ms. Kirkhope explained that students are now able to apply information and relate it to real-life situations. Science and engineering are closely integrated, allowing students to solve problems using hands-on techniques.

Kim Gerber, representing TK and K provided an overview of the Mystery Science curriculum. The materials and platform were found to be very teacher-friendly and accessible. It was easy for teachers to use and they were provided with kits that included needed materials. Mystery Science included excellent video content and engaging hands-on activities for students. Students enjoyed learning the lessons as

they were presented in a fun and interesting way. Many LVUSD schools were already using Mystery Science. The lessons could be customized to include as much (or as little) content as the teacher deemed appropriate given the topic, the students, and the time available. The “mysteries” (lessons) could also be taken outdoors which was enjoyable for the students.

Mary Bloom presented Mystery Science as a representative of 1st and 2nd-grade teachers. She said they found similar strengths and benefits to Mystery Science. The program was very easy to use. Students were engaged and interested in the video content. The hands-on activities were fun and provided real-world examples. Mini-lessons aligned with seasonal themes (such as a snowman lesson that could be included in a winter-themed lesson).

Natalie Sokolovsky explained that while Mystery Science was fun and engaging for younger students, 3rd-grade teachers thought the rigor of the Twig Science curriculum was more appropriate for their students. 3rd graders don't have dedicated science teachers like 4th and 5th-grade classes. However, the concepts 3rd graders are learning are tested on the California Science Test (CAST) taken in 5th grade. 3rd-grade teachers found the Twig Science curriculum was more rigorous and fully aligned to the NGSS. Engaging hands-on activities provided opportunities for in-depth student learning. Twig provided science concepts that could be integrated with 3rd-grade reading and writing. Students were able to learn talking skills and social skills by working collaboratively. They learned engineering concepts that were not covered by Mystery Science. The teachers liked that the activities were extremely engaging and covered all of the NGSS. One example was when the students could create a hands-on “weather headquarters.” Concrete reading pieces of Twig Science could also be used for reading time. Engaging videos and online content captured students' attention.

While the pilot team did not expect to recommend two different programs, they found that Mystery Science was more age-appropriate and fun for the younger K-2 students and Twig Science provided the rigor 3rd-grade students needed to be prepared for the CAST. Some K-2 students struggled with the reading and writing required for Twig Science, however, the 3rd graders benefited from it. Twig Science was designed using the 5E (Engage, Explore, Explain, Elaborate, and Evaluate) model of teaching science which is also incorporated in the LVUSD 4th and 5th-grade science curriculum. Twig Science bundled topics together using essential questions. This bundling is also used in 4th and 5th-grade science. There was no single NGSS curriculum that could satisfy the needs of K-3 students, so selecting two allowed for the needs of each grade level to be met in the most appropriate manner. Ms. Kirkhope explained that Twig Science would allow for the best transition to the 4th and 5th-grade science program. Both Twig and the 4th and 5th-grade curriculum umbrellaed certain categories using essential questions and which came together with a final project.

Ms. Kirkhope presented the 4/5 Homegrown Curriculum to the Curriculum Council Committee. The curriculum was designed to be fully aligned to the NGSS while using the 5E Model of Learning. She explained that for each topic covered, students were engaged in the lesson. They explored the phenomena they'd looked at with a hands-on activity. Once they had explained it, they were able to elaborate. Teachers then evaluated their learning.

All content was online and accessed via Google Classroom. Students used hyperdocs. Every hyperdoc showed the title of the lesson, what would be covered, and how the students would learn the topic, and what the "big idea" for the lesson. They were provided with non-fiction texts to read, computer simulations, videos, questions to answer, and instructions for the hands-on activity. Hyperdocs had extension materials which allowed students to be self-paced. This allowed students to go deeper and challenge themselves. Performance tasks were designed to prepare students for the format of the CAST. While the program was presented to students online, the emphasis was on them having as much hands-on activity as possible.

Various lessons were combined into a hands-on project. Examples included designing the "best roller coaster in the world," pasta engineering, and building earthquake-proof buildings. The students were able to have fun, experience science and engineering hands-on, and be prepared for rigorous testing.

Mr. Scifres summarized the cost for the K-5 science adoptions proposed:

- Twig Science - \$116,688 (including kits and curriculum)
- Mystery Science - \$102,000 (including digital curriculum and allocation of science supplies)

Total: \$218,688

The 4/5 science teachers and science pilot team would provide ongoing professional development in the 2020-2021 school year.

Mr. Scifres opened K-5 science to the Curriculum Council for questions and discussion.

Question: How does reading work in Twig?

Answer: Workbooks have some written prompts but there is the capability to have drawing instead of writing. There are teacher notes on how to differentiate

for different types of students. This allows students that struggle with reading and writing to engage in engineering. It was easy for all students to be reached.

