



Technology and Engineering Education

Assessment Handbook

Version 08

edTPA stems from a twenty-five-year history of developing performance-based assessments of teaching quality and effectiveness. The Teacher Performance Assessment Consortium (Stanford and AACTE) acknowledges the National Board for Professional Teaching Standards, the Interstate Teacher Assessment and Support Consortium, and the Performance Assessment for California Teachers for their pioneering work using discipline-specific portfolio assessments to evaluate teaching quality. This version of the handbook has been developed with thoughtful input from over six hundred teachers and teacher educators representing various national design teams, national subject matter organizations (ACEI, ACTFL, AMLE, CEC, IRA, NAEYC, NAGC, NCSS, NCTE, NCTM, NSTA, SHAPE America), and content validation reviewers. All contributions are recognized and appreciated.

This document was authored by SCALE with editorial and design assistance from Evaluation Systems.

Copyright © 2025 Board of Trustees of the Leland Stanford Junior University. All rights reserved.

The edTPA trademarks are owned by The Board of Trustees of the Leland Stanford Junior University. Use of the edTPA trademarks is permitted only pursuant to the terms of a written license agreement.

SCALE

Stanford Center for Assessment, Learning, & Equity

Contents

Introduction to edTPA Technology and Engineering Education.....	1
Purpose	1
Overview of the Assessment	1
Understanding Academic Language in edTPA: Supporting Learning and Language Development	2
Understanding Rubrics	3
Helpful Resources	3
Planning Task 1: Planning for Instruction and Assessment	5
What Do I Need to Do?	5
How Will the Evidence of My Teaching Practice Be Assessed?	7
Planning Rubrics	8
Rubric 1: Planning for Technology and Engineering Understandings	8
Understanding Rubric Level Progressions: Rubric 1	9
Rubric 2: Planning to Support Varied Student Learning Needs	12
Understanding Rubric Level Progressions: Rubric 2	13
Rubric 3: Using Knowledge of Students to Inform Teaching and Learning	16
Understanding Rubric Level Progressions: Rubric 3	17
Rubric 4: Identifying and Supporting Language Demands	19
Understanding Rubric Level Progressions: Rubric 4	20
Rubric 5: Planning Assessments to Monitor and Support Student Learning	23
Understanding Rubric Level Progressions: Rubric 5	24
Instruction Task 2: Instructing and Engaging Students in Learning	27
What Do I Need to Do?	27
How Will the Evidence of My Teaching Practice Be Assessed?	29
Instruction Rubrics	30
Rubric 6: Learning Environment	30
Understanding Rubric Level Progressions: Rubric 6	31
Rubric 7: Engaging Students in Learning	34
Understanding Rubric Level Progressions: Rubric 7	35
Rubric 8: Deepening Student Learning	38
Understanding Rubric Level Progressions: Rubric 8	39
Rubric 9: Subject-Specific Pedagogy: The Work Artifact(s)	41
Understanding Rubric Level Progressions: Rubric 9	42
Rubric 10: Analyzing Teaching Effectiveness	44
Understanding Rubric Level Progressions: Rubric 10	45
Assessment Task 3: Assessing Student Learning	47
What Do I Need to Do?	47
How Will the Evidence of My Teaching Practice Be Assessed?	49
Assessment Rubrics	50
Rubric 11: Analysis of Student Learning	50
Understanding Rubric Level Progressions: Rubric 11	51
Rubric 12: Providing Feedback to Guide Learning	54
Understanding Rubric Level Progressions: Rubric 12	55
Rubric 13: Student Understanding and Use of Feedback	58
Understanding Rubric Level Progressions: Rubric 13	59
Rubric 14: Analyzing Students' Language Use and Technology and Engineering Education Learning	61
Understanding Rubric Level Progressions: Rubric 14	62
Rubric 15: Using Assessment to Inform Instruction	65
Understanding Rubric Level Progressions: Rubric 15	66

Technology and Engineering Education Evidence Chart	69
Planning Task 1: Artifacts and Commentary Specifications.....	69
Instruction Task 2: Artifacts and Commentary Specifications	70
Assessment Task 3: Artifacts and Commentary Specifications	71
Technology and Engineering Education Glossary	74
Appendix: Academic Language	81
Language Demands	81
Example of Planned Language Development Supports	82

Introduction to edTPA Technology and Engineering Education

Purpose

The purpose of edTPA Technology and Engineering Education, a nationally available performance-based assessment, is to measure novice teachers' readiness to teach technology and engineering education. The assessment is designed with a focus on student learning and principles from research and theory. It is based on findings that successful teachers

- develop knowledge of subject matter, content standards, and subject-specific pedagogy
- develop and apply knowledge of varied students' needs
- consider research and theory about how students learn
- reflect on and analyze evidence of the effects of instruction on student learning

As a performance-based assessment, edTPA is designed to engage candidates in demonstrating their understanding of teaching and student learning in authentic ways.

Overview of the Assessment

The edTPA Technology and Engineering Education assessment is composed of three tasks:

1. Planning for Instruction and Assessment
2. Instructing and Engaging Students in Learning
3. Assessing Student Learning

For this assessment, you will plan **3–5 consecutive technology and engineering education lessons** (or, if teaching within a large time block, **3–5 hours of connected instruction**) referred to as a learning segment. Your lessons will be aligned with any of the following: Standards for Technological and Engineering Literacy (STEL);¹ Standards for Technological and Engineering: The Role of Technology and Engineering in STEM Education;² and the Next Generation Science Standards.³ A learning segment prepared for this assessment should reflect a balanced approach to technology and engineering education. This means your segment should include learning tasks where students have opportunities to develop technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies while completing a project.

¹ Standards for Technological and Engineering Literacy (STEL) can be found at <https://www.iteea.org/stel>.

² International Technology Education Association/International Technology and Engineering Educators Association (2020). *Standards for technological and engineering literacy: The role of technology and engineering in STEM education*. Reston, VA.

³ The Next Generation Science Standards are available on the NGSS website at <http://www.nextgenscience.org/>.

If students are spending several lessons working independently on the project, then you may extend the learning segment (**no more than 10 hours**), with about **3–5 hours of instruction** and the rest spent monitoring and supporting students as they work.

You will then teach the learning segment, making a videorecording of your interactions with students during instruction. You will also assess, informally and formally, students' learning **throughout** the learning segment. Upon completion of the three tasks, you will submit artifacts from the tasks (e.g., lesson plans, clips from your videorecording, assessment materials, instructional materials, student work samples), as well as commentaries that you have written to explain and reflect on the Planning, Instruction, and Assessment components of the tasks. The artifacts and commentaries for each task will then be evaluated using rubrics especially developed for each task.

Understanding Academic Language in edTPA: Supporting Learning and Language Development

Academic language (AL) is the oral and written language used for academic purposes. AL is the "language of the discipline" used to engage students in learning and includes the means by which students develop and express content understandings.

When completing your edTPA, candidates must consider the AL (i.e., **language demands**) present throughout the learning segment in order to support student learning and language development. The **language demands** in Technology and Engineering Education include **function; vocabulary/symbols; written, visual, or verbal communication; grammatical structures (syntax); and visual representation (work artifact)**.

As directed:

- Identify a key *language function* and one essential learning task within your learning segment lesson plans that allows students to practice the function (Planning Task 1, Prompts 4a/b).
- Identify *vocabulary/symbols and one additional language demand* related to the language function and learning task (Planning Task 1, Prompt 4c).
- Identify and describe the *instructional and/or language development supports* you have planned to address the language demands (Planning Task 1, Prompt 4d). *Language development supports* are scaffolds, representations, and instructional strategies that teachers intentionally provide to help learners understand and use the language they need to learn within disciplines.

It is important to realize that not all learning tasks focus on **both** written, visual, or verbal communication and grammatical structures. As you decide which additional language demands (i.e., grammatical structures and/or written, visual, or verbal communication) are relevant to your identified function, examine the language understandings and use that are **most relevant** to the learning task you have chosen. Then, you should plan to provide appropriate and targeted language development supports for students to learn and practice the language demands within the chosen learning task.

Academic language definitions and a few examples of language demands and supports to help teacher candidates and educator preparation programs understand

edTPA Rubrics 4 and 14 are provided in the Appendix. See the Technology and Engineering Education Glossary and the Understanding Rubric Level Progressions for Rubric 4 and Rubric 14 for additional examples of language demands.

Understanding Rubrics

When preparing your artifacts and commentaries, refer to the rubrics frequently to guide your thinking, planning, and writing.

After each rubric, there is a corresponding resource called Understanding Rubric Level Progressions (URLP). The URLP for each rubric presents score-level distinctions and other information for each edTPA rubric, including:

1. Elaborated explanations for rubric Guiding Questions
2. Key terms used in rubrics
3. Primary sources of evidence for each rubric
4. Rubric-specific scoring decision rules
5. Examples that distinguish between levels for each rubric: Level 3, below 3 (Levels 1 and 2), and above 3 (Levels 4 and 5).

Technology and Engineering Education Learning Segment Focus:

Candidate's instruction should support students to develop technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies.

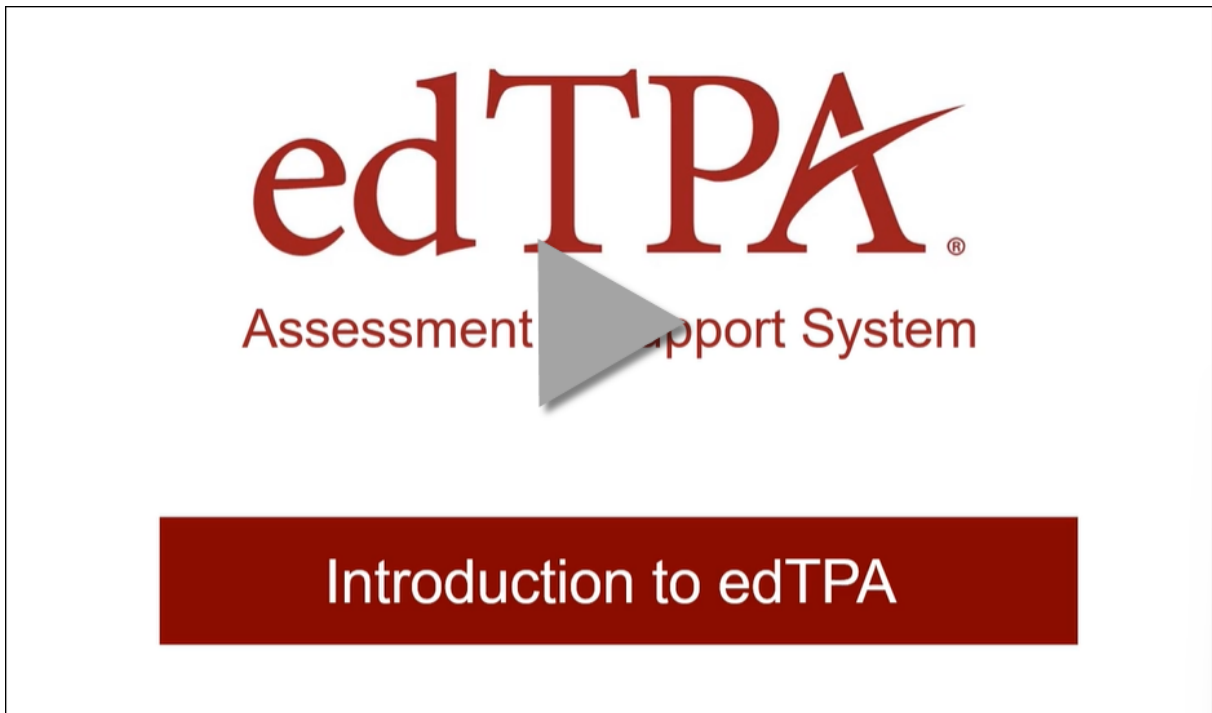
Helpful Resources

In addition to the instructions and rubrics, the following requirements and resources are provided for you in this handbook:

- [Technology and Engineering Education Evidence Chart](#): specifications for electronic submission of evidence (artifacts and commentaries), including templates, supported file types, number of files, response length, and other important evidence specifications
- **Glossary**: definitions of key terms can be accessed by referring to the [Technology and Engineering Education Glossary](#).

You should review the [Making Good Choices](#) document prior to beginning the planning of the learning segment. If you are in a preparation program, it will have additional resources that provide guidance as you develop your evidence.

Candidate Support Webinar: Introduction to edTPA



Video URL: <https://vimeo.com/771727364/8cd3cb66c5>

Planning Task 1: Planning for Instruction and Assessment

What Do I Need to Do?

- **Select a class.** If you teach more than one class, select one focus class for this assessment. If your placement for technology and engineering education has you responsible for a group rather than a whole class, plans should describe instruction for that group (**minimum of 4 students**). That group will constitute “the whole class” for edTPA.
 - **Note: California candidates**—within your edTPA, you must include an English learner, a student with an identified disability, and a student from an underserved education group.⁴
- **Provide context information.** Complete and submit the Technology and Engineering Education Context for Learning Information template found in your account. This template provides essential information about your students and your school/classroom. The context information you submit should be **no more than 4 pages, including the prompts**.
- **Identify a learning segment to plan, teach, and analyze.** Review the curriculum with your cooperating teacher and select a learning segment of **3–5 lessons** (if teaching technology and engineering education within a large time block, select a learning segment of **about 3–5 hours of connected instruction**).

If students are spending several lessons working independently on the project, then you may extend the learning segment (**no more than 10 hours**), with about **3–5 hours of instruction** and the rest spent monitoring and supporting students as they work.

