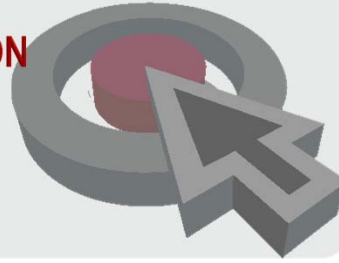


CAREER-TECHNICAL EDUCATION TECHNICAL TESTING SYSTEM (12-3-14)



James Austin
austin.38@osu.edu
614-292-9897

Webxam Support:
webxam@osu.edu
614-292-4988
news.webxam.org
<http://news.webxam.org/item-writing>

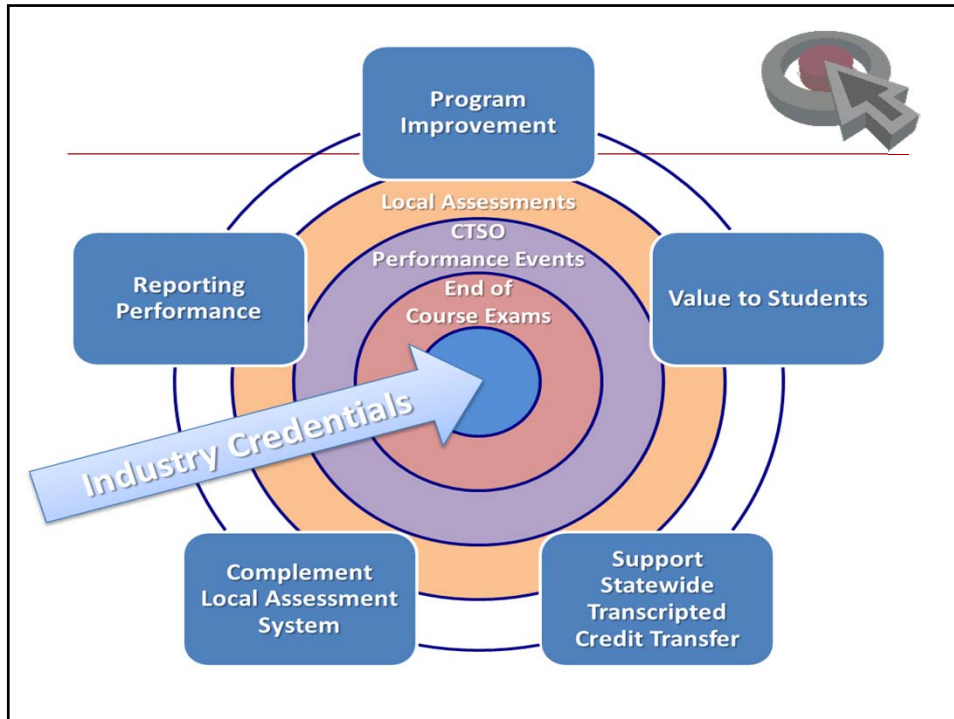
Ohio | Department
of Education



AGENDA



- ◉ Walkthrough: System “pieces and parts”
- ◉ Strategic-Psychometric Updates: WebXam portal
 - Standards / testing: shift from occupation→pathway→course
 - End-of-Course testing: Procedures, Quality Assurance, & Plans
 - Pretesting for Courses: Design, Launch, & Notes
- ◉ Handoff to IT Team: Architect Dan Keck’s posse
 - System overview and demonstrations
- ◉ Your questions.....throughout, although policy questions should be referred to staff at Ohio Department of Education, Office of CTE



I. OHIO CTE TESTING SYSTEM



◉ Testing System Uses

- Data for federal and state performance measures (Technical Skill Attainment = 2S1 indicator; Ohio district report cards)
- Data for ODE-CTE and local school districts to use in program improvement (including planned pre-post testing)
- Complement local systems for assessing student performance
- Build secondary-postsecondary relationships to develop statewide-bilateral transcribed credit transfer from secondary to postsecondary institutions
- Reports that students value to communicate success—digital badges now used with instructors (SME); under study for students

