



**TENNESSEE CAREER AND TECHNICAL EDUCATION TEXTBOOK SCREENING INSTRUMENT  
HORTICULTURE SCIENCE PROGRAM OF STUDY  
AGRICULTURE, FOOD, & NATURAL RESOURCES CAREER CLUSTER**

**BEFORE YOU BEGIN**

**ALIGNMENT TO THE TENNESSEE CAREER AND TECHNICAL EDUCATION STANDARDS:**

Tennessee's Career and Technical Education Standards (hereafter, "the standards") represent a significant shift in the definition of student proficiency within career and technical education environments. Evaluators of materials should understand that the standards replace the proficiency frameworks of years past in three major respects:

- 1) A shift to clear, specific, and measurable expectations for student learning. The standards articulate deep knowledge and skill attainment, departing from the competency-based structure of years past.
- 2) Increased focus on rigor in literacy and mathematics within technical contexts. The new standards align to all Tennessee State Standards for English Language Arts and Literacy in Technical Subjects and, where appropriate, select Tennessee State Standards in Mathematics.
- 3) Sequential progression of knowledge and skills within and across courses. The new standards build on each other both within course content and across course levels, arranged within programs of study that culminate in capstone and/or work-based learning experiences for students.

Evaluators of materials must be well versed in the standards for the course(s) aligned to the materials in question, how the content fits into the progressions in the content standards, and the expectations of the standards with respect to conceptual understanding, fluency, and technical application

Aligned courses in the Agriculture, Food, & Natural Resources Career Cluster :

**AGRISCIENCE (5957)**

**PRINCIPLES OF PLANT SCIENCE AND HYDROCULTURE (6119)**

**GREENHOUSE MANAGEMENT (5954)**

**LANDSCAPING AND TURF SCIENCE (5951)**

**+SUPERVISED AGRICULTURAL EXPERIENCE (5964)**

**\*INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) (6142)**

*+ Indicates a structured experiential learning opportunity that takes place in a setting outside of regular school hours*

*\*Indicates courses available for elective credit*

**STATEMENT OF STUDENT PROFICIENCY**

The Agriculture, Food, & Natural Resources (AFNR) career cluster is designed to prepare students for successful careers in the global agriculture, food, fiber, and natural resources systems with a desire to focus on the production, processing, marketing, distribution, financing, and development of agricultural commodities and resources. Students enrolled in the AFNR career cluster will become a veterinarians, bio-systems engineers, loan officers, financial advisors, food scientist, landscaper, greenhouse manager, turf manager, production manager, environmental officer or other occupations in the agriculture, food and natural resources industry. In this program of study, proficient students will develop skills in plant health, growth, reproduction, biotechnology, hydroponics, aquaponics, greenhouse structures, growing media, site analysis, planning, design, plant selection and care. Upon completion of this POS, students will be prepared to pursue further study in the horticulture sciences at the postsecondary level.

*Note to reviewers: All materials reviewed as part of this application must align to the statement of student*

**ORGANIZATION OF THIS DOCUMENT****SECTION I: NON-NEGOTIABLE ALIGNMENT CRITERIA**

All submissions must meet all of the non-negotiable criteria for each course before passing on to Section II.

**SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY**

Section II includes additional criteria for alignment to the standards as well as indicators of quality.

**SECTION III: FOCUS AREA (optional)**

Section III allows reviewers to capture qualitative observations on an additional area of focus, if presented in the materials.

**REVIEW**

Evaluator: Danny Wilson Book: Plant Science Level(s)/Course(s): \_\_\_\_\_  
Publisher: Pearson Year: \_\_\_\_\_

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**SECTION I(1):**

**FOCUS:**

Students and teachers using the materials as designed devote the majority of time in each level to the course standards.\*

**METRICS:**

|   |   |                             |
|---|---|-----------------------------|
| A. In any single course level, materials are designed where there is 80%** alignment to the course standards (see Appendix A, 12).  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| B. All materials are appropriate for the designated course level, both in terms of content and in terms of language. For materials spanning multiple course levels and/or grade bands, content is presented at the appropriate grain size (i.e., level of detail) commensurate to expectations in the standard. | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| C. Materials focus equally on the <i>conceptual knowledge</i> as well as the <i>technical skill</i> outlined in the standards.  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| D. Topics do not deviate from the content outlined in the course standards. Topics may go "above and beyond" stated learning expectations, but not in a manner that distracts from the focus on specific knowledge and skills as determined by the standards.   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |

|   |   |                             |
|---|---|-----------------------------|
| To be aligned to the Tennessee Standards, materials for each level must attend to all four indicators of Focus. All four indicators must be marked Yes. | Yes <input checked="" type="checkbox"/> Meet? | No <input type="checkbox"/> |
|---|---|-----------------------------|

**Justification/Notes**  
This book most closely follows the Plant Science Standards of any book I have looked at.

\*For the purposes of this document, Tennessee CTE students are considered to be enrolled in course "levels" (i.e., Level 1, Level 2, Level 3, and Level 4) due to variation in the *grade* level at which students may take a course. For example, a tenth-grade student may be enrolled in a Level 1 course. For this reason, reviewers are asked to evaluate materials on the basis of their alignment to particular *course levels*, not *grade levels* or *grade bands*.