- **Identify a central focus.** Identify the central focus along with the content standards and objectives you will address in the learning segment. The central focus should support students in developing technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies.
- **Identify and plan to support language demands.** Select a key language function from your learning objectives. Choose a learning task that provides opportunities for students to practice using that language function. Identify additional language demands associated with that task. Plan targeted supports that address the identified language demands, including the language function.
- **Write a lesson plan** for each lesson in the learning segment. Your lesson plans should be detailed enough that a substitute or other teacher could understand them well enough to use them.

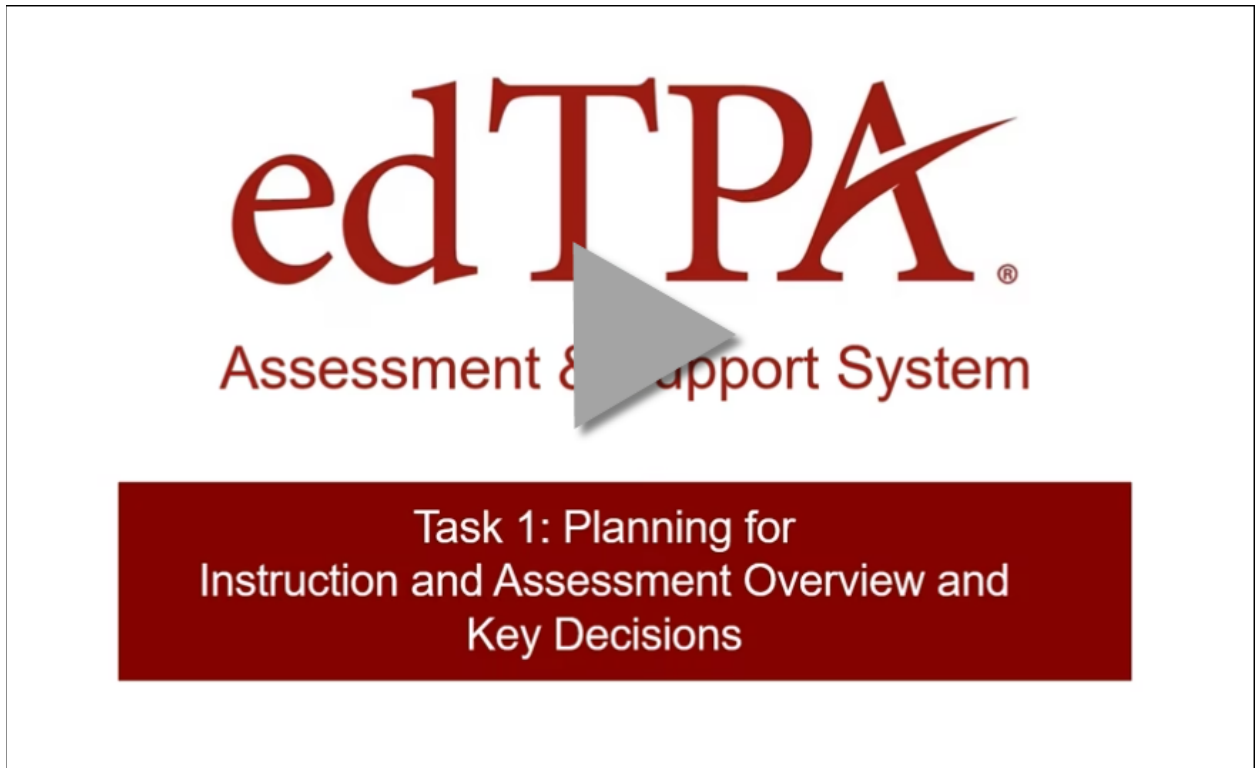
⁴ California candidates—If you do not have any English learners, select a student who is challenged by academic English. If you do not have a student with an identified disability or a student who is from an underserved education group, select a student receiving tiered support within the classroom or a student who often struggles with the content.

- Your lesson plans must include the following information, even if your teacher preparation program requires you to use a specific lesson plan format:
 - National or state-adopted student academic content standards that are the target of student learning (Note: Please include the **number and text** of each standard that is being addressed. If only a portion of a standard is being addressed, then only list the part or parts that are relevant.)
 - Learning objectives associated with the content standards
 - Formal and informal assessments used to monitor student learning, including type(s) of assessment and what is being assessed
 - Instructional strategies and learning tasks (including what you and the students will be doing) to support the needs of all students
 - Instructional resources and materials used to engage students in learning
- **Each lesson plan must be no more than 4 pages in length.** You will need to condense or excerpt lesson plans longer than 4 pages. Any explanations or rationale for decisions should be included in your Planning Commentary and deleted from your plans.
- **Respond to the commentary prompts** listed in the Planning Commentary template found in your account **prior to teaching the learning segment** and submit the completed template.
- **Submit your original lesson plans.** If you make changes while teaching the learning segment, you may offer reflection on those changes in the Instruction Task 2 and Assessment Task 3 Commentaries.
- **Select and submit key instructional materials** needed to understand what you and the students will be doing (**no more than 5 additional pages per lesson plan**). The instructional materials might include such items as class handouts, assignments, slides, and interactive whiteboard images.
- **Submit copies of all written assessments and/or directions for any oral or performance assessments.** (Submit only the blank assessment given to students; do not submit student work samples for this task.)
- **Provide citations for the source of all materials that you did not create** (e.g., published texts, websites, and material from other educators). List all citations by lesson number at the end of the Planning Commentary. Note: Citations do not count toward the commentary page limit.

See the [Planning Task 1: Artifacts and Commentary Specifications](#) in the Technology and Engineering Education Evidence Chart for instructions on electronic submission of evidence. This evidence chart identifies templates, supported file types, number of files, response length, and other important evidence specifications. Your evidence cannot contain hyperlinked content. Any web content you wish to include as part of your evidence must be submitted as a document file, which must conform to the file format and response length requirements.

Review the Planning Task 1 Key Decisions and Key Points in the [Making Good Choices](#) document for supplementary advice for completing specific components of Planning Task 1.

Candidate Support Webinar: Task 1: Planning for Instruction and Assessment Overview and Key Decisions



Video URL: <https://vimeo.com/797488626/3d5cac5f63>

How Will the Evidence of My Teaching Practice Be Assessed?

For Planning Task 1, your evidence will be assessed using rubrics 1–5, which appear on the following pages. When preparing your artifacts and commentaries, refer to the rubrics frequently to guide your thinking, planning, and writing.

Planning Rubrics

Rubric 1: Planning for Technology and Engineering Understandings

How do the candidate's plans build students' technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies?

Level 1 ⁵	Level 2	Level 3	Level 4	Level 5
Candidate's plans for instruction focus solely on technical skills with no connections to technology-related • conceptual understanding OR • engineering design or other problem-solving strategies. OR There are significant content and/or technical skill inaccuracies that will lead to student misunderstandings. OR Standards, objectives, and learning tasks and materials are not aligned with each other.	Candidate's plans for instruction support student learning of technical skills with vague connections to technology-related • conceptual understanding OR • engineering design or other problem-solving strategies.	Candidate's plans for instruction build on each other to support learning of technical skills with clear connections to technology-related • conceptual understanding OR • engineering design or other problem-solving strategies.	Candidate's plans for instruction build on each other to support learning of technical skills with clear and consistent connections to technology-related • conceptual understanding AND • engineering design or other problem-solving strategies.	Level 4 plus: Candidate explains how s/he will use learning tasks and materials to lead students to make clear and consistent connections between technology-related • technical skills, • conceptual understanding, AND • engineering design or other problem-solving strategies.

⁵ Text representing key differences between adjacent score levels is shown in bold. Evidence that does not meet Level 1 criteria is scored at Level 1.

Understanding Rubric Level Progressions: Rubric 1

The Guiding Question

The Guiding Question addresses how a candidate's plans build a learning segment of three to five lessons around a central focus. Candidates will explain how they plan to organize tasks, activities, and/or materials to align with the central focus and the standards/objectives. The planned learning segment must develop **students' technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies**.

Key Concepts of Rubric:

- [Aligned](#)⁶
- [Significant content inaccuracies](#)

Terms Central to the edTPA:

- [Technology-related conceptual understanding](#)
- [Technical skills](#)
- [Engineering design process/technical design process](#)

Primary Sources of Evidence:

Context for Learning Information

Planning Commentary **Prompt 1**

Strategic review of Lesson Plans & Instructional Materials

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ Pattern of significant content inaccuracies that are core to the central focus or a key learning objective for the learning segment ■ A pattern of misalignment is demonstrated in relation to standards/objectives, learning tasks and materials across two or more lessons

⁶ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- Plans for instruction are **logically sequenced** to facilitate students' learning.
- Plans are presented in a linear sequence in which **each lesson builds on the previous one(s)** OR a nonlinear sequence, e.g., when a problem or design task is posed and students develop an understanding of technology-related concepts and technical skills by using engineering design principles or other problem-solving strategies to explore the problem.
- In addition, the sequencing of the plans supports students' learning by connecting technical skills to technology-related concepts **OR** engineering design principles or other problem-solving strategies during the learning segment. **These connections are explicitly written in the plans or commentary**, and how the connections are made is not left to the determination of the scorer.
- Be sure to pay attention to **each component** of the subject-specific emphasis (technology-related concepts, technical skills, plus engineering design or other problem-solving strategies).

Below 3

Evidence that demonstrates performance below Level 3:

- Plans for instruction support student learning of technical skills, but with **little or no** planned instruction to guide understanding of the underlying technology-related concepts or why engineering design or other problem-solving strategies work.

What distinguishes a Level 2 from a Level 3: At Level 2,

- The candidate is paying some attention to helping students understand how to apply technical skills, but the **connections** to technology-related concepts or engineering design principles or other problem-solving strategies **are fleeting or vague**, so that students are largely left to make sense of these on their own.

What distinguishes a Level 1 from a Level 2: At Level 1,

- The candidate is **focused on teaching technical skills** where there is little or no attention to assisting students in understanding the technology-related concepts, engineering design principles or other problem-solving strategies.

Automatic Score of 1 is given when:

- There is a pattern of **significant content inaccuracies** that will lead to student misunderstandings. Content flaws in the plans or instructional materials are significant and systematic, and interfere with student learning.
- **Standards, objectives, learning tasks, and materials are not aligned** with each other. There is a **pattern of misalignment** across two or more lessons. If one standard or objective does not align within the learning segment, this level of misalignment is not significant enough for a Level 1.

Above 3

Evidence that demonstrates performance above Level 3:

- Learning tasks are designed to support students to make clear, **consistent** connections between technology-related concepts, technical skills, AND engineering design principles or other problem-solving strategies.
- Consistent connections require students to routinely apply understandings of technology-related concepts and explain their application of engineering design principles or other problem-solving strategies as they use technical skills throughout the entire learning segment (all lessons).

What distinguishes a Level 4 from a Level 3: At Level 4,

- In the commentary, the candidate addresses connections between and among technology-related concepts, technical skills, and engineering design principles or other problem-solving strategies **in every lesson**. Be sure to pay attention to each component of the subject-specific emphasis (technology-related concepts, technical skills, plus engineering design principles or other problem-solving strategies).
- The candidate uses these connections **to deepen student understanding of the central focus**.

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4 AND

- Plans include activities and questions that will clearly support students in making these connections themselves.
- This would include plans that pose strategic problems and/or questions that lead students to make the connections and/or plans where students develop the habit of.
 - Looking for connections between technical skills, technology-related concepts, and the engineering design and/or other problem-solving strategies;
 - Justifying the steps in a solution; and/or
 - Identifying and correcting errors in their design or solution strategy

Planning Rubrics continued

Rubric 2: Planning to Support Varied Student Learning Needs

How does the candidate use knowledge of his/her students to target support for students to develop technology-related conceptual understandings, technical skills, and engineering design or other problem-solving strategies?

Level 1	Level 2	Level 3	Level 4	Level 5
There is no evidence of planned supports. OR Candidate does not attend to ANY INSTRUCTIONAL requirements in IEPs and 504 plans.	Planned supports are loosely tied to learning objectives or the central focus of the learning segment.	Planned supports are tied to learning objectives and the central focus with attention to the characteristics of the class as a whole.	Planned supports are tied to learning objectives and the central focus. Supports address the needs of specific individuals or groups with similar needs.	Level 4 plus: Supports include specific strategies to identify and respond to preconceptions, common errors, and misunderstandings.

Understanding Rubric Level Progressions: Rubric 2

The Guiding Question

The Guiding Question addresses how the candidate plans to support students in relationship to students' characteristics. This includes using the candidate's understanding of students to develop, choose, or adapt instructional strategies, learning tasks and materials.

Key Concept of Rubric:

- [Planned supports](#)⁷

Primary Sources of Evidence:

Context for Learning Information (required supports, modifications, or accommodations)

Planning Commentary **Prompts 2 and 3**

Strategic review of lesson plans and instructional materials to clarify planned supports.

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ Planned support according to requirements in IEP or 504 plans is completely missing. ■ If there are no students with IEPs or 504 plans, then this criterion is not applicable.

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- Candidate explains how planned supports for students address the learning needs of the whole class while assisting them in achieving the learning objectives.
- Candidate addresses at least one of the requirements from IEPs and 504 plans as described in the Context for Learning Information.
- Requirements must be explicitly addressed in the commentary and/or the Planning Task 1 artifacts. List of requirements and/or accommodations in the Context for Learning Information document is not sufficient by itself.

Below 3

Evidence that demonstrates performance below Level 3:

- Candidate plans insufficient supports to develop students' learning relative to the learning objectives or the central focus. Evidenced by ONE or more of the following:
 - Candidate does not plan supports for students.

