THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

TO: P-12 Education Committee

FROM: Ken Slentz

SUBJECT: Career and Technical Education and Student Achievement Measures

DATE: February 1, 2012

AUTHORIZATION(S):

SUMMARY

Item for Discussion

By spring 2013, should the Department establish a rigorous and aligned CTE system which allows students who receive a technical endorsement in selected areas AND who earn a minimum of 65 on all required Regents exams to be counted with full credit for accountability purposes? Further, should this same standard be deemed an equivalent Aspirational Performance Measure (APM) for career readiness?

Reason(s) for Consideration

Review of Policy.

Proposed Handling

This question will come before the P-12 Education Committee for discussion at the February 2012 meeting.

Background Information

To ensure that appropriate levels of rigor in process, academic content and assessment are maintained in CTE programs, the Department oversees and/or is engaged in the following activities:

Process

Program approval is the way the State Education Department ensures that local CTE programs meet the rigorous policy and program requirements set forth by the Board of Regents. Prior to submitting an application to the Department, both a district

self-study and an external review committee will have reviewed the program. The applicant's chief administrative officer and board of education president sign the application certifying that the CTE program for which they are seeking approval provides:

- curriculum aligned with state and national learning standards and state and national skill standards (NYS Learning Standards, Common Core Standards National Career Cluster Initiative);
- rigorous curriculum content which is non-duplicative and provides the student with a coherent sequential program of study;
- secondary CTE curriculum aligned with postsecondary education career pathways leading to degrees or credentials;
- faculty which is state certified with the appropriate academic and/or technical certification;
- a technical assessment which meets current industry standards (ex. NATEF, NOCTI);
- postsecondary articulation agreements constructed to provide students with direct benefit, such as college credit or advanced standing;
- work-based learning opportunities for all students; and
- a data reporting infrastructure developed to report student performance in order to evaluate success on Regents examinations, approved alternatives, technical assessments, and placement in higher education, employment or the military.

Content

In 2001, the Regents approved a CTE policy that permitted students to earn up to one unit each of required credit in English, science, and mathematics, and the combined unit of economics and government through integrated CTE courses in approved CTE programs. This option allowed students to pursue career and technical education through coursework that also offered credit for commencement-level academic skills and content. To ensure that instruction in these areas is aligned with the Common Core, a number of activities and strategies have been implemented to prepare Career and Technical Education (CTE) teachers and programs in the delivery of the Common Core Standards. These include:

- Establishing a CTE Technical Assistance Center (CTE TAC) that has in its work plan the capacity to assist schools in expanding their CTE programs, provide field-based technical assistance, facilitate professional development activities and refine CTE data collection practices;
- Providing workshops and targeted school-based technical assistance on CTE aligned Common Core implementation (see attachment A for an example of a Common Core aligned activity);
- Developing a web-based tool to assist programs in alignment to the Common Core with sample lessons known as Next Generation Assessments (NGA) to assist teachers in transitioning to the focus on Common Core standard performance tasks, and
- Participating with SED CTE staff in Network Team Institute training.

These combined efforts have begun the process of fully implementing the Common Core in a major non-tested area in preparation for the 2012-13 school year.

Assessment

The technical skill assessment component of the program approval process is a critical indicator of student success. Program approval applicants select an appropriate nationally-recognized technical assessment based on industry standards to measure students' technical proficiency. The assessment, which must be available to students enrolled in the approved program, consists of three parts: written, student demonstration of skills, and student project. Successful completion of the technical assessment is required for a student to earn a technical endorsement on the high school diploma, but is not required for high school graduation. A number of program assessments lead to industry-recognized certifications (see Attachment B).

Next Steps

Given the success of our approved CTE programs relative to achievement on Regents exams and graduation rates, the Department recommends that we take additional steps to more formally align these outcomes with the Board's Aspirational Performance Measures by:

- Convening an expert advisory panel to review CTE programs and assessments to make recommendations on which CTE diploma endorsements should be considered to meet the APM standard for accountability purposes with recommendations coming at the March 2013 meeting.

- Making a more robust set of data available to educators and researchers by making necessary changes to the student longitudinal data system to properly capture and report CTE data and ensure alignment to the Educational Data Portal (EDP).

- Continuing to explore the expansion of allowable integrated credits.

- Providing periodic progress updates to the Board.

