



June Regional Professional Development Session: Unpacking Standards for CTE Teachers

Rachel Allen
Career Cluster Consultant

Do Now

Welcome to the workshop!

Find your seat by looking for the table tent with your name.

While we are waiting to begin, please fill out the
“Get to Know You” sheet found in your seat.

We will start promptly at 9:00 a.m.



June Regional Professional Development Session: Unpacking Standards for CTE Teachers

Rachel Allen
Career Cluster Consultant
Rachel.Allen@tn.gov
(615) 532-2835

www.tn.gov/education/cte
CTE.Questions@tn.gov



What's Happening Today

My commitment to you:

- I will keep on schedule and keep us focused on our objectives.
- I will model classroom techniques and literacy practices.
- If I cannot answer a question for you today, I will find the answer and get back to you.
- You will walk away this afternoon with tools to use in your classroom.

Expectations:

- Trust we are all here for the same reason: Our Students!
- Follow the norms and stay actively engaged.
- Address questions as they come up.

Objectives

By the end of training today, each of you will be able to:

- 1. Understand the instructional expectations of the standards, including:**
 - Alignment to Tennessee Standards for Literacy in Technical Subjects
 - The knowledge and skills expected in each standard
 - Connections to general education course standards
- 2. Develop initial resources for use in your classroom to implement the standards, including:**
 - Instructional strategies that promote research
 - Authentic writing prompts
- 3. Know where to find resources, tools, and support for implementing the standards.**
- 4. Have access to Department of Education personnel to get your specific questions answered.**

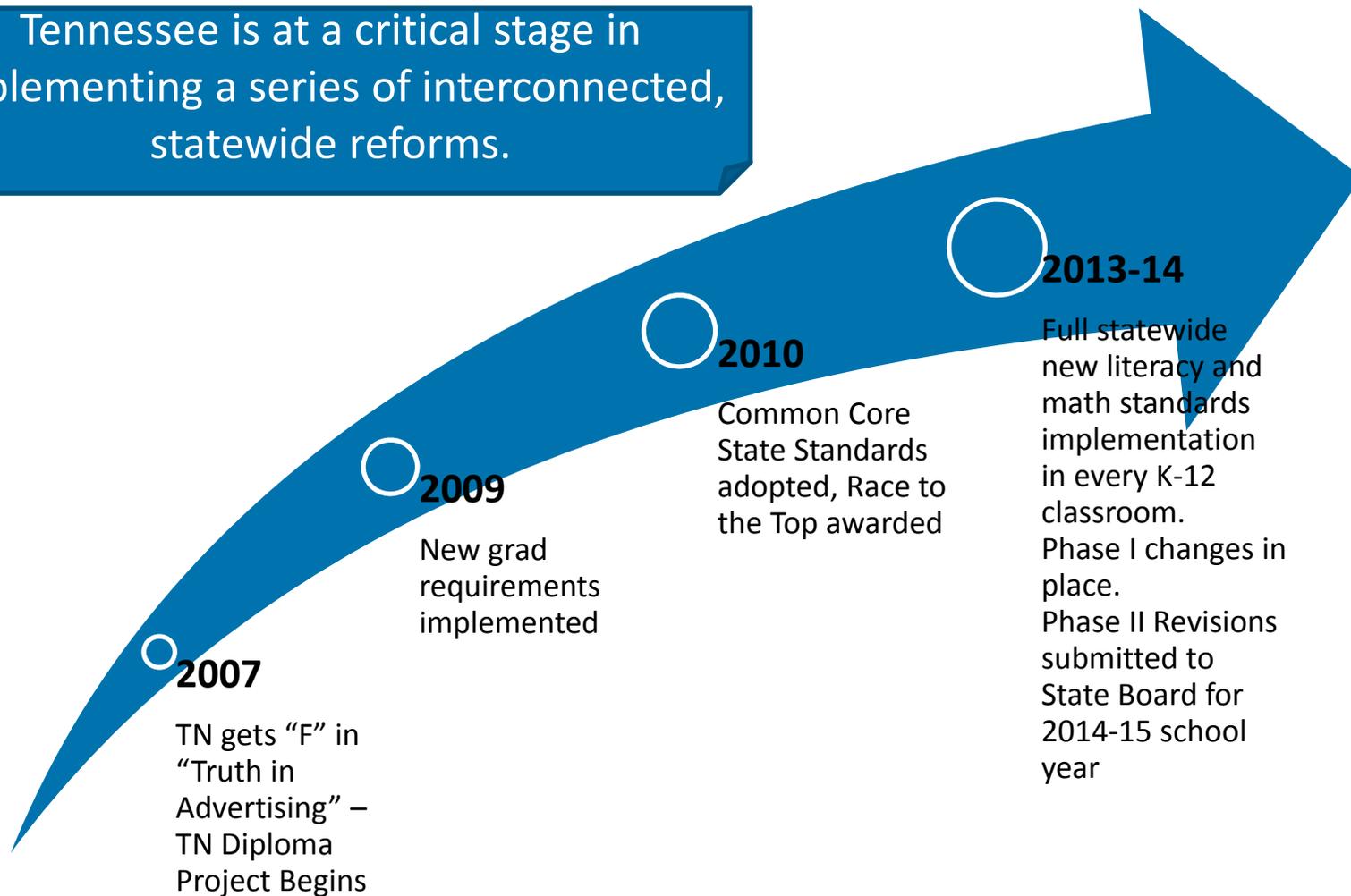
Agenda

Time	Activities
9 – 9:10	Welcome and Introductions
9:10 – 9:40	Setting the Context: Goals of CTE Programs of Study
9:40 – 10:00	The Look & Feel of the New Standards
10:00 – 11:15	Breaking Down Standards into Knowledge and Skills*
11:15 – 12:45	Lunch (on your own) <i>Optional brown-bag work session and Q&A tables</i>
12:45 – 1:30	Breaking Down Standards into Knowledge and Skills* (continued)
1:30 – 2:50	Engaging Research in Your Content*
2:50 – 4:10	Engaging Writing in Your Content*
4:10 – 4:30	Bringing it all Together

* Participant work time, take breaks as needed

Putting it in Context

Tennessee is at a critical stage in implementing a series of interconnected, statewide reforms.



In Tennessee...

By educational attainment, **55-65 percent** of current/future job openings **will require** some level of **postsecondary** education.

Presently

- **42nd** nationally in terms of working adults with at least a two-year degree.
- **Less than 60 percent** of high school graduates in the state go on to postsecondary education.
- Without additional strategies in place, **only 39 percent** of Tennesseans will have a postsecondary credential by 2025.

Source <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/tennessee.pdf>

Our Goal for Our Students

- Governor Haslam has challenged our state with a critical new mission: the **Drive to 55** – the Drive to get 55 percent of Tennesseans equipped with a college degree or certificate by the year 2025.
- It's not just a mission for higher education, but a mission for Tennessee's future workforce and economic development.
- As secondary educators, this changes our goal for our students from **high school graduation** to **postsecondary success**.



Our Goal for Our Students

What do our students need to be successful?

They need to be:

- College and career ready – meet student achievement benchmarks
- Career aware – have an understanding of potential opportunities and the knowledge and skills to be successful in them

Our schools and courses need to be providing:

- Strong education in math, literacy, and technical content
- Seamless pathways for transition from secondary to postsecondary



Setting the Context: Building Pathways for Students



Architecture & Construction

Program of Study	Level 1	Level 2	Level 3	Level 4
Residential & Commercial Construction	Fundamentals of Construction (6073)	Residential & Commercial Construction I	Residential & Commercial Construction II ¹	Construction Practicum
Structural Systems	Fundamentals of Construction (6073)	Structural Systems I	Structural Systems II ¹	Construction Practicum
Mechanical, Electrical, & Plumbing (MEP) Systems	Fundamentals of Construction (6073)	MEP Systems	Electrical Systems (6075) -and/or- HVAC (6077) -and/or- Plumbing Systems (6082)	Construction Practicum
Architectural & Engineering Design	Architectural & Engineering Design I (6037)	Architectural & Engineering Design II (6039)	Architectural & Engineering Design III ¹ (5927)	Engineering Practicum (6141) -or- AP Calculus (3127, 3139, or 3128) -or- AP Physics (3238, 3239, 3234, or 3240)
Interior Design	Foundations of Interior Design (6014)	Residential Interior Design (6006)	Commercial Interior Design (6122)	Advanced Interior Design (6121)

¹ May be taught for 1 or 2 credits.

Setting the Context: Standards Revision Results

Architecture & Construction Courses Approved on Final Reading:

- Fundamentals of Construction
- Residential & Commercial Construction I
- Residential & Commercial Construction II
- Structural Systems I
- Structural Systems II
- Construction Practicum
- Architectural & Engineering Design I
- Architectural & Engineering Design II
- Architectural & Engineering Design II
- Mechanical, Electrical, & Plumbing (MEP) Systems
- Electrical Systems
- Plumbing Systems
- HVAC

Arts, A/V Technology & Communications

Program of Study	Level 1	Level 2	Level 3	Level 4
Digital Arts & Design	Digital Arts & Design I (6084)	Digital Arts & Design II (6086)	Digital Arts & Design III (6087)	Applied Arts Practicum -and/or- AP Studio Art: 2-D Design (3545)
Audio/Visual Production	A/V Production I (6049)	A/V Production II (6050)	A/V Production III (6083)	Applied Arts Practicum -and/or- AP English Language and Composition (3013)
Fashion Design	Visual Art I (3501)	Foundations of Fashion Design (6120)	Fashion Design (6008)	Advanced Fashion Design (6009)

Available courses for elective credit in this cluster: *Journalism (3008), Work-Based Learning: Career Practicum (6105)*

Transportation, Distribution & Logistics

Program of Study	Level 1	Level 2	Level 3	Level 4
Automotive Maintenance and Light Repair	Maintenance and Light Repair I (5879)	Maintenance and Light Repair II (5880)	Maintenance and Light Repair III (5881)	Maintenance and Light Repair IV (5882)
Automotive Collision Repair	Introduction to Collision Repair	Collision Repair: Non-Structural ¹ (6062) -or- Collision Repair: Painting & Refinishing ¹ (6063)	Collision Repair: Non-Structural ¹ (6062) -or- Collision Repair: Painting & Refinishing ¹ (6063)	Collision Repair: Non-Structural ¹ (6062) -or- Collision Repair: Painting & Refinishing ¹ (6063) -or- Collision Repair: Damage Analysis, Estimating, & Customer Service (6149)
Aviation Flight	Introduction to Aerospace (6068)	Aviation I: Principles of Flight (6070)	Aviation II: Advanced Flight (6148)	
Aviation Maintenance	Introduction to Aerospace (6068)	Aviation Maintenance I (6060)	Aviation Maintenance II (6061)	
Distribution and Logistics	Foundations of Transportation, Distribution, and Logistics (6069)	Distribution and Logistics I (6072)	Distribution and Logistics II: Management (6024)	
Diesel Technology	Transportation Core (6071)	Diesel: Preventative Maintenance (6067)	Diesel: Electrical/Electronics (6065)	Diesel: Engine (6066)
2-4 Cycle Engines	Transportation Core (6071)	2-4 Cycle Engine I (6025)	2-4 Cycle Engine II (6026)	2-4 Cycle Engine III (6027)

¹ May be taught for up to 3 credits. Implementation options vary; contact the career cluster consultant for more information.