**\*\*This percentage is a guide. Reviewers should not attempt to compute percentages based on counting pages or counting lessons.**  
Reviewers will use their professional judgment to determine how students are meant to spend their time to determine focus and provide evidence for their decision.

**SECTION I(2):**

**RIGOR:**

Each level's instructional materials reflect high expectations for all students. They follow faithfully the level of rigor intended in the standards and support student learning through high-quality presentation of content and challenging application.

**METRICS:**

|  |   |  |
|--|---|--|
| A. Materials effectively meet the level of rigor intended in the standards.  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>                                |
| B. High-quality problems and questions designed to invite exploration and support conceptual understanding are included throughout. A variety of problems, both conceptual and technical, enable students to connect course content and transfer understandings to new situations. | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>                                |
| C. All materials reinforce literacy and mathematics instruction in career and technical education environments. Texts are of an appropriately challenging Lexile level; mathematics problems push students to apply quantitative reasoning to specific technical situations.       | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>                                |
| D. Materials support the development of fluency, including regular opportunities to practice knowledge and skills, appropriately apply tools, and use technology.  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>                                |
| E. Domain-specific vocabulary and industry terminology are frequently used to explain topics, or to make connections to key workplace activities.  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>                                |
| To be aligned to the standards, all five indicators of Rigor must be marked Yes.   | Yes <input checked="" type="checkbox"/> | Meet? <input type="checkbox"/> No <input type="checkbox"/> |

Justification/Notes

This book is used to teach Plant Science at Tennessee Tech. University. Terms and concepts used throughout this book reflect the proper amount of rigor and relevance for this class

**SECTION I(3):  
POSTSECONDARY AND CAREER READINESS:**

Materials promote multiple pathways to student success beyond high school, highlighting a range of career opportunities aligned with entry and exit points to and from appropriate postsecondary programs. Aligned pathways are presented in a fair and balanced fashion that underscores the need for advanced training beyond high school, but does not privilege one set of credentials over another and is consistent with occupational requirements.

**METRICS:**

|   |   |                             |
|---|---|-----------------------------|
| A. Technical skills are promoted within the context of applicable industries and work environments. They are <i>not</i> presented in isolation or without meaningful connections to aligned careers.  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| B. Materials showcase a diversity of career and postsecondary opportunities for students upon completion of high school, including all applicable levels of postsecondary training (i.e., technical schools, community colleges, four-year universities, etc.). | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| C. Connections to relevant certifications and other credentials are clearly explained, and their value in industry is communicated where appropriate.   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| D. Materials provide opportunities for students to practice and reflect upon 21st century (or "soft") skills.   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |

To be aligned to the standards, all four indicators of Postsecondary and Career Readiness must be marked Yes.

Meet?

Yes \_\_\_\_\_

No

Justification/Notes

This book was designed to be taught at college level. Career opportunities are presented in a way that allows the teacher to discuss what is available with each topic discussed.

Were all three non-negotiables in section I met?  
(Was each component marked "yes"?)

Yes

No \_\_\_\_\_

## SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY

Materials must meet all non-negotiable criteria in Section I to be aligned to the course standards and receive state approval.

Section II includes additional criteria for alignment to the course standards as well as indicators of quality. Instructional materials evaluated against the criteria in Section II will be rated on the following scale:

- 2 - (meets criteria): A score of 2 means that the materials meet the full intention of the criterion in all grades.
- 1 - (partially meets criteria): A score of 1 means that the materials meet the full intention of the criterion for some grades or meets the criterion in many aspects but not the full intent of the criterion.
- 0 - (does not meet criteria): A score of 0 means that the materials do not meet many aspects of the



criterion.

| Section II (1). ADDITIONAL ALIGNMENT CRITERIA   | SCORE            | JUSTIFICATION/NOTES  |
|---|------------------|--|
| <p>A. Materials are aligned to relevant <b>national and/or industry standards</b> where appropriate. For example, <i>Mechatronics I</i> materials routinely make reference to and reinforce connections with national industry certification standards from companies like Siemens.</p>   | <p>②<br/>0 1</p> | <p>Industry standards are referenced appropriately</p>                                 |
| <p>B. Materials are aligned to discipline-specific <b>content or pedagogical frameworks</b> frequently used by professionals in associated industries. For example, <i>Differentiating Instruction</i> materials routinely make reference to and reinforce connections with instructional strategies that meet the educational needs of the student, as specified in the standards.</p> | <p>2<br/>0 ①</p> | <p>Some differentiating is used</p>  |
| <p>C. Connections are made to discipline-specific <b>professional societies and organizations</b>, and their value is clearly communicated in the materials. For example, <i>School Counseling</i> materials routinely make reference to and reinforce connections with the American School Counselor Association (ASCA).</p>   | <p>②<br/>0 1</p> | <p>This book routinely mentions the USDA and uses statistics from them in the book</p> |
| Section II (2). SEQUENCE AND PROGRESSION OF STANDARDS   | SCORE            | JUSTIFICATION/NOTES  |
| <p>A. Connections are made within a course between knowledge and skills, where these connections are appropriate and natural, as set forth by the standards.</p>  | <p>②<br/>0 1</p> | <p>Many chapters have interconnected material</p>                                      |