Question: Are the figures annual?

Answer: This is a six-year adoption and would be updated annually. The previous adoptions aren't comparable as they were from 2001 and the standards were different.

Question: Why did two teachers not vote for this plan?

Answer: The vote is anonymous, but some 3rd-grade teachers might prefer Mystery Science which is a less robust program. Some K-2 teachers might want a more robust program. Votes are typically quite close. This was an unusual vote as the vast majority were unified in voting for the adoption.

Question: What will happen in the seventh year if there isn't funding for the supplies after adoption money isn't available.

Answer: It is hard to forecast the future. In four years, if we find we cannot continue to fund a program, teachers may be asked to create curriculums. This is a six-year plan for teachers to have supplies and kits for hands-on science for students.

Question: Do adoptions have a general timeframe when the cost is projected?

Answer: It varies by adoption.

Question: Is there a budget for materials for 4/5 science?

Answer: There is a separate budget for 4/5 science supplies and they will continue to have a budget for supplies.

Fran Doucedame called for a motion to approve Mystery Science for K-2. Kioymi Kowalski seconded the motion. The Curriculum Council vote was unanimous: Mystery Science was approved for K-2.

Kristen Lapiner called for a motion to approve Twig Science for third grade. Vicki Willig seconded the motion. The Curriculum Council vote was unanimous: Twig Science was approved for third grade.

Question: We understand that Mariposa using a Waldorf-inspired science curriculum for K-3, but why are the students going to have the same homegrown science for 4th and 5th grades?

Answer: Mariposa students will have the same 4th and 5th-grade content, but with a different delivery. They will have hands-on experience but without the online content.

Question: How is there a peer review for the 4/5 science curriculum? Has it been peer-reviewed by any teachers outside of the four 4/5 science teachers - by another school district, perhaps?

Answer: It has not been reviewed by other districts. The 4/5 science teachers created it and modified it based on attending conferences and curriculum roll-outs at the Ventura County Office of Education. It has not been done in complete isolation.

Fran Doucedame stated she has been a 4th and 5th-grade teacher for over twenty years. Ms. Doucedame observed the previous program and said the students were not engaged. She reported that she is in the classroom when Ms. Kirkhope works with her students. The students love the current program. Ms. Kirkhope uses essential questions to ensure they are really learning the material and not just having fun. Ms. Doucedame stated that while she is not a science teacher, she is “super impressed” by Ms. Kirkhope and the 4/5 homegrown curriculum.

White Oak Elementary School Principal Laila Jorns seconded Ms. Doucedame’s sentiments. She commented that students frequently bring their projects to her and share their enthusiasm for the fun aspects of the projects while explaining the concepts they have learned. Ms. Jorns expressed that the program is outstanding.

Question: Has anyone piloted the 4/5 curriculum? What was the impetus for creating our own curriculum and was anything else considered?

Answer: The decision to create a new curriculum to align with the NGSS was made more than five years ago. There weren’t many resources available at the time. We tried StemScopes, but we did not like it. After considering different options offered at the Ventura County of Education, the only one that seemed to be a possibility was Twig Science. The timing of Twig did not work with the longer, less frequent timing of the 4/5 teachers in the classrooms. Science would have had to be restructured to five times a week. Other programs were recycling older material and not aligning with the NGSS.

Mr. Scifres added that LVUSD teaching teams are always given the option of creating their own curriculum. Creating a curriculum that matches our unique student population is ideal in many situations. Two years ago, our Middle School English teachers created their own curriculum and it has been very successful.

Question: What have the test scores shown?

Answer: The only test scores we currently have are from the old test which did not cover the NGSS. We are eagerly awaiting testing results which will show the

NGSS. The results will be sent in January.

Many of the commercially available curricula do not necessarily align with the NGSS. The standards have been released, but the products available have not yet caught up with them. By creating this 4/5 homegrown curriculum, our students are actually learning the NGSS.

A motion was made to approve the 4/5 Homegrown Curriculum. The motion was seconded and passed with a 20 to 1 vote in favor of adoption.

Mr. Scifres thanked the K-5 science team for their work on these adoptions.

Middle School Science Adoption

The pilot process for sixth through eighth-grade science began in the Spring of 2019. Two curricula were piloted: McGraw Hill was considered from 8/21-10/28. TCI was considered from 10/28-12/19.

On January 9, the 6-8 pilot team voted 11-0 to move TCI forward to the Curriculum Council.

Teachers were very enthusiastic about the TCI curriculum. LVUSD Middle schools are currently using TCI for social science. The team felt that this program was the most aligned with the NGSS. TCI was based on hands-on experiences. The TCI team was very responsive to concerns and questions. It was very helpful to receive support from TCI.

