

Career and Technical (CTE) Education in Vermont

Presented to VT PK-16 Council
2/12/16

Dr. Heather Bouchey, Deputy Secretary
Jay Ramsey, State Director for CTE







What is CTE?

- Set of courses and experiences that help students gain the **skills, technical knowledge, academic foundation** and real-world **experience** for high-skill, high-demand, high-wage careers
- Key resource for personalized, contextualized learning
- College and career readiness
 - Graduation requirements
 - Transferable skills

Where is CTE?

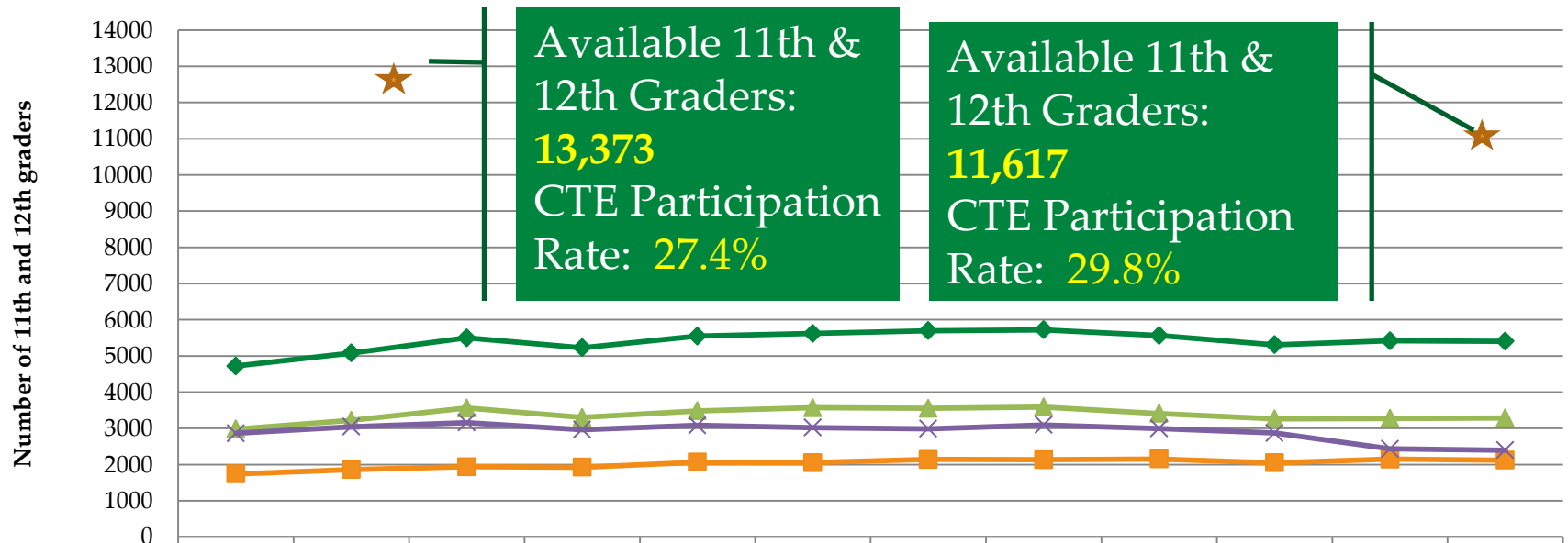


-  Independent Technical Center Districts
-  Satellite location/comprehensive high school
-  Independent Schools hosting technical education programs
-  Full or part-time regional career centers

How many students?

- For the 2014-2015 school year:
 - 5,404 Vermont high school students in grades 11 & 12

State of Vermont 10 Year Secondary CTE Participation Rate Trend



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
◆ Total	4721	5080	5499	5226	5548	5620	5695	5722	5565	5307	5419	5404
■ Female	1740	1861	1939	1925	2065	2052	2142	2134	2154	2048	2148	2120
▲ Male	2981	3219	3560	3301	3483	3568	3553	3588	3411	3259	3271	3284
✕ Avg FTE	2865	3044	3160	2966	3082	3023	2988	3095	2995	2871	2435	2399

Outcomes

Graduation Rate: 99% of CTE students who “concentrated” [completed at least half of the required sequence of instruction] their studies in technical education graduated from high school.