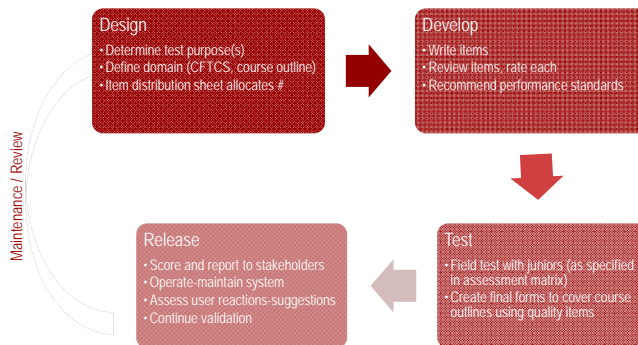
CTE TEST DEVELOPMENT



Where do tests come from? “SME is KEY”

- HS instructors – with PS & BIL input – drive content domain & alignments, develop-review items, & recommend performance standards (plus, teach!!)

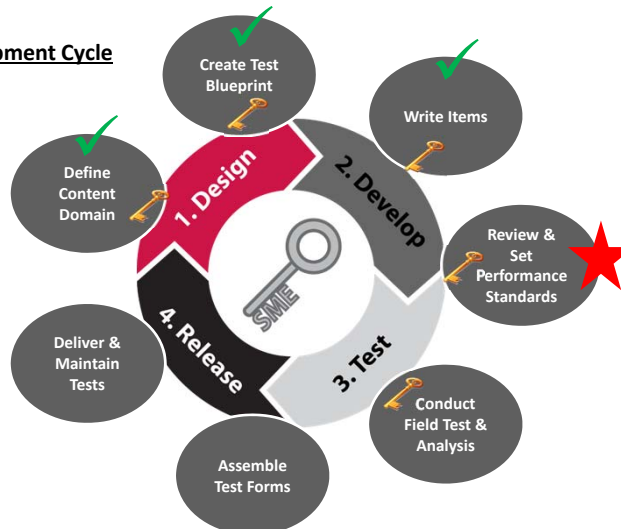
Test Development Cycle



Where do tests come from?

Ohio Subject-Matter Experts (SMEs) are KEY!

Test Development Cycle

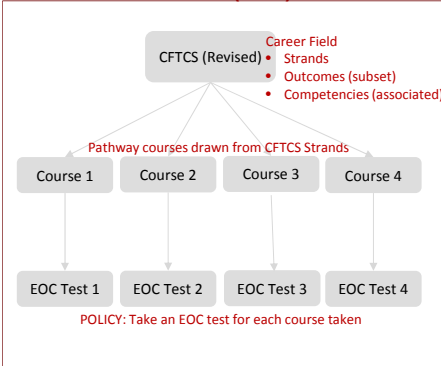


ITEM BANK CREATION-REVIEW



- Tests measure course knowledge
 - Courses outlined by ODE with your input
- Live test from Oct 2015 - May 2016
 - Encourage districts/instructors who need any performance data for juniors to participate (after courses taught)
 - CETE keeps existing tests up for 1 year for transition (seniors), then removes
- WebXam posts 40-item posttest scores in June 2016
 - Analyzes, removes poor items, rescores tests, ships back to districts for EMIS

CTE End-of-Course (EOC) Test Structure



NEW TESTS: PHASE I (2009)



- ◉ Replace occupation-level with pathway-level tests
 - From 2009 through 2012 (Phase 1), 2013-15 in Phase 2
- ◉ Earlier pathway tests (25-30 items, 6-18 “modules”)
 - Two levels of challenge for items (Bloom, Webb levels)
 - C1 = ~ 70%; recall (vocab, tools, facts); Webb DoK Level 1
 - C2 = ~ 30%; application, analysis, evaluation; Webb DoK Level 2
 - Scenarios about entry workplace (~30% of items)
- ◉ Shift to course-based standards-tests: 2013

