Collaborating with Science Leaders to Advance 3D Science Teaching and Learning

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Opener
How many of the tasks listed below do you do as a science leader?

- Aligning curriculum with standards
- Disseminating information to teachers
- Working with administrators
- Analyzing data to inform future work
- Working with groups of teachers (including PD)
- Curriculum development
- Developing a strategic plan
- Working with teacher leaders
- Collaborating with other coordinators
- Working 1-on-1 with teachers
- Ordering supplies
- Developing community relationships
- Presenting at conferences
- Monitoring budget
- Administrative duties
- Assisting in employment decisions
- Teaching K-12 students
- Working with students outside of class
- Co-teaching daily
- Grant writing
- Safety
- Evaluating teachers

Session Goals
1. An understanding of the science leader's role in putting the pieces of the NRC Framework together for a coherent science program.
2. Ways to strategically plan and prioritize professional learning based on system and individual teacher needs.
3. Ways to approach addressing what teachers need to know and be able to do if students are to achieve our vision for science learning.
Science Leaders Roles

Section 1 - Defining Our Roles as Instructional Leaders

West ED Building Capacity Game

Link to Purchase Game - https://www.wested.org/rd_alert_online/science-professional-learning-simulation-game/

Targeted Self-Paced Professional Learning

District Coordinators took a pre-assessment to determine personalized online learning on the Teaching Channel platform.

Targeted Modules:
- Instructional Technology
- Equitable 3D Science Instruction
- Professional Learning Programs
- Coherent Curriculum
How do you currently determine what professional learning opportunities you need to grow?

Strategically Planning Professional Learning
(Year 1)
Section 2 - Assessing the Needs of Our District & Developing a Mission & Vision

Strategic Planning Process

- Needs Your Context and the Portland Plan System
- Commit to a Vision
- Identify the Critical Issues and Set Improvement Goals
- Establish Goals and Objectives
- Develop a Plan
- Enact the Plan
- Evaluate the Plan
Group Discussion Questions

Do you currently have a Vision and Strategic Plan for your Science/STEM Department?
How might this support teacher and students’ understanding of 3D Science?

Science Visioning

Section 3 - Unpacking Our Experiences that Support Teachers’ Ability to Enact our Vision

Engage In Science and Engineering Practices

- Properties of Next Generation Science Education and Dimensions of Science Education Discussions
- Small Group Investigations & Questions
- Debrief about Science and Engineering Practices and Progression
- Debrief about Asking Students Questions
Example of Small Group Investigations

Considered Equity & Culturally Relevant Pedagogy

- Explored the tenets of Culturally Responsive Pedagogy.
- Unpacked how all learning is cultural, especially science, and access to science helps students become critically conscious.
- Explored the lens of systemic oppression and how it impacts quality science curriculum, assessment, and instruction.
- Explored the components and values of an inclusive science classroom.

Intentional Focus on Crosscutting Concepts

- How to ensure teachers would implement and recognize crosscutting concepts in their instruction
How are you intentionally designing experiences for teachers to engage with 3D science, specifically SEPs and CCCs?
Other Useful Documents & Tools

Table 1

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<thead>
<tr>
<th>Planning for clarity guiding questions.</th>
<th>&quot;What do I want my students to learn?&quot;</th>
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<tbody>
<tr>
<td>&quot;What evidence shows that my students are currently learning or not learning?&quot;</td>
<td>&quot;What evidence shows that my students have the opportunity to learn?&quot;</td>
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<tr>
<td>&quot;If I have a clear understanding of these guiding questions, what do next steps look like?&quot;</td>
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Image Source - BRINGING CLARITY TO SCIENCE INSTRUCTION

Article Resources

- Best Practices in Teachers’ Professional Development in the United States
- Best Strategies for Professional Learning
- How to Handle Difficult Participants Handout
- Evaluating Results of PL
Questions/Comment - Contact Us

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