|  |              |   |
|--|--------------|---|
| <p>B. Materials are vertically coherent with previous courses and these connections are made clear in the materials. The connections are explicit to the other materials in the course.</p>  | <p>② 0 1</p> | <p>This book builds on the materials in the Greenhouse Management book</p>                    |
| <p>C. For materials in a series, content progressions reflect the progressions as seen in the standards. These progression connections are clearly indicated in the materials. Any discrepancies in content progressions enhance the required learning in each course and are clearly aimed at helping students meet the standards as written.</p> | <p>② 0 ①</p> | <p>This book clearly takes principles taught in greenhouse to a much more in-depth level.</p> |

| Section II (3). TEACHER SUPPORTS  | SCORE        | JUSTIFICATION/NOTES  |
|---|--------------|--|
| <p>A. Materials support teachers in ways such as the following: planning (including ideas for pacing), sample lessons, laboratory applications, projects, vocabulary, and instructional strategies.</p>   | <p>2 0 ①</p> | <p>No sample lessons, however vocabulary + reviews are excellent</p> |
| <p>B. Materials include teacher-directed materials that explain the role of the practice activities in the classroom and in students' content development. Problems and activities present opportunities for students to make use of and exhibit the skills as they work on mastery of content.</p> | <p>② 0 1</p> | <p>Key Concepts are available for each Chapter.</p>                  |
| <p>C. Opportunities and resources are provided for teachers to conduct independent study to enhance their own understanding and knowledge of course topics. Materials provide avenues to seek and identify quality professional development in a manner that will support student learning.</p>     | <p>② 0 1</p> | <p>Websites and book references at the end of every chapter</p>      |

| Section II (4). USABILITY   | SCORE    | JUSTIFICATION/NOTES  |
|---|----------|--|
| A. Materials can be accessed in a variety of formats and media, including but not limited to printed textbooks, digital storage devices, online applications, and cloud-based forums.                                   | ②<br>0 1 | Websites for further learning are available for each Chapter |
| B. Materials are clear and easy to read for students, teachers, parents. The design and graphics do not distract from the course content and are appropriately placed.  | ②<br>0 1 | Book is designed in an easy to read format                   |
| C. Materials include supports for all learners, e.g., ELs, students who are below grade level, advanced students.   | 2<br>① 1 | This a college level Coarse                                  |
| D. Materials are culturally and politically sensitive to the full range of potential users, and do not advance unwarranted opinions that are not factually based. All materials strive to present content, not beliefs. | ②<br>0 1 | This book is written with facts                              |

Please note any concerns with sensitivity below:

| Section II (5). ASSESSMENTS | SCORE | JUSTIFICATION/NOTES |
|-----------------------------|-------|---------------------|
|-----------------------------|-------|---------------------|

|  |              |  |
|--|--------------|--|
| <p>A. Materials include aligned assessments at regular intervals throughout the text(s), or as supplements to the primary instructional materials. Aligned assessments may include end-of-chapter quizzes, unit test modules, and practice exams.</p>    | <p>② 0 1</p> | <p>Reviews at end of each Chapter.</p>     |
| <p>B. Materials offer ideas and guidance on measuring student progress throughout the duration of the aligned course(s). Formative, interim, and summative assessment strategies are all presented to inform instructional strategy and improvement.</p> | <p>2 0 ①</p> | <p>Knowledge Check at end of Chapter</p>   |
| <p>C. Materials include assessment accommodations for diverse learners, including sample items that capture multiple measures of student proficiency.</p>  | <p>2 ① 1</p> | <p>Not much diversity of Question type</p> |

**SECTION III (optional): FOCUS AREA**

Use this section to capture qualitative observations on an additional area of focus, if presented in the materials. A sample focus area for the Horticulture Science program of study is provided in the following. If applicable, fill in the blank table with observations and notes.

| <p><b>III. EXAMPLE: FOCUS IN HORTICULTURE SCIENCE</b></p>   | <p><b>NOTES</b></p>  |
|---|--|
| <p>A. Materials include coverage of hydroponics and aquaponics production and cropping systems.</p>   | <p>No<br/>[Insert reviewer evaluation here.]</p>   |
| <p>B. Materials draw clear connection between greenhouse management at the secondary level and introduction to plant science at the postsecondary level including field crop standards.</p> | <p>Concepts in this book will enable better care and management of Greenhouse<br/>[Insert reviewer evaluation here.]</p> |
| <p><b>III. FOCUS AREA:</b></p>  | <p><b>NOTES</b></p>  |

|  |  |
|--|--|
|  | This book is the best, if not only, resource available for teaching the plant science class. |
|  |  |
|  |  |

Appendix A, Career and Technical Education: Programs of Study by Course