Industry Recognized Credentials: 67% of concentrators left with an industry recognized credential, such as an LNA (Licensed Nurse Assistant), Game of Logging, or Cisco Networking Certification.

Dual Enrollment: 10.78% of CTE students received at least one transcribed course through dual enrollment (2014-15).

College Enrollment: 41% of Vermont students who had participated in CTE were enrolled in post-secondary education.

Career Clusters & Pathways

- Marketing, Sales, and Service**
- ❖ Buying and Merchandising
 - ❖ Distribution and Logistics
 - ❖ e-Marketing
 - ❖ Management and Entrepreneurship
 - ❖ Marketing Communications & Promotion
 - ❖ Marketing Info. Management & Research
 - ❖ Professional Sales & Marketing

- Business, Management, and Administration**
- ❖ Administrative and Information Support
 - ❖ Business Analysis
 - ❖ Business Financial Management and Accounting
 - ❖ Marketing
 - ❖ Human Resources Management

- Hospitality and Tourism**
- ❖ Lodging
 - ❖ Recreations, Amusements, and Attractions
 - ❖ Restaurants and Food and Beverage Services
 - ❖ Travel and Tourism

- Law, Public Safety, and Security**
- ❖ Correction Services
 - ❖ Emergency and Fire Management Services
 - ❖ Law Enforcement Services
 - ❖ Legal Services
 - ❖ Security and Protective

- Government and Public Administration**
- ❖ Revenue and Taxation
 - ❖ Foreign Service
 - ❖ Governance
 - ❖ National Security
 - ❖ Planning
 - ❖ Public Management & Administration
 - ❖ Regulation

Note: High skill, wage and demand pathways are underlined.

- Finance**
- ❖ Banking & Related Services
 - ❖ Business
 - ❖ Financial Management
 - ❖ Financial and Investment Planning
 - ❖ Insurance Services

Business Systems

Public Services

- Education & Training**
- ❖ Administration and Administrative Support
 - ❖ Professional Support Services
 - ❖ Teaching / Training

- Agriculture, Food, and Natural Resources**
- ❖ Animal Systems
 - ❖ Food Products
 - ❖ Agribusiness Systems
 - ❖ Environmental Service Systems
 - ❖ Natural Resources Systems
 - ❖ Plant Systems
 - ❖ Power, Structural, and Technical Systems

Agriculture & Natural Resources

- All Aspects of Industry K & S**
- Business Enterprise
 - Core Business * Entrepreneurship *
 - Customer Focus * Health/Safety *
 - Occupational/Technical
 - Academic * Technical * Meta
 - 21st Century
 - Critical Thinking * Problem Solving
 - *Creativity * Innovation *
 - Teamwork/Collaboration *
 - Communications * Information Literacy *
 - ICT Literacy * Leadership & Responsibility *
 - Adaptability * Initiative/Productivity *
 - Lifelong Learning

Health & Human Services

- Human Services**
- ❖ Consumer Services
 - ❖ Counseling & Mental Health Services
 - ❖ Early Childhood Development & Services
 - ❖ Family & Community Services
 - ❖ Personal Care Services

Arts & Communications

Engineering & Technical Systems

- Arts, A/V Technology, & Communications**
- ❖ Audio/Video Techniques
 - ❖ Journalism and Broadcasting
 - ❖ Performing Arts
 - ❖ Printing Techniques
 - ❖ Telecommunications Techniques
 - ❖ Visual Arts

- Information Technology**
- ❖ Information Support & Services
 - ❖ Interactive Media
 - ❖ Network Systems
 - ❖ Programming & Software Development