Setting the Context: Standards Revision Results

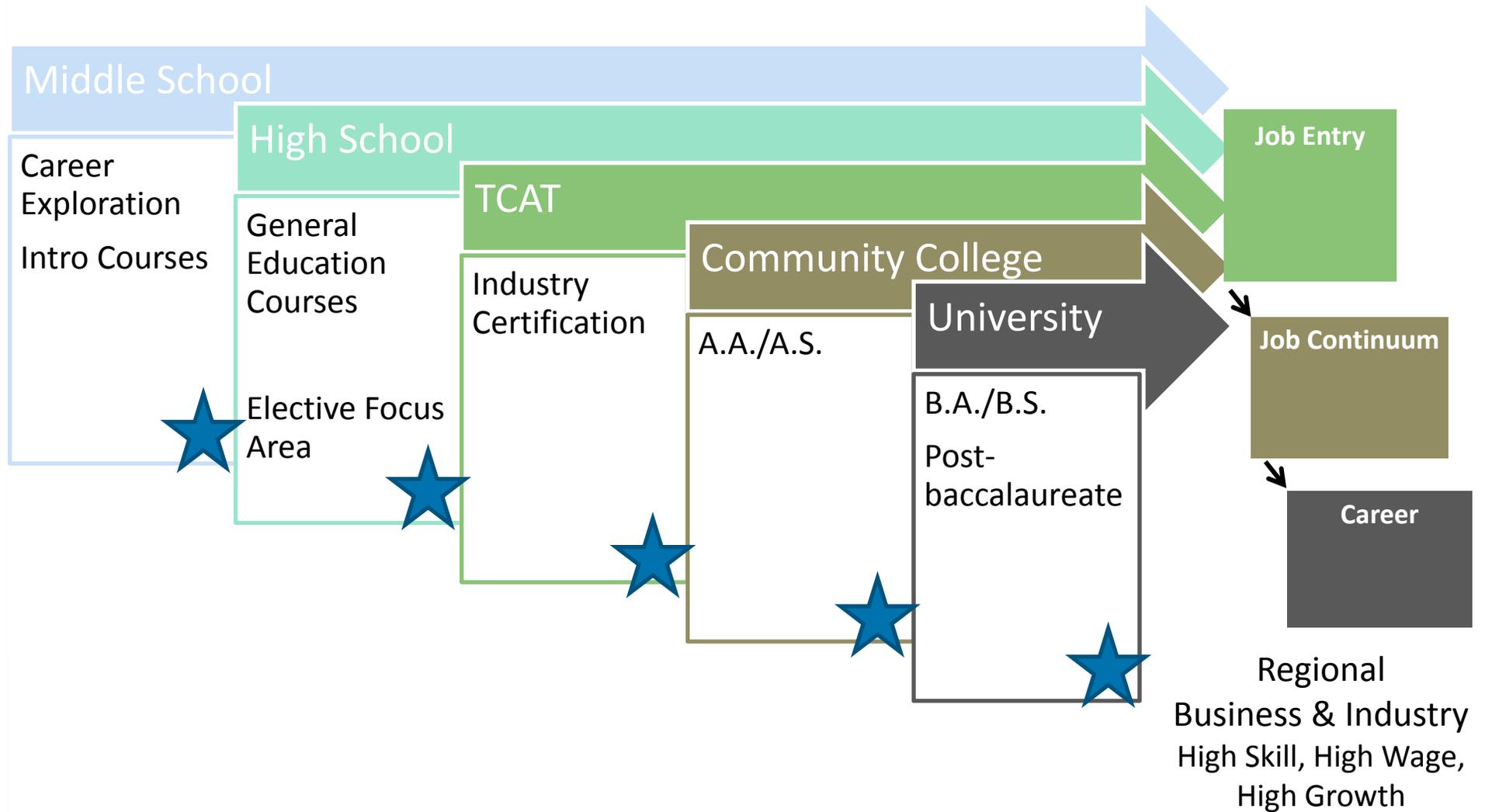
Arts, A/V Technology & Communication Courses Approved on Final Reading:

- A/V Production I
- A/V Production II
- A/V Production III
- Digital Arts & Design I
- Digital Arts & Design II
- Digital Arts & Design III
- Applied Arts Practicum

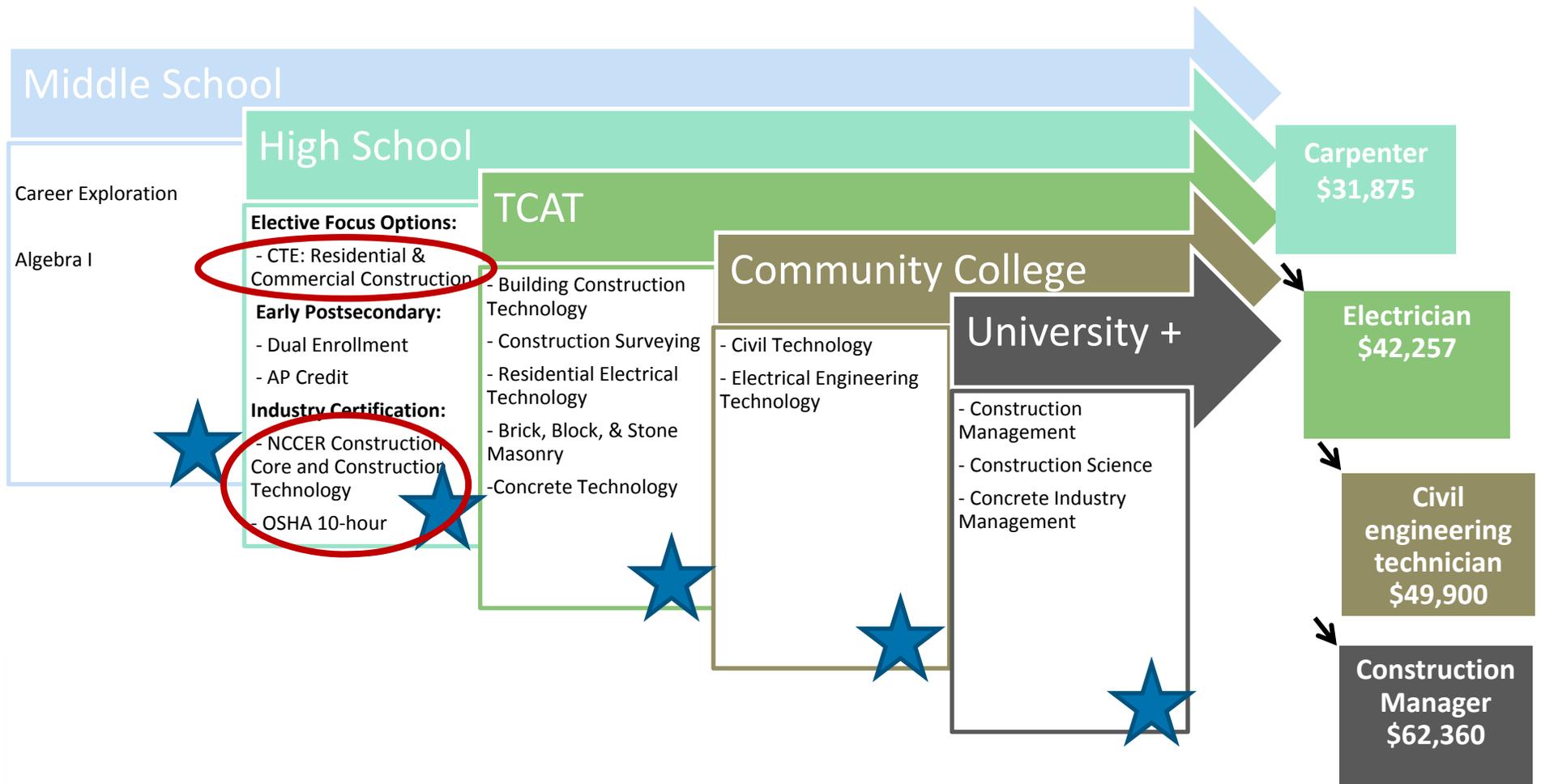
Transportation, Distribution & Logistics Courses Approved on Final Reading:

- Introduction to Collision Repair
- Collision Repair: Non-Structural
- Collision Repair: Painting & Refinishing