Budget Slopes

Subject:	Grade Level:
Math	9

Primary Common Core State Standards

Functions: Linear, Quadratic, and Exponential Models - Interpret expressions for functions in terms of the situation they model (Math - High School)
5. Interpret the parameters in a linear or exponential function in terms of a context.
Statistics and Probability: Interpreting Categorical and Quantitative Data - Summarize, represent, and interpret data on a single count or measurement variable (Math - High School)
1. Represent data with plots on the real number line (dot plots, histograms, and box plots).
Statistics and Probability: Interpreting Categorical and Quantitative Data - Interpret linear models (Math - High School)
7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

Other Related Common Core State Standards:

Writing - Research to Build and Present Knowledge (ELA - Grades 9-10)
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.
Functions: Linear, Quadratic, and Exponential Models - Construct and compare linear, quadratic, and exponential models and solve problems (Math - High School)
1. Distinguish between situations that can be modeled with linear functions and with exponential functions.
a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

Next Generation Assessment:

An excerpt from the President's budget for the Department of Health and Human Services (HHS) is shown in the table below. This budget shows the National support for some of the mandatory government HHS programs.

Mandatory Programs (Outlays):	**2010**	**2011**	**2012**
Medicare	446,616	489,319	485,804
Medicaid	272,771	276,249	269,068
Temporary Assistance for Needy Families	20,420	19,477	18,049
Foster Care and Adoption Assistance	6,972	6,892	7,236
Children's Health Insurance Program	7,887	9,169	9,981
Child Support Enforcement	4,423	3,619	3,780
Child Care	2,723	2,741	3,477
Social Services Block Grant	2,035	2,011	1,802
Other Mandatory Programs	2,423	10,195	11,595

Source: http://www.hhs.gov/about/FY2012budget/fy2012bib.pdf

a. Create a bar graph/histogram using all of the information in the table. Label the axes, use an appropriate scale, title the graph, and provide a key.

b. Identify a program that can be represented from 2010-2012 by a linear function with a positive slope. Explain how you determined your answer.

c. Identify a program that can be represented from 2010-2012 by a linear function with a negative slope. Explain how you determined your answer.

d. Can the 2010-2012 total budget for mandatory programs be represented by a linear function with positive or negative slope, or neither? Justify your answer with mathematical proof.

Duration:	about 30 minutes
Student Work:	• Graph • Identify positive and negative slopes. • Analysis of total budget.
Criteria for Student Learning:	1. Create a bar graph/histogram that aligns with prompt. 2. Identify and explain a program with a positive slope. 3. Identify and explain a program with a negative slope. 4. Determination and proof of function that represents total budget.
Resources students will be provided or will have to acquire:	

Scoring Guide

Criteria for Student Learning	Percent Weight	Below Basic	Basic	Proficient	Exemplary
Create a bar graph/histogram that aligns with prompt.	40	Graph does not exist or most information in table is missing. Graph is not labeled in any capacity.	Graph includes some information in table. Axes are labeled, scale is appropriate, graph has a title, or a key is not provided.	Graph includes most information in table. Axes are labeled, scale is appropriate, graph has a title, and a key is provided. Graph is easy to read.	Graph includes all information in table. Axes are labeled, scale is appropriate, graph has a title, and a key is provided. Graph is easy to read.
Identify and explain a program with a positive slope.	20	Response indicates a program that does not increase in budget from 2010-2012.	Response indicates program that increases in budget from 2010-2012. Explanation is not provided.	Response indicates program that increases in budget from 2010-2012. Explanation shows general understanding of functions and slope.	Response indicates program that increases in budget from 2010-2012. Explanation shows solid understanding of functions and slope.
Identify and explain a program with a negative slope.	20	Response indicates a program that does not decrease in budget from 2010-2012.	Response indicates program that decreases in budget from 2010-2012. Explanation is not provided.	Response indicates program that decreases in budget from 2010-2012. Explanation shows general understanding of functions and slope.	Response indicates program that decreases in budget from 2010-2012. Explanation shows solid understanding of functions and slope.
Determination	10	Response shows	Response shows	Response shows	Response shows

and proof of function that represents total budget.		no understanding of linear functions and/or slope.	a limited understanding of linear functions and slope. Response shows some mathematical proof, but the logical is difficult to follow.	that the total budget cannot be represented by a linear function with a positive slope or a negative slope since the function increases initially, then decreases.	that the total budget cannot be represented by a linear function with a positive slope or a negative slope since the function increases initially, then decreases. Explanation shows mathematical proof.

Descriptions of Sample Technical Assessments for CTE Students

Aviation

Federal Aviation Administration (FAA) Certification

Students in the two-year Ulster BOCES aviation program complete the classroom and air flight hours required by the Federal Aviation Administration to qualify for the FAA Private Pilot examination. The FAA private pilot examination fulfills two of the three required parts of a technical assessment in a CTE approved program. The FAA private pilot examination consists of a written test (written requirement), an oral test, and a flight test (student performance of skills). Once an FAA inspector has examined the student's proof of experience and deemed it adequate, the student is able to take the online written exam. The oral exam and the flight test are given by an FAA examiner. Aviation students prepare individual career portfolios to complete the third required part of a technical assessment (student project) required in this approved CTE program.

