Grand Challenges for K-8 STEM
What is STEM learning?

We believe powerful critical thinking and exploration practice commonly used in effective science, technology, engineering and math classrooms should be drawn across disciplines and connected by a common or transdisciplinary theme, allowing students to:

- Ask deep real-world questions
- Collaborate with their peers
- Arrive at meaningful conclusions
- Explore STEM careers

What is Transdisciplinary?

"The idea of transdisciplinary literally means beyond all the disciplines but connected to all the disciplines by a unifying issue or topic of inquiry."

Basarab Nicolescu
The Transdisciplinary Evolution of Learning

View Infographic
**STEMformation**


A three-year system for professional learning and leadership designed to build and sustain a culture of STEM teaching and learning within a school.

[Download a Flyer](#)

**STEM Leader Corps**


STEM Leader Corps is a four-year system for professional learning and leadership intentionally designed to build and sustain a culture of STEM teaching and learning.

[Learn More](#)

**STEM Foundations**

Professional STEM Learning

A variety of professional learning experiences that provide foundational support around STEM teaching and learning within a district, cohort or school.

[Download a Flyer](#)
Streaming Plus
Bringing the Real World Into the Classroom
Discovery Education Streaming Plus is a comprehensive digital service that motivates students to learn and helps teachers in every content area to transform their instruction. Containing thousands of standards-aligned resources, Streaming Plus provides you with the tools to teach your students to think critically about the content they use, see, and experience in their daily lives and to ask questions about the world around them.

Math Techbook™
Problems Worth Solving
Math Techbook is a breakthrough digital textbook that will change the way students and teachers experience math. Using an inquiry-based approach, Math Techbook supports any device, anywhere, anytime in any secondary instructional setting.

Science Techbook™
Inspiring the Scientist in Every Student
Discovery Education Science Techbook is a breakthrough digital textbook that will change the way students and teachers experience science. With an award-winning, impactful approach to science instruction, Science Techbook combines different types of media to explain and reinforce complex science concepts.
Continuum of STEM Implementation

Random Acts of STEM

STEM Activities

Single Subject

Techbooks Streaming

Multiple Subject

CEP STEM
STEM Camps
STEM Supplemental

Transdisciplinary Transformation

Cohesive STEM Integration

DE STEM PD
## What Instructional Problems Are We Trying to Solve?

<table>
<thead>
<tr>
<th>Instructional Challenges</th>
<th>Our Solution</th>
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<tbody>
<tr>
<td>Educators know they are supposed to be “doing” STEM, but they don’t really know what to do</td>
<td>Provide easy to access and easy to follow STEM materials</td>
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<td>When given unclear mandates, educators ignore the mandate and focus on what is measured</td>
<td>Provide materials that link to what is measured, provide rubrics for project/problem based learning</td>
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<td>STEM is not consistently defined or progressively developed across the grade levels</td>
<td>Use the 4C STEM Habits Framework© to help develop integrated approach to STEM</td>
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<td>Publishers’ materials are hit or miss and not developed like a curriculum</td>
<td>Develop progressively more complex STEM Ideas &amp; Habits K-8</td>
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Global Grand Engineering Challenges + UN Sustainable Development Goals

1. **Energy** Make solar energy economical
2. **Water** Provide access to clean water
3. **Community** Create livable and sustainable communities
4. **Health** Create better medicines
5. **Learning** Change learning to reflect what we know about how the brain works.
6. **Food** Provide quality food for over 9 billion people
7. **Cyber** Develop a safe and secure internet
8. **Virtual Reality** Improve and apply virtual reality, augmented reality, 3-D, etc.
9. **Exploration and Discovery** Create new tools of scientific discovery
Solution Seekers
Engaging Learners to Change The World
Fictional STEM students who travel the globe solving real world problems $S^3$