- Transportation, Distribution, & Logistics**
- ❖ Facility/Mobile Equipment Maintenance
 - ❖ Health, Safety, & Environmental Management
 - ❖ Logistics Planning & Management Services
 - ❖ Sales & Services
 - ❖ Transportation Operations
 - ❖ Transportation/Systems Infrastructure
 - ❖ Warehousing and Distribution Operations

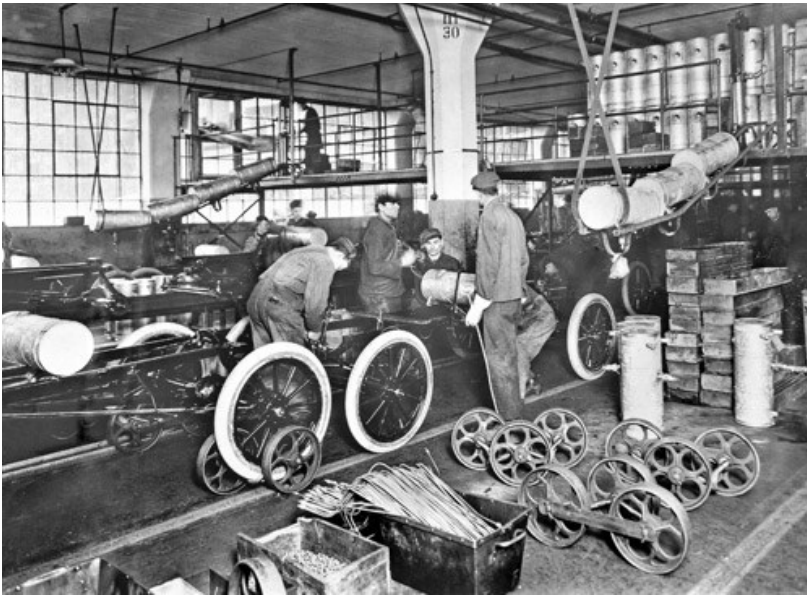
- Science, Technology, Engineering, & Mathematics**
- ❖ Engineering & Technology
 - ❖ Science & Math

- Architecture & Construction**
- ❖ Construction Design & Pre-construction
 - ❖ Maintenance & Operations

- Manufacturing**
- ❖ Production
 - ❖ Production Development
 - ❖ Maintenance, Installation, & Repair
 - ❖ Quality Assurance
 - ❖ Logistics & Inventory Control
 - ❖ Health, Safety, & Environmental

Future of CTE

100 years of progress



How have the skills, knowledge, and abilities needed for this work changed?

100 years of progress

PAST

Vocational Education

For a Few Students

For a Few “Jobs”

6 to 7 “Program Areas”

In-lieu of Academics

High School Focused



PRESENT

Career and Technical Education

For All Students

For All “Careers”

16 Career Clusters with 79 Pathways

Integrated with Academics

High School and College Partnerships



What do the jobs and evolving careers of the *future* require?

- 21st century skills
 - Low-wage, low-skill jobs outsourced
 - Machines have replaced many “rote” tasks that previously were conducted by humans
 - Skills now needed are flexibility, entrepreneurship, innovation and “reinventing” oneself
- Higher levels of postsecondary education, in order to achieve economic comfort and stability

What does the future of **Vermont** require?

Workforce education and training within **six priority sectors** to ensure long-term economic vitality

- Travel/Tourism and Business Systems (Culinary, Hospitality, Accounting, Management, Entrepreneurship)
- Manufacturing/Engineering (STEM)
- Construction/Green Building and Design
- Local Food Systems, Agriculture, Natural Resources;
- Information Technology (Networking, Software Development, Website Design)
- Health/Medical

Career Pathways

Series of interconnected education and training strategies, and support services, that enable individuals to

- secure industry relevant certification
- obtain employment within an occupational area, and
- advance to higher levels of future education and employment in that area.

