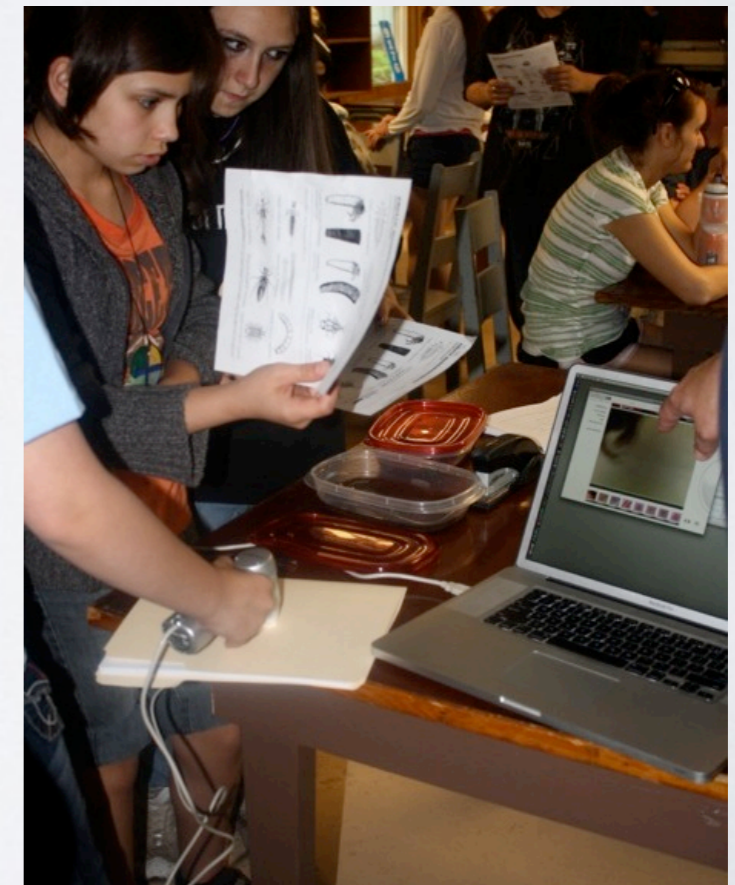
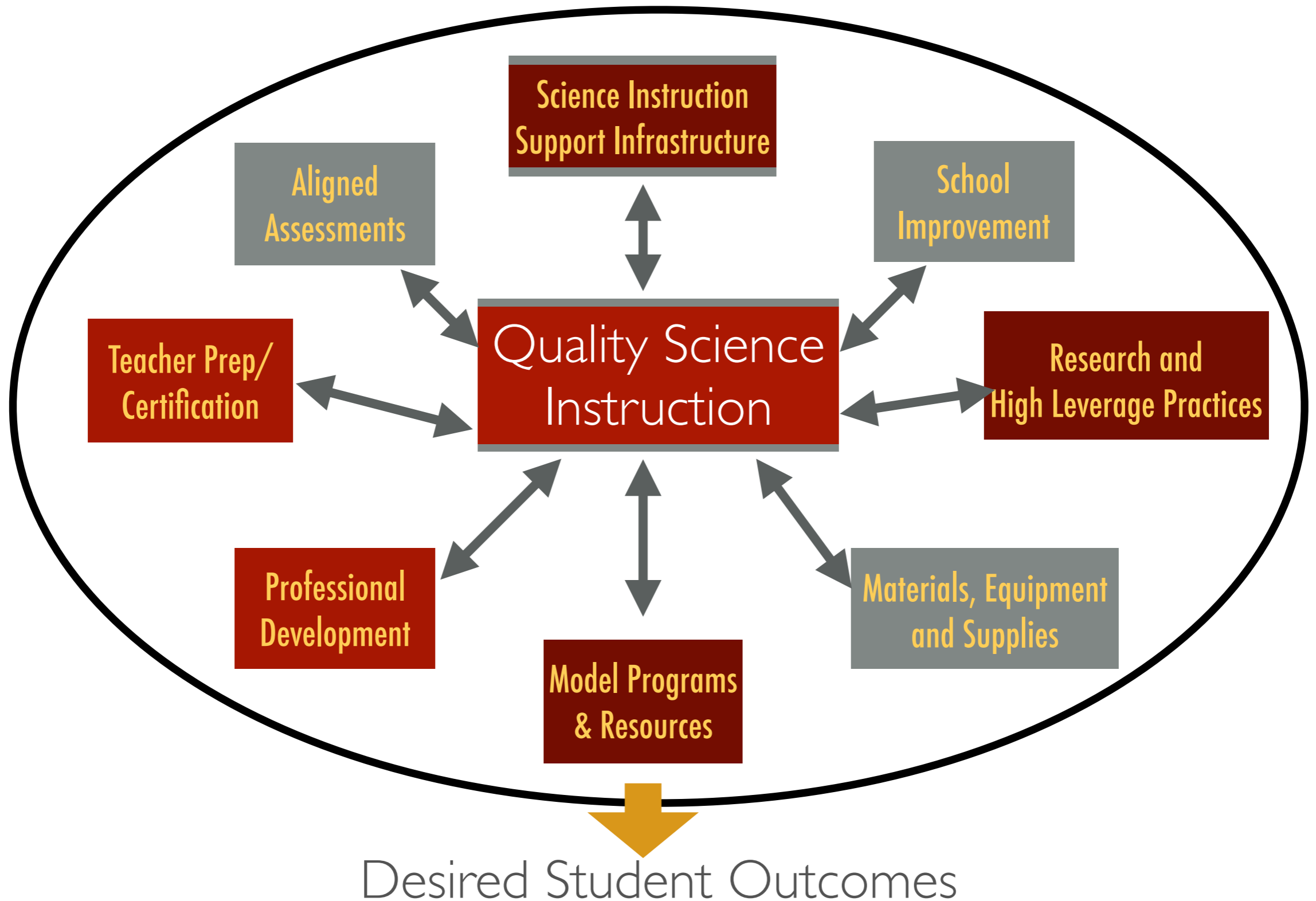