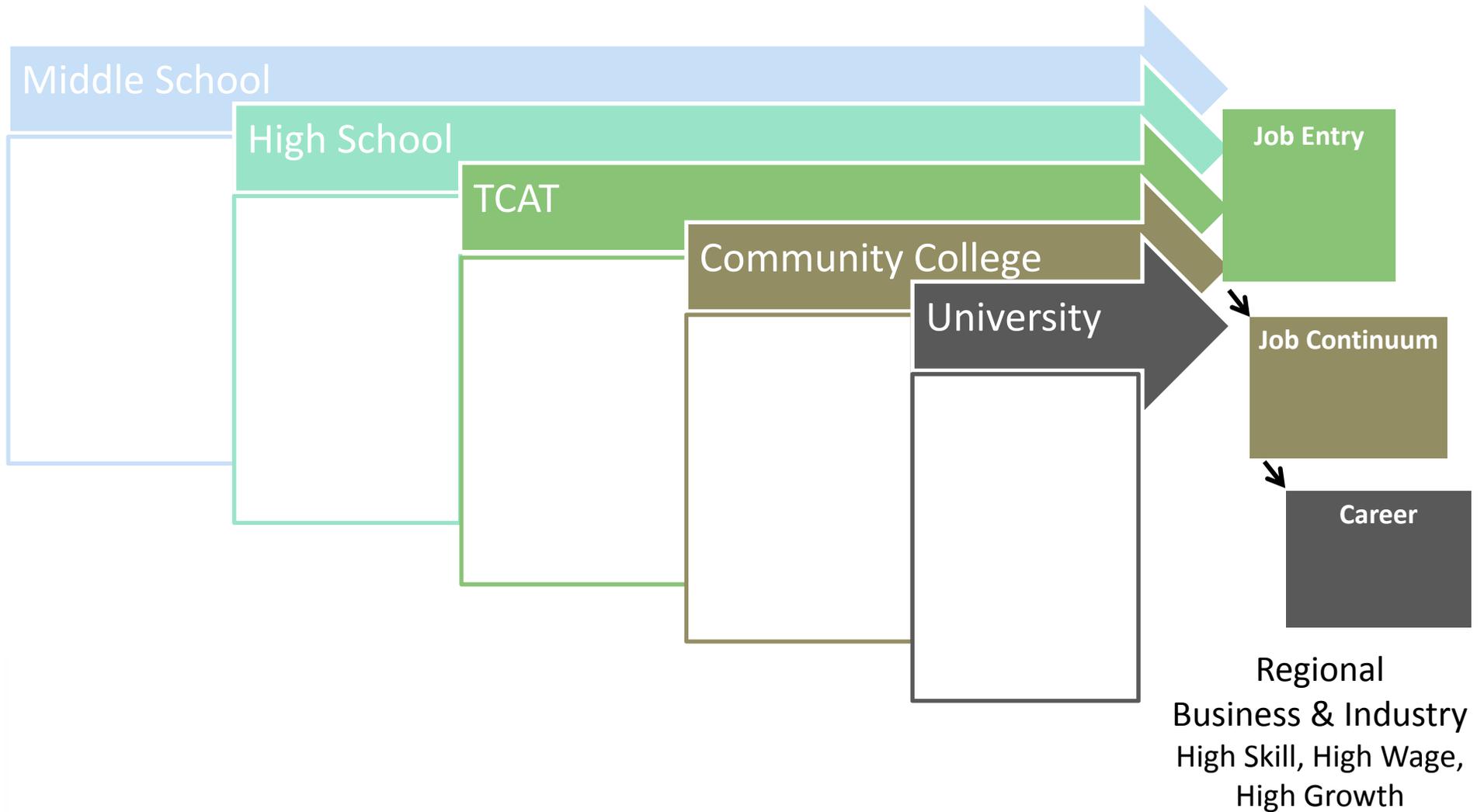
What Does a Pathway Look Like?



What Does a Pathway Look Like?



What Does a Pathway Look Like?



Discuss

- What do the pathways look like in your career clusters? Discuss with your table partners how we should conceptualize student progression through your programs.

Setting the Context: Building Pathways for Students



The Look and Feel of New Standards

Features of the course description documents and standards that will help you in your classroom.



Look and Feel of New Standards

The new standards are best thought of as a framework for student learning and a roadmap for you to design quality lessons at a pace appropriate for the learning context of your classroom.

They outline what students should know and do upon completion of the course in order to achieve proficiency in the subject matter...

...and be sufficiently prepared to pursue all the options available to them when they graduate from their chosen POS: postsecondary, career entry, advanced training, industry certification, and more.

Course Description Documents: Overview



TENNESSEE DEPARTMENT OF
EDUCATION
FIRST TO THE TOP

Fundamentals of Construction

Primary Career Cluster:	Architecture & Construction
Consultant:	Rachel Allen, (615) 532-2835, Rachel.Allen@tn.gov
Course Code(s):	073
Prerequisite(s):	None
Credit:	
Grade Level:	
Graduation Requirements:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other Architecture & Construction courses.
Programs of Study and Sequence:	This is the first course in the Residential & Commercial Construction, Structural Systems, and Mechanical, Electrical, & Plumbing Systems programs of study.
Necessary Equipment:	Refer to the Teacher Resources page.
Aligned Student Organization(s):	SkillsUSA: http://site1.tnskillsusa.com/ Brandon Hudson, (615) 532-2804, Brandon.Hudson@tn.gov
Coordinating Work-Based Learning:	Teachers who hold an active work-based learning (WBL) Certificate issued by the Tennessee Department of Education may offer appropriate student placement. To learn more, please visit http://www.tn.gov/education/cte/work_based_learning.shtml .
Available Student Industry Certifications:	CCCR Core Curriculum
Dual Credit or Dual Enrollment Opportunities:	There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s):	01, 502, 522, 523, 524, 527, 532, 553, 554, 555, 556, 567, 575, 580, 64, 585, 592, 598
Required Teacher Certifications/Training:	None
Teacher Resources:	http://www.tn.gov/education/cte/ArchitectureConstruction.shtml

Course Description
Fundamentals of Construction is a foundational course in the Architecture & Construction cluster covering essential knowledge, skills, and concepts required for careers in construction. Upon completion of this course, proficient students will be able to describe various construction fields and outline the

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steps necessary to advance in specific construction careers. Students will be able to employ tools safely and interpret construction drawings to complete projects demonstrating proper measurement and application of mathematical concepts. Standards in this course also include an overview of the construction industry and an introduction to building systems and materials. Students will begin compiling artifacts for inclusion in their portfolios, which they will carry with them throughout the full sequence of courses in their selected program of study. Standards in this course are aligned with Tennessee State Standards for English Language Arts & Literacy in Technical Subjects, Tennessee State Standards in Mathematics, and the National Center for Construction Education and Research (NCCER) Curriculum.*

Program of Study Application
This course is a foundational course in the Residential & Commercial Construction, Structural Systems, and Mechanical, Electrical, & Plumbing Systems programs of study. For more information on the benefits and requirements of implementing these programs in full, please visit the Architecture & Construction website at <http://www.tn.gov/education/cte/ArchitectureConstruction.shtml>.

Course Standards

Safety

- 1) Identify safety hazards on a jobsite and demonstrate practices for safe working conditions. Accurately read, interpret, and demonstrate adherence to safety rules, including but not limited to rules pertaining to electrical safety, Occupational Safety and Health Administration (OSHA) guidelines, and state and national code requirements. Be able to distinguish between the rules and explain why certain rules apply. (TN Reading 3, 4, 6)
- 2) Define and demonstrate adherence to industry-standard practices regarding general machine safety, tool safety, equipment safety, electrical safety, and fire safety to protect all personnel and equipment. For example, when operating tools and equipment, regularly inspect and carefully employ the appropriate personal protective equipment (PPE), as recommended by Occupational Safety & Health Administration (OSHA) regulations. Incorporate safety procedures when operating tools and equipment, such as hand and power tools, ladders, scaffolding, and lifting equipment. Complete safety test with 100 percent accuracy. (TN Reading 3, 4)
- 3) Follow procedures to work safely around materials. Adhere to responsibilities for employees in material safety as outlined by the Hazard Communication Standard (HazCom), such as locating and interpreting material safety data sheets (MSDS). Demonstrate safe procedures to move materials by planning the movement, properly lifting, stacking, and storing materials, and selecting proper materials-handling equipment. (TN Reading 3, 4)

History of Architecture & Construction

- 4) Investigate the evolution of architecture and construction across a variety of civilizations throughout history. Identify major architectural innovations, such as technological advances in materials or construction processes. Create an annotated timeline or visual graphic illustrating significant time periods in the development of construction. (TN Reading 2, 4, 7; TN Writing 2, 9)

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Course Description Documents: Look and Feel

Existing: Carpentry I

- 4.0** Students will identify and select typical building materials, fasteners, and adhesives.
- 4.4 Identify the safety precautions associated with building materials.
- 4.5 Describe the proper method of storing and handling building materials.
- 4.8 Describe the fasteners, anchors, and adhesives used in construction work and explain their uses.

Revised: Fundamentals of Construction

- 16** Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by creating a visual display outlining the properties and uses of each type. Demonstrate the ability to accurately select and install the appropriate fastener in a variety of situations. (TN Reading 2, 3, 4, 7; TN Writing 2)

Course Description Documents: Overview

Course Description Document Read-Through

Take 5 minutes to skim through a full course description document for a course in your folder. Get out a pen and take notes using the following conventions:

! I am really excited about this.

? I have a question about this.

⚡ This will be a challenge standard for me.

* This will be important for me.



Knowledge and Skills

How to Unpack a Standard

Rachel Allen

Career Cluster Consultant

What's Happening Today

Part One of Three-Part Series

Please take out your *Knowledge and Skills* worksheets.

- **“Knowledge and Skills: Unpacking Course Standards”** is part one of a three-part series developed to assist CTE teachers in preparing for implementation of the CTE course standards for the 2015-16 school year.
- You will walk away this afternoon with tools to use in your classroom.