⁷ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

- Planned supports are not closely tied to learning objectives or the central focus.
- Evidence does not reflect ANY instructional requirement in IEPs or 504 plans.

What distinguishes a Level 2 from a Level 3: At Level 2,

- Plans address at least one instructional requirement set forth in IEPs and 504 plans. However, it is not clear that other planned supports will be helpful in supporting students to meet the learning objectives.
- The supports would work for almost any learning objective. Therefore, supports are not closely connected to the learning objectives or central focus (e.g., pair high and low students during partner work without a specific description of how that supports students with a specific need, check on students who are usually having trouble, without any specific indication of what the candidate might be checking for, such as using engineering design principles or other problem-solving strategies to inform an initial solution to a design problem).
- Supports are tied to learning objectives within each lesson, but there is no central focus.

What distinguishes a Level 1 from a Level 2: At Level 1,

- Evidence of intentional support for students' needs as described by the candidate is absent.

Automatic Score of 1 is given when:

- If IEP/504 requirements are described in the Context for Learning or commentary but none are included in the planned support, then the rubric is scored as an Automatic Level 1, regardless of other evidence of support for the whole class or groups or individuals in the class. If the candidate describes one or more of the IEP or 504 plan requirements for any student in the lesson plans or commentary, then the score is determined by the Planned Support criterion. **(If there are no students with IEPs or 504 plans, then this criterion is not applicable.)**

Above 3

Evidence that demonstrates performance above Level 3:

- Plans address specific student needs (beyond those required in IEP and 504 plans) by including descriptions of scaffolding or structured supports that are explicitly selected or developed to help individual students and groups of students with similar needs to gain access to content and meet the learning objectives.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The candidate explains how the supports tied to the learning objectives are intended to meet specific needs of individuals or groups of students with similar needs, in addition to the whole class. Supports should be provided for more than one student—either more than one individual or for a specific group of students with similar needs (e.g., more instruction in a prerequisite skill).

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4 AND

- ALSO identifies possible preconceptions, common errors, or misunderstandings associated with the central focus, and describes specific strategies to identify and respond to them.

- If the plans and commentary attend to preconceptions, common errors or misunderstandings without also satisfying Level 4 requirements, this is not sufficient evidence for Level 5.

Planning Rubrics continued

Rubric 3: Using Knowledge of Students to Inform Teaching and Learning

How does the candidate use knowledge of his/her students to justify instructional plans?

Level 1	Level 2	Level 3	Level 4	Level 5
Candidate's justification of learning tasks is either missing OR represents a deficit view of students and their backgrounds.	Candidate justifies learning tasks with limited attention to students' • prior academic learning and/or prerequisite skills OR • personal or community assets.	Candidate justifies why learning tasks (or their adaptations) are appropriate using examples of students' • prior academic learning and/or prerequisite skills OR • personal or community assets. Candidate makes superficial connections to research and/or theory.	Candidate justifies why learning tasks (or their adaptations) are appropriate using examples of students' • prior academic learning and/or prerequisite skills AND • personal or community assets. Candidate makes connections to research and/or theory.	Level 4 plus: Candidate's justification is supported by principles from research and/or theory.

Understanding Rubric Level Progressions: Rubric 3

The Guiding Question

The Guiding Question addresses how the candidate justifies the ways in which learning tasks and materials make content meaningful to students, by drawing upon knowledge of individuals or groups, as well as research or theory.

Key Concepts of Rubric:

- [Deficit thinking](#)⁸
- [Prior academic learning and/or prerequisite skills](#)
- [Assets](#) (personal, community)

Primary Sources of Evidence:

Planning Commentary **Prompts 2 and 3**

Scoring Decision Rules

Multiple Criteria	■ Criterion 1 (primary): Justification of plans using knowledge of students—i.e., prior academic learning and/or prerequisite skills AND/OR assets (personal, community) ■ Criterion 2: Research and theory connections ■ Place greater weight or consideration on criterion 1 (justification of plans using knowledge of students)
AUTOMATIC 1	■ Deficit view of students and their backgrounds

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- **Primary Criterion:** The candidate explains how the learning tasks are explicitly connected to the students' prior academic knowledge OR knowledge of students' assets (personal, community). Assets include students' backgrounds, interests, community or family resources and personal experiences.
- **Secondary Criterion:** The candidate refers to research or theory in relation to the plans to support student learning. The connections between the research/theory and the tasks are superficial/not clearly made. They are not well connected to a particular element of the instructional design.
- If evidence meets the primary criterion at Level 3, the rubric is scored at Level 3 **regardless of the evidence for the secondary criterion.**
- If evidence meets the primary criterion at Level 4, and candidate has NO connection to research/theory, the rubric is scored at Level 3.

⁸ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

Below 3**Evidence that demonstrates performance below Level 3:**

- There is a limited amount of evidence that the candidate has considered his/her particular class in planning.

OR

- The candidate justifies the plans through a deficit view of students and their backgrounds.

What distinguishes a Level 2 from a Level 3: At Level 2,

- The candidate's justification of the learning tasks makes some connection with what they know about students' prior academic learning and/or prerequisite skills OR assets (personal, community). These connections are not strong, but are instead vague or unelaborated, or involve a listing of what candidates know about their students in terms of prior knowledge or background without making a direct connection to how this information was **used** to inform planning.

What distinguishes a Level 1 from a Level 2: At Level 1,

- There is no evidence that the candidate uses knowledge of students to plan.

Automatic Score of 1 is given when:

- Candidate's justification of learning tasks includes a pattern representing a deficit view of students and their backgrounds. (See the explanation of deficit thinking listed above under Key Concepts of Rubric.)

Above 3**Evidence that demonstrates performance above Level 3:**

- The candidate's justification not only uses knowledge of students—as both academic learners AND as individuals who bring in personal or community assets—but also uses research or theory to inform planning.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The evidence includes specific examples from students' prior academic learning and/or prerequisite skills **AND** knowledge of students' assets (personal, community), and explains how the plans reflect this knowledge. The explanation needs to include **explicit connections** between the learning tasks and the examples provided.
- The candidate explains how research or theory informed the selection or design of at least one learning task or the way in which it was implemented. The connection between the research or theory and the learning task(s) must be explicit.
- Scoring decision rules: To score at Level 4, the candidate must meet the primary criterion at Level 4 and make at least a fleeting, relevant reference to research or theory (meet the secondary criterion at least at Level 3).

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4 AND

- Explains how principles of research or theory support or set a foundation for their planning decisions.
 - The justifications are explicit, well-articulated, and demonstrate a thorough understanding of the research/theory principles that are clearly reflected in the plans.

Planning Rubrics continued

Rubric 4: Identifying and Supporting Language Demands

How does the candidate identify and support language demands associated with a key technology and engineering education learning task?

Level 1	Level 2	Level 3	Level 4	Level 5
Language demands⁹ identified by the candidate are not consistent with the selected language function¹⁰ OR task. OR Language development supports are missing or are not aligned with the language demand(s) for the learning task.	Language development supports primarily address one language demand (vocabulary/symbols; function; grammatical structures; written, visual, or verbal communication; visual representation).	General language development supports address use of two or more language demands (vocabulary/symbols; function; grammatical structures; written, visual, or verbal communication; visual representation).	Targeted language development supports address use of • Vocabulary/symbols, • language function, AND • one or more additional language demands (grammatical structures; written, visual, or verbal communication; visual representation).	Level 4 plus: Language development supports are designed to meet the needs of students with different levels of language learning.

⁹ Language demands include: language function; vocabulary/symbols; grammatical structures; and written, visual, or verbal communication (organizational structures, text structure, etc.), and visual representation (work artifacts).

¹⁰ Language function refers to the learning outcome (verb) selected in Planning Commentary Prompt 4a (e.g., analyze, identify, synthesize).

Understanding Rubric Level Progressions: Rubric 4

The Guiding Question

The Guiding Question focuses on how the candidate describes the planned instructional supports that address the identified language demands for the learning task.

Key Concepts of Rubric:

Use the terms below and their definitions from the glossary as well as the [Academic Language Appendix](#) to further clarify concepts on Rubric 4.

- [Language demands](#)¹¹
- [Language functions](#)
- [Vocabulary/symbols](#)
- [Written, visual, or verbal communication](#)
- [Grammatical structures](#)
- [Language development supports](#)

Primary Sources of Evidence:

Planning Commentary **Prompt 4a–d**

Strategic review of Lesson Plans

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ None

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at **Level 3**:

- General supports are planned and described, though not in specific detail, for students' application of any two or more of the language demands (function; vocabulary/symbols; grammatical structures; written, visual, or verbal communication; visual representation).
 - Language development supports must go beyond opportunities for students to practice using the identified language demands either individually or with other students within the learning segment. Examples of general language development supports include describing and defining the function; modeling vocabulary/symbols; grammatical

¹¹ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

structures or written, visual, or verbal communication; providing an example with little explanation; questions and answers about a language demand; whole group discussion of a language demand; providing pictures to illustrate vocabulary/symbols.

- The candidate may inaccurately categorize a language demand (e.g., identifies grammatical structures as written, visual, or verbal communication), but does describe general supports for two of the language demands required of students within the learning task. For example:
 - "For written, visual, or verbal communication, I will model how to identify and substitute terms into the formula $a=mg$. To support vocabulary/symbols, we will review the terms (acceleration, mass, gravity) and solve several sample problems as a class." This example would be scored at a Level 3 because there are supports for two language demands, vocabulary/symbols and grammatical structures, even though the candidate categorizes using formulas (a form of grammatical structures) as written, visual, or verbal communication.

Below 3

Evidence that demonstrates performance below Level 3:

- The candidate has a superficial view of academic language and provides supports that are misaligned with the demands or provides support for only one language demand (vocabulary/symbols; function; grammatical structures; written, visual, or verbal communication; or visual representation).

What distinguishes a Level 2 from a Level 3: At Level 2,

- The primary focus of support is on only one of the language demands (vocabulary/symbols; function; grammatical structures; written, visual, or verbal communication; or visual representation) with little to no attention to any of the other language demands.
- Support may be general (e.g., discussing, defining or describing a language demand), or it may be targeted, (e.g., modeling a language demand while using an example with labels). Regardless, the support provided is limited to one language demand.

What distinguishes a Level 1 from a Level 2: At Level 1,

- There is a pattern of misalignment between the language demand(s), and the language development supports identified. For example, the language function is listed as analyzing, but the language task is that the students will be expected to put the unit's key terms in their engineering notebooks. A list of key vocabulary terms and/or symbols is included. "AND, OR, and NOT gates and their symbols will be used as part of the written, visual, or verbal communication that will occur as the students work on their projects." This example would be scored at a Level 3 because there are supports for two language demands, vocabulary/symbols and written, visual, or verbal communication, even though the candidate miscategorizes gates and their symbols as written, visual, or verbal communication.

OR

- Language development supports are completely missing.

Above 3

Evidence that demonstrates performance above Level 3:

- The supports specifically address the language function, vocabulary/symbols, and at least one other language demand (grammatical structures; written, visual, or verbal communication; and/or visual representation) in relation to the use of the language function in the context of the chosen task.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The candidate identifies specific planned language development supports in relation to vocabulary/symbols, the language function, and describes how supports address each of the following: (grammatical structures; written, visual, or verbal communication; and/or visual representation).
- Supports are focused (e.g., provide structures or scaffolding) to address specific language demands, such as sentence starters (grammatical structures or function); modeling how to construct an argument, explanation, or paragraph using a think aloud (function; written, visual, or verbal communication); graphic organizers tailored to organizing text (written, visual, or verbal communication or function); identifying critical elements of a language function using an example; or more in-depth exploration of vocabulary development (vocabulary mapping that includes antonym, synonym, student definition and illustration).

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4 AND

- The candidate includes and explains how one or more of the language development supports are either designed or differentiated to meet the needs of students with differing language needs.

Planning Rubrics continued

Rubric 5: Planning Assessments to Monitor and Support Student Learning

How are the formal and informal assessments selected or designed to monitor students' technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies?

Level 1	Level 2	Level 3	Level 4	Level 5
The assessments only provide evidence of students' technical skills. OR Candidate does not attend to ANY ASSESSMENT requirements in IEPs and 504 plans.	The assessments provide limited evidence to monitor students' technology-related • conceptual understanding, • technical skills, AND/OR • engineering design or other problem-solving strategies during the learning segment.	The assessments provide evidence to monitor students' technology-related • conceptual understanding, • technical skills, AND • engineering design or other problem-solving strategies during the learning segment.	The assessments provide multiple forms of evidence to monitor students' technology-related • conceptual understanding, • technical skills, AND • engineering design or other problem-solving strategies throughout the learning segment.	Level 4 plus: The assessments are strategically designed to allow individuals or groups with specific needs to demonstrate their learning.

Understanding Rubric Level Progressions: Rubric 5

The Guiding Question

The Guiding Question addresses the alignment of the assessments to the standards and objectives and the extent to which assessments provide multiple forms of evidence to monitor student progress throughout the learning segment. It also addresses required adaptations from IEPs or 504 plans. The array of assessments should provide evidence of students' technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies.

Key Concepts of Rubric:

- [Assessment \(formal or informal\)](#)¹²
- [Engineering design process/technological design process](#)

Primary Sources of Evidence:

Context for Learning Information (required supports, modifications, or accommodations for assessments)

Planning Commentary **Prompt 5**

Assessment Materials

Strategic review of Lesson Plans

Scoring Decision Rules

Multiple Criteria	▪ N/A for this rubric
AUTOMATIC 1	▪ None of the assessment-related adaptations required by IEPs or 504 plans are made. (If there are no students with IEPs or 504 plans, then this criterion is not applicable.)