NEW TESTS: PHASE II (2013)



- ◉ Current EoC tests (40 items, 6-14 courses)
 - Levels of challenge for items (Bloom & Webb levels)
 - C1 = ~ 70%; recall (vocab, tools, facts); Webb DoK Level 1
 - C2 = ~ 30%; application, analysis, evaluation; Webb DoK Level 2
 - Scenarios about entry workplace (~40% of items)
 - Item bank size increased from 60-85-95 per course
- ◉ End-of-Course pre-post forms now offered in selected career fields (Law-Public Safety is complete)

HOW DO NEW TESTS DIFFER?



- ◉ Course-based model: Content-skill standards and tests
 - Career Field (CF) Technical Content Standards revision in cohorts
 - Six CF in 2012-13, five CF in 2013-14, now doing third cohort CF (Hospitality, FCS) – new levels & layouts
 - Wrote items 2013-14, now working on FY15 item writing (Arts-Communication)
 - Field testing closes early (~5-1-15), rescore & post for EMIS
- ◉ Performance standards for test – instructor established
 - Proficient is the traditional mastery point (pass-fail), while Advanced designation recognizes higher performance

COURSE STRUCTURE: SAMPLE 1



Career Field	Health Science	Page 1
Course Name	Course # 6 - Principles of Allied Health	
Description	In this first course, students will apply knowledge and clinical skills necessary to assess, plan, provide, and evaluate care to patients in varied health settings. Students will apply first-aid principles and techniques needed for response to choking, cardiopulmonary resuscitation, and other life-threatening emergencies. Emphasis will be placed on regulatory compliance, patient safety, pathophysiology, and medical interventions. Additionally this course introduces psychomotor skills needed to assist individuals in meeting basic human needs.	

Outcome	2.1. Human Body Form, Function, and Pathophysiology: Discuss the various human body systems, alterations related to the normal aging process, and possible dysfunctions.
Competencies	<p>2.1.1. Describe the physical characteristics, components, and function of blood (e.g., ABO, Rh, blood cells, precursors and respiratory).</p> <p>2.1.2. Describe the cardiovascular system, and trace the path of blood and factors affecting blood flow.</p> <p>2.1.3. Describe how blood pressure is controlled and the factors influencing changes in blood pressure.</p> <p>2.1.4. Describe the function and components of the respiratory system and pulmonary ventilation and factors influencing respiratory rates.</p> <p>2.1.5. Describe nerve tissue and the nervous system, including regions of the brain and their function, the spinal nerves, signal transmission at synapses, and the sympathetic and parasympathetic system.</p>

COURSE STRUCTURE: SAMPLE 2



Career Field	Transportation	Page 8
Course Name	Aviation Airport Management	
Description	Learners will distinguish between controlled and nontowered fields and apply management principles to airport environments. Students will interpret and use weather, Automatic Terminal Information Systems (ATIS), and Traffic Collision Avoidance Systems (TCAS) to control aircraft operations. Students will sequence aircraft approaches and departures with approach control radar. Students will interpret and use airport lighting, navigation principles and avionic communication systems including Very High Frequency (VHF), Ultra-High Frequency (UHF), radio and phraseology.	

Outcome	2.2. Personal Safety: Practice personal safety.
Competencies	<p>2.2.1. Interpret personal safety rights according to the employee Right to Know plan.</p> <p>2.2.2. Describe the risk factors associated with working under the influence of drugs and alcohol and how it increases the risk of accident, lowers productivity, raises insurance costs, and reduces profits.</p> <p>2.2.3. Select, use, maintain, and dispose of Personal Protective Equipment (PPE) appropriate to job tasks, conditions, and materials.</p> <p>2.2.4. Identify workplace risk factors associated with repetitive motion and lifting, operating, and moving heavy objects.</p> <p>2.2.5. Demonstrate appropriate body mechanics in lifting and moving heavy objects.</p>

