



# Design Thinking for STEM Equity

## Participating Hubs

Central Oregon STEM Hub  
East Metro STEAM Partnership  
Oregon Coast STEM Hub  
Portland Metro STEM Partnership

## Grant Overview

Design Thinking for STEM Equity utilizes human-centered design as a method to approach challenges from the

Perspective of teachers' end users: the students. In 2019-21, South Metro-Salem STEM Partnership (SMSSP) and Portland Metro STEM Partnership (PMSP) collaborated on an innovation proposal that sought to use these methods in approaching challenges in NGSS implementation with K-8 school teams. However, in response to the Covid-19 pandemic, the project adapted to address challenges associated with distance learning. This biennium, the project has returned to its original focus of supporting Design Thinking for STEM Equity.

The project brought together 111 K-8 teachers and principals as small school-based teams in a virtual format to identify challenges, conduct empathy interviews with students and families, brainstorm ideas, and iterate prototype solutions to

begin addressing their challenges. Virtual participation nearly doubled our original expectations, which would have served 60 regional educators. The virtual format allowed us to open the opportunity to teams across the state, with collaboration with their respective STEM Hubs to support teacher stipends outside the grant funding. From supports for introducing parents and grandparents to digital learning portals, to student engagement strategies involving goodie bags and giveaways, educators sought to identify what their community needed most to succeed, and worked to address those needs. Such student-centered approaches to ALL learning are critical, and the values and strategies of human-centered design, elevated through our workshops, gave participants a safe place to pitch and try new ideas.

## Addressing Equity

In this workshop series, educators worked in teams to identify and explore the skills, mindsets, and experiences students bring to their classrooms. Educators focused on how the students see themselves as STEM or STEAM learners to empower student voice, choice, and autonomy for all students. Teams were asked to pick a "focus student" not yet succeeding as their case student. These students are often students of color and/or students navigating poverty.

Student and community benefits were determined hyper-locally as schools explored data on student achievement and utilized teacher expertise and experiences to note which students are not being well-served in STEM under current conditions, according to the populations of their school. Care was taken to identify, recruit, and include the regions' highest needs schools, as identified by socioeconomic indicators, racial and ethnic demographics, and student achievement.

Human-centered design is just that: development of strategies that are laser-focused on the end-users, who in this case were students and communities who have not been served well by the status quo, whether through curricula or instructional practices. The feedback loop embedded in design-thinking ensures that new efforts are paired with analysis of data and evidence to continue iterating toward better outcomes.

The nature of this project and the design thinking approach ensured that diverse communities, as end-users, are regular and important participants in both the design and iteration of resulting strategies. **Outputs**

#### Participation

- **18** schools participated across all partners Hubs.
- **19** principals, 54 teachers participated in 36 hours of professional development and coaching.
- **An estimated 3,300** students were impacted, based on students per classroom teacher.