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- The planned assessments provide evidence of students' technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving strategies **at various points** within the learning segment. The assessments must provide evidence of all three (technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving strategies.).
- Requirements from the IEP or 504 plan must be explicitly addressed in the commentary and/or the Planning Task 1 artifacts. List of requirements and/or

¹² Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

accommodations in the Context for Learning Information document is not sufficient by itself.

Below 3

Evidence that demonstrates performance below Level 3:

- The planned assessments will yield insufficient evidence to monitor students' technology-related conceptual understanding, technical skills, OR engineering design or other problem-solving strategies within the learning segment.

What distinguishes a Level 2 from a Level 3: At Level 2,

- Assessments will produce evidence of student learning, but evidence is limited. Examples of limited assessments include a single assessment or assessments for only technical skills or technology-related conceptual understanding and not the other areas.
- Although assessments may provide some evidence of student learning, they do not collectively monitor all areas of learning across the learning segment.

What distinguishes a Level 1 from a Level 2: At Level 1,

- The assessments only focus on following rote procedures for applying technical skills without providing evidence of technology-related conceptual understanding OR engineering design principles or other problem-solving strategies.

Automatic Score of 1 is given when:

- If there is NO attention to ANY **assessment-related** IEP/504 plan requirements (e.g., more time; a scribe for written assignments) in either the commentary or the Planning Task 1 artifacts, the score of 1 is applied; otherwise the evidence for the other criteria will determine the score. **(If there are no students with IEPs or 504 plans, then this criterion is not applicable.)**

Above 3

Evidence that demonstrates performance above Level 3:

- The array of assessments provides consistent evidence of technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving strategies.
- Assessment evidence will allow the candidate to determine students' progress toward developing technology-related conceptual understanding, technical skills, AND engineering design and/or other problem-solving strategies.

What distinguishes a Level 4 from a Level 3: At Level 4,

- There are multiple forms of evidence, not just the same kind of evidence collected at different points in time or in different settings, to monitor student development of technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving strategies for the central focus. "Multiple forms of evidence" means that different types of evidence are used—e.g., description, explanation, graphical representations, problem steps, generalization to another context, work artifacts—and not that there is only one type of evidence on homework, exit slips, and the final test.
- The array of assessments provides evidence to track student progress toward developing the technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving strategies defined by the standards and learning objectives.

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4
AND

- Describes how assessments are targeted and explicit in design to allow individuals or groups with specific needs to demonstrate their learning without oversimplifying the content.
- Strategic design of assessments goes beyond, for example, allowing extra time to complete an assignment or adding a challenge question.

Instruction Task 2: Instructing and Engaging Students in Learning

What Do I Need to Do?

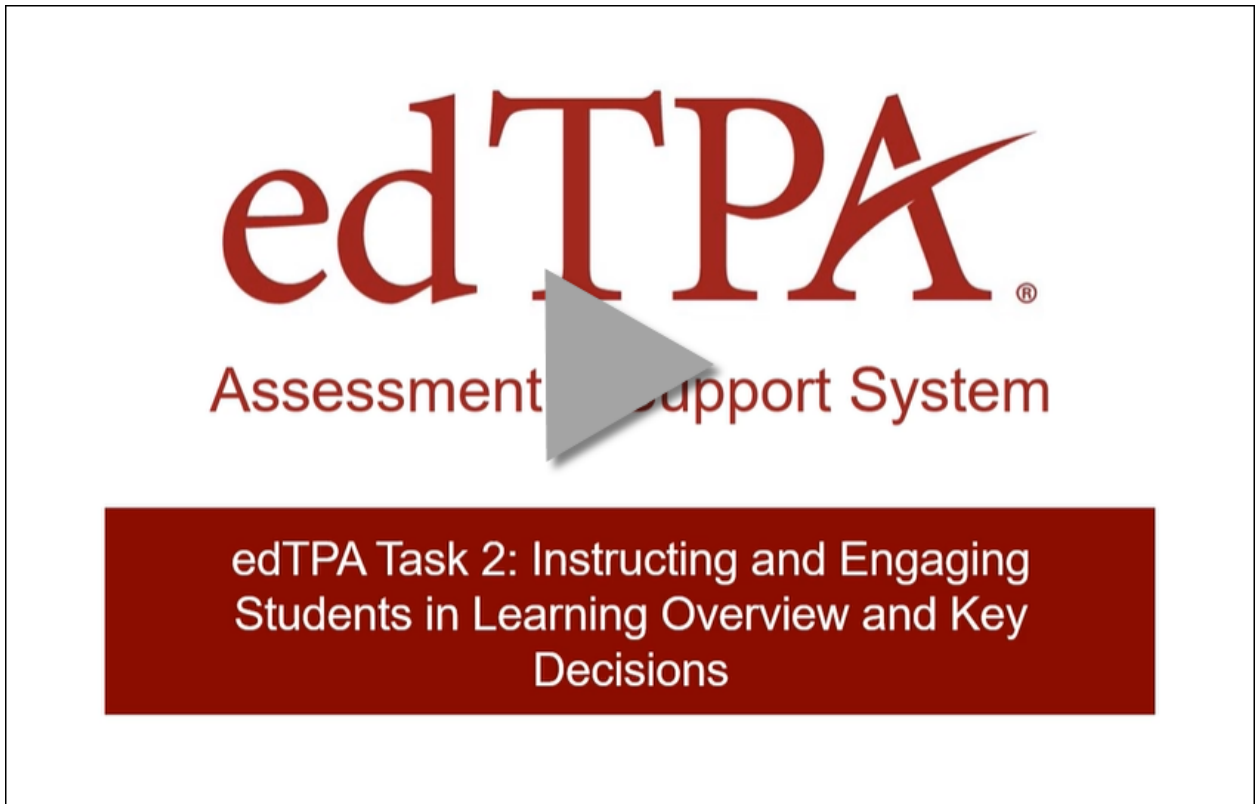
- **Obtain required permissions for videorecording.** Before you record your video, ensure that you have the appropriate permission from the parents/guardians of your students and from adults who appear in the video. Adjust the camera angle to exclude individuals for whom you do not have permission to film.
- **Examine your plans for the learning segment** and identify challenging learning tasks in which you and students are actively engaged. The video clips you select for submission should provide a sample of how you interact with students to develop technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies.
- **Identify lessons to videorecord.**
- **Provide 2 video clips (each no more than 10 minutes in length, but not less than 3 minutes combined)** that demonstrate how you interact with students in a positive learning environment to develop technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies related to engineering design.
 - The **first clip** should illustrate how you introduced students to technology-related concepts and relevant technical skills or strategies related to engineering design or problem solving.
 - The **second clip** should illustrate how you actively engaged students in engineering design or other problem-solving strategies as they worked on a project.
 - The video clips can feature either the whole class or a targeted group of students (**minimum of 4 students**) within the class.
- **(Optional) Provide evidence of students' language use.** You may provide evidence of language use from your video clips from Instruction Task 2, an additional video clip of one or more students using language within the learning segment (**no more than 5 minutes in length**), **AND/OR** through the student work samples analyzed in Assessment Task 3.
- **Videorecord your classroom teaching.** Ensure that your instruction and the work being done by students are clearly visible. Other tips for videorecording your class are available from your teacher preparation program.
- **Select video clips to submit** and verify that the clips meet the following requirements:
 - Ensure that you and your students can be seen in the video clips you submit. Also, ensure that your face appears at least once in the video for identification purposes.
 - Check the sound quality to ensure that you and your students can be heard on the video clips you submit. If most of the audio in a clip cannot be understood by a scorer, submit another clip. If there are occasional audio portions of a clip that cannot be understood that are relevant to your commentary responses, do one of the following: 1) provide a transcript with time stamps of the inaudible portion and refer to the transcript in your response; 2) embed quotes with time-stamp references in the

- commentary response; or 3) insert captions in the video (captions for this purpose will be considered permissible editing).
- A video clip must be continuous and unedited, with no interruption in the events.
 - If you have inadvertently included individuals for whom you do not have permission to film in the video clips you plan to submit, you may use software to blur the faces of these individuals. This is not considered editing. Other portions of the submitted video clips, including the classroom, your face, and the faces of individuals for whom you have obtained permission to film, should remain unblurred.
 - Do not include the name of the state, school, or district in your video. Use first names only for all individuals appearing in the video.
 - **Respond to the commentary prompts** listed in the Instruction Commentary template found in your account **after teaching the learning segment** and submit the completed template.
 - **Determine if additional information is needed to understand what you and the students are doing in the video clips.** For example, if there are graphics, texts, or images that are not clearly visible in the video, or comments that are not clearly heard, you may insert digital copies or transcriptions at the end of the Instruction Commentary (**no more than 2 pages in addition to the responses to commentary prompts**).

See the [Instruction Task 2: Artifacts and Commentary Specifications](#) in the Technology and Engineering Education Evidence Chart for instructions on electronic submission of evidence. This evidence chart identifies templates, supported file types, number of files, response length, and other important evidence specifications. Your evidence cannot contain hyperlinked content. Any web content you wish to include as part of your evidence must be submitted as a document file, which must conform to the file format and response length requirements.

Review the Instruction Task 2 Key Decisions and Key Points in the [Making Good Choices](#) document for supplementary advice for completing specific components of Instruction Task 2.

Candidate Support Webinar: Task 2: Instructing and Engaging Students in Learning Overview and Key Decisions



Video URL: <https://vimeo.com/803471740/a2f6307f88>

How Will the Evidence of My Teaching Practice Be Assessed?

For Instruction Task 2, your evidence will be assessed using rubrics 6–10, which appear on the following pages. When preparing your artifacts and commentaries, refer to the rubrics frequently to guide your thinking, instruction, and writing.

Instruction Rubrics

Rubric 6: Learning Environment

How does the candidate demonstrate a safe, positive learning environment that supports students' engagement in learning?

Level 1	Level 2	Level 3	Level 4	Level 5
The clips reveal evidence of disrespectful interactions between teacher and students or between students. OR Candidate allows disruptive behavior to interfere with student learning.	The candidate demonstrates respect for students. AND Candidate provides a learning environment that serves primarily to control student behavior, and minimally supports the learning goals.	The candidate demonstrates rapport with and respect for students. AND Candidate provides a positive, low-risk learning environment that reveals mutual respect among students.	The candidate demonstrates rapport with and respect for students. AND Candidate provides a challenging learning environment that promotes mutual respect among students.	The candidate demonstrates rapport with and respect for students. AND Candidate provides a challenging learning environment that provides opportunities to express varied perspectives and promotes mutual respect among students.
Candidate provides an environment that is unsafe or students do not understand safety procedures.	Candidate provides an environment that is safe or students understand safety procedures.	Candidate provides an environment that is safe AND students understand safety procedures.	Candidate provides an environment that is safe AND students display safety procedures.	Candidate provides an environment that is safe AND students display safety procedures.

Understanding Rubric Level Progressions: Rubric 6

The Guiding Question

The Guiding Question addresses the type of learning environment that the candidate establishes and the degree to which it fosters respectful interactions between the candidate and students, and among students.

Key Concepts of Rubric:

- [Respect](#)¹³
- [Rapport](#)
- [Learning environment](#)
- [Safety](#)

Primary Sources of Evidence:

Video Clips

Instruction Commentary **Prompt 2**

Note that for the Instruction Task, the commentary is intended to provide context for interpreting what is shown in the video. Candidates sometimes describe events that do not appear in the video or conflict with scenes from the video—**such statements should not override evidence depicted in the video.**

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ There are unaddressed safety issues seen in the video that pose a danger to students, or there is evidence in the video that students do not understand safety procedures

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3: In the clip(s):

- The candidate's interactions with students are respectful, demonstrate rapport (evidence of relationship between candidate and students and/or ease of interaction that goes back and forth based on relevance or engaged conversation), and students communicate easily with the candidate.
- There is evidence that the candidate facilitates a positive learning environment wherein students are willing to answer questions and work together without the candidate or other students criticizing their responses.

¹³ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

- There is evidence of mutual respect among students. Examples include attentive listening while other students speak, respectful attention to another student's idea (even if disagreeing), working together with a partner or group to accomplish tasks.

Below 3

Evidence that demonstrates performance below Level 3: The clip(s):

- Do not exhibit evidence of positive relationships and interactions between candidate and students.
- Reveal a focus on classroom management and maintaining student behavior and routines rather than engaging students in learning.

What distinguishes a Level 2 from a Level 3: At Level 2,

- Although clips reveal the candidate's respectful interactions with students, there is an emphasis on candidate's rigid control of student behaviors, discussions, and other activities in ways that limit and do not support learning.

What distinguishes a Level 1 from a Level 2: At Level 1, there are two different ways that evidence is scored:

1. The clips reveal evidence of candidate-student or student-student interactions that discourage student contributions, disparage the student(s), or take away from learning.
2. The classroom management is so weak that the candidate is not able to, or does not successfully, redirect students, or the students themselves find it difficult to engage in learning tasks because of disruptive behavior.

Note: Classroom management styles vary. Video clips that show classroom environments where students are productively engaged in the learning task should not be labeled as disruptive. Examples of this may include students engaging in discussion with peers, speaking without raising their hands, or being out of their seats.

Automatic Score of 1 is given when:

- There are unaddressed safety issues seen in the video that pose a danger to students or there is evidence in the video that students do not understand safety procedures.