Therapeutic Services

Other pathways with related occupations:

- Diagnostic Services
- Support Services

Bachelor's Degree (4 Years)

- Acupuncturists
- Athletic Trainers
- Dietitians and Nutritionists
- See Other Careers

Advanced Degree (4+ Years)

- Chiropractors
- Dentists
- Pediatricians
- See Other Careers

1-3 Years

- Dental Hygienists
- Orderlies
- Registered Nurses
- See Other Careers

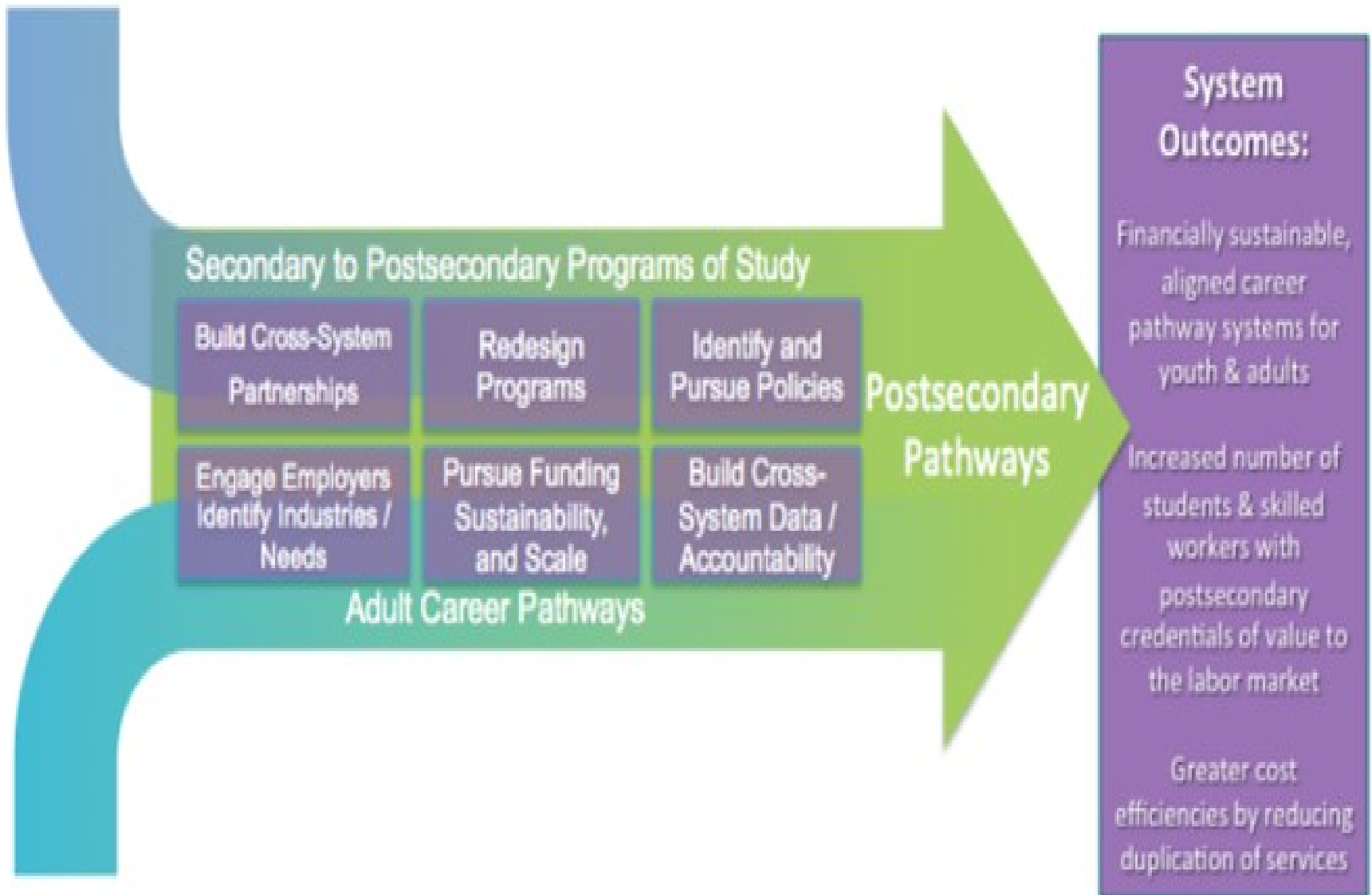
Less Than 1 Year

- Dental Assistants
- Medical Assistants
- Pharmacy Technicians
- See Other Careers

High School Diploma or GED

- Home Health Aides
- Physical Therapist Aides
- Surgical Technologists
- See Other Careers





Proposed AOE Action Plan, 2016-2017

- (1) Set up consortium of CTE educators, gen Ed, higher ed, industry experts, and other stakeholders who will co-design first statewide POS
 - Both secondary and postsecondary stackable credentials
 - Healthcare sector first, followed by manufacturing
- (2) Conduct statewide review of existing CTE programs
 - Will include 1-2 center reviews
 - Serve as launching pad for additional priority sector POS to be designed
- (3) Provide guidance to field on how PLPs can/should be used as part of a **comprehensive career guidance system** for all students
 - Recommends consideration/inclusion of CTE experiences, opportunities, and courses

Proposed AOE Action Plan, 2016-2017

- (4) Develop clear **benchmarks for success** and **monitoring plan**
- Track where we are in the process; record lessons learned, what worked, what didn't, etc.
 - Share and use statewide for subsequent round of priority sector POS
 - Help sustain and replicate this work

Partnering for Success

Help change the conversation

