

Higher Education Roles for the Recruitment, Retention and Renewal of Mathematics and Science Teachers

RECRUITMENT <i>Strengthen teacher recruitment policies in mathematics and science.</i>		
<p>Implement a comprehensive package of mathematics and science teacher education recruitment strategies, starting in P-12 and extending through graduate school, that include incentives such as scholarships, signing bonuses, and differential pay.</p>	<p>Strengthen the content and pedagogy of teacher preparation programs to ensure a national mathematics and science teacher workforce capable of preparing P-12 students for success in higher education and the workplace.</p>	<p>Expand strategies to attract talented individuals in STEM-related professions to teaching, and ensure that they are adequately trained for the classroom.</p>
ROLES FOR HIGHER EDUCATION		
<p>Establish goals for increasing the number of graduates qualified to teach mathematics and science.</p> <p>Provide scholarships, fellowships, and assistantships for recent college graduates with STEM degrees to support their matriculation in graduate programs that lead to a graduate degree in mathematics education or science education.</p>	<p>Develop undergraduate teacher education programs that allow students to earn a STEM degree and obtain licensure as a secondary school teacher.</p> <p>Develop, evaluate, and disseminate teacher preparation programs that produce elementary school specialists and certified middle school mathematics and science teachers.</p> <p>Revamp teacher preparation programs based on the programs' graduation and licensure rates, feedback from recent graduates in the field, and requirements to ensure alignment with P-12 mathematics and science content standards.</p> <p>Assign a higher funding priority to schools of education and recognize and reward arts and science faculty who participate in mathematics and science teacher preparation programs.</p> <p>Establish a statewide articulation agreement that allows prospective teachers to earn associate's degrees in teaching at local community colleges and then transfer smoothly to four-year institutions.</p> <p>Create a broad range of preprofessional activities such as creating student affiliate groups of the National Council of Teachers of Mathematics and the National Science Teachers Association; offering P-12 field experiences and internships; and sponsoring content-specific pedagogical institutes.</p>	<p>Conduct research to establish standards of effectiveness for alternative licensure programs for STEM professionals.</p> <p>Develop/expand and evaluate alternative mathematics and science licensure programs that are based on relevant research and that are designed to attract STEM professionals.</p> <p>Provide scholarships, fellowships, and assistantships for STEM professionals to support their matriculation in graduate programs that lead to a graduate degree in mathematics education or science education.</p> <p>Establish programs to strengthen the pedagogical skills of STEM professionals entering the teaching profession.</p>

Transforming the Recruitment, Retention, and Renewal of Our Nation's Mathematics and Science Teaching Workforce

Higher Education Roles for the Recruitment, Retention and Renewal of Mathematics and Science Teachers (CONTINUED)

RETENTION		
<i>Improve the retention of both new and experienced teachers, and address the causes of teacher dissatisfaction.</i>		
Develop and implement research-based induction programs for all new mathematics and science teachers.	Implement comprehensive policies and programs that address the leading causes of teacher job dissatisfaction, including inadequate compensation, lack of administration support, and professional isolation.	
ROLES FOR HIGHER EDUCATION		
<p>Conduct research and disseminate findings on the effectiveness of comprehensive, research-based induction programs.</p> <p>Establish, evaluate, and report on comprehensive, research-based induction programs.</p>	<p>Work with state government to develop coursework and curricula that satisfy licensure requirements for the position of vice principal for academic affairs.</p> <p>Work with school districts and teachers to design, support, and evaluate school-based professional development programs that address aspects of teacher job dissatisfaction.</p> <p>Provide content-based summer research experiences and other employment opportunities to veteran teachers in order to raise their overall compensation level to that of comparable mathematics and science professionals and to expose them to the broader scientific community.</p>	
RENEWAL		
<i>Ensure that all mathematics and science teachers participate in renewal activities that support their effectiveness in the classroom.</i>		
Provide ongoing, research-based professional development programs, focused on both content and pedagogy, for all mathematics and science teachers.	Revamp teacher license renewal programs to incorporate measures of teacher effectiveness.	Establish comprehensive statewide data collection systems that track student progress, teacher effectiveness, and employment trends of mathematics and science teachers.
ROLES FOR HIGHER EDUCATION		
<p>Work with the state and school districts to develop research-based, comprehensive professional development programs that focus on grade-appropriate mathematics and science and include activities that demonstrate the real-world relevance of the mathematics and science being taught.</p> <p>Research and disseminate information on effective mathematics and science professional development programs.</p> <p>Provide research-based professional development for two- and four-year faculty who are participating in teacher preparation and professional development programs.</p>	<p>Collaborate with states and school districts on research to determine criteria for effective teaching.</p> <p>Work with the state, school districts, and business to identify the knowledge and skills that are required of mathematics and science teachers to prepare students to transition into higher education or the workforce.</p> <p>Develop/expand and evaluate courses for teachers seeking to meet the requirements for license renewal.</p>	<p>Participate in the design and implementation of statewide, longitudinal data collection systems.</p>