Above 3

Evidence that demonstrates performance above Level 3:

- The clip(s) reveal a positive learning environment that includes tasks/discussions that challenge student thinking and encourage respectful student-student interaction.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The learning environment supports learning tasks that appropriately challenge students by promoting higher-order thinking or application to develop new learning. There must be evidence that the environment is challenging for students. Examples include: students cannot answer immediately, but need to think to respond; the candidate asks higher-order thinking questions; students are trying to apply their initial learning to another context.
- The learning environment encourages and supports mutual respect among students.

What distinguishes a Level 5 from a Level 4: At Level 5,

- The learning environment encourages students to express, debate, and evaluate differing perspectives about content with each other. Perspectives could be from curricular sources, students' ideas, and/or lived experiences.

Instruction Rubrics continued

Rubric 7: Engaging Students in Learning

How does the candidate actively engage students in developing technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies?

Level 1	Level 2	Level 3	Level 4	Level 5
Students are participating in tasks or behaviors that are vaguely or superficially related to technology-related - conceptual understanding, - technical skills, AND - engineering design or other problem-solving strategies.	Students are participating in learning tasks primarily focused on technical skills with little attention to technology-related - conceptual understanding AND - engineering design or other problem-solving strategies.	Students are engaged in learning tasks that address technology-related - conceptual understanding, - technical skills, AND - engineering design or other problem-solving strategies.	Students are engaged in learning tasks that develop technology-related - conceptual understanding, - technical skills, AND - engineering design or other problem-solving strategies.	Students are engaged in learning tasks that deepen and extend their technology-related - conceptual understanding, - technical skills, AND - engineering design or other problem-solving strategies.
There is little or no evidence that the candidate links students' prior academic learning and/or prerequisite skills or personal or community assets with new learning.	Candidate makes vague or superficial links between prior academic learning and/or prerequisite skills and new learning.	Candidate links prior academic learning and/or prerequisite skills to new learning.	Candidate links prior academic learning and/or prerequisite skills AND personal or community assets to new learning.	Candidate prompts students to link prior academic learning and/or prerequisite skills AND personal or community assets to new learning.

Understanding Rubric Level Progressions: Rubric 7

The Guiding Question

The Guiding Question addresses how the candidate provides video evidence of engaging students in meaningful tasks and discussions to develop their understanding of technology-related concepts, technical skills, AND engineering design or other problem-solving strategies.

Key Concepts of Rubric:

- [Assets](#) (personal, community)¹⁴
- [Engaging students in learning](#)
- [Engineering design process/technological design process](#)

Primary Sources of Evidence:

Video Clips

Instruction Commentary **Prompt 3**

Note that for the Instruction Task, the commentary is intended to provide context for interpreting what is shown in the video. Candidates sometimes describe events that do not appear in the video or conflict with scenes from the video—**such statements should not override evidence depicted in the video.**

Scoring Decision Rules

Multiple Criteria	■ Criterion 1 (primary): Engagement in learning tasks ■ Criterion 2: Connections between students' academic learning AND/OR assets (personal, community) and new learning ■ Place greater weight or consideration on the criterion 1 (engagement in learning tasks)
AUTOMATIC 1	■ None

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- **Primary Criterion:** The clips show that the students are engaged in learning tasks that provide opportunities for students to focus on technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving strategies. Although these content understandings are evident in conversations, they are addressed at a cursory level. For example, the candidate has a student summarize how to turn a 3D object into an orthographic view. The candidate relates this to 2D layouts, but moves on immediately without allowing the students to

¹⁴ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

demonstrate their knowledge and understanding of the technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving process strategies leaving the instruction at a cursory level.

- **Secondary Criterion:** The clips show the candidate **making connections** to students' prior academic learning and/or prerequisite skills to help them develop the new content or skills.

Below 3

Evidence that demonstrates performance below Level 3:

- Students are participating in tasks that provide little opportunity to develop technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving strategies. For example, the candidate does most of the instruction via lecture. Students are not actively engaged in the development of the technology-related conceptual understanding, technical skills, AND engineering design or other problem-solving process strategies.

What distinguishes a Level 2 from a Level 3: At Level 2,

- Students are participating in tasks that primarily focus on applying technical skills in a rote manner and provide little opportunity to develop technology-related conceptual understanding OR engineering design or other problem-solving strategies.
- The structure of the learning task or the way in which it is implemented constrains student development of content and skills.
- In addition, the candidate may refer to students' learning from prior units, but the references are indirect or unclear and do not facilitate new learning.

What distinguishes a Level 1 from a Level 2: At Level 1,

- The learning tasks seen in the video clips have little relation to the central focus identified.
- In addition, the candidate is not using either students' prior academic learning and/or prerequisite skills or assets (personal, community) to build new learning.

Above 3

Evidence that demonstrates performance above Level 3:

- The learning tasks, as seen in the clips, are structured to engage students to develop understandings of technology-related concepts and technical skills through applying engineering design principles or other problem-solving strategies.
- Connections between students' prior academic learning and/or prerequisite skills and assets (personal, community) are made to support the new learning.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The learning tasks in the clips include structures or scaffolding that promote the learning of technology-related concepts, technical skills AND engineering design or other problem-solving strategies. Students must interact with the content in ways that are likely to either extend initial understandings or surface misunderstandings that the candidate can then address.
- In addition, the candidate draws upon not only prior academic learning and/or prerequisite skills, but also students' assets (personal, community) to develop new learning.

What distinguishes a Level 5 from a Level 4: At Level 5,

- The learning tasks as seen in the clips are structured or scaffolded so that students will develop and use technology-related concepts, technical skills AND engineering design or other problem-solving strategies in ways that are appropriately challenging and directly related to new learning.
- In addition, the candidate encourages students to connect and use their prior academic knowledge and assets (academic AND personal, community) to support new learning.

Instruction Rubrics continued

Rubric 8: Deepening Student Learning

How does the candidate elicit student responses to promote thinking and develop technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies?

Level 1	Level 2	Level 3	Level 4	Level 5
Candidate does most of the talking, and students provide few responses. OR Candidate responses include significant content inaccuracies that will lead to student misunderstandings.	Candidate primarily asks surface-level questions and evaluates student responses as correct or incorrect.	Candidate elicits student responses related to understanding technology-related • concepts, • technical skills, OR • engineering design or other problem-solving strategies.	Candidate elicits and builds on students' responses to develop understanding of technology-related • concepts, • technical skills, AND • engineering design or other problem-solving strategies.	Level 4 plus: Candidate facilitates interactions among students so they can evaluate their own abilities to use technology-related • concepts, • technical skills, AND • engineering design or other problem-solving strategies.

Understanding Rubric Level Progressions: Rubric 8

The Guiding Question

The Guiding Question addresses how the candidate brings forth and builds on student responses to guide learning in the video clips; this can occur during whole class discussions, small group discussions, or consultations with individual students.

Key Concepts of Rubric:

- [Significant content inaccuracies](#)¹⁵
 - For Rubric 8, significant content inaccuracies include content flaws within processes or examples used during the lesson that will lead to student misunderstandings and the need for reteaching.

Primary Sources of Evidence:

Video Clips

Instruction Commentary **Prompt 4a**

Note that for the Instruction Task, the commentary is intended to provide context for interpreting what is shown in the video. Candidates sometimes describe events that do not appear in the video or conflict with scenes from the video—**such statements should not override evidence depicted in the video.**

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ Pattern of significant content inaccuracies that are core to the central focus or a key learning objective for the learning segment

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- The candidate prompts students to offer responses that require thinking related to technology-related concepts, technical skills, OR engineering design or other problem-solving strategies, e.g., by using "how" and "why" questions. Some instruction may be characterized by initial questions focusing on facts to lay a basis for later higher-order questions in the clip.

¹⁵ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

Below 3**Evidence that demonstrates performance below Level 3:**

- In the clips, classroom interactions provide students with limited or no opportunities to think and learn.
- Little interaction between the candidate and the students is shown.

What distinguishes a Level 2 from a Level 3: At Level 2,

- The candidate asks questions that elicit right/wrong or yes/no answers and do little to encourage students to think about the content being taught.

What distinguishes a Level 1 from a Level 2: At Level 1,

- There are few opportunities shown in the clips that students were able to express ideas.

Automatic Score of 1 is given when:

- There is a pattern of **significant content inaccuracies** that will lead to student misunderstandings.
- The candidate makes a significant error in content (e.g., introducing an inaccurate definition of a central concept before students work independently) that is core to the central focus or a key standard for the learning segment.

Above 3**Evidence that demonstrates performance above Level 3:**

- In the clips, the candidate uses student ideas and thinking to develop students' learning about technology and engineering or their abilities to evaluate their own learning.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The candidate follows up on student responses to encourage the student or his/her peers to explore or build on the ideas expressed.
- The candidate uses this strategy to develop students' understanding of technology-related concepts, technical skills, AND engineering design or other problem-solving strategies.
- Examples of "building on student responses" include referring to a previous student response in developing a point or considering design ideas; calling on a student to elaborate on what s/he said; posing questions to guide a student discussion; soliciting student examples and asking another student to identify what several examples have in common; asking a student to describe the criteria for a design or problem; and asking another student to respond to a student comment or answer a question posed by a student to move instruction forward.

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4 AND

- There is evidence in the clips that the candidate structures and supports student-student conversations and interactions that facilitate students' ability to evaluate and self-monitor their learning.

Instruction Rubrics continued

Rubric 9: Subject-Specific Pedagogy: The Work Artifact(s)

How does the candidate guide student production and/or use of work artifact(s) to support the engineering design and/or problem-solving process?

Level 1	Level 2	Level 3	Level 4	Level 5
Candidate does not relate the work artifact(s) to students' understanding and use of the engineering design or other problem-solving process. OR Materials used in the clips include significant content inaccuracies that will lead to student misunderstandings.	Candidate makes vague or superficial use of the work artifact(s) to promote understanding and use of the engineering design or other problem-solving process.	Candidate uses the work artifact(s) in ways that help students understand and use the engineering design or other problem-solving process.	Candidate uses the work artifact(s) in ways that deepen student understanding and use of the engineering design or other problem-solving process.	Candidate uses the work artifact(s) in ways that allow students to deepen and extend understanding and develop strategic use of the engineering design or other problem-solving process.

Understanding Rubric Level Progressions: Rubric 9

The Guiding Question

The Guiding Question addresses how the candidate uses work artifact(s) (e.g., sketches, charts, graphic representations, models, prototypes, projects, products) in the video clips to build students' understanding and use of **the engineering design and/or problem-solving process**.

Key Concepts of Rubric:

- [Engineering design process/technological design process](#)¹⁶
- [Work artifact](#)

Primary Sources of Evidence:

Video Clips

Instruction Commentary **Prompt 4b**

Note that for the Instruction Task, the commentary is intended to provide context for interpreting what is shown in the video. Candidates sometimes describe events that do not appear in the video or conflict with scenes from the video—**such statements should not override evidence depicted in the video**.

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ Materials used in the clips include significant content inaccuracies that will lead to student misunderstandings.

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- In the clips, the candidate guides conversation and/or structures explorations enabling students to use or produce work artifacts in ways that help students understand and use the engineering design and/or problem-solving process.

Below 3

Evidence that demonstrates performance below Level 3:

- In the clips, the candidate is not guiding student learning to prepare or allow them to effectively use or produce work artifacts.

¹⁶ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

What distinguishes a Level 2 from a Level 3: At Level 2,

- The candidate attempts to relate understanding of the use or production of a work artifact to the engineering design and/or problem-solving process, but the connections between them are not strong enough or clear enough to be effective.

What distinguishes a Level 1 from a Level 2: At Level 1,

- The candidate makes no connections between any work artifact and the engineering design and/or problem-solving process.

Automatic Score of 1 is given when:

- Materials used in the clips contain a significant content error that will lead to student misunderstandings. "Significant" means core to the central focus or a key standard in the learning segment.

Above 3

Evidence that demonstrates performance above Level 3:

- In the clips, the candidate guides the students' production and use of one or more work artifacts to develop students' understanding and use of the engineering design and/or problem-solving process.

What distinguishes a Level 4 from a Level 3: At Level 4,

- In the clips, the candidate poses carefully chosen problems or and/or strategic structuring of explorations towards the production and use of one or more work artifacts to encourage students to think more deeply about the engineering design and/or problem-solving process.

What distinguishes a Level 5 from a Level 4: At Level 5, in the clip(s), the candidate meets all of Level 4 AND

- Structures and supports student production and/or explorations in ways that help students extend their own understanding and use of the engineering design and/or problem-solving process.

Instruction Rubrics continued

Rubric 10: Analyzing Teaching Effectiveness

How does the candidate use evidence to evaluate and change teaching practice to meet students' varied learning needs?

Level 1	Level 2	Level 3	Level 4	Level 5
Candidate suggests changes unrelated to evidence of student learning .	Candidate proposes changes to teacher practice that are superficially related to student learning needs (e.g., task management, pacing, improving directions).	Candidate proposes changes that address students' collective learning needs related to the central focus . Candidate makes superficial connections to research and/or theory .	Candidate proposes changes that address individual and collective learning needs related to the central focus. Candidate makes connections to research and/or theory.	Level 4 plus: Candidate justifies changes using principles from research and/or theory .

Understanding Rubric Level Progressions: Rubric 10

The Guiding Question

The Guiding Question addresses how the candidate examines the teaching and learning in the video clips and proposes what s/he could have done differently to better support the needs of all students. The candidate justifies the changes based on student needs and references to research and/or theory.