Objective for this Session

1. Understand the instructional expectations of the new standards, including:

- Alignment to Tennessee State Standards for Literacy in Technical Subjects
- The knowledge and skills expected in each standard
- Connections to general education course standards

Why Unpack a Standard?

- Unpacking a standard into knowledge and skills allows for a **sequenced approach to instruction** that is grounded in real world application.
- Once teachers have broken down the knowledge and skills inherent in their standards, they can start to **group standards with like content** to conceptually **deepen student understanding**.

Process for Unpacking a Standard

The first step in translating CTE course standards into relevant, engaging and student outcome-focused lessons involves a careful reading of the standards to ensure clarity and an understanding of how the parts fit together.

Process we'll be using today:

1. Identify and highlight nouns and verbs in the standard
 - Determine the “knowledge” and “skills” students need to be proficient
2. Reference aligned Tennessee State Standards for additional detail
 - Enhance K&S with embedded Tennessee State Standards expectations for students

Process for Unpacking a Standard

Process can be started by simply **underlining or highlighting the nouns and verbs within the standard**. The nouns are the “what” and the verbs are the “how.”



Knowledge

- Nouns within the standards
- What a student should know



Skills

- Verbs within the standards
- What a student should be able to do

Process for Unpacking a Standard: Knowledge

Step 1: Highlight/Underline the **NOUNS** to identify the “knowledge” components.

Example: Fundamentals of Construction

Standard 16

Distinguish between the various types of **fasteners** commonly used in construction, such as **nails**, **screws**, and **bolts**, by creating a visual display outlining the **properties** and **uses** of each type. Demonstrate the ability to accurately select and install the **appropriate fastener** in a variety of **situations**. (TN Reading 2, 3, 4, 7; TN Writing 2)

Process for Unpacking a Standard: Skills

Step 1 continued: Highlight/ circle the **VERBS** to identify the “skills” components.

Example: Fundamentals of Construction

Standard 16

Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by **creating** a visual display **outlining** the properties and uses of each type. **Demonstrate** the ability to accurately **select** and **install** the appropriate fastener in a variety of situations. (TN Reading 2, 3, 4, 7; TN Writing 2)

Process for Unpacking a Standard: Skills

Step 1 continued: Be careful! Sometimes, you need to search for descriptive phrases to really know what the standard is looking for.

Example: Fundamentals of Construction

Standard 16

Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by **creating** a visual display outlining the properties and uses of each type. **Demonstrate** the ability to accurately **select** and **install** the appropriate fastener in a variety of situations. (TN Reading 2, 3, 4, 7; TN Writing 2)

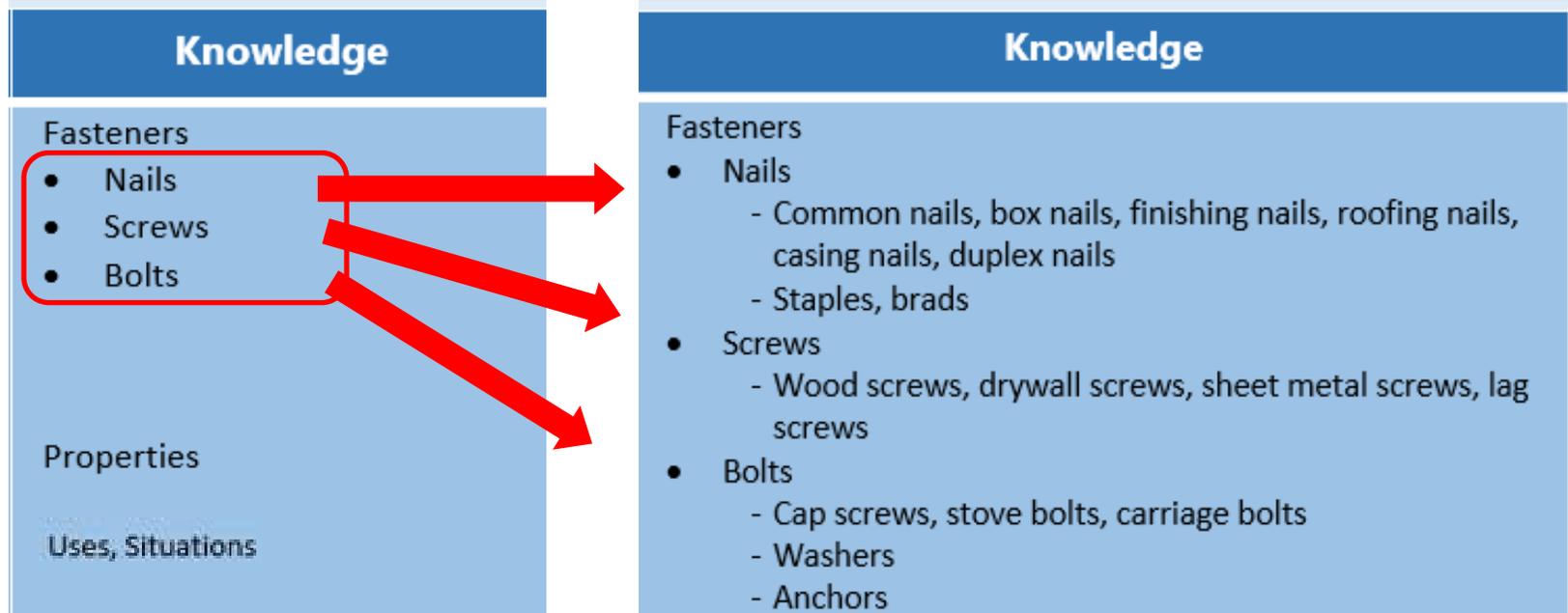
Process for Unpacking a Standard: Add to Chart

Step 1 continued: Once the knowledge and skills are identified in the standard, the teacher can place these into a knowledge and skills chart.

Standard	Knowledge	Skills
<p>Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by creating a visual display outlining the properties and uses of each type. Demonstrate the ability to accurately select and install the appropriate fastener in a variety of situations. (TN Reading 2, 3, 4, 7; TN Writing 2)</p>	<p>Fasteners</p> <ul style="list-style-type: none"> • Nails • Screws • Bolts <p>Properties</p> <p>Uses, Situations</p>	<p>Distinguish</p> <p>Create</p> <p>Outline</p> <p>Demonstrate</p> <p>Select</p> <p>Install</p>

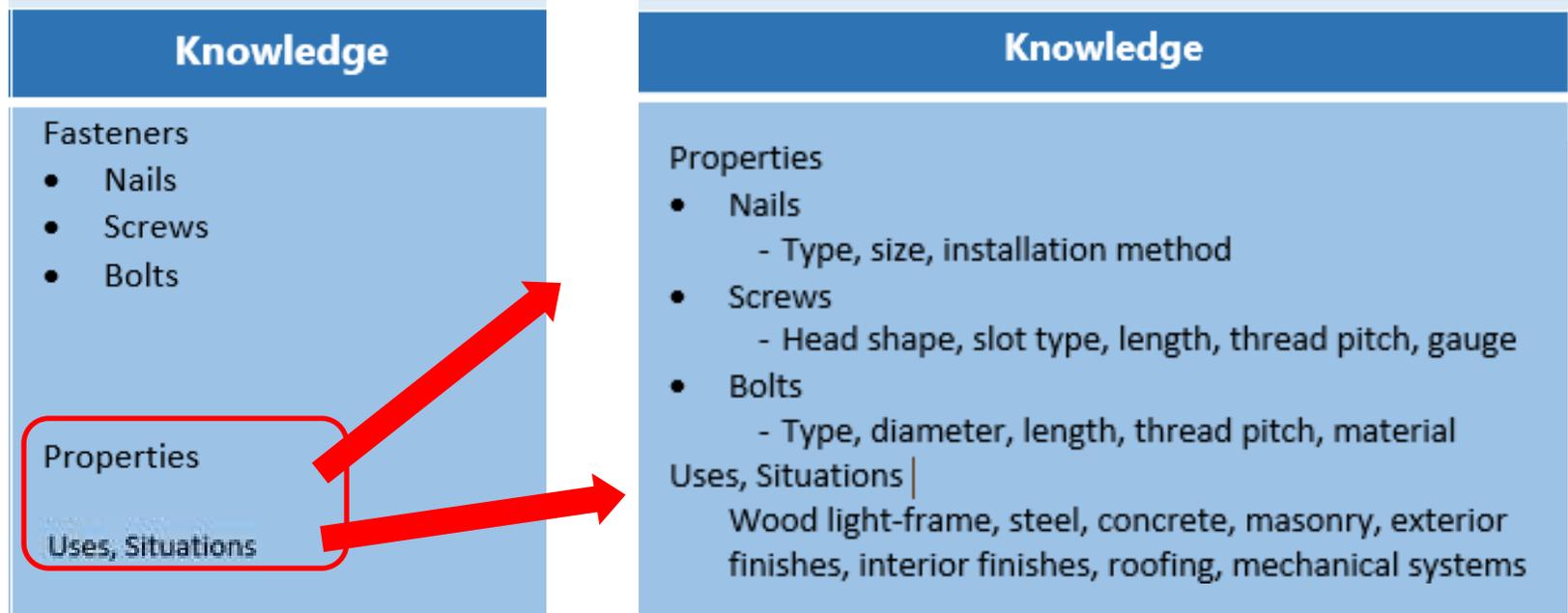
Process for Unpacking a Standard: Add to Chart

Step 1 continued: It is important to not stop here! Many times, you will need **to expand concepts** into what students would need to know to fully grasp concepts. This needed detail will be necessary to plan thorough lessons.



Process for Unpacking a Standard: Add to Chart

Step 1 continued: It is important to not stop here! Many times, you will need **to expand concepts** into what students would need to know to fully grasp concepts. This needed detail will be necessary to plan thorough lessons.



Process for Unpacking a Standard: TN State Standards

Step 2: Once you have identified the knowledge and skills within the standard, reference the aligned Tennessee State Standards in Technical Subjects and relevant general education standards (if applicable) listed at the end of the standard.