1. CTE is mutual investment for *all* of us, shift to business/industry, community stakeholders, and education system as *partners*
2. Learn more about CTE in order to support renewed *valuing* of CTE experience

Help design the statewide POS

1. Your input and assistance is *critical* for Vermont's success!
2. Support employee time away to serve on state-wide advisory committee
3. Sponsor CTE students as part of a work-based learning experience
4. Encourage colleagues/employees to serve as career mentors, particularly gender non-traditional areas (e.g., girls in STEM)
5. Share information about the career ladders, competencies/skills, opportunities available within your specific industry or sector

Thank you.

Questions?

STEM Equity Pipeline

- Four pilot centers
- Action based research in their regions
- Increase the number of young women in STEM related programs
- Finding: Capture interest in science and technology early



NAPE
National Alliance for
Partnerships in Equity
STEM Equity Pipeline

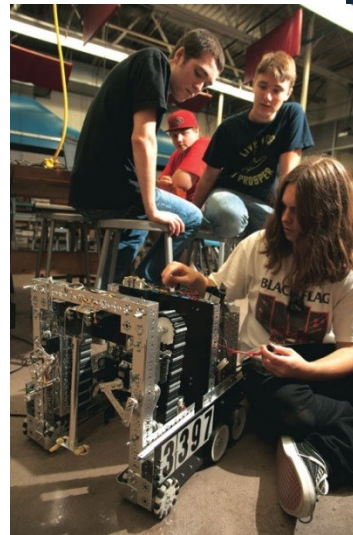
Math-in-CTE

- Research Based
- Math & CTE teacher partners
- Math “enhanced” lessons
- Coaching & feedback process
- Partner with Castleton University



Robotics

- Not a “program” – but integrated as an supported activity within a CTE program
- Centers are partnering with attached high schools
- Goal is to inspire interest and participation in science and technology
- Mentor-based program
- 21st century skill development
- Iterative design skill development (innovation; problem-solving)



Modularization



- Shorter programs
- Treated more like explicit courses
- Allows students to participate who might have opted not to attend
- Fewer students “complete” programs