Key Concepts of Rubric:

- N/A

Primary Sources of Evidence:

Instruction Commentary **Prompt 5**

Video Clips (for evidence of student learning)

Scoring Decision Rules

Multiple Criteria	■ Criterion 1 (primary): Proposed changes ■ Criterion 2: Connections to research/theory ■ Place greater weight or consideration on criterion 1 (proposed changes).
AUTOMATIC 1	■ None

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- **Primary Criterion:** The proposed changes address the central focus and the candidate explicitly connects those changes to the learning needs of the class as a whole.
 - Proposed changes noted by the candidate should be related to the lessons that were seen or referenced in the clips, but do not need to be exclusively from what was seen in the clips alone. This means that since only portions of the lessons will be captured by the clips, candidates can suggest changes to any part of the lesson(s) referenced in the clips, even if those portions of the lesson(s) are not depicted in the clips.
- **Secondary Criterion:** The candidate refers to research or theory in relation to the plans to support student learning. The connections between the research/theory and the tasks are vague/not clearly made.
- If evidence meets the primary criterion at Level 3, the rubric is scored at Level 3 **regardless of the evidence for the secondary criterion.**
- If evidence meets the primary criterion at Level 4 and candidate has NO connection to research/theory, the rubric is scored at Level 3.

Below 3**Evidence that demonstrates performance below Level 3:**

- The changes proposed by the candidate are not directly related to student learning.

What distinguishes a Level 2 from a Level 3: At Level 2,

- The changes address improvements in teaching practice that mainly focus on how the candidate structures or organizes learning tasks, with a superficial connection to student learning. There is little detail on the changes in relation to either the central focus or the specific learning that is the focus of the video clips. Examples include but are not limited to asking additional higher-order questions without providing examples, improving directions, repeating instruction without making significant changes based on the evidence of student learning from the video clips, or including more group work without indicating how the group work will address specific learning needs.
- If a candidate's proposed changes have nothing to do with the central focus, this rubric cannot be scored beyond a Level 2.

What distinguishes a Level 1 from a Level 2: At Level 1,

- The proposed changes are not supported by evidence of student learning from lessons seen or referenced in the clips.

Above 3**Evidence that demonstrates performance above Level 3:**

- The proposed changes relate to the central focus and explicitly address individual and collective needs that were within the lessons seen in the video clips.
- The changes in teaching practice are supported by research and/or theory.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The changes clearly address the learning needs of individuals in addition to the learning needs of the whole class in the video clips by providing additional support and/or further challenge in relation to the central focus. Candidate should explain how proposed changes relate to each individual's needs.
- The candidate explains how research or theory is related to the changes proposed. Candidates may cite research or theory in their commentary, or refer to the ideas and principles from the research; either connection is acceptable, as long as they clearly connect the research/theory to the proposed changes.
- Scoring decision rules: To score at Level 4, the candidate must meet the primary criterion at Level 4 and make at least a fleeting, relevant reference to research or theory (meet the secondary criterion at least at Level 3).

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4 AND

- Explains how principles of research or theory support or frame the proposed changes. The justifications are explicit, well-articulated, and demonstrate a thorough understanding of the research/theory principles that are clearly reflected in the explanation of the changes.

Assessment Task 3: Assessing Student Learning

What Do I Need to Do?

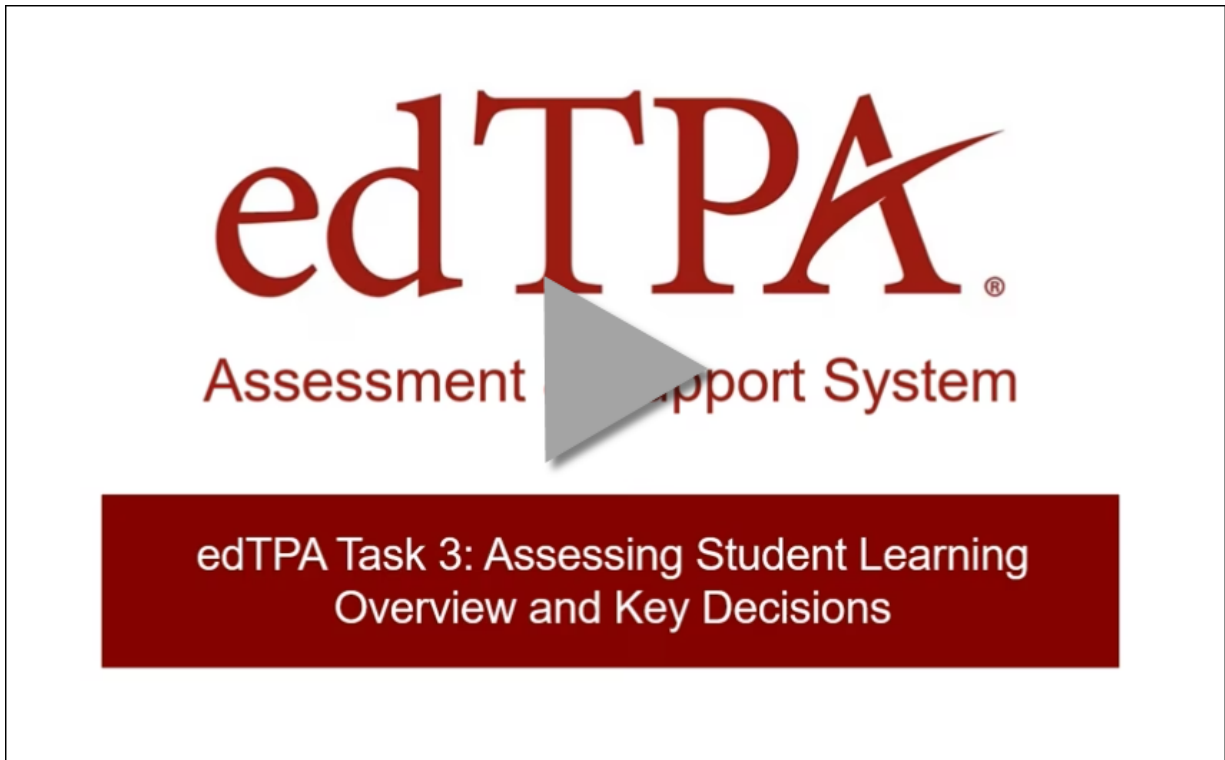
- **Select one assessment from your learning segment you will use** to evaluate your students' developing knowledge and skills. It should be an assessment to be completed by the whole class featured in the learning segment. (If you are teaching only a group within the class for the learning segment, that group will be "the whole class.") The assessment should reflect the work of individuals, not groups, but may be individual work from a group task. The assessment should provide opportunities for students to demonstrate technology-related
 - conceptual understanding,
 - technical skills, **AND**
 - engineering design or other problem-solving strategies.
- **Define and submit the evaluation criteria** you will use to analyze student learning related to the technical and engineering understandings described above.
- **Collect and analyze student work** from your selected assessment to identify **quantitative and qualitative** patterns of learning within and across learners in the class. You may submit text files with scanned student work, a video or audio file of a student's oral work, **OR** a student-created video or multimedia file. For each focus student, a video or audio work sample must be no more than 5 minutes in total running time.
- **Select 3 student work samples** that represent the patterns of learning (i.e., what individuals or groups generally understood and what a number of students were still struggling to understand) you identified in your assessment analysis. These students will be your focus students for this task. **At least one of the focus students must have an identified learning need** (for example, an English learner, a student with an IEP [Individualized Education Program] or 504 plan, a struggling reader, an underperforming student or a student with gaps in academic knowledge, and/or a gifted student needing greater support or challenge).
- **Document the feedback** you gave to each of the **3 focus students** on the work sample itself, as an audio clip, or as a video clip. You must submit evidence of the actual feedback provided to each focus student, and not a description of the feedback.
- If you submit a student work sample or feedback as a video or audio clip and comments made by you or your focus student(s) cannot be clearly heard, do one of the following: 1) attach a transcription of the inaudible comments (**no more than 2 additional pages**) to the end of the Assessment Commentary; 2) embed quotes with time-stamp references in the commentary response; or 3) insert captions in the video (captions for this purpose will be considered permissible editing).
- If you submit a student work sample or feedback as a video or audio clip and additional students are present, clearly identify which students are your focus students in the relevant prompts (1d and 2a) of the Assessment Commentary (**in no more than 2 sentences**).

- **Respond to the commentary prompts** listed in the Assessment Commentary template found in your account **after analyzing student work from the selected assessment** and submit the completed template.
- **Include and submit the chosen assessment, including directions/prompts provided to students.** Attach the assessment (**no more than 5 additional pages**) to the end of the Assessment Commentary.
- **Provide evidence of students' understanding and use of the targeted academic language function and other language demands.** You may choose evidence from video clips submitted in Instruction Task 2, an additional video clip of one or more students using language within the learning segment (**no more than 5 minutes in length**), **AND/OR** student work samples submitted in Assessment Task 3.

See the [Assessment Task 3: Artifacts and Commentary Specifications](#) in the Technology and Engineering Education Evidence Chart for instructions on electronic submission of evidence. This evidence chart identifies templates, supported file types, number of files, response length, and other important evidence specifications. Your evidence cannot contain hyperlinked content. Any web content you wish to include as part of your evidence must be submitted as a document file, which must conform to the file format and response length requirements.

Review the Assessment Task 3 Key Decisions and Key Points in the [Making Good Choices](#) document for supplementary advice for completing specific components of Assessment Task 3.

Candidate Support Webinar: Task 3: Assessing Student Learning Overview and Key Decisions



Video URL: <https://vimeo.com/803917885/55799d6eb7>

How Will the Evidence of My Teaching Practice Be Assessed?

For Assessment Task 3, your evidence will be assessed using rubrics 11–15, which appear on the following pages. When preparing your artifacts and commentaries, refer to the rubrics frequently to guide your thinking, planning, instruction, assessment, and writing.

Assessment Rubrics

Rubric 11: Analysis of Student Learning

How does the candidate analyze evidence of student learning related to conceptual understanding, technical skills, and engineering design or other problem-solving strategies?

Level 1	Level 2	Level 3	Level 4	Level 5
The analysis is superficial or not supported by either student work samples or the summary of student learning. OR The evaluation criteria, learning objectives, and/or analysis are not aligned with each other.	The analysis focuses on what students did right OR wrong.	The analysis focuses on what students did right AND wrong. AND Analysis includes some differences in whole class learning.	Analysis uses specific examples from work samples to demonstrate patterns of learning consistent with the summary. AND Patterns of learning are described for whole class.	Analysis uses specific evidence from work samples to demonstrate the connections between quantitative and qualitative patterns of learning for individuals or groups.

Understanding Rubric Level Progressions: Rubric 11

The Guiding Question

The Guiding Question addresses the candidate's analysis of student work to identify patterns of learning across the class.

Key Concepts of Rubric:

- [Aligned](#)¹⁷
- [Evaluation criteria](#)
- [Patterns of learning](#)

Primary Sources of Evidence:

Assessment Commentary **Prompt 1**

Student work samples

Evaluation criteria

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ Significant misalignment between evaluation criteria, learning objectives, and/or analysis

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- The analysis is an accurate listing of what students did correctly and incorrectly.
- The analysis is aligned with the evaluation criteria and/or assessed learning objectives.
- Some general differences in learning across the class are identified.

Below 3

Evidence that demonstrates performance below Level 3:

- The analysis is superficial (e.g., primarily irrelevant global statements) or focuses only on partial data (on right or wrong answers or only on following rote procedures for applying technical skills or engineering design or other problem-solving strategies with no understanding of the content or situation).
- The analysis is contradicted by the work sample evidence or the summary.

¹⁷ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

- The analysis is based on an inconsistent alignment with evaluation criteria and/or standards/objectives.

What distinguishes a Level 2 from a Level 3: At Level 2:

- Although aligned with the summary, the analysis presents an incomplete picture of student learning by only addressing either successes or errors.

What distinguishes a Level 1 from a Level 2: There are **two different ways** that evidence is scored at Level 1:

1. The analysis is superficial because it ignores important evidence from the work samples, focusing on trivial aspects.
2. The conclusions in the analysis are not supported by the work samples or the summary of learning.

Automatic Score of 1 is given when:

- There is a significant lack of alignment between evaluation criteria, learning objectives, and/or analysis. A lack of alignment can be caused by a lack of relevant evaluation criteria to assess student performance on the learning objectives.

Above 3

Evidence that demonstrates performance above Level 3: The analysis:

- Identifies patterns of learning (quantitative and qualitative) that summarize what students know, are able to do, and still need to learn.
- Describes patterns for the whole class, groups, or individuals.
- Is supported with evidence from the work samples and is consistent with the summary.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The analysis describes consistencies in performance (patterns) across the class in terms of what students know and are able to do and where they need to improve.
- The analysis goes beyond a listing of students' successes and errors, to an explanation of student understanding in relation to their performance on the identified assessment. An exhaustive list of what students did right and wrong, or the % of students with correct or incorrect responses, should be scored at Level 3, as that does not constitute a pattern of student learning. A pattern of student learning goes beyond these quantitative differences to identify specific content understandings or misunderstandings, or partial understandings that are contributing to the quantitative differences.
- Specific examples from work samples are used to demonstrate the whole class patterns. An example is "Most students were successful turning a 3D object into an orthographic design but far fewer were successful with 2D layouts. Student A was able to label the layout of the package and successfully identify the different sides in their drawing. However, most students were like Student B, who could only identify the sides in their drawing once they physically saw the different sides of the package. Only then were they able to understand and problem solve what sides went where on the layout."