Teacher Preparation, Credentialing, and Professional Learning for Science Education



ACHIEVING THE VISION

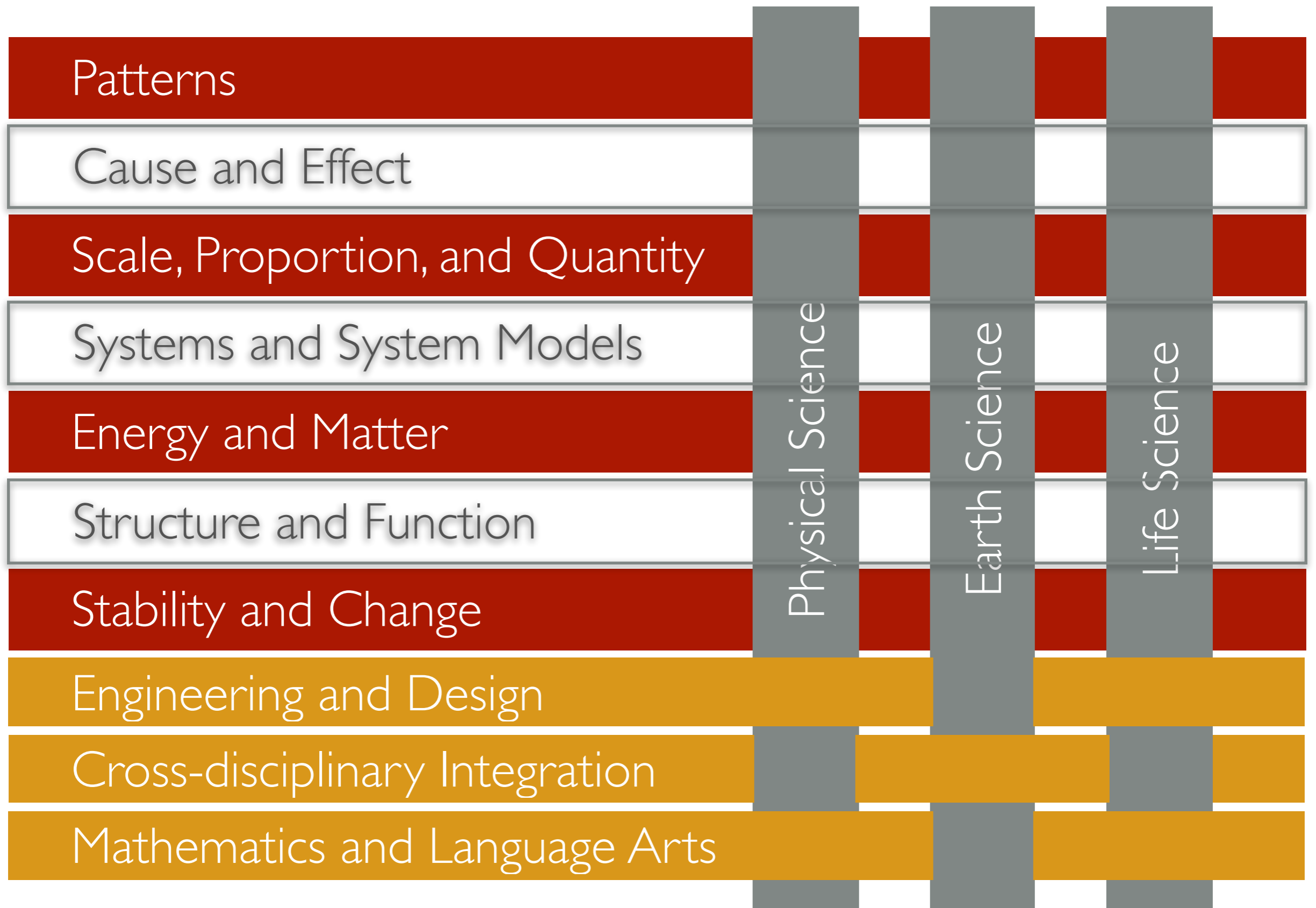


OBJECTIVES

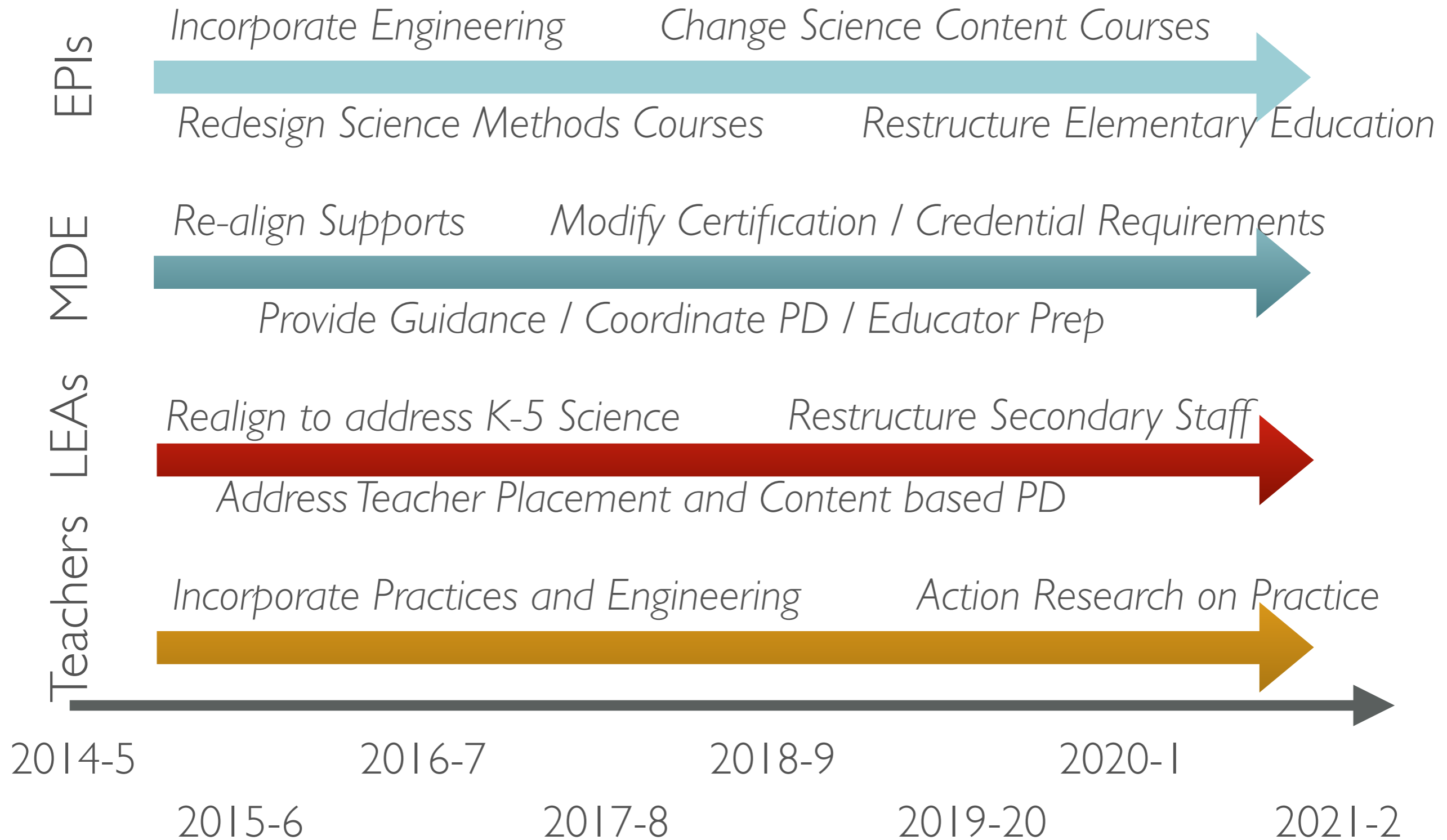
- Provide insight into how educators are prepared to implement new practices and expectations of the Framework for Science Education.
- Review considerations specific to preparation and ongoing learning of the instructor to support the transition to new learning priorities.
- Address possible strategies for implementing pre-service preparation and professional learning for science educators.