The material was presented as engaging storylines, phenomena, and investigations. The online text was interactive to check for understanding. Math standards were incorporated into the lessons. It included lesson games and vocabulary cards to help students review.

Leah Jenner brought sample textbooks and workbooks for the Curriculum Council. She explained that the books were the “skeleton” of the curriculum and the “flesh” of it is online and hands-on. Each grade level has three color-coded modules: sixth grade is orange, seventh grade is green, and the eighth grade is blue. The corresponding workbooks and lesson plans were passed around the table to the Curriculum Council members. Ms. Jenner explained that most of what the students are learning is done in online activities, by teachers presenting phenomena, and in hands-on experiences.

In 2013, NGSS were published and adopted by the State of California. The California Framework was drafted in 2015 and finalized in 2016. LVUSD 's 6-8 science team has

been teaching and developing curriculum since 2013. The middle schools needed to adopt a new curriculum because the program is so large. Since 2013, the middle school team has had time to examine other curricula. The 6th-grade team was part of the Amplify Beta testing group four years ago. There was also access to the NGSS FOSS kits and StemScopes.

Ms. Jenner explained that science standards have changed. In 1998, students needed to know that the states of matter: solid, liquid, and gas depended on molecular motion. It was easy to memorize.

There is now a three-dimensional standard that is called the performance expectation. Students are expected to plan and carry out an investigation (science and engineering practice) to determine the relationships (crosscutting concept) among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample (science content). These three dimensions are woven into twenty performance expectations in each grade level. There are also engineering practices that are repeated in each grade. It is a very different way of looking at the science curriculum.

TCI incorporated all of the concepts into an easy, organized flow for each grade level. An example of this was given for the sixth grade (earth science) curriculum. In a unit where atmosphere and energy are studied, the phenomenon, “Why does ice melt faster on some surfaces?” was presented. Students conducted investigations by testing different conducting and insulating materials, building and testing thermometers, and investigating the transfer of energy. The students culminated in the unit with an engineering design challenge to design and build a cooler or solar cooker based on criteria and constraints.

In seventh grade (life sciences), students were studying cells. They were presented the phenomenon, “Where does life come from? Create a model of a synthetic animal or plant cell. Then, devise a test to determine if synthetic organisms are really alive.” Students took swabs to grow bacteria, observed cells in different phases, and coded DNA.

In eighth grade (physical science), students studied waves. The phenomenon was, “An oceanside restaurant is in danger from waves. Design an engineering solution to prevent shore erosion.” Students explored the properties of waves in different media before addressing the engineering challenge. Engaging lessons starters were relevant to student experiences. Phenomena were investigated through content and engineering challenges.

TCI was well-received by the team because it was hands-on and engaging. It looked at how the students were learning and implemented practices that did not need to be developed from scratch. The curriculum followed a logical progression and demonstrated the appropriate level of rigor for our student body. Additionally, the TCI team was responsive to questions and suggestions.

While TCI proved to be the best solution, there was room for improvement. The team found the online grading to be cumbersome. Unfortunately, absent students were unable to access teacher slides. The touch screen functionality did not work with all browsers. Teachers wanted to see improvements in how students could annotate material. Because of TCI's responsiveness, the team believed that many of these concerns would be addressed and improved.

Students reported enjoying storylines and activities, lesson games for review, drawing models with touchscreens, familiar navigation, and the ability to customize reading levels.

TCI can be customized for students who need additional instructional support. Each unit provided teachers with ideas on how to support English Language Learners, below grade level learners, Special Education students, and advanced students.

Mr. Scifres reported that the cost of the six-year TCI adoption for 6-8 science would be:

- TCI - \$211,000 (includes digital access and a class set of books)
- Lab supplies - \$80,000 (\$5,000 per 1,000 students)

Total: \$291,000

The lab supplies will help to guarantee students can participate in labs and have a hands-on experience. Professional development is included by TCI.

Question: Does the total include non-reusable workbooks?

Answer: We are not going to use the workbooks for budgetary reasons. There is a digital option. Students can write in a science notebook. All materials can be printed and photocopied if a hard copy is needed.

Question: Can teachers see what is in students' electronic notebooks?

Answer: Yes, teachers have access to their students' work.

Question: You mentioned the touchscreen function. High schoolers do not have touchscreen Acer laptops. Do your students have touchscreen Acers?

Answer: The middle schools have touchscreen Acers. The touchscreen function is an option for students. They are also able to use a mouse.

Question: Is each hardcover textbook for one school year?

Answer: Each year of science is covered by three textbooks.

Question: Do you have enough time in the day to cover the material in three textbooks in one school year?

Answer: We do not focus on the textbooks. The learning is much more hands-on. The readings are not required for the standards to make sense. That was one of the things we liked about this curriculum. The online text has a larger font. A class set of hardcover books will be ordered, but the primary focus will be utilizing the online textbook.

