



Special thanks to Cathy McKee Olesen and Jim Zaharis, co-chairs, and representatives of the following organizations who serve on Arizona's Bioscience Roadmap Education Committee:

- Arizona Business and Education Coalition** www.abec.org
- Arizona Department of Education** www.ade.state.az.us
- Arizona Initiative in Math & Science Education** vpep.asu.edu/azimase
- Arizona Science Center** www.azscience.org
- BIO5 Institute, University of Arizona** www.bio5.org
- Biodesign Institute at Arizona State University** www.biodesign.asu.edu
- Challenger Space Center** www.azchallenger.org
- Coconino County** www.coconino.az.gov
- College of Science, University of Arizona** www.cos.arizona.edu
- CRESMET, Arizona State University** www.cresmet.asu.edu
- Governor's P-20 Council** www.governor.state.az.us/P20
- Greater Phoenix Leadership** www.greaterphoenixleadership.com
- Maricopa Community Colleges** www.maricopa.edu
- Mesa Public Schools** www.mpsaz.org
- Morrison Institute for Public Policy** www.asu.edu/copp/morrison
- Motorola, Inc.** www.motorola.com
- Northern Arizona University** www.nau.edu
- Office of the Governor** www.governor.state.az.us
- Phoenix Union High School District** www.phxhs.k12.az.us
- Pima Community College** www.pima.edu
- Pinnacle West Capital Corp.** www.pinnaclewest.com
- Rodel Charitable Foundation of Arizona** www.rodelfoundationaz.org
- Salt River Project** www.srpnet.com
- TMC Health Care** www.tmcaz.com
- Translational Genomics Research Institute** www.tgen.org
- Youth and Education Programs, City of Phoenix** www.phoenix.gov/education

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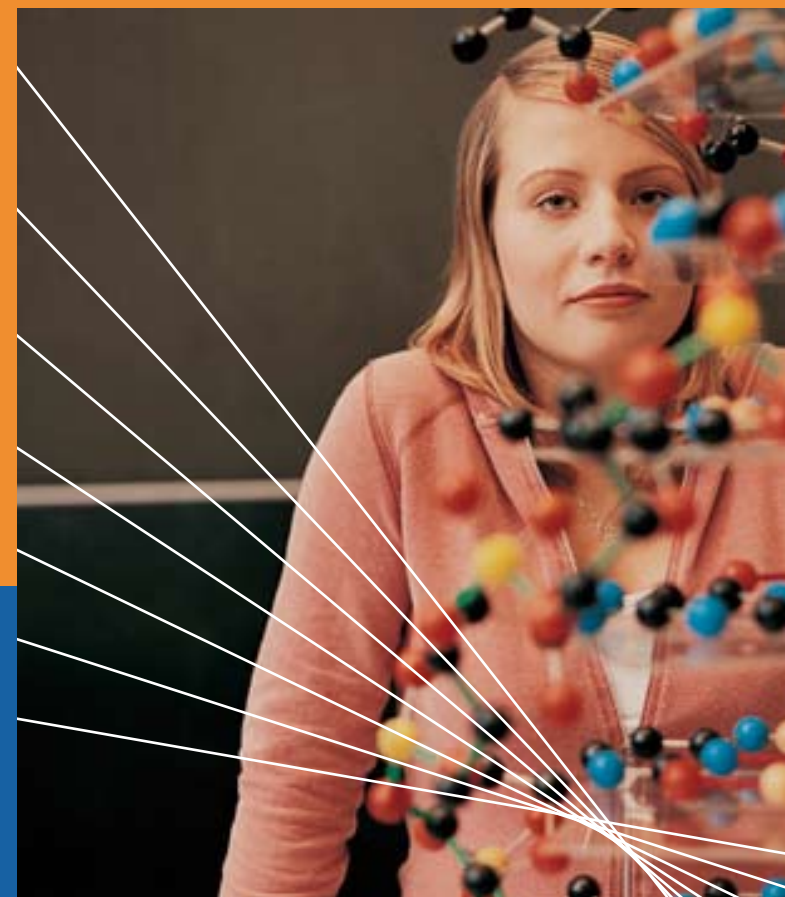
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Building the Bioscience Pipeline

STRATEGIES TO ADVANCE
BIOSCIENCE EDUCATION IN
ARIZONA'S HIGH SCHOOLS



Purpose and Study Approach

Arizona's Bioscience Roadmap Education Committee was formed in the fall of 2006. Its goal: to identify actions to encourage and prepare high school students to explore and pursue bioscience careers. This focus recognizes the important link between high schools and post-secondary institutions and their mutual roles in shaping career preparation. High school requirements also influence math and science preparation in our elementary and middle schools.

To help in developing a vision and goals for high school bioscience education in Arizona, the Education Committee examined the following:



- An environmental scan of academic performance in Arizona and the challenges ahead.
- A situational analysis of bioscience activities in high schools, including a survey of high schools done specifically for this project.
- A benchmarking analysis of best practices and approaches of leading bioscience high school initiatives from across the nation.

The biosciences involve the study and application of knowledge of how humans, animals, and plants function.

Case for Change

Four key themes guide the Education Committee's recommendations:

- Bioscience career opportunities in Arizona are growing, and nearly all jobs in the expanding bioscience sector require post-secondary education.
- Arizona faces key challenges in generating a homegrown biosciences workforce to meet the demand.
- Traditional silos between the academic and technical education worlds are "breaking down." Students are better served by programs that embrace and demonstrate the relevancy of science, technology, engineering, and math (STEM) education with rigorous career-oriented courses and activities.
- Advancing career and technical education (CTE) by emphasizing scientific principles, applied laboratory techniques, and project-focused activities is critical to meet the near-term demand.



The biosciences represent a diverse group of industries and activities that are constantly evolving to incorporate the latest research and scientific discoveries.

Vision for High School Bioscience Education in Arizona

All interested high school students in Arizona will have the opportunity to develop competency in bioscience knowledge and skills through a program of study including scientific principles, applied laboratory techniques, and project-focused activities.

Goals for High School Bioscience Education in Arizona

- Expand the opportunities for bioscience programs that merge CTE offerings with academic fundamentals.
- Advance a more seamless high school and post-secondary education system focused on developing bioscience career opportunities.

Bioscience industries focus on five key areas: drugs and pharmaceuticals; hospitals and healthcare; medical devices and instruments; organic and agricultural chemicals; and research, testing, and laboratories.

- Improve the knowledge, skills, attraction, and retention of bioscience high school teachers in Arizona.

The full report is available online at www.flinn.org



What's bioscience education? Any combination of (1) curricular offerings involving scientific principles and applied lab techniques, (2) experiential learning, and (3) career awareness activities.