Outcome	7.8. Airport Environments: Identify airport environments.
Competencies	<p>7.8.1. Identify the different types of airports within the United States.</p> <p>7.8.2. Distinguish between controlled and nontowered airports.</p> <p>7.8.3. Identify features of airports and directional traffic patterns and interpret runway markings.</p>

2014-15 CTE Technical-Testing Project Schedule

Item-Writing Workshops

Fall 2014

Arts and Communication (A-B-C-D-E-F)
Allied Health and Nursing (3 tests)
Engineering Technologies (2 tests)

Winter 2015*

Business and Administrative Services
Finance
Marketing

Spring 2015

Agricultural and Environmental Systems

**now recruiting SMEs for participation*

Testing Windows

NEW Pretesting System

Fall and Winter windows

- August 25 – September 22 (extended)
- January 2 – 21 (2015)
- First year - \$1.00

Field-Test Window

- Closes May 1st, 2015

Live-Test Window

- Closes June 5th, 2015

Keep up to date on news.webexam.org
SME info at news.webexam.org/item-writing

HOW ARE ITEMS CREATED?



- ODE staff builds course outline using strands-outcomes-competencies from CFTCS – this structures EoC tests and offers input opportunities
 - ALL competencies in revised CFTCS [formerly only Essential]
 - Item writers recruited for workshops (2+2 days format; usually 2 WS)
 - Orient-train on process using distance webcast (YouTube)
 - At CETE, reorient, break into teams with facilitator (operator of software tool); create items Days 1-3 with large group review Day 4
 - How to get more items for bank to support pretesting, practice tests?
 - Still ... considering: item writing by instructors with web drop off & QA
 - Still ... considering: collaborating with other states to share items

SAMPLE C2 ITEM: Hypothetical Ag-Math



Your herd of {cattle/poultry/sheep/swine} {Charolais/Angus/Polled Hereford} consists of {# animal} {5/10/15 ; 3/7/11} animals. A daily ration was established in consultation with the county extension agent at {3/5/7 (weight unit)} of {grain/hay/corn (fodder)} per {day/week (time unit)}. You are budgeting for the next year.

Q_A. If grain/hay is priced at 2.25/2.50/3.50 per lb., what would it cost to feed this herd for {one/two/three} {days/weeks/months}?

- \$
- \$\$
- \$\$\$
- \$\$\$\$

Q_B. If you are feeding a composite ration {e.g., grain and hay}, what would the costs be for a {time unit}?

15

HOW IS QA PERFORMED?



- ◉ Quality Assurance best practice – how accomplished?
- ◉ Expert reviews by item writing committee (Day 4)
 - ◉ First, evaluate items by course in item banks (90-95 items) on technical accuracy-correctness, quick tweaks OK (Pass #1)
 - ◉ Second, rate all items and overall bank by course (Pass #2)
 - ◉ Essentiality, Quality, & Proficient-Advanced Performance Standards item-by-item
 - ◉ Finish by rating overall quality of item bank on 7 scales
- ◉ Then, program specialist (consultant) reviews item bank
 - ◉ Actions include re-linking, dropping items, etc.

HOW ARE ITEMS RELEASED?



- ◉ Part 2 of QA is a field test to support item analysis
 - ◉ Using “live beta” model – we post all items in WebXam following Program Specialist review of EoC banks, but end early
 - ◉ NEW field testing memo released October – expect annually in October but after pretesting window closes
 - ◉ Analyze items to ID poor performers (difficulty, discrimination)
 - ◉ Rescore using only good items to report out to ITC-districts (2013-14: ended field test 5-2-14, analyzed, reposted June)
- ◉ EoC test use build up from Year 1-2-3.....(first release through operational use)

EoC TESTS: YEAR 1 RELEASE



- ◉ Could be called field tests, but.....possibly confusing
 - Idea is to try out the items with students
- ◉ October 2014 through May 2015
 - Transportation (Ground, Air pathways)
 - Information Technology (all pathways)
 - Human Services (Personal Care Services – Cosmetology)
 - Bioscience (Single pathway in Ag-Env Systems)