Question: Are most of the labs online?

Answer: Almost every publisher's curriculum will provide online labs, but most of them are hands-on.

Question: Will \$5/student/year be adequate to cover lab materials?

Answer: That will cover much of the cost. We also fundraise and ask for parent donations for lab supplies. The schools also budget for science supplies. The \$5/student is helpful because it takes some pressure off of the schools. Science is unique because we require materials that other departments may not need. We are very happy about the \$5 budget. Kits were offered, but they ended up being a more expensive option.

Question: Are there synergies to having TCI for social studies and science?

Answer: We are working to find out how we can connect the two subjects through TCI. The interdisciplinary work would be beneficial to the students. It would be great to make connections between science and social science. That conversation is ongoing and we are hoping to be a pilot district for that type of program.

Question: I know there is a budget for a class set of textbooks. If a student needs to check out a book to have at home, can that be done?

Answer: We don't use textbooks as much as the hands-on engineering experiences. Students are not on the computer as much as they are engaging with the phenomena directly. They might read a few paragraphs and participate in a "check your knowledge" activity, but they are not reading ten chapters online and answering many questions. They are spending most of their time learning away from the computer. Some of the labs are online, but most of them are interactive and in the classroom.

Question: Can the parents log in to see what their students are studying?

Answer: The login to TCI is through the student's email account. It is very easy to click on TCI to access it.

A motion was made to adopt the TCI curriculum adoption for 6-8 science. It was seconded and passed unanimously in favor of adoption.

High School - Honors Physics in the Universe

Mr. Scifres reminded the Curriculum Council that in November 2019, three high school courses were proposed: Biology: The Living Earth, Honors Biology: The Living Earth, and Physics in the Universe. The final course in the proposed four-course pathway was Honors Physics in the Universe. Two meetings were held to determine if LVUSD would be fiscally able to offer the four courses. After in-depth conversations, it was decided that the Honors Physics in the Universe course could replace the current physics course which is primarily taken by juniors and seniors, rather than adding it as a new course.

The newly proposed pathway would give incoming freshmen the opportunity to choose Biology: The Living Earth or Physics in the Universe as their first high school science course. They would then be able to choose the other course for their 10th-grade year. Students who would be interested in more in-depth science could choose the honors versions of the courses.

Ryan Bergstrom said that making physics available to the younger high school students would encourage them to take more science courses in high school. He has seen that there is a drop-off in the number of students that take science classes as they get older. When Calabasas High School offered a precursor to Physics in the Universe offered to freshman, there was an uptick in the number of older students taking science. The honors level course would be a more robust offering for advanced students.

A more advanced physical science option could encourage more students to become engineers in the future. Physics is a foundational course, therefore providing a platform to be more successful in other science courses. This would give students more hands-on opportunities, and honors would give a more advanced option.

Honors Physics in the Universe would follow the NGSS model, but with more depth. The honors course will allow students to be able to do more. The biggest challenge with science has been guiding incoming freshmen to take a science course they would enjoy. If they enjoyed life science, they would like biology. The honors course would not be a new course, it would a higher level. Experiments would incorporate more math and engineering.

Question: Do you have a projected breakdown of how many students would take biology versus physics?

Answer: We do not know if we can project that at this point. We would speak to the eighth-grade counselors to determine the interest levels for each course. Historically biology has been the option for ninth graders. We would like to encourage more students to take science courses and find a path they love.

Question: Do you have an estimate on how many would take honors versus regular courses?

Answer: Right now in biology (as physics is not offered with an honors option), approximately 33% take honors.

Question: At Calabasas High School, we have Conceptual Physics, Physics, and AP Physics. Would this be Physics in the Universe, Honors Physics in the Universe, and AP Physics? What would the math recommendation be for Honors Physics in the Universe?

Answer: Yes, those would be the courses. The math recommendation would be concurrent enrollment in geometry. However, if students are extremely successful in math, they would likely be able to have an evaluation.

Question: If a student does not take science in their freshman year, would students still be able to start science as sophomores?

Answer: Yes, the graduation requirements have not changed at this point. The majority of students do take science as a freshman, but there wouldn't be restrictions on sophomores starting. We are trying to encourage students to find a science they really like.

Mr. Scifres wanted to clarify that Honors Biology and Honors Physics in the Universe would not be 5 point A's for weighted grade point averages.

Question: Are you concerned about this course being a singleton on the master schedule?

Answer: Yes, we are going to watch to be sure there is enough enrollment for it to be on the master schedule. We would like to roll out the four courses together, but if we need to revisit the enrollment, that will be open to discussion. This is not an additional course, it is a replacement.

A motion was made to adopt the Honors Physics in the Universe Course. The motion was seconded and passed unanimously in favor of adoption.

The meeting was adjourned at 5:12 pm.