Computer Systems and Networking

Cisco Certified Entry Networking Technician (CCENT)

Students in many of the CTE approved computer systems and networking programs, such as at Tompkins-Seneca-Tioga BOCES, may take Cisco Career Certification Exam in CCENT as the technical assessment for their program. The two-hour online CCENT exam consists of objective questions and simulations and satisfies the written and student performance of technical skills requirements for a technical assessment. Successful completion of the CCENT exam certifies the student as an entry-level networking technician. This is the first level of CISCO certification and leads to eight different career pathways, such as network design and network security, and to 4 additional levels of certification. Networking students at Tompkins-Seneca-Tioga BOCES complete a project developed with input from local business partners as the "student project" part of their technical assessment.

Medical Assisting

National Occupational Competency Testing Institute (NOCTI) Job Ready Assessment - Medical Assisting

NOCTI Job Ready assessments are widely used as the technical assessments for approved CTE programs as CTE administrators statewide select NOCTI Job Ready assessments in over 80 different titles annually. NOCTI Job Ready assessments are designed to ascertain whether a student has the knowledge and skills necessary to perform job duties in a safe and effective manner on his or her first day of work. The Levittown School District has selected the NOCTI Medical Assisting Job Ready assessment for its medical assisting program. Typical of the NOCTI Job Ready assessments, medical assisting requires students to complete a three-hour written exam and a two-hour performance exam. The written component can be administered online, or schools can order it in hardcopy. The performance component is evaluated by trained external evaluators and requires students to demonstrate technical skill competency for six different medical assisting tasks. Students who meet or exceed the cut scores for the written and performance components are issued a NOCTI Job Ready Certificate for Medical Assisting. Levittown students complete a consortium-developed final project to accomplish the third part of their technical assessment.

Industry Certification and Credential Opportunities for CTE Students

Automotive Technology

- Automotive Service Excellence (ASE)
- National Automotive Technicians Education Foundation (NATEF)
- Mobile Electronics Certified Professional (MECP)

Aviation

- Federal Aviation Administration (FAA) Certification

Computer Programming and Web Design

- Internet and Computing Core Certification (IC3)
- Microsoft Office Certifications: Word, Excel, Access, and PowerPoint
- Web Communication: Adobe Dreamweaver Creative Suite 3
- Rich Media Communication
- Adobe Flash Creative Suite 3
- Visual Communication: Adobe Photoshop Creative Suite 3

Computer Systems and Networking

- CompTia A+ Computer Repair Certification
- Cisco Certified Entry Networking Technician (CCENT)
- Cisco Certified Network Administrator (CCNA)

Construction Technology

- National Center for Construction Education and Research (NCCER) Core Certification
- Occupational Safety and Health Administration (OSHA) 10-Hour Safety Course
- Heating Ventilation and Air Conditioning (HVAC) Excellence Certification

Cosmetology

- NYS Temporary Cosmetologist License

Culinary

- ProStart- Level 1 and 2
- ServSafe;

Early Childhood Education

- Child Development Associate (CDA)
- American Red Cross: First Aid, Cardiopulmonary Resuscitation
- Automated External Defibrillator, Adult, Child and Infant Certifications

Heavy Equipment Repair and Operation

- National Center for Construction Education and Research (NCCER) Level One Heavy Equipment Operations
- Test Preparation for Commercial Driver's License, Class B-Obtainable at age 18

Motorsport Fabrication

- National Institute for Metalworking Skills: Machining Level 1 Certification

Nursing Assisting

- New York State Department of Health: Residential Health Care Facility Nurse Aide Certification
- American Red Cross: First Aid, Cardiopulmonary Resuscitation
- Automated External Defibrillator Adult, Child, and Infant Certification

Outdoor Power Equipment Technology

- Engine Service Association
- Outdoor Power Equipment Certified Technician- Two-Stroke Engine and Four-Stroke Engine
- Briggs and Stratton Master Service Technician
- Equipment and Engine Training Council (EETC) Certification

Public Safety and Justice

- New York State Security Guard Certification
- American Red Cross: First Aid, Cardiopulmonary Resuscitation (CPR)
- Automated External Defibrillator (AED): Adult, Child, and Infant Certification
- First Responder Training: Federal Emergency Management Administration (FEMA)
- Office of Homeland Security: Incident Command Systems (ICS 100) and (ICS 200)
- Weapons of Mass Destruction Certifications (WMD160)
- Incident Command Radio Telecommunications Certification
- Basic Traffic Control Certification (Fire Police)
- American Firefighters Trainers Association 1001 Certification
- Occupational Safety and Health Association (OSHA) Personal Protective Equipment and Blood-Borne Pathogens Training Certification