CROSS-CUTTING CONCEPTS



TRANSITION TIMELINE



CONSIDERATIONS FOR EDUCATOR CERTIFICATION AND CREDENTIALS

EDUCATOR PREPARATION ISSUES:

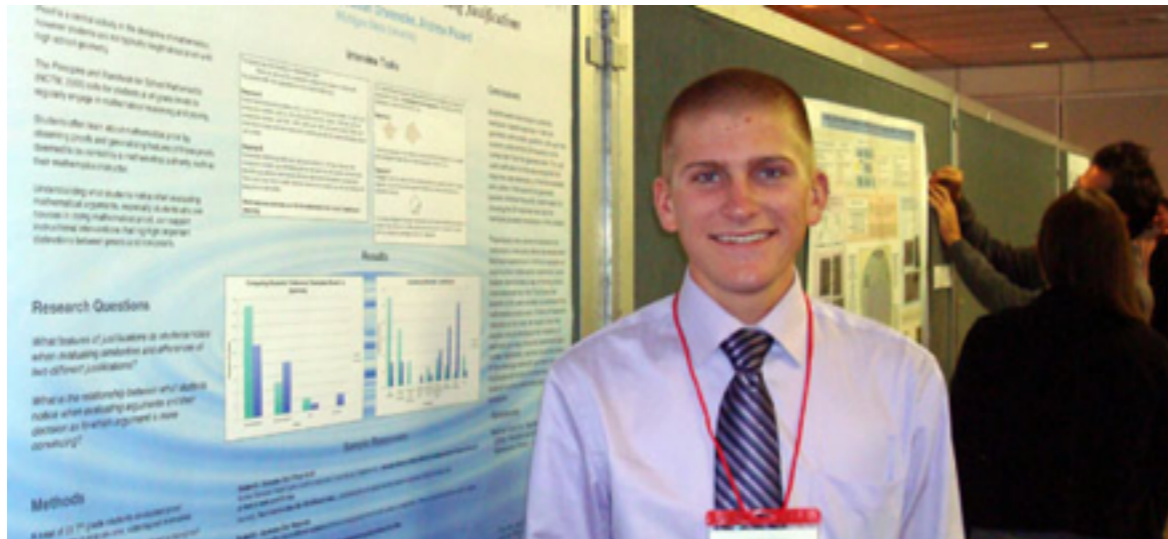
- Elementary content limited for non major/minors in science education
- Integrated certification lacks desired classroom impact due to current design
- Science and engineering practices do not fit many EPI course structures currently focused on traditional subjects rather than cross-cutting strategies

POSSIBLE STRATEGIES / SOLUTIONS:

- Increased focus on science in elementary certification areas
- Digital credentialing for specific topics
- Redesign of science education preparation for all new teachers



POSSIBLE MODELS FOR SCIENCE TEACHER PREPARATION



- Recruit STEM practitioners into education
- Restructure teacher preparation to incorporate STEM practices and long-term learning supports
- Encourage collaboration among peers for ongoing learning and support
- Engage EPIs in cross-university collaboration and other partnerships
- Utilize university research efforts to sustain learning



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CHANGES IN LEARNING NEEDS FOR TEACHERS