Example: Fundamentals of Construction

Standard 16

Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by creating a visual display outlining the properties and uses of each type. Demonstrate the ability to accurately select and install the appropriate fastener in a variety of situations. **(TN Reading 2, 3, 4, 7; TN Writing 2)**

Process for Unpacking a Standard: TN State Standards

You can find additional information on these referenced standards by scrolling to the bottom of the [course description document](#) to the *Standards Alignment Notes* section.

Example: Fundamentals of Construction

TENNESSEE DEPARTMENT OF EDUCATION READY TO LEARN	
Fundamentals of Construction	
Primary Career Cluster	Architecture & Construction
Course Number	Applied Math (002) 932-0008 TechEd2012-2014
Course Outline	9073
Prerequisite(s)	None
Level	8
Grade Level	8
Course Description	This course satisfies one of three credits required for an elective focus area when in conjunction with other Architecture & Construction courses.
Program of Study and Sequence	This is the first course in the Fundamentals of Construction (Applied, Structural Systems, and Mechanical, Electrical, & Plumbing Systems) program of study.
Necessary Equipment	Refer to the Teacher Resources page.
Aligned Student Organization	NSA/ASCA http://www.nsa.org http://www.asca.org
Industry Endorsement	Industry Endorsement (ICE) 330-0004, Industry Endorsement
Coordinating Work-Based Learning	Teachers who hold an active work-based learning (WBL) Certificate issued by the Tennessee Department of Education may offer appropriate student placement. To learn more, please visit http://www.tn.gov/education/cte/work_based_learning.html
Available Student Industry Experiences	NCCER Core Curriculum
Course Credits and Enrollment Opportunities	There are no tuition and non-tuition enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s)	903, 932, 933, 934, 937, 932, 939, 934, 935, 936, 941, 975, 980, 984, 985, 982, 983
Required Teacher Endorsement(s)	None
Teacher Resources	http://www.tn.gov/education/cte/industryandconstruction.html

Course Description
Fundamentals of Construction is a foundational course in the Architecture & Construction cluster covering essential knowledge, skills, and concepts required for careers in construction. Upon completion of this course, proficient students will be able to describe various construction fields and outline the

Approved January 30, 2013



Standards Alignment Notes

*References to other standards include:

- TN Reading: [Tennessee State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects: Reading Standards for Literacy in Science and Technical Subjects 6-12, Grades 9-10 Students \(page 42\)](#)
 - o Note: While not directly aligned to one specific standard, students who are engaging in activities outlined above should be able to also demonstrate fluency in Standard 10 at the conclusion of the course.
- TN Writing: [Tennessee State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects: Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6-12, Grades 9-10 Students \(page 44-46\)](#)
 - o Note: While not directly aligned to one specific standard, students who are engaging in activities outlined above should be able to also demonstrate fluency in Standards 3 and 10 at the conclusion of the course.
- TN Math: [Tennessee State Standards for Mathematics: Math Standards for High School: Number and Quantity, Geometry, Statistics and Probability \(pages 58-62\)](#)
 - o Note: The standards in this course are not meant to teach mathematical concepts. However, the concepts referenced above may provide teachers with opportunities to collaborate with mathematics educators to design project based activities or collaborate on lesson planning. Students who are engaging in activities listed above should be able to demonstrate quantitative, geometric, and statistical reasoning as applied to specific technical concepts. In addition, students will have the opportunity to practice the habits of mind as described in the eight Standards for Mathematical Practice.
- NCCER Curriculum: [National Center for Construction Education and Research](#)
 - o Note: NCCER accreditation is required to offer NCCER credentials to students. Instructors trained through the NCCER Instructor Certification Training Program (ICTP) may use the NCCER curricula to teach the listed standards. By doing so, their students will receive a certificate of completion for the NCCER Core Curriculum and be placed in NCCER's National Registry Database.
- F21: Partnership for 21st Century Skills: [Framework for 21st Century Learning](#)
 - o Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.

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Process for Unpacking a Standard: Tennessee State Standards

Step 2 continued: These referenced standards will assist you in creating strong objectives, understanding how to present information to students and what additional types of information should be used to support conceptual understanding of the knowledge and skills identified in the CTE standard.

Example: Fundamentals of Construction Standard 16

- **TN Reading 2:** **Determine** the **central ideas** or **conclusions** of a **text**; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate **summary** of the text.
- **TN Reading 3:** **Follow** precisely a **complex multistep procedure** when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or expectations defined in the text.
- **TN Reading 4:** Determine the **meaning** of **symbols, key terms**, and other **domain-specific words** and phrases as they are used in specific scientific or technical context relevant to grades 9 – 10 texts and topics.
- **TN Reading 7:** **Translate** quantitative or **technical information expressed in words** in a text into **visual form** and translate information expressed visually or mathematically into words.
- **TN Writing 2:** Write **informative/ explanatory texts**, including the narration of historical events, scientific procedures/ experiments, or **technical processes**.

Process for Unpacking a Standard: Add to Chart

Step 2 continued: Once you have read the reference and the aligned Tennessee State Standards in Technical Subjects. List any parts of the standards that can support conceptual understanding.

Standard	Knowledge	Skills
<p>Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by creating a visual display outlining the properties and uses of each type. Demonstrate the ability to accurately select and install the appropriate fastener in a variety of situations. (TN Reading 2, 3, 4, 7; TN Writing 2)</p>	<p>Fasteners</p> <ul style="list-style-type: none"> • Nails <ul style="list-style-type: none"> - Common nails, box nails, finishing nails, roofing nails, casing nails, duplex nails - Staples, brads • Screws <ul style="list-style-type: none"> - Wood screws, drywall screws, sheet metal screws, lag screws • Bolts <ul style="list-style-type: none"> - Cap screws, stove bolts, carriage bolts - Washers - Anchors <p>Properties</p> <ul style="list-style-type: none"> • Nails <ul style="list-style-type: none"> - Type, size, installation method • Screws <ul style="list-style-type: none"> - Head shape, slot type, length, thread pitch, gauge • Bolts <ul style="list-style-type: none"> - Type, diameter, length, thread pitch, material <p>Uses</p> <p>Wood light-frame, steel, concrete, masonry, exterior finishes, interior finishes, roofing, mechanical systems</p>	<p>Distinguish</p> <ul style="list-style-type: none"> • R2- Determine central ideas • W2- Write informative texts <p>Create</p> <ul style="list-style-type: none"> • R7- Translate words into visual form • W2- Write informative texts <p>Outline</p> <ul style="list-style-type: none"> • R2- Determine central ideas <p>Demonstrate</p> <ul style="list-style-type: none"> • R3- Multistep procedure <p>Select</p> <ul style="list-style-type: none"> • R3- Multistep procedure <p>Install</p> <ul style="list-style-type: none"> • R3- Multistep procedure

Let's do one together

Structural Systems I

Standard 23

Compare and contrast different procedures to frame a roof. For example, describe the benefits of using prefabricated trusses in place of framing with rafters on site. Outline the major similarities and differences in each and write persuasively to describe why using either prefabricated trusses or framing with rafters is more beneficial for a specific project. (TN Reading 2, 3, 4; TN Writing 1, 4, 7, 9)

You do!

Now, continue this process for the rest of the standards in your selected course.

Resources:

- Consultant and facilitator are available to assist (raise hand)
- Tablemates working on the same course
- *Tennessee State Standards* Poster
- *Course Description* Document
- *Knowledge and Skills* worksheet

Exit Slip Summary

Please get out your index card from your folder.

- On Side 1 (plain side), write one big idea that you gained from the morning sessions.
- On Side 2 (ruled side), identify something that you do not fully understand and would like further explanation.

Break for Lunch

11:15 a.m. – 12:45 p.m.

Lunch is “on your own.”
Local restaurant information can be found at the registration table.

Tennessee Department of Education staff will be available
to answer questions.

We will resume in this room promptly at 12:45 p.m.
You will need to sign-in upon arrival.



You do!

Now, continue this process for the remainder of the standards in your selected course.

Resources:

- Consultant and facilitator are available to assist (raise hand)
- Tablemates working on the same course
- *Tennessee State Standards* Poster
- *Course Description* Document
- *Knowledge and Skills* worksheet

Agenda

Time	Activities
9 – 9:10	Welcome and Introductions
9:10 – 9:40	Setting the Context: Goals of CTE Programs of Study
9:40 – 10:00	The Look & Feel of the New Standards
10:00 – 11:15	Breaking Down Standards into Knowledge and Skills*
11:15 – 12:45	Lunch (on your own) <i>Optional brown-bag work session and Q&A tables</i>
12:45 – 1:30	Breaking Down Standards into Knowledge and Skills* (continued)
1:30 – 2:50	Engaging Research in Your Content*
2:50 – 4:10	Engaging Writing in Your Content*
4:10 – 4:30	Bringing it all Together

* Participant work time, take breaks as needed



Engaging Research in Your Content

Creating Authentic Research Tasks

Rachel Allen

Career Cluster Consultant

What's Happening Today

Part Two of Three-Part Series

Please take out your *Engaging Research in Your Content* worksheets.

- **“Engaging Research in Your Content”** is part two of a three-part series developed to assist CTE teachers in preparing for implementation of the CTE course standards for the 2015-16 school year.
- You will walk away this afternoon with tools to use in your classroom.

Objective for this Session

- Develop initial resources for use in your classroom to implement the new standards, including:
 - Instructional strategies to promote research
 - Industry authentic research tasks & resources

Recap

- New look of course description document
- New format of course standards
 - Tennessee State Standards aligned with and embedded in standards
 - Comprehensive standard with competencies embedded
- Knowledge and Skills identified

Now: Use knowledge and skills to create industry authentic research tasks for students.

Promoting Research in My Classroom and Shop: Inquiry-based Learning



Think-Pair-Share

"The meaning of 'knowing' has shifted from being able to remember and repeat information to being able to find and use it."

