



Date: April 2, 2024

To: Portland Public Schools Board of Directors

From: Dr. Cheryl Proctor, Deputy Superintendent Instruction & School Communities
Kristina Howard, Interim Chief Academic Officer
Patrice Woods, Director of K - 5 Mathematics and Science

Cc: Dr. Sandy Husk, Interim Superintendent
Dr. Emily Glasgow, Senior Director of PK - 5 Core Academics

Re: K - 5 Science Adoption

BACKGROUND INFORMATION

The Oregon Department of Education (ODE) updated and adopted K - 12 science standards in October 2021 to align with Next Generation Science Standards (NGSS) which were developed and released in 2013 by a multi-state/multi-partner team that first convened in 2011. Our current PPS K - 5 Science instructional resources are partially aligned to the updated standards. In PPS, each grade level is assigned three units of study per school year as outlined in the scope and sequence for science instruction. Two of the three units are standards aligned. The third unit is more than 20 years old and is not NGSS aligned. As we work toward supporting students to attain the characteristics of the Graduate Portrait, we must at the very least provide grade-level standards aligned resources that can help teachers provide learning experiences to do so by engaging in professional learning and using updated instructional resources.

“Equity in science education requires that all students are provided with equitable opportunities to learn science and become engaged in science and engineering practices; with access to quality space, equipment, and teachers to support and motivate that learning and engagement; and adequate time spent on science. In addition, the issue of connecting to students’ interests and experiences is particularly important for broadening participation in science.” (NRC, 2012).

In this day and age, STEM careers continue to flood the demand for professionals and associated careers. Without high-quality science instructional experiences, we will fall short of providing this opportunity for the 18,000+ K - 5 students in this district.

CURRENT CONSIDERATIONS

We currently do not have enough materials for all grade levels to provide science instruction guided by a common scope and sequence, so one-third of each grade level provides instruction on different science concepts during identified instructional windows. As a result, K - 5 science content is taught on a rotating scope and sequence. Sixty science kits per unit and grade level are shipped out and rotated amongst the 909 educators and 18,000+ students each school year during the identified instructional window. At the end of each instructional window, science kits are returned to the warehouse to be refurbished and subsequently shipped out 4 weeks later to the next group of schools/educators for instruction on the second and third units respectively.



This is a huge, challenging lift for our IRC team members and barely sustainable in the current system. There was a need to update science instructional materials in order to provide standards-aligned resources, remain in compliance with state mandates to update or refresh resources at least every 7 years, and provide materials to every educator in order to make standards-aligned instruction accessible for all K - 5 students.

STAFF RECOMMENDATION/COURSE OF ACTION

We are recommending that the PPS Board of Directors approve the proposal to adopt Amplify Science Materials. If approved, we will purchase 3 science kits per classroom for every grade level. This will eliminate the need for a rotation or science kits and will allow for implementation of a unified and coherent scope and sequence for science instruction at every grade level. Schools will also have the opportunity to delay implementation by one year to avoid having to navigate multiple adoptions in the same school year.

This recommendation decision to adopt Amplify Science instructional materials was made by using the process outlined in the PPS Adoption Toolkit. This was a year-long process from AIR Committee development to final data analysis and recommendation for adoption. Educators reviewed 12 sets of instructional resources from multiple publishers. From the 12, the AIR committee narrowed the selection to 4 publishers and corresponding resources. The AIR committee was further organized into teams of 4 reviewers who worked collaboratively to review at minimum, 2 of the 4 sets of resources. Every set of the 4 resources was reviewed by two different teams. The tool used was the Oregon IMET (Instructional Materials Evaluation Tool) for Science Instructional Materials. Data was reviewed by the AIR Committee Leads (Director and TOSAs). Resources that received the highest ranking were brought back to the AIR Committee for a final consensus vote to move forward with field testing. Three sets of resources were moved forward as two were very close in ratings. After a selection process, field test educators participated in two full-day professional learning sessions (one in early Fall and one in early Winter) that included foundational instructional strategies for Next Generation Science Standards (NGSS) and unit/lesson unpacking for each of two units by respective publishers. The foundational NGSS professional learning session (90 minutes each PL day) was led by Consultants from Portland Metro Stem Partnerships (PMSP) and the unit/lesson unpacking (3.5 - 4.5 hours each PL day) was led by respective publisher consultants. Educators provided detailed ratings on their findings/experiences using the respective resources. Ratings and evidence were captured using the Oregon IMET for Science. Several lessons of instruction by field test educators were recorded and shared with the AIR Committee and Field Test educators for observations and reflection based on the [NGSS lesson observation tool](#) where only student actions were observed. Student work samples were also collected from each field test educator. Anecdotal/Evidence data was shared with all AIR Committee members and field test educators. They then engaged in a week-long process to review lessons (video), review anecdotal evidence provided by field test educators resulting from their experience using the materials, and review student artifacts. They were tasked to provide a detailed reflection on lesson observations, student artifacts, and anecdotal/evidence summaries and make a [final rank ordered recommendation](#) for which instructional resources would be a good fit for Portland Public Schools and should be recommended for adoption. Family information nights were hosted as well, where each publisher provided an opportunity for families to engage with the resources and provide feedback based on their experience.



RATIONALE AND BENEFITS

We must provide K - 5 students with high quality science instruction. Science is an essential part of a school curriculum for several reasons. First, it helps students develop critical thinking and problem-solving skills. By engaging in scientific inquiry, students learn how to ask questions, gather evidence, and draw conclusions. Second, science education fosters a sense of curiosity and wonder about the natural world, encouraging students to explore and understand their surroundings. Additionally, scientific literacy is crucial for informed decision-making in a world increasingly shaped by technology and scientific advancements.

While they are at grade-level, the current science materials in use are partially standards aligned. PPS staff had been in the process of writing units of study for K - 5 Science. Due to changes in organizational structure, We did not have capacity to finish this process. We need to update the K -5 science materials we offer to educators for instruction in order to provide a baseline for high quality grade level, standards-aligned instruction.

The proposal to adopt Amplify Science instructional materials for K - 5 will provide the foundation necessary to provide grade level standards-aligned instruction. [Amplify materials have been vetted by EdReports](#) and meet all expectations including Design for NGSS, Coherence and Scope, and Usability for all grade levels K through 5. This will increase opportunities for educators to provide instruction leading to achievement of the characteristics of the graduate portrait including inclusive and collaborative problem solvers, inquisitive critical thinkers with deep core knowledge, resilient and adaptable lifelong learners, powerful and effective communicators, influential and global stewards, and optimistic future-oriented graduates.

There are ample opportunities for differentiation built into the lesson plans. The resources include opportunities to infuse literacy into science instruction including leveled readers. There is also alignment to high leverage use with Multi-Language Learners (MLL). Educators have access to the grade level platform where instructional and assessment resources are housed. Lesson plans include guidance for many types of differentiation including MLL and students with learning disabilities. Educators will receive quarterly professional learning relative to implementation.

As PPS continues to align resources and instruction to center Black, Native American/Alaska Native, and Latinx students, adoption of Amplify resources will be a next first step in this effort toward providing a high quality science learning experience for K - 5 students.

Supporting Documentation:

[PPS Adoption Toolkit](#)

[Oregon IMET](#)

[NGSS lesson observation tool](#)

[Final K - 5 Science Overall Cumulative Data](#)

[Final Recommendation meeting \(slide deck\)](#)

[EdReports Overview](#)

[Educator Data Submission records](#)