- Integration of practices throughout instruction
- “Just-in-time” learning aligned to instruction
- Deeper content knowledge in applied fields
- Focused pedagogical knowledge to address misconceptions or learning issues
- Risk-taking mindset for embracing project-based learning



CONSIDERATIONS FOR PROFESSIONAL LEARNING



- Job-embedded, standards-based learning opportunities specific to science & engineering
- Appropriate time for reflection and collaboration with other educators
- Content-knowledge varies widely
- Needs to address multiple stages of implementation
- Annual requirements for credentials and DPPD
- Design for long-term learning and implementation

A CASE STUDY IN PROFESSIONAL LEARNING

Science in the City



Supporting Inquiry Learning in Science Through Technology

PD DESIGN

- Integrated tech/science focus
- Collaborative development and use of resources
- Video based lesson study
- Create new resources

OUTCOMES:

- Gains in teacher and student knowledge and practices
- Collaboratively developed products for classroom use

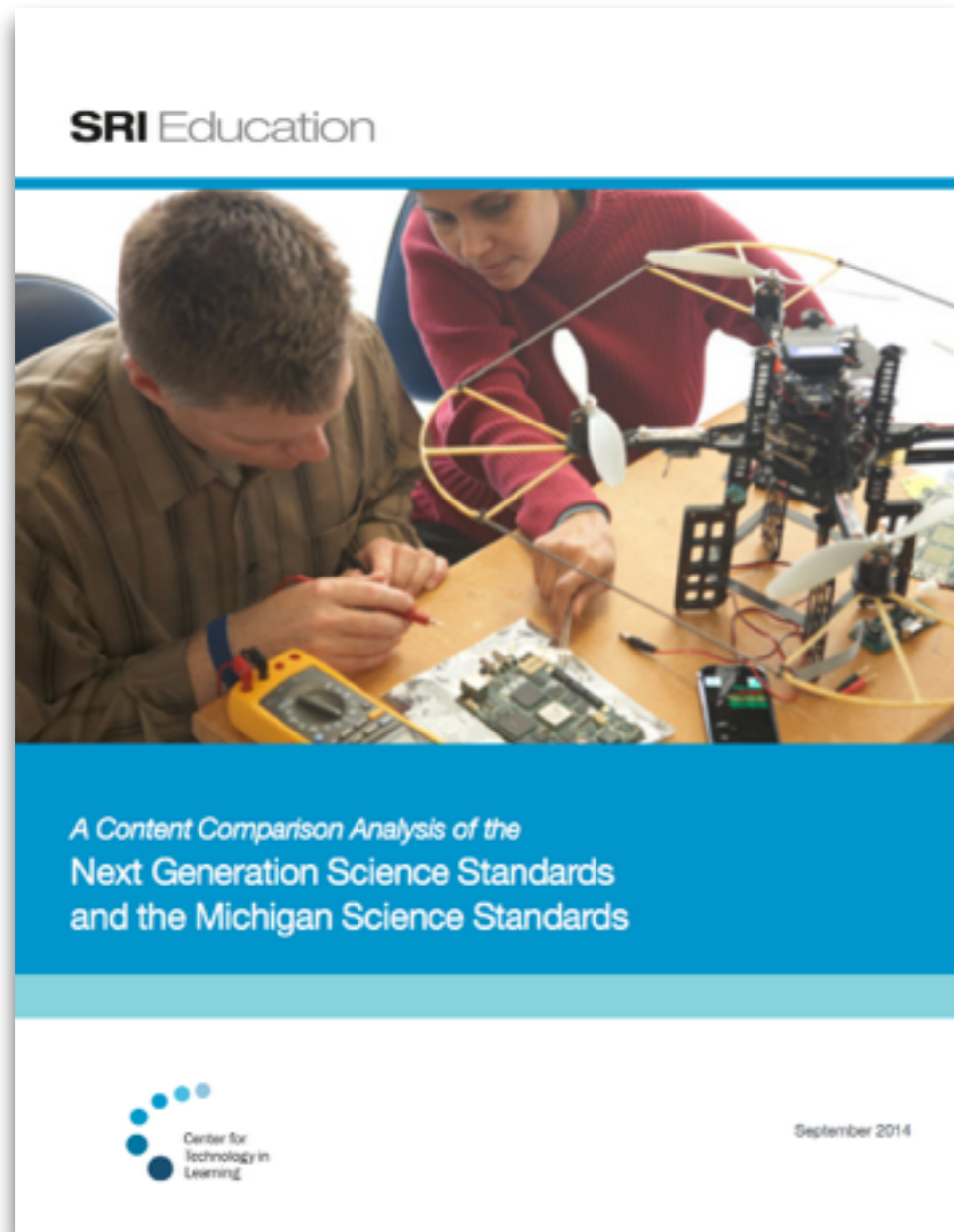
TEACHER LEARNING SUPPORTS IN MICHIGAN



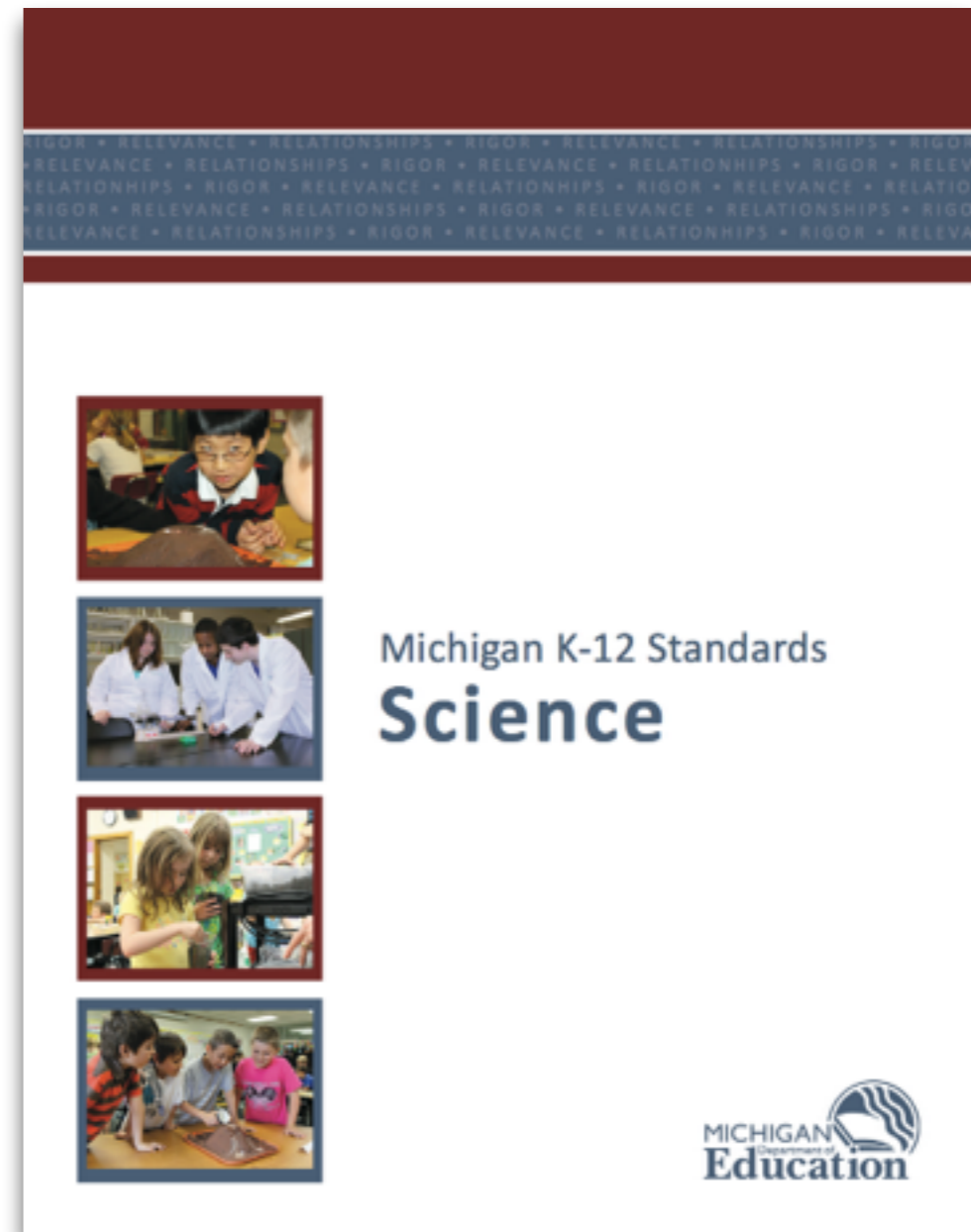
Michigan
Mathematics
and Science
Centers
Network



NEXT STEPS



Review the Reviews



Consider New Standards

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