What distinguishes a Level 5 from a Level 4: At Level 5,

- The candidate uses specific evidence from work samples to demonstrate qualitative patterns of understanding. The analysis uses these qualitative patterns to interpret

the range of similar correct or incorrect responses from individuals or groups (e.g., quantitative patterns), and to determine elements of what students learned and what would be most productive to work on. The qualitative patterns may include struggles, partial understandings, and/or attempts at solutions. An example would be "Most students were successful turning a 3D object into an orthographic design as illustrated by Student A. But most students were like Student B, who could only identify the sides in their drawing once they physically saw the different sides of the package, while Student A could identify the sides correctly without physically seeing the different sides of the package. Student A was able to visualize and problem solve without seeing the physical package first. This suggests that most of my students understood the procedures, but most had difficulty with the conceptual understanding sufficient to recognize which sides went where on the layout in an abstract manner. Many appeared to be confused, because like Student B, there was no consistent error across the layout of the package when asked to identify the sides in a 2D drawing. The drawings were correct, but the labeling was not accurate."

Assessment Rubrics continued

Rubric 12: Providing Feedback to Guide Learning

What type of feedback does the candidate provide to focus students?

Level 1	Level 2	Level 3	Level 4	Level 5
Feedback is unrelated to the learning objectives OR is developmentally inappropriate. OR Feedback contains significant content inaccuracies. OR No feedback is provided to one or more focus students.	Feedback is general and addresses needs AND/OR strengths related to the learning objectives.	Feedback is specific and addresses either needs OR strengths related to the learning objectives.	Feedback is specific and addresses both strengths AND needs related to the learning objectives.	Level 4 plus: Feedback for one or more focus students - provides a strategy to address an individual learning need OR - makes connections to prior academic learning and/or prerequisite skills or experience to improve learning.

Understanding Rubric Level Progressions: Rubric 12

The Guiding Question

The Guiding Question addresses the evidence of feedback provided to the focus students. Feedback may be written on the three student work samples or provided in a video/audio format. The feedback should identify what students are doing well and what needs to improve in relation to the learning objectives.

Key Concepts of Rubric:

- [Significant content inaccuracies](#)¹⁸
 - For Rubric 12, significant content inaccuracies include content flaws in the feedback that are significant and systematic, and interfere with student learning.
- [Developmentally inappropriate feedback](#)

Primary Sources of Evidence:

Assessment Commentary **Prompt 2a–b**

Evidence of feedback (written, audio/video)

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ One or more content errors in the feedback that will mislead student(s) in significant ways ■ No evidence of feedback for one or more focus students
Preponderance of Evidence	■ You must apply the preponderance of evidence rule when the focus students receive varying types of feedback. For example, when the candidate provides feedback on both strengths and needs for 2 out of the 3 focus students, this example would be scored at a Level 4 according to the preponderance of evidence rule.

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- The feedback identifies **specific** strengths OR needs for improvement. At Level 3, the candidate **MUST** provide the focus students with qualitative feedback about their performance that is aligned with the learning objectives. Specific feedback includes such things as successfully applying the conceptual knowledge, identifying and naming proper isometric or perspective views, pointing to and naming errors, and suggesting information that would help improve the individual strengths and weaknesses relative to the learning targets. Checkmarks, points deducted, grades,

¹⁸ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

or scores do not meet the Level 3, even when they distinguish errors from correct responses.

Below 3

Evidence that demonstrates performance below Level 3:

- Evidence of feedback is general, unrelated to the assessed learning objectives, developmentally inappropriate, inaccurate, or missing for one or more focus students.

What distinguishes a Level 2 from a Level 3: At Level 2,

- Although the feedback is related to the assessed learning objectives, it is also vague and does not identify specific strengths or needs for improvement. At Level 2, general feedback includes identifying what each focus student did or did not do successfully with little detail, e.g., checkmarks for correct responses, points deducted, and comments such as, "Make sure to erase completely!" that are not linked to a specific strength or need. General feedback does not address the specific error or correct solution (e.g., "Check your work" or "Yes!"). Feedback that is limited to a single remark, such as identifying the total percent correct (86%), an overall letter grade (B), or one comment such as "Nice work!" with no other accompanying comments or grading details does not meet the Level 2 requirement and should be scored at a Level 1. Those examples of a single piece of feedback do not even provide any general feedback to focus students that is related to the learning objectives.

What distinguishes a Level 1 from a Level 2: There are **two different ways** that evidence is scored at Level 1:

1. Feedback is not related to the learning objectives.
2. Feedback is not developmentally appropriate.

Automatic Score of 1 is given when:

- Feedback includes content inaccuracies that will misdirect the focus student(s).
- There is no evidence of feedback for the analyzed assessment for one or more focus students. This includes when there is only a description of feedback rather than actual feedback (video, audio or written) presented to the focus student(s).

Above 3

Evidence that demonstrates performance above Level 3:

- Feedback is specific, related to assessed learning objectives, and addresses students' strengths AND needs.

What distinguishes a Level 4 from a Level 3: At Level 4,

- Specific feedback addresses both strengths and needs. For example, "You did a great job identifying and naming proper isometric or perspective views. Make sure to erase completely next time."

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4 AND

- The feedback for at least one focus student includes:
 - A strategy to address a specific learning need, including the need for a greater challenge. For example, "You correctly identified the perspective

views. Make sure to take your time with the drawings and show all the views."

OR

- A meaningful connection to experience or prior learning. For example, the candidate refers back to a prior math lesson: "I want you to visualize the drawing you did last week of a 2D object. This time you are going to sketch and label all of the sides of the same objecting from a 3D view."

Assessment Rubrics continued

Rubric 13: Student Understanding and Use of Feedback

How does the candidate support focus students to understand and use the feedback to guide their further learning?

Level 1	Level 2	Level 3	Level 4	Level 5
Opportunities for understanding or using feedback are not described. OR Candidate provides limited or no feedback to inform student learning.	Candidate provides vague description of how focus students will understand or use feedback.	Candidate describes how focus students will understand or use feedback related to the learning objectives.	Candidate describes how s/he will support focus students to understand and use feedback on their strengths OR weaknesses related to the learning objectives.	Candidate describes how s/he will support focus students to understand and use feedback on their strengths AND weaknesses related to the learning objectives.

Understanding Rubric Level Progressions: Rubric 13

The Guiding Question

The Guiding Question addresses how the candidate explains how they will help focus students understand and use the feedback provided in order to improve their learning.

Key Concepts of Rubric:

- N/A

Primary Sources of Evidence:

Assessment Commentary **Prompt 2c**

Evidence of Written or Oral Feedback

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ None

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- Candidate describes **how** the focus students will understand OR use feedback related to the learning objectives. This description needs to relate to the feedback given to one or more of the focus students.
- The description should be specific enough that you understand what the candidate and/or students are going to do in relation to the feedback given. Otherwise, it is vague and the evidence should be scored at Level 2.
 - Example for **understanding** feedback: Candidate reviews work with whole class focusing on common mistakes that explicitly includes content that one or more focus students were given feedback on.
 - Example for **using** feedback: Candidate asks focus students to revise work using feedback given and resubmit revised work.

Below 3

Evidence that demonstrates performance below Level 3:

- Opportunities for understanding or using feedback are superficially described or absent.

What distinguishes a Level 2 from a Level 3: At Level 2,

- The description of how the focus students will understand or use feedback is very general or superficial. Details about **how** the students will understand or use the feedback are missing (e.g., "The students will use the feedback on their next assignment").

- The use of feedback is not clearly related to the assessed learning objectives.

What distinguishes a Level 1 from a Level 2: At Level 1,

- Opportunities for understanding or using feedback are not described OR
- There is NO evidence of feedback for two or more focus students.

Above 3

Evidence that demonstrates performance above Level 3:

- Support for the focus students to understand AND use feedback is described in enough detail to understand how students will develop in areas identified for growth and/or continue to deepen areas of strength.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The candidate describes planned or implemented support for the focus students to understand and use feedback on their strengths OR weaknesses to further develop their learning in relation to learning objectives. For example, a candidate may work with focus students in a small group and reteach several concepts they struggled with on their assessment (as noted by feedback given), using a graphic organizer to further develop understanding of each concept (such as a T-chart or concept map). Next, students would be given an opportunity to revise their responses involving those concepts, using the graphic organizer to support their revisions. This example shows how a candidate can help focus students understand their feedback in relation to misunderstandings and support them in using that feedback to enhance learning in relation to objectives assessed. This type of planned support could take place with the whole class as long as explicit attention to one or more of the focus student's strengths or weaknesses is addressed in relation to the feedback given.

What distinguishes a Level 5 from a Level 4: At Level 5,

- The candidate describes planned or implemented support for the focus students to understand and use feedback on their strengths AND weaknesses related to the learning objectives.

Assessment Rubrics continued

Rubric 14: Analyzing Students' Language Use and Technology and Engineering Education Learning

How does the candidate analyze students' use of language to develop content understanding?

Level 1	Level 2	Level 3	Level 4	Level 5
Candidate identifies student language use that is superficially related or unrelated to the language demands (function, vocabulary/symbols, and additional demands). OR Candidate's description or explanation of language use is not consistent with the evidence submitted.	Candidate describes how students use only one language demand (vocabulary/symbols; function; grammatical structures; written, visual, or verbal communication; visual representation).	Candidate explains and provides evidence of students' use of - the language function AND - one or more additional language demands (vocabulary/symbols; grammatical structures; written, visual, or verbal communication; visual representation).	Candidate explains and provides evidence of students' use of - the language function, - vocabulary/symbols, AND - additional language demands (grammatical structures; written, visual, or verbal communication; visual representation) in ways that develop content understandings.	Level 4 plus: Candidate explains and provides evidence of language use and content learning for students with varied needs.

Understanding Rubric Level Progressions: Rubric 14

The Guiding Question

The Guiding Question addresses how the candidate explains students' use of the identified language demands and how that use demonstrates and develops technology and engineering education understandings.

Key Concepts of Rubric:

Use the terms below and their definitions from the glossary as well as the [Academic Language Appendix](#) to further clarify concepts on Rubric 4.

- [Language demands](#)¹⁹
- [Language functions](#)
- [Vocabulary/symbols](#)
- [Written, visual, or verbal communication](#)
- [Grammatical structures](#)
- [Language development supports](#)

Primary Sources of Evidence:

Assessment Commentary **Prompt 3**

Evidence of Student Language Use (student work samples and/or video evidence)

Scoring Decision Rules

Multiple Criteria	■ N/A for this rubric
AUTOMATIC 1	■ None

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- The candidate explains and identifies evidence that the students used or attempted to use the language function AND one additional language demand (vocabulary/symbols; grammatical structures; written, visual, or verbal communication; or visual representation). Note: The language demands discussed in the Assessment Commentary do not have to be the same as those discussed in Task 1.
- It is not sufficient for the candidate to reference a work artifact and make a general statement, for example, "As seen in the work samples, the student used the

¹⁹ Links to terms from the Technology and Engineering Education Glossary are included for quick access to the definitions. To navigate to the glossary definition, click the hyperlinked word(s). To navigate back to the page origin, use the "Previous View" command (or ALT+Left Arrow).

vocabulary/symbols as they described the initial design of the race car." The candidate must explain how the students used the identified language and reference or identify an example of that use from the artifact, e.g., "Students 1 used the correct vocabulary/symbols and referred to a schematic to as she described how her team designed the race car. Students 2 and 3 used a mixture of correct vocabulary/symbols and everyday language in the description but the rough sketches of the final design that did not always match the descriptions."

Below 3

Evidence that demonstrates performance below Level 3:

- The candidate's identification of student's language use is not aligned with the language demands or limited to one language demand.

What distinguishes a Level 2 from a Level 3: At Level 2,

- The candidate's description and/or evidence of students' language use is limited to only one language demand (vocabulary/symbols; function; grammatical structures; written, visual, or verbal communication; or visual representation).

What distinguishes a Level 1 from a Level 2: At Level 1,

- The candidate identifies language use that is unrelated or not clearly related to the language demands (function; vocabulary/symbols; grammatical structures; written, visual, or verbal communication; visual representation) addressed in the Assessment commentary.
- Candidate's description or explanation of language use is not consistent with the evidence provided.

Above 3

Evidence that demonstrates performance above Level 3:

- Candidate identifies specific evidence of student use of the language function and vocabulary/symbols, along with at least one other language demand (grammatical structures; written, visual, or verbal communication; and/or visual representation).
- Candidate explains how evidence of student language represents their development of content understandings, which may include growth and/or struggles with both understanding and expressing content understandings.
- Candidate explains and provides evidence of language use and content learning for students with distinct language needs.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The candidate identifies and explains concrete evidence that students are able to use the language function, vocabulary/symbols, AND associated language demands (grammatical structures; written, visual, or verbal communication; and/or visual representation). The explanation uses specific evidence from the video and/or work samples.
- The candidate's analysis includes evidence of how student language use demonstrates growth and/or struggles in developing content understandings. For example, the candidate notes that, "All students could give a complete explanation using some commonly used vocabulary words, like line segment, orthographic view, isometric view and perspective view in the context of their explanations (e.g., see these terms used in the explanations of their drawing in the work samples from Students 1, 2, and 3). Most of the students could produce detailed drawings of 2D

objects, as shown by the labeled dimensions and the correspondence to the 3D object represented in the different views in the work samples from Students 2 and 3. However, many students were unable to correctly identify the views of the drawings without physically seeing the different sides of the package, e.g., work sample from Student 1 where the student does not explain this view but says "I don't know." This suggests that some students need remediation with the conceptual understanding to recognize which sides appear where on an abstract layout."

What distinguishes a Level 5 from a Level 4: At Level 5, the candidate meets all of Level 4
AND

- Explains and provides concrete evidence that students with distinct language needs are using the language for content learning.

