



# CRACKING THE CODE ON STEM

A People Strategy  
for Nevada's Economy

## Support the Growth of a Strong STEM Teacher Corps Through Private-Sector- and Philanthropy-Funded Professional Development

### **Problem**

If Nevada hopes to bring high-quality STEM education into its P-12 schools in the coming years, it will first need to prepare incumbent educators to teach these new courses. Fortunately, professional development for STEM educators is increasingly available for teachers at all grade levels. However, the quality of this programming varies widely, ranging from year-long workshop series with in-classroom support to less effective one-off “sit and get” trainings. Identifying which professional development offerings are likely to provide the greatest return on investment will be of critical importance for teachers, schools, and districts. In addition, given budgetary constraints at the state and district levels, paying for effective professional development will continue to pose a sizable challenge.

### **Recommendation**

To strengthen Nevada's STEM teacher corps and facilitate the widespread adoption of STEM education throughout the state, the private sector and philanthropies should support high-quality STEM-focused professional development for incumbent STEM teachers at all grade levels. Businesses have a particular interest in ensuring that all Nevada students have access to high-quality STEM education, given that these students will one day comprise the state's workforce. By working with schools and districts to identify STEM-related professional development needs, conferring with STEM education experts to find best-in-class professional development programming that meets those needs and establish performance metrics for tracking the effectiveness of professional development activities, and providing the financial support required to bring effective professional development opportunities to the region, private-sector firms—working in conjunction with philanthropies—can help make sure that incumbent educators are well-prepared to take action in STEM classrooms.

## Implementation Specifics

At its best, STEM professional development programming helps schools build the capacity needed to implement high-quality STEM education initiatives. Private-sector firms and philanthropies can support this goal by funding and hosting proven STEM professional development opportunities.

The funding entity—which could be a single company or philanthropy or a group of firms and/or philanthropic organizations—should begin by talking with the school or district to find out about its STEM education agenda and existing STEM professional development needs, including the number of teachers implicated in each grade level. With this information in hand, the funding entity could then work with experts in the field of STEM professional development to identify programming best suited to the school or district, determine how and where the professional development would be delivered, establish performance metrics, select participants, and fund and host the training. Teachers would be selected for participation through an application process designed to demonstrate their interest and commitment to continuing their STEM education training.

The funding entity should also establish some form of post-training check-in with participants at regular intervals (e.g., one month, three months, and one year after the program) to determine the extent to which participants have brought what they learned into their classrooms. In addition, the funding entity should collect detail on student outcomes in order to gauge the effectiveness of these new curricular and pedagogical approaches. This information will provide important feedback that can be used to better tailor future professional development opportunities for maximum effect.

Alternatively, the funding entity could partner with a private-sector driven professional development program such as the Amgen Biotech Experience or the Intel Teach initiative. Amgen, Intel, and a handful of other larger firms have chosen to develop and provide professional development trainings, curricula, and materials themselves. For example, Amgen created its own molecular biology curriculum—Amgen Biotech Experience—and provides training for teachers and ongoing classroom support at no cost to the school or district. Given that the cost of materials and equipment often poses a sizable barrier to curriculum adoption, Amgen Biotech Experience also offers a loan program that allows teachers to borrow the necessary equipment for use in their classrooms. Intel has gone a similar route with its Intel Teach initiative, which provides free curricula and computer-based professional development courses that prepare teachers to use blended learning in the STEM classroom.

## Budget Implications

Costs for the provision of effective STEM professional development would vary depending on the number of participants, the duration of the training, and equipment and materials expenses. Opportunities offered by larger private-sector firms, such as the Amgen Biotech Experience and the Intel Teach programs, could be implemented at minimal cost.

## References

“Amgen Biotech Experience.” Available at [www.amgenbiotechexperience.com](http://www.amgenbiotechexperience.com).

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“Professional Development with the Intel Teach Program in the U.S.” Available at [www.intel.com/content/www/us/en/education/k12/intel-teach-us.html](http://www.intel.com/content/www/us/en/education/k12/intel-teach-us.html).

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