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Keeping Innovation at the Center of Learning in K-12 Classrooms

Preparing the workforce of tomorrow with Intel®-based solutions

> **Re-imagined Learning Spaces** are flexible environments that encourage students to become more engaged, collaborative, and focused on skill development.

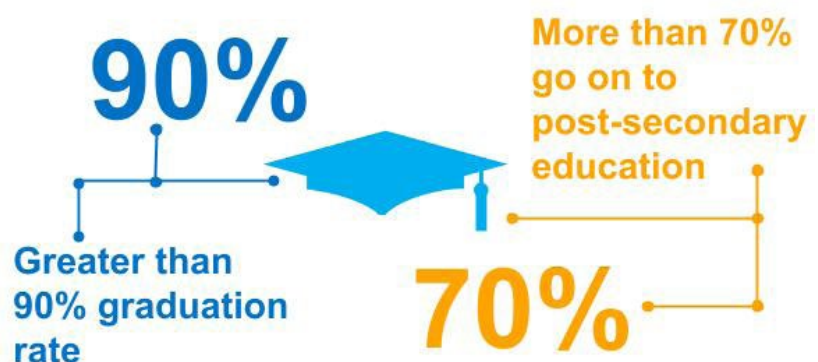### The Case for Innovation Spaces

Innovation focused career technology education spaces utilize the latest technologies and teaching practices to prepare students for the careers of tomorrow. They are much more than the woodshop, agriculture, home economics, and welding classes of yesterday as they seek to respond to the proliferation of modern careers requiring higher levels of education and training. In addition, these future-ready learning processes address 21st century skills with an emphasis on hands-on activities meant to impart knowledge that can be applied to real-world problems. It's this shifting emphasis from abstract concepts to practical and relevant skills that distinguish CTE from learning in a traditional classroom. For example, this type of innovative learning occurs in computer-aided design, coding, making, visual and graphic design, esports, broadcast journalism, and a host of other career tracks.

K-12 students in these learning spaces also learn soft skills that are applicable to a number of different careers, and are often more engaged in school overall due to the perceived relevance of their education. At the same time, they aren't limited to single careers.

Key Technology Requirements

Devices used in innovation spaces typically require:

- Microsoft* Windows* 10 Pro operating system

- Faster processors such as Intel® Core™ i5 and i7 systems

- 16 GB of memory or more

- Ability to support multiple monitors

- Variety of peripheral connectors for 3D printers, scanners, and other external devices

90% Greater than 90% graduation rate

More than 70% go on to post-secondary education

70%

Source: Association for Career and Technical Education: https://www.acteonline.org/about-cte/

Intel®-based Innovation Spaces

The latest technologies powered by Intel® are at the center of modern, innovation-focused learning spaces. Educators and students work on a wide variety of projects including developing simulations and 3D models using powerful CAD software, creating virtual worlds using VR and AR headsets, recording and editing digital video experiences with industry-standard software, printing models of their own designs using 3D printers, CNC machines, and laser cutters, and even coding their own AI chatbots. Very few of these solutions will work on devices designed solely to browse the internet. So, most often, students "check those devices at the door" and use workstations—whether powerful laptops or desktop computers—to design and build their future careers.

Next-Generation CTE

CTE enrollment in the U.S. is up to over 12 million high school students in 2016-17 from 7.6 million in 2007-08, according to the most recent data collected for the Carl D. Perkins Career and Technical Education Act, the main federal law that provides funding for CTE programs. Since 2015, 39 states have passed 125 CTE-related laws and policies. As a result, Montana doubled its funding, while Nevada tripled its appropriations, for example.

Part of this resurgence is due to low college-completion rates. With roughly half of college students completing bachelor's degrees, career technical education is presenting itself as a more attainable alternative to the typical four-year-college route. This development has caused many high school programs to offer college-prep classes in addition to hands-on learning so that academics can be applied to real-world problems.

Where to Get More Information

For more information about Intel® solutions for K-12 education: www.intel.com/education
For more information about innovative learning spaces: www.k12blueprint.com/toolkits/cte
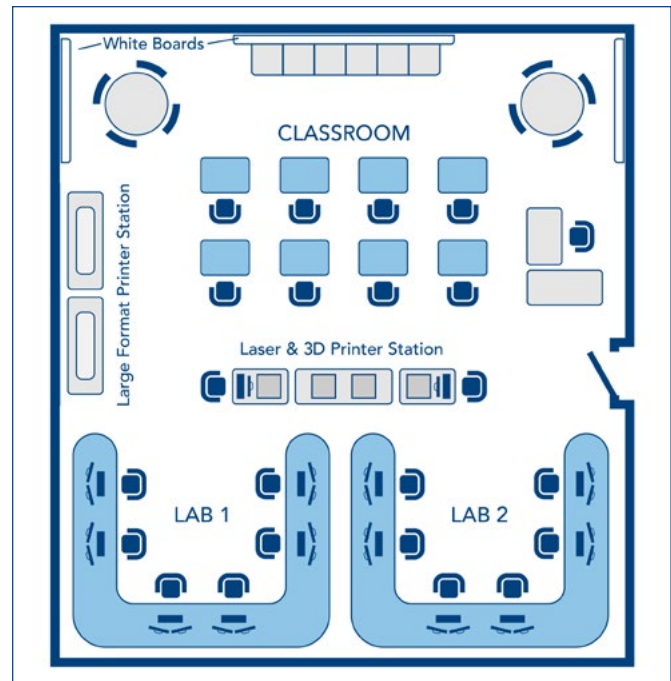
Preparing the Workforce of Tomorrow

Teaching and learning with innovation and the center addresses the needs of high-growth industries and helps close the skills gap. According to the National Association of State Directors of Career Technical Education Consortium, about two-thirds of all new jobs will require an associate's degree or certificate, and nearly all will require real–world skills that can be mastered through CTE.[1] Health care occupations alone are projected to grow 18 percent by 2026, adding more than 2 million new jobs, while 3 million workers are projected to be needed for the nation's infrastructure in the next decade.

This makes it clear that students need practical 21st century skills to secure jobs and to ensure long-term careers. This innovation-first approach provides a third way between academic courses and traditional vocational/technical training: offering the skills, knowledge and training necessary to succeed in 21st century careers.

1 Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century, Harvard University Graduate School of Education, 2011. https://www.gse.harvard.edu/sites/default/files/documents/Pathways_to_Prosperity_Feb2011-1.pdf