-Dr. Herbert Simon, Nobel laureate

- What does this quotation mean to you in the context of your classroom?
- How have you encountered this in industry or in the classroom/shop?
- How has this impacted instruction in your classroom?

What is inquiry-based learning?

- Inquiry-based learning actively involves students in the exploration of the content, issues, and questions surrounding a curricular area or concept through a hands-on, minds-on approach. Students ask questions, research, evaluate, and apply within the context of prior knowledge.



What is inquiry-based learning?

What It Is Not

Teacher-centered

Teacher as giver of knowledge

Students sit and get

What It Is

Student-focused

Teacher as facilitator of learning

Students participate and do

What Inquiry Looks Like

Students

- Plan and carry out investigations.
- Communicate using a variety of methods.
- Propose explanations and solutions and build a store of concepts.
- Students raise questions.
- Students use observations.
- Students critique their own work.

Teachers

- Model behavior and skills.
- Support content learning.
- Use multiple means of assessment.
- Act as facilitators.

Discuss

- How does inquiry-based learning help students?

Student Outcomes

Inquiry-based learning:

- Requires students to take ownership of learning and be active participants in the learning process.
- Teaches students how to use the resources available to them to accomplish career tasks.
- Develops critical thinking & problem solving skills.
- Fosters self-directed and self-monitored learners.

Instructional Strategies that Promote Research



What is Research?

Research has numerous **definitions**:

- The **pursuit** of **knowledge**.
- The **systematic investigation** into and study of materials and sources in order to **establish facts** and **reach new conclusions**.
- The **collecting** of **information** about a **particular subject**.

Key-Word Strategy

- Please take out your course description document.
- For the next three minutes, complete a close-read of the text.
- Highlight or underline the word **“RESEARCH”** in the course standards.

Be prepared to answer the following questions:

- Why is research important?
- What does research look like in your class?
- What are some of your “glows” when implementing research in your class?
- What are some of your “grows” when implementing research in your class?

Primary Research

- Primary research is **new data** from the field or laboratory that is collected by a student.

Examples

- Observations
- Survey Responses
- Interviews
- Lab Activity
- Data Collection

Secondary Research

- Secondary research is **compiling data that was previously collected** by an outside source.
- “Data mining” may be conducted by the teacher or student.
- Provides you insight into changes over a longer period of time.

Examples

- Database Searches
- Case Studies
- Industry Articles
- Technical Manuals
- Textbooks
- Newspaper Articles
- Websites

Let's Check Our Understanding

- Please take out your course description document.
- For the next five minutes, complete a close-read of the text.
- Highlight words or phrases that **imply "RESEARCH"** in the course standards.
- Be prepared to share out words or phrases.

Overcoming Obstacles

Increasing motivation:

- Design industry authentic research tasks.
- Link the content directly to lab work.
- Explain connection to real-world situations.
- Articulate expectations.
- Include reflective exercises.

Building confidence:

- Break down complex skills & provide isolated practice.
- Assign interim deadlines.
- Consider alternative forms of writing.

Industry Authentic Research Tasks and Related Resources in Your Content



Process for Creating Authentic Research Tasks

We will be using a four step process to create authentic research tasks.

Process we'll be using today:

1. Read the course standard, are there any authentic research tasks outlined in the standards? If not, consider how students are expected to research in their academic and professional career.
2. Refer to the nouns and verbs worksheet from the previous session with the embedded TN State Standards expectations for students.
3. Design your authentic research task based on skills students need to develop in the course.
4. Ensure the expectations of the research task are clear and precise.

Example Authentic Research Task

A/V Production I

Production Equipment

16) Utilize the knowledge of microphones and scientific principles of sound to appropriately select and place microphones for a given production. Connect microphones to camera equipment and other audio equipment using the proper cables. Compare and contrast the types, uses, and pickup patterns of various microphones. Create a visual display illustrating pick-up patterns of microphones and listing example scenarios when each is commonly used. Experiment with different microphones and predict the pick-up pattern of each. Consult instructional manuals and manufacturer online resources to evaluate if the conclusions are correct. (TN Reading 2, 3, 4, 9; TN Writing 7, 9; TN Physical World Concepts 3, TN Physical Science 2)

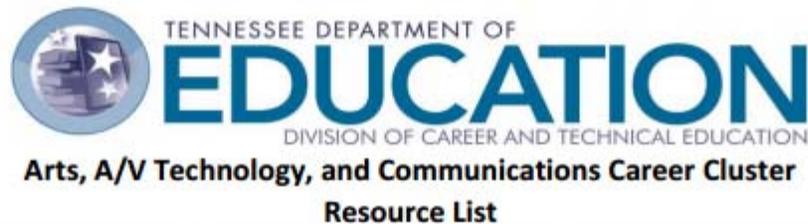
Example Authentic Research Task

Words or Phrases that Imply Research	Classification of Primary (P) or Secondary (S)	Research Task Examples include labs, experiments, observations, interviews, surveys, and reading and interpreting texts.
<ul style="list-style-type: none"> • <i>Compare and contrast</i> • <i>Experiment</i> • <i>Consult instructional manuals and manufacturer online resources</i> 	<p><i>Secondary</i></p> <p><i>Primary</i> <i>Secondary</i></p>	<ul style="list-style-type: none"> • <i>Determine the different types of pick-up patterns in microphones and their uses by reading and interpreting websites or textbooks.</i> • <i>Conduct experiments with different types of microphones to hypothesize the pick-up pattern of each. Consult instructional manuals to determine if predictions are correct.</i>

Example Authentic Research Task

Research Task Examples include labs, experiments, observations, interviews, surveys, and reading and interpreting texts.	Resources Examples include technical manuals, textbooks, trade magazines, websites, instructional videos, etc.
<ul style="list-style-type: none">• <i>Determine the different types of pick-up patterns in microphones and their uses by reading and interpreting websites or textbooks.</i>• <i>Conduct experiments with different types of microphones to hypothesize the pick-up pattern of each. Consult instructional manuals to determine if predictions are correct.</i>	<ul style="list-style-type: none">• <i>Websites (see resource list)</i>• <i>Various types of microphones for experimentation</i>• <i>Instructional manuals or online microphone manufacturer resources</i>

Example Resources for Microphones



Resource	Author / Publisher	Location	Notes
The History of Fabric & Textiles	NY Fashion Center	http://www.nyfashioncenterfabrics.com/history-of-fabric-and-textiles.html	The website offers an index of fashion fabric information sheets on the right side of the site.
Top Fashion Industry Job Description & Trends	ArtBistro	http://artbistro.monster.com/benefits/articles/11905-top-fashion-industry-job-descriptions-and-trends?page=3	The article lists and describes possible job opportunities in the fashion industry.
Types of Microphones	Faith Fuller, editor	http://www.desktop-documentaries.com/different-types-of-microphones.html	Describes three categories of microphones and includes illustrations of the audio pick up patterns of directional microphones.

Let's do one together

Structural Systems I

Standard 23

Compare and contrast different procedures to frame a roof. For example, describe the benefits of using prefabricated trusses in place of framing with rafters on site. Outline the major similarities and differences in each and write persuasively to describe why using either prefabricated trusses or framing with rafters is more beneficial for a specific project. (TN Reading 2, 3, 4; TN Writing 1, 4, 7, 9)

Collaboration Activity: Pulling Together Research Tasks and Resources

Steps:

- Work in 2015-16 Program of Study groups.
- Enter your best research activities and resources beside each course standard for each course in your group.
 - Use the *Industry Authentic Research Tasks and Related Resources* table to record your ideas.
 - Check the given career cluster *Resource List* for available resources.
- Report out your group's top two new or innovative educational resources for your POS.

**You will have 20 minutes to complete this activity.

Agenda

Time	Activities
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10:00 – 11:15	Breaking Down Standards into Knowledge and Skills*
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* Participant work time, take breaks as needed



Engaging Writing in Your Content

Creating Authentic Writing Tasks

Rachel Allen

Career Cluster Consultant

What's Happening Today

Part Three of Three-Part Series

Please take out your *Engaging Writing in Your Content: Applying Knowledge* worksheets.

- **“Engaging Writing in Your Content: Creating Authentic Writing Tasks”** is part three of a three-part series developed to assist CTE teachers in preparing for implementation of the CTE course standards for the 2015-16 school year.
- You will walk away this afternoon with tools to use in your classroom.

Objective for this Session

- Develop initial resources for use in your classroom to implement the new standards, including:
 - Industry authentic writing tasks

Recap

- New look of course description document
- New format of course standards
 - Tennessee State Standards aligned with and embedded in standards
 - Comprehensive standard with competencies embedded
- Knowledge and Skills identified
- Authentic research and tasks and related resources

Now: Use knowledge and skills and authentic research tasks to develop authentic writing tasks to teach standards.

Why integrate writing in your content?

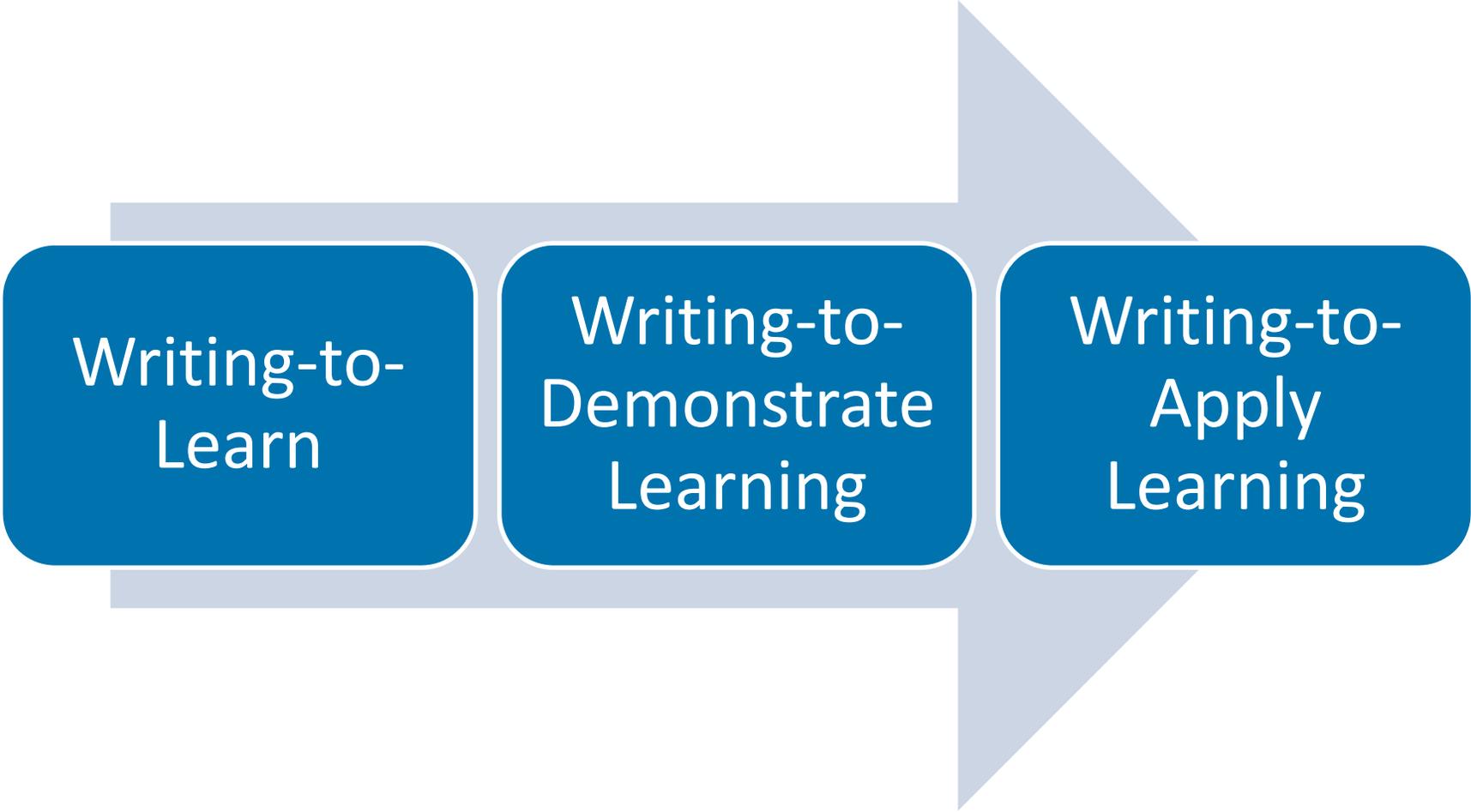
CTE courses' unique combination of rigor and relevance, motivate students in the education process to read, write, and apply critical thinking skills in authentic situations.

Writing assignments can:

- Encourage students to process course material more deeply.
- Allow you to assess students' comprehension of course topics.
- Provide an opportunity for students to develop writing and research skills.
- **Introduce and train students in the writing conventions of a field.**



3 Types of Writing for CTE Courses



Writing-to-
Learn

Writing-to-
Demonstrate
Learning

Writing-to-
Apply
Learning

Writing-to-Learn

- The main purpose of **writing-to-learn** is to help students **think** through **key concepts** or **ideas** presented in a course.
- Writing-to-learn **assignments** are **short, impromptu**, or otherwise **informal writing tasks**.
- Provide **students** an **opportunity** to **reflect** on themselves as **learners**.

Examples:

- Think-pair-share
- Journaling
- One-sentence summary
- Capturing notes during lecture

Writing-to-Demonstrate Learning

- The **main purpose** of writing-to-demonstrate learning is for the **teacher to gauge a student's understanding** of the **content** and/or **concepts** being taught.
- By regularly asking students to **think** and **write** at the higher levels students are **challenged** to **think through** the **content** and **reveal their understanding in more depth**.

Examples:

- Summary of a demonstration
- Lab Report
- Explanation of a process
- Essay

Writing-to-Apply Learning

- The **main purpose of writing-to-apply learning is to engage students in authentic writing tasks. This creates a bridge between what is learned in the classroom and why this knowledge is important to the world outside of the classroom.**
- Authentic writing tasks require students to **demonstrate proficiency by applying existing knowledge** to solve a real-world problem in their **content, simulating a work-place experience.**

Examples:

- Repair service order, repair plan, description of services
- Safety Infographic (Similar to those at a work site)
- Construction or repair progress report, material list, inspection checklist
- Proposal, memo, or customer quote

Examples of Writing in CTE Classes

Example Read Through

Take 5 minutes to skim through the list of writing examples in your folder. Take a pen take notes using the following conventions:

- ! I am really excited to try this.
- ? I have a question about this.
- * I currently use this in my classroom.

Process for Creating Authentic Writing Tasks

We will be using a four step process to create authentic writing task.

Process we'll be using today:

1. Read the course standard, are there any authentic writing tasks outlined in the standards? If not, consider how students are expected to write in their academic and professional career.
2. Refer to the nouns and verbs worksheet from the previous session with the embedded TN State Standards expectations for students.
3. Design your authentic writing task based on skills students need to develop in the course. (Guiding Questions)
4. Ensure the expectations of the writing task are clear and precise.

Process for Creating Authentic Writing Tasks

Step 1: Read the course standard, are there any authentic writing tasks outlined in the standards? If not, you should think critically about how students are expected to write in college and career.

Example: Fundamentals of Construction

Standard 16

Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, **by creating a visual display outlining the properties and uses of each type.**

Demonstrate the ability to accurately select and install the appropriate fastener in a variety of situations. (TN Reading 2, 3, 4, 7; **TN Writing 2**)

Process for Creating Authentic Writing Tasks

Step 2 : Refer to the nouns and verbs worksheet from the previous session with the embedded TN State Standards expectations for students.

Standard	Knowledge	Skills
<p>Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by creating a visual display outlining the properties and uses of each type. Demonstrate the ability to accurately select and install the appropriate fastener in a variety of situations. (TN Reading 2, 3, 4, 7; TN Writing 2)</p>	<p>Fasteners</p> <ul style="list-style-type: none"> • Nails <ul style="list-style-type: none"> - Common nails, box nails, finishing nails, roofing nails, casing nails, duplex nails - Staples, brads • Screws <ul style="list-style-type: none"> - Wood screws, drywall screws, sheet metal screws, lag screws • Bolts <ul style="list-style-type: none"> - Cap screws, stove bolts, carriage bolts - Washers - Anchors <p>Properties</p> <ul style="list-style-type: none"> • Nails <ul style="list-style-type: none"> - Type, size, installation method • Screws <ul style="list-style-type: none"> - Head shape, slot type, length, thread pitch, gauge • Bolts <ul style="list-style-type: none"> - Type, diameter, length, thread pitch, material <p>Uses</p> <p>Wood light-frame, steel, concrete, masonry, exterior finishes, interior finishes, roofing, mechanical systems</p>	<p>Distinguish</p> <ul style="list-style-type: none"> • R2- Determine central ideas • W2- Write informative texts <p>Create</p> <ul style="list-style-type: none"> • R7- Translate words into visual form • W2- Write informative texts <p>Outline</p> <ul style="list-style-type: none"> • R2- Determine central ideas <p>Demonstrate</p> <ul style="list-style-type: none"> • R3- Multistep procedure <p>Select</p> <ul style="list-style-type: none"> • R3- Multistep procedure <p>Install</p> <ul style="list-style-type: none"> • R3- Multistep procedure

Process for Creating Authentic Writing Tasks

Step 3: Design your authentic writing task based on expectations of how students would apply the knowledge and skills of the standard in the workplace.

Fundamentals of Construction

Standard 16

Distinguish between the various types of fasteners commonly used in construction, such as nails, screws, and bolts, by **creating a visual display outlining the properties and uses of each type**. Demonstrate the ability to accurately select and install the appropriate fastener in a variety of situations. **(TN Reading 2, 3, 4, 7; TN Writing 2)**

Writing Prompt:

Congratulations! You are hired as a carpenter's helper at a local construction company. In the past, the company owner has noted inefficiency among construction crews due to disorganization of supplies. Your supervisor gives you the task of creating an organization system for the crew's supply of commonly used fasteners and an accompanying visual reference guide outlining properties and uses of each type.

Process for Creating Authentic Writing Tasks

Step 4: Ensure the expectations of the writing task are clear and precise.

Ask yourself these guiding questions:

- What is the purpose of the writing prompt or task?
- Which of the Tennessee State Standards conventions does it follow?
- Does the writing prompt or task follow the description in the Tennessee State Standards?

Let's do one together

Structural Systems I

Standard 23

Compare and contrast different procedures to frame a roof. For example, describe the benefits of using prefabricated trusses in place of framing with rafters on site. Outline the major similarities and differences in each and write persuasively to describe why using either prefabricated trusses or framing with rafters is more beneficial for a specific project. (TN Reading 2, 3, 4; TN Writing 1, 4, 7, 9)

You do!

Now, continue this process for the rest of the standards in your selected course.

Resources:

- Consultant and facilitator are available to assist (raise hand)
- Tablemates working on the same course
- *Tennessee State Standards* Poster
- *Course Description* Document
- *Knowledge and Skills* worksheet
- *Engaging Writing in Your Content: Applying Knowledge* worksheet

Authentic Writing Tasks Gallery Walk

- After creating writing tasks, select one and write it on the chart paper provided for you.
- Make sure to reference the course name, standard number, and any standard alignments.
- Post your writing task on the wall.
- With a partner for the next 8 minutes, rotate around the room and provide feedback to peer's tasks, using small yellow post-it notes
- Use the following guiding thoughts:
 - 1 Praise... (positive feedback)
 - 1 What if.... (changes or improvements)
- Return to your original writing tasks.
- Be prepared to report out.

You do!

Now, continue this process for the rest of the standards in your selected course.

Resources:

- Consultant and facilitator are available to assist (raise hand)
- Tablemates working on the same course
- *Tennessee State Standards* Poster
- *Course Description* Document
- *Knowledge and Skills* worksheet
- *Engaging Writing in Your Content: Applying Knowledge* worksheet



Bringing it All Together

Where to find resources, tools, and support

Rachel Allen

Career Cluster Consultant

Objectives

By the end of training today, each of you will be able to:

- 1. Understand the instructional expectations of the standards, including:**
 - Alignment to Tennessee Standards for Literacy in Technical Subjects
 - The knowledge and skills expected in each standard
 - Connections to general education course standards
- 2. Develop initial resources for use in your classroom to implement the standards, including:**
 - Instructional strategies that promote research
 - Authentic writing prompts
- 3. Know where to find resources, tools, and support for implementing the standards.**
- 4. Have access to Department of Education personnel to get your specific questions answered.**

Finding Resources

What is available to assist you in implementing your new standards?



Available Resources

Resources

Answers to Questions

Frequently Asked Questions
Construction Pathways At-a-Glance
Spotlight on Construction
Presentation
Collision Repair Pathway Options

Materials for Support

Resource List
Equipment List
Lesson Plans



Each
Cluster

Available Resources

<http://www.tn.gov/education/section/career-and-technical-education>

The screenshot shows the Tennessee Department of Education website. The header includes the TN Department of Education logo, a search bar, and navigation links. The main content area features a sidebar with a list of links under the heading 'Career & Technical Education'. The link 'Career Clusters & Standards' is circled in red. To the right, there is a large image of students in a workshop setting, with the text 'Preparing Students for Success' overlaid.

TN Department of Education

Go to TN.gov

Search Education

Find out about... I want to know... Report Card Students & Families Educators Community Districts

Career & Technical Education

- Career Clusters & Standards**
- Accountability and Data Reporting
- Educator Resources
- Licensure and Training Attendance Records
- High Schools That Work
- Student Organizations
- Tennessee Council for CTE
- Work-Based Learning

Preparing Students for Success

Available Resources

The screenshot shows the Tennessee Department of Education website. At the top left is the TN Department of Education logo. At the top right is a search bar labeled 'Search Education' and a 'Go to TN.gov' link. Below the header is a navigation menu with links: 'Find out about...', 'I want to know...', 'Report Card', 'Students & Families', 'Educators', 'Community', and 'Districts'. The main content area is titled 'Career & Technical Education' and 'Career Clusters & Standards'. A list of career clusters is shown on the left, with 'Architecture & Construction' circled in red. The main text on the right reads: 'Choose your pathway to success. Tennessee's Career Clusters are organized into 16 broad categories that encompass virtually all occupations from entry through professional levels and are aligned with the U.S. Department of Education's structure of Career and Technical Education. Career Clusters identify the knowledge and skills needed to follow a pathway toward career goals and provide a context for exploring the many occupational options available. Note that each cluster is divided into different pathways that are grouped by the knowledge and skills required for occupations in these career fields.'

Available Resources

TN Find out about... I want to know... Report Card Students & Families Educators Community Districts

Resources

- Licensure and Training Attendance Records
- High Schools That Work
- Student Organizations
- Tennessee Council for CTE
- Work-Based Learning

2015-16 Programs of Study

- Residential & Commercial Construction
 - Level 1: [Fundamentals of Construction](#)
 - Level 2: [Residential & Commercial Construction I](#)
 - Level 3: [Residential & Commercial Construction II](#)¹
 - Level 4: [Construction Practicum](#)
- Structural Systems
- Mechanical, Electrical, & Plumbing (MEP) Systems
- Architectural & Engineering Design
- Interior Design
- Courses for Elective Credit

¹ May be taught for 1 or 2 credits.

Resources

- [Architecture & Construction FAQ](#)
- [Architecture & Construction Equipment List](#)
- [Architecture & Construction Pathways At-a-Glance](#)
- [Architecture & Construction Resource List](#)
- [Spotlight on Construction](#)

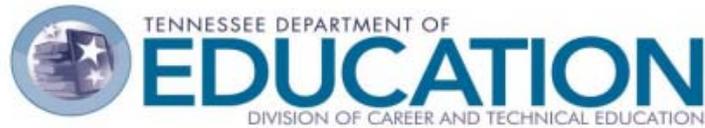


Course Standards



**FAQ
Equipment List
Resource List**

Available Resources: Resource Lists



Architecture and Construction Career Cluster

Resource List

Resource	Author / Publisher	Location	Notes
13 Structural Steel Buildings that Dazzle	American Institute of Steel Construction	http://www.bdcnetwork.com/13-structural-steel-buildings-dazzle	View awarding winning steel structures.
5 Must-Have Construction Technology Tools	Stephanie Faris	http://www.smallbiztechnology.com/archive/2013/05/5-must-have-construction-technology-tools.html/	The article lists five different mobile technologies and explains how the technologies assist contractors.
8 Types of Windows	Peter Walsh of HGTV Remodels	http://www.hgtvremodels.com/interiors/8-types-of-windows/pictures/index.html	The window webpage offers articles on Window Buying Guides, Designer Tips, and the Anatomy of a Window.
All About Moldings	Dorling Kindersley	http://www.diynetwork.com/windows-walls-and-doors/all-about-moldings/index.html	A simple guide to the different types and uses of molding used in a residence.
American Society for Testing and Materials	ASTM	http://www.astm.org/	ASTM publishes materials regarding product testing methods and specifications.
American Society of Interior Designers (ASID)	ASID	http://www.asid.org/	The ASID offers access to case studies, job opportunities, ethical statements, and business marketing and management resources.
Americans with Disabilities Act (ADA) Standards for Accessible Design	The Department of Justice	http://www.ada.gov/2010ADAsStandards_index.htm	View new construction and alterations requirements for accessible design.

Available Resources: Lesson Plans

<http://www.tncore.org>

Department of Education
Kevin Huffman, Commissioner

GOVERNOR
Bill Haslam
Visit Bill's Web Site

Search

Home | FAQs | Contact Us

About Common Core	About PARCC	For Leaders	For Families & Communities
Mathematics	English Language Arts	Literacy in Science & Technology	Literacy in Social Studies
		Standards and Shifts	
		Curricular Resources	Science 6-8
		Assessment	Science 9-12
		Training	CTE 6-12
		External Resources	

Available Resources: Lesson Plans

<http://www.tncore.org>

TNCore

Service Precautions for Hybrid Vehicles

CTE Lesson Aligned with Tennessee State Standards for English Language Arts & Literacy in Technical Subjects

This resource is best for:

Teachers of:	Maintenance & Light Repair I	Career Cluster:	Transportation, Distribution, & Logistics
Addressing Standard(s):	Standard 3.3, Standard 6.7	Grade-Band:	9 – 10
In alignment with CTSO:	SkillsUSA http://tnskillsusa.com/	CTSO Event: (if applicable)	SkillsUSA Automotive Service Technology

Learning Objective: The goal of this activity is to develop a student's understanding of service precautions unique to hybrid vehicles. At the end of this lesson, students should be able to recognize the dangers associated with servicing hybrid vehicles and be able to identify the precautionary steps to take. Students should possess awareness of high voltage circuits in hybrid vehicles. Students will complete these tasks by practicing the skills necessary to become proficient in the literacy standards. Discussions in class, reading, and writing exercises are coordinated in class to help students construct a technical meaning of the texts in a way that builds learning.

The following should be used during this teaching:

- Writing pieces should be evaluated using the 9-12 Informational/Explanatory Writing Rubric, found at http://tncore.org/literacy_in_science_and_technology/assessment_tasks.aspx.
- For information on how to develop text-dependent questions for rich classroom discussion, visit http://tncore.org/literacy_in_science_and_technology/instructional_resources/text_dependent_questions.aspx

Available Resources: Tennessee Electronic Library

<http://tntel.tnsos.org/>



The screenshot shows the homepage of the Tennessee Electronic Library (TEL). At the top left is the TEL logo, which consists of three stars (two green, one orange) and the letters 'TEL' in a large, bold font, with 'Tennessee Electronic Library' written below it. To the right of the logo is the tagline 'free access to great resources for Tennesseans'. In the top right corner, there is a small red button labeled 'ADD THIS' and some social media icons. Below the logo and tagline is a blue navigation bar with the text 'Home : About TEL : FAQs : Contact Us'. The main content area is divided into two columns. The left column features a prominent orange button labeled 'Search for Articles', which is circled in red. Below this button is a search form with the text 'Enter Keyword(s):' followed by a text input field and a 'Search' button. Underneath the search form are links for 'Browse Resources by: School Grades | Subject | ALL TEL Databases | Advanced Search'. The right column has a green header labeled 'new to tel' and features a promotional box for the 'World Book Encyclopedia'. This box includes the text 'World Book Encyclopedia' and a blue graphic of a globe with the words 'WORLD BOOK' below it.

Next Steps to Support Standards Revisions

Goal: Support teachers in teaching the standards – instructional shifts, content, and materials

- **Offer robust teacher professional development**
 - Develop equipment and resource lists for new courses
 - Release additional lesson plans on www.TNCore.org
 - Provide self-study modules and facilitation resources to teachers and administrators
 - Focus on standards-aligned activities during 2015 Institute for CTE Educators

Teacher & Administrator To-Do:

- ❑ Visit Career Cluster websites and www.TNCore.org to find helpful materials.
- ❑ Register to attend the Institute for CTE Educators: July 6-10 at Music City Center, Nashville.

Evaluation of Today's Workshop

- Turn to the purple sheet in your folder and complete.
- The more detailed the feedback, the more changes we can make to improve training going forward.
- Place face-down on center of table for us to collect.
- When you are finished, you are free to go.

THANK YOU!

Rachel Allen

Career Cluster Consultant

Rachel.Allen@tn.gov

(615) 532-2835

www.tn.gov/education/cte

CTE.Questions@tn.gov





TN.GOV/Education

FACEBOOK.COM/TennesseeEducation

TWITTER: @TNedu