EoC TESTS: YEAR 2 RELEASE



- ◉ October 2014 through May 2015 (testing cycle)
 - Selected operational forms (~38-40) from field test 2013-14
 - Adequate # student test-takers (130+)
 - Some forms require more test-takers to be finalized (continuing)
- ◉ Completed career field: Law-Public Safety
 - Criminal Justice pathway (6 courses)
 - Fire/EMT (1 course for juniors, seniors take licensing exams)

CHANGES 2014-15



- ◉ Districts do not pay for **posttests** (since 2011)
 - Exceptions: Employability, **pretests** (more below)
 - No more paper-pencil tests offered
- ◉ Teaching Professions portfolio assessors now part of WebXam (instead of stand-alone) – rubric ratings
- ◉ Teacher test reviews held at CETE or your sites
- ◉ Forms maintained, released in October for 2014-15

SUMMARY OF WORK & STATUS



Career Field	Pathway(s)	Timing-Status
Construction	<u>MEP (HVAC-Elect-Plumbing)</u> ; <u>Structural (Carpentry-Masonry)</u> ; <u>Design (Drafting, Construction Mgmt, Building-Prop)</u>	Some released, some continuation
Health Sciences	<u>Exercise Science</u> ; <u>Allied Health-Nursing</u> ; <u>Health Information Mgmt</u> ; <u>Medical Bioscience</u>	Some released, some continuation
Info Technology	<u>IM (2014)</u> ; <u>ISS (2014)</u> ; <u>NS (2014)</u> ; <u>PSD (2014)</u>	FY15 Field Test (now)
Law-Public Safety	<u>Criminal Justice</u> ; <u>Firefighter EMT</u>	All complete
Manufacturing-Engineering	<u>Operations (Welding, Precision Machining)</u> <u>Design (Engineering Drafting, Robotics, CIM)</u>	Some released, some continuation
Transportation	<u>Ground (2014)</u> , <u>Air (2014)</u>	FY15 Field Test (now)
Arts-Communication	3 pathways; Underway and nearly complete	Writing 2014-15
Business-Finance-Marketing	1 pathway each; NOW recruiting for item writing (Jan-Feb, 2015)	Writing 2014-15
Other Work as Assigned	New courses across CF/pathways; repairs	TBD

II. PRE-POST TESTING



- ◉ CETE awarded ODE-approved vendor status in 2014
 - Annual reapplication
- ◉ Launched pretests to document student gain
 - Design for forms: 40-item pre & post-test (content balanced)
 - Always need items—Replenishment of item banks
 - Introduce in EoC pathways during FY15, others as CFTCS converted to course structure (~38 as of August 2014)
 - Charge to support PRETEST delivery (\$1.00)
 - Use WebXam ordering tab (left side): will be reviewed in

III. TEACHING PROFESSIONS



- ◉ TP pathway, part of Education-Training Career Field, uses portfolio to evaluate technical skill attainment
 - Tab on left – “Assessors” is used by teachers to select two persons to read and evaluate the portfolio with rubric
 - “Call” a third assessor if overall scores differ >15 (mandatory)
 - In 2014-15, expecting 500-600 students to be assessed
 - System can be used for scoring-storing other rubric-based performances (projects or capstones)

SUMMARY



- ◉ CETE staff
- Follows best practices to develop, deploy, and maintain the Ohio CTE Technical Testing System (OCTETTS)
- Tries to be responsive to input from local districts and collaborators ODE & OBR, consistent with score credibility
- Requests YOUR assistance to complete item writing and review during 2014-15, regular maintenance afterward, and continue cycles
- Plans strategically – pretest, performance, data-driven decisions
- ◉ So, if you want to be at the table, contact CETE recruiters to express interest (or ODE program specialists in A-C, Business-Finance-Mktg)
 - moore.179@osu.edu or moore.1149@osu.edu [<http://news.webxam.org/item-writing>]