Assessment Rubrics continued

Rubric 15: Using Assessment to Inform Instruction

How does the candidate use the analysis of what students know and are able to do to plan next steps in instruction?

Level 1	Level 2	Level 3	Level 4	Level 5
Next steps do not follow from the analysis. OR Next steps are not relevant to the learning objectives assessed. OR Next steps are not described in sufficient detail to understand them.	Next steps primarily focus on changes to teaching practice that are superficially related to student learning needs, for example, repeating instruction, pacing, or classroom management issues.	Next steps propose general support that improves student technology learning related to assessed learning objectives. Next steps are loosely connected with research and/or theory.	Next steps provide targeted support to individuals or groups to improve their technology learning relative to technology-related • conceptual understanding, • technical skills, OR • engineering design or other problem-solving strategies. Next steps are connected with research and/or theory.	Next steps provide targeted support to individuals AND groups to improve their technology learning relative to technology-related • conceptual understanding, • technical skills, AND • engineering design or other problem-solving strategies. Next steps are justified with principles from research and/or theory.

Understanding Rubric Level Progressions: Rubric 15

The Guiding Question

The Guiding Question addresses how the candidate uses conclusions from the analysis of student work and research or theory to propose the next steps of instruction. Next steps should be related to the standards/objectives assessed and based on the assessment that was analyzed. They also should address the whole class, groups with similar needs, and/or individual students.

Key Concepts of Rubric:

- N/A

Primary Source of Evidence:

Assessment Commentary **Prompt 4**

Scoring Decision Rules

Multiple Criteria	■ Criterion 1 (primary): Next steps for instruction ■ Criterion 2: Connections to research/theory ■ Place greater weight or consideration on criterion 1 (next steps for instruction).
AUTOMATIC 1	■ None

Unpacking Rubric Levels

Level 3

Evidence that demonstrates performance at Level 3:

- **Primary Criterion:** The next steps focus on support for student learning that is general for the whole class, not specifically targeted for individual students. The support addresses learning related to the learning objectives that were assessed.
- **Secondary Criterion:** The candidate refers to research or theory when describing the next steps. The connections between the research/theory and the next steps are vague/not clearly made.
- If evidence meets the primary criterion at Level 3, the rubric is scored at Level 3 **regardless of the evidence for the secondary criterion.**
- If evidence meets the primary criterion at Level 4, and candidate has NO connection to research/theory, the rubric is scored at Level 3.

Below 3

Evidence that demonstrates performance below Level 3:

- The next steps are not directly focused on student learning needs that were identified in the analysis of the assessment.
- Candidate does not explain how next steps are related to student learning.

What distinguishes a Level 2 from a Level 3: At Level 2,

- The next steps are related to the analysis of student learning and the standards and learning objectives assessed.
- The next steps address improvements in teaching practice that mainly focus on how the candidate structures or organizes learning tasks, with a superficial connection to student learning. There is little detail on the changes in relation to the assessed student learning. Examples include repeating instruction or focusing on improving conditions for learning such as pacing or classroom management, with no clear connections to how changes address the student learning needs identified.

What distinguishes a Level 1 from a Level 2: There are **three different ways** that evidence is scored at Level 1:

1. Next steps **do not follow from** the analysis.
2. Next steps are **unrelated to the standards and learning objectives** assessed.
3. Next steps are **not described in sufficient detail** to understand them, e.g., "more practice" or "go over the test."

Above 3**Evidence that demonstrates performance above Level 3:**

- Next steps are based on the assessment results and provide scaffolded or structured support that is directly focused on specific student learning needs related to conceptual understanding, procedural fluency, and/or problem-solving/reasoning skills.
- Next steps are supported by research and/or theory.

What distinguishes a Level 4 from a Level 3: At Level 4,

- The next steps are clearly aimed at supporting specific student needs for either individuals (2 or more students) or groups with similar needs related to one or more of the three areas of technology learning (conceptual understanding, technical skills, OR engineering design or other problem-solving strategies). Candidate should be explicit about how next steps will strategically support individuals or groups and explain how that support will address each individual or group's needs in relation to the area of technology learning.
- The candidate discusses how the research or theory is related to the next steps in ways that make some level of sense given their students and central focus. They may cite the research or theory in their discussion, or they may refer to the ideas from the research. Either is acceptable, as long as they clearly connect the research/theory to their next steps.
- Scoring decision rules: To score at Level 4, the candidate must meet the primary criterion at Level 4 and make at least a fleeting, relevant reference to research or theory (meet the second criterion at least at Level 3).

What distinguishes a Level 5 from a Level 4: At Level 5,

- The next steps are clearly aimed at supporting specific student needs for **both** individuals and groups with similar needs related to all three areas of technology learning (conceptual understanding, technical skills, AND engineering design or other problem-solving strategies). Candidate should be explicit about how next steps will strategically support individuals and groups and explain how that support will

- address each individual's and group's needs in relation to the areas of technology learning.
- The candidate explains how principles of research or theory support the proposed changes, with clear connections between the principles and the next steps. The explanations are explicit, well-articulated, and demonstrate a thorough understanding of the research or theoretical principles involved.

Technology and Engineering Education Evidence Chart

Your evidence must be submitted to the electronic portfolio management system used by your teacher preparation program. Your submission must conform to the artifact and commentary specifications for each task. This section provides instructions for all evidence types as well as a description of supported file types for evidence submission, number of files, response lengths, and other information regarding format specifications. Note that your evidence cannot contain hyperlinked content. Any web content you wish to include as part of your evidence must be submitted as a document file, which must conform to the file format and response length requirements. If you have materials that must be translated into English as per the [edTPA Submission Requirements](#), those translations should be added to the original materials as part of the same file or, if applicable, to the end of the commentary template. There is no page limit for required translations into English.

Planning Task 1: Artifacts and Commentary Specifications

What to Submit	Supported File Types	Min # of Files	Max # of Files	Response Length	Additional Information
Part A: Context for Learning Information (template provided)	.doc; .docx; .odt; .pdf	1	1	No more than 4 pages, including prompts	- Use Arial 11-point type. - Single space with 1-inch margins on all sides.
Part B: Lesson Plans for Learning Segment	.doc; .docx; .odt; .pdf	1	1	No more than 4 pages per lesson	- Submit 3–5 lesson plans in 1 file. - Within the file, label each lesson plan (Lesson 1, Lesson 2, etc.). - All rationale or explanation for plans should be written in the Planning Commentary and removed from lesson plans.
Part C: Instructional Materials	.doc; .docx; .odt; .pdf	1	1	No more than 5 pages of KEY instructional materials per lesson plan	- Submit all materials in 1 file. - Within the file, label materials by corresponding lesson (Lesson 1 Instructional Materials, Lesson 2 Instructional Materials, etc.). - Order materials as they are used in the learning segment.
Part D: Assessments	.doc; .docx; .odt; .pdf	1	1	No limit	- Submit assessments in 1 file. - Within the file, label assessments by corresponding lesson (Lesson 1 Assessments, Lesson 2 Assessments, etc.). - Order assessments as they are used in the learning segment.
Part E: Planning Commentary (template provided)	.doc; .docx; .odt; .pdf	1	1	No more than 9 pages of commentary, including prompts	- Use Arial 11-point type. - Single space with 1-inch margins on all sides. - Respond to prompts before teaching the learning segment.

Instruction Task 2: Artifacts and Commentary Specifications

What to Submit	Supported File Types	Min # of Files	Max # of Files	Response Length	Additional Information
Part A: Video Clips ²⁰	asf, qt, mov, mpg, mpeg, avi, wmv, mp4, m4v	2	2	Running time no more than 10 minutes each (but not less than 3 minutes combined)	- Before you record your video, obtain permission from the parents/guardians of your students and from adults who appear on the video. - Refer to Instruction Task 2, What Do I Need to Do? for video clip content and requirements. - When naming each clip file, include the number of the lesson shown in the video clip.
Part B: Instruction Commentary (template provided)	.doc; .docx; .odt; .pdf	1	1	No more than 6 pages of commentary, including prompts If needed, no more than 2 additional pages of supporting documentation	- Use Arial 11-point type. - Single space with 1-inch margins on all sides. IMPORTANT: - Insert documentation at the end of the commentary file if - you or the students are using graphics, texts, or images that are not clearly visible in the video - you chose to submit a transcript for occasionally inaudible portions of the video - If submitting documentation, include the video clip number, lesson number, and explanatory text (e.g., “Clip 1, lesson 2, text from a whiteboard that is not visible in the video,” “Clip 2, lesson 4, transcription of a student response that is inaudible”).

²⁰ **Video file size requirements:** The target file size is 200–300 MB or less. The Pearson ePortfolio System file size limit is 500 MB. Please note that each integrated platform provider portfolio system may have additional constraints or requirements regarding video formats and file sizes. You may need to use video tools to compress or transcode your video into smaller file sizes to facilitate uploading of the video. Refer to Recommended Video Formats and Settings on www.edtpa.com for the current requirements.

Assessment Task 3: Artifacts and Commentary Specifications

What to Submit	Supported File Types	Min # of Files	Max # of Files	Response Length	Additional Information
Part A: Student Work Samples ²¹	For written work samples: .doc; .docx; .odt; .pdf For audio work samples: asf, wmv, qt, mov, mpg, avi, mp3, wav, mp4, wma For video work samples: asf, qt, mov, mpg, mpeg, avi, wmv, mp4, m4v	3	3	No page limit for written work samples No more than 5 minutes per focus student for video or audio student work samples	- Use correction fluid, tape, or a felt-tip marker to mask or remove students' names, your name, and the name of the school before copying/scanning any work samples. If your students' writing is illegible, write a transcription directly on the work sample. - On each work sample, indicate the student number (Student 1 Work Sample, Student 2 Work Sample, or Student 3 Work Sample). If more than one focus student appears in a video or audio work sample, upload the same work sample separately for each focus student who is seen/heard and label appropriately. Describe how to recognize each of the focus students in the clip and provide the label associated with the clip in prompt 1d of the Assessment Commentary. - When naming each work sample file, include the student number. - If you submit a student work sample or feedback as a video or audio clip and comments made by you or your focus student(s) cannot be clearly heard, do one of the following: 1) attach a transcription of the inaudible comments (no more than 2 additional pages) to the end of the Assessment Commentary; 2) embed quotes with time-stamp references in the commentary response; or 3) insert captions in the video (captions for this purpose will be considered permissible editing).

(Continued on next page)

²¹ **Video file size requirements:** The target file size is 200–300 MB or less. The Pearson ePortfolio System file size limit is 500 MB. Please note that each integrated platform provider portfolio system may have additional constraints or requirements regarding video formats and file sizes. You may need to use video tools to compress or transcode your video into smaller file sizes to facilitate uploading of the video. Refer to Recommended Video Formats and Settings on www.edtpa.com for the current requirements.

Assessment Task 3: Artifacts and Commentary Specifications (continued)

What to Submit	Supported File Types	Min # of Files	Max # of Files	Response Length	Additional Information
Part B: Evidence of Feedback ²² And, if included, video evidence of academic language use	For written feedback not written on the work samples: .doc; .docx; .odt; .pdf For audio feedback: asf, wmv, qt, mov, mpg, avi, mp3, wav, mp4, wma For video clips (feedback and/or language use): asf, qt, mov, mpg, mpeg, avi, wmv, mp4, m4v	0	4	No page limit for written feedback No more than 3 minutes per focus student for video or audio feedback No more than 5 minutes for video evidence of student language use	- Document the location of your evidence of feedback in the Assessment Commentary. - If feedback is not included as part of the student work samples or recorded on the video clip(s) from Instruction Task 2, submit only 1 file for each focus student—a document, video file, OR audio file—and label the file with the corresponding student number (Student 1 Feedback, Student 2 Feedback, or Student 3 Feedback). - If more than one focus student appears in a video or audio clip of feedback, upload the same clip separately for each focus student who is seen/heard and label appropriately. - When naming each feedback file, include the student number. - If you submit a student work sample or feedback as a video or audio clip and comments made by you or your focus student(s) cannot be clearly heard, do one of the following: 1) attach a transcription of the inaudible comments (no more than 2 additional pages) to the end of the Assessment Commentary; 2) embed quotes with time-stamp references in the commentary response; or 3) insert captions in the video (captions for this purpose will be considered permissible editing). For Academic Language—If you choose to submit a video clip of student language use, it should be no more than 5 minutes. You may identify a portion of a clip provided for Instruction Task 2 or submit an entirely new clip.

(Continued on next page)

²² **Video file size requirements:** The target file size is 200–300 MB or less. The Pearson ePortfolio System file size limit is 500 MB. Please note that each integrated platform provider portfolio system may have additional constraints or requirements regarding video formats and file sizes. You may need to use video tools to compress or transcode your video into smaller file sizes to facilitate uploading of the video. Refer to Recommended Video Formats and Settings on www.edtpa.com for the current requirements.

Assessment Task 3: Artifacts and Commentary Specifications (continued)

What to Submit	Supported File Types	Min # of Files	Max # of Files	Response Length	Additional Information
Part C: Assessment Commentary (template provided)	.doc; .docx; .odt; .pdf	1	1	No more than 10 pages of commentary, including prompts Plus ■ no more than 5 additional pages for the chosen assessment ■ if necessary, no more than 2 additional total pages of transcription of video/audio evidence for a work sample and feedback, and/or video evidence of language use	■ Use Arial 11-point type. ■ Single space with 1-inch margins on all sides. IMPORTANT: Insert a blank copy of the chosen assessment, including directions/prompts provided to students.
Part D: Evaluation Criteria	.doc; .docx; .odt; .pdf	1	1	No limit	

Technology and Engineering Education

Glossