



Knowledge and Skills: How to Unpack a Standard

Overview

Why unpack a standard into knowledge and skills?

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 an understanding of how the individual competencies fit together to form a deep conceptual comprehension of a topic.

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 deepen student understanding.

Unpacking Process

Part One

The first part of unpacking a standard into knowledge and skills is to identify the knowledge (what a student should know) and the skills (what a student should be able to do). You can start this process by simply underlining or highlighting the **nouns** and **verbs** within the standard. The **nouns** are the “what” and typically correspond to concepts a student should grasp and the **verbs** are the “how” and typically correspond to skills the student should be able to complete to demonstrate proficiency. Let’s take a look at an example.

Agriscience

Standard 7

Critique the **dynamics** of **biomass** and **energy flow** in **ecosystems** by **analyzing** the major **components** of a **food chain**. **Analyze** the **structure** of the **relationships** among the **concepts** of **carrying capacity**, **species populations**, and **organism interactions** within multiple **ecosystems** and natural **habitats**. (TN CCSS Reading 5; TN CCSS Writing 1, 9; TN Biology I 2, 3; TN Biology II 2, 3)

Once basic knowledge and skills have been identified, you should think critically about what each individual topic would look like in a classroom. Some concepts may need to be expanded to capture all of the details students would need to know to fully grasp the concept. A knowledge and skills chart, like the example below, can assist in detailing out the distinct pieces of information that will need to be addressed to ensure all of your students reach proficiency on the standard. Depending on the complexity of the standard, all knowledge and skills may not be able to be covered in one lesson. Breaking down the distinct concepts will assist you in planning how long the standard will take to cover completely.



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Agriscience Standard 7

Standard	Knowledge	Skills
<p><u>Critique</u> the dynamics of biomass and energy flow in ecosystems by analyzing the major components of a food chain. <u>Analyze</u> the structure of the relationships among the concepts of carrying capacity, species populations, and organism interactions within multiple ecosystems and natural habitats. (TN CCSS Reading 5; TN CCSS Writing 1, 9; TN Biology I 2, 3; TN Biology II 2, 3)</p>	<p>Biomass and Energy Flow</p> <ul style="list-style-type: none"> • Define types • Identify sources and cycles <p>Food Chain</p> <ul style="list-style-type: none"> • Structure • Components: Producers, consumers, decomposers • Species <p>Carrying Capacity</p> <ul style="list-style-type: none"> • Species Population • Define habitats • Organism Interactions in multiple habitats 	<p>Critique the Dynamics (Using Evidence)</p> <ul style="list-style-type: none"> • Identify the types and uses of Biomass • Identify the types of energy influencers • Identify relationships between concepts <p>Analyze the structure of relationships among concepts</p> <ul style="list-style-type: none"> • Key terms • Types of habitats • Food sources • Relationships within and between ecosystems. • Changes over time • Conclusions drawn



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Part Two

Once you have identified the knowledge and skills within the standard, reference the aligned Common Core State Standards in Technical Subjects and relevant general education standards (if applicable) listed at the end of the standard. 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 (see blue example box below).

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. For example, looking at the Common Core Standard for Reading 5 will assist this teacher in emphasizing key points in an analysis identified on the knowledge and skills chart, while Biology Standard 2 will assist the teacher in teaching of life and the environment.

Agriscience Standard 7

Critique the **dynamics** of biomass and energy flow in **ecosystems** by analyzing the major **components** of a food **chain**. Analyze the **structure** of the **relationships** among the **concepts** of carrying **capacity**, **species populations**, and **organism interactions** within multiple **ecosystems** and natural **habitats**. (TN CCSS Reading 5; TN CCSS Writing 1, 9; TN Biology I 2, 3; TN Biology II 2, 3)

Standards Alignment Notes

- *References to other standards include:
 - TN CCSS Reading: [Tennessee Common Core 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 62).
 - Note: While not directly aligned to one specific standard, students that are engaging in activities outlined above should be able to also demonstrate fluency in Standards 6, 8, and 10 at the conclusion of the course.
 - TN CCSS Writing: [Tennessee Common Core 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 (pages 64-66).
 - Note: While not directly aligned to one specific standard, students that are engaging in activities outlined above should be able to also demonstrate fluency in Standards 3, 6, and 10 at the conclusion of the course.
 - TN CCSS Math: [Tennessee Common Core State Standards for Mathematics](#); Math Standards for High School: Number and Quantity, Algebra, Statistics and Probability (pages 58-83).
 - 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 that are engaging in activities listed above should be able to demonstrate quantitative, algebraic, 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.
 - TN A&P: Tennessee Science: [Anatomy and Physiology](#) standards 1, 2, 4, 5, and 6 may provide additional insight and activities for educators.
 - TN Biology I: Tennessee Science: [Biology I](#) standards 1, 2, 3, and 4 may provide additional insight and activities for educators.
 - TN Biology II: Tennessee Science: [Biology II](#) standards 1, 2, 3, 4, and 7 may provide additional insight and activities for educators.
 - TN Chemistry I: Tennessee Science: [Chemistry I](#) standard 1 may provide additional insight and activities for educators.
 - TN Chemistry II: Tennessee Science: [Chemistry II](#) standards 1, 2, and 3 may provide additional insight and activities for educators.
 - TN Environmental Science: Tennessee Science: [Environmental Science](#) standard 5 may provide additional insight and activities for educators.
 - TN Physical Science: Tennessee Science: [Physical Science](#) standard 2 may provide additional insight and activities for educators.
 - TN Physical World Concepts: Tennessee Science: [Physical World Concepts](#) standard 4 may provide additional insight and activities for educators.
 - TN Physics: Tennessee Science: [Physics](#) standards 2 and 5 may provide additional insight and activities for educators.

TN CCSS Reading 5: Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

TN CCSS Writing 9: Draw evidence from informational texts to support analysis, reflection, and research.

TN Biology I 2: All life is interdependent and interacts with the environment.



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Bridge to Practice

It's your turn!

Follow the two-step process outlined above with a course of your choosing using the green templates in the following pages.

- **Step 1:** Write down each standard for the course in the *Standard* column of the worksheet. Looking at the standard carefully, underline the nouns ("what"/knowledge) and verbs ("how"/skills) embedded in each standard in your course. Capture these concepts in the *Knowledge* and *Skills* columns of the worksheet.
- **Step 2:** Reference the aligned standards (Common Core State Standards for Technical Subjects, general education, national industry, etc.) referenced at the end of each standard (if applicable) and add additional clarifying statements or details to your *Knowledge* and *Skills* columns as necessary. If you are having trouble finding the standards, follow the links at the end of the Course Description Document.

You're done!

The unpacking is complete! This detailed chart will be useful when you move on to creating strong objectives and student outcome-focused lessons.

Questions about this process or need assistance? Please contact CTE.Questions@tn.gov.



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Standard	Knowledge	Skills



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Standard	Knowledge	Skills



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