

Selah's Sustainability Strategy

Selah School District is located in a small community between Ellensburg, WA and Yakima, WA with approximately 3,700 students K-12. Selah is home to innovative fruit packing companies and Tree Top juice company. In the last decade, the district's student demographics have changed significantly. According to the Office of Superintendent of Public Instruction, both the Latino population and the number of students who qualify for free and reduced lunch have grown by over 10%. The growing poverty is affecting our students ability to come to class with the skills necessary to learn. With the state's focus shifting to emphasize science, our district has tried to be more proactive in our response to new standards.

Four years ago, Selah School District made huge organizational shifts to our buildings, as well as instructional coaching support. A district science coach was put in place to help realign our curriculum to meet the new demands of NGSS as well as provide support to elementary school teachers who may have never taught science in their daily routines. The shift has ensured that all students, in grades 3-12, get daily science time that cannot be interrupted by specialist pull-outs, and it also ensures that K-2 built in time to let kids explore science regularly.

John Campbell Primary is a K-2 building where our district science coach has worked tirelessly to help teachers feel confident in showing students what it means to be curious in the world around them. They are not currently teaching Earth science or sustainability units at this youngest level. Selah Intermediate School includes grades 3-5, and is the first building where students begin to have a designated science teacher. Fourth grade is the first time students are introduced to the idea of sustainability. Students explore soil erosion and deposition as it relates to salmon sustainability. Selah Middle School is home to grades 6-8. Each year at the middle school, students explore different aspects of Earth's natural systems. They learn about the geosphere, atmosphere, and hydrosphere. In 8th grade, students are introduced to natural hazards, climate and sustainability of natural resources.

When the district reorganized four years ago, the ninth graders returned to Selah High School. This added two teachers to the team, two assessment strategies and a lot of new understanding about sound science teaching practices. In Selah, we believe in teaching science in an interdisciplinary approach to help students better conceptualize how science depends on many different lenses. As a result, we are changing our program drastically.

One way that the curriculum was changed was to make the content more local. Fire Ecology based on California Chaparral was taught as part of the ninth grade curriculum. We saw the need to take the content that our book covered and find real data from Washington fires that impact our students' lives. We brought in local wilderness firefighters to talk about what kinds of data the team uses to plan how to contain large fires. Students developed models for different fire management strategies. They used this learning experience to evaluate predator/prey feedback loops and track consequences through systems. As a result of trying to balance the load of standards more evenly in ninth and tenth grade, this unit was abandoned in favor of teaching ecosystem sustainability through coevolution and natural selection. The only Earth science in tenth grade is radioactive decay and stratigraphy as it relates to relative dating as lines of evidence of evolution.

For the last two years, I have taught this semester elective covering Earth and Space Science. This class has changed every time it has been taught. I try to focus on Local Geology, covering the Columbia River Basalts, Missoula floods, and our local Yakima River canyon and river formation; Urban Heat Islands and their effect on the Carbon Cycle; and the basics of stars. I have struggled to find where to place emphasis on the large quantity of standards we do not cover in any of our other classes. There is too much to cover in 18 weeks so the class has been disjointed. This spring, I piloted an OER unit on forces and galaxies, developed by a consortium in Wenatchee with positive results. It gave students an opportunity to look at NASA models, relearn Newton's Laws, research Hubble's discoveries and identify evidence scientists have for the Big Bang Theory. We plan on using this unit in the ninth grade curriculum, next year to be able to package more standards into fewer different contexts.

Earth Science and sustainability standards remain a weakness in the learning of our students. The comprehensive emphasis from NGSS is pushing our department away from Biology heavy content to make room for more Earth Science. This has been our biggest challenge. At this point in our transition, we have done an excellent job shifting our language to mirror NGSS and emphasized the practices. As an example, we have focused on SEP 7: Arguing from Evidence instead of the old conclusion format when analyzing lab data. The students use specific systems vocabulary when talking about photosynthesis and its role in the Carbon Cycle. We have seen the need to redesign our program 9-12 to provide students more choice and opportunities to access Earth/Space Science. We are ready to stop making small changes and eat the elephant all at once. We envision this shift looking like a interdisciplinary foundational ninth grade class that serves all students the basics they need to move to any next level science or CTE class. This will be our biggest challenge moving forward. We have set a one year goal to design pathways for students, develop new curriculum and work with CTE to make sure we are teaching as many standards and practices

to ensure success for our students' futures. We will need resources, training, the liberty to try new things and fail, and support to keep finding ways to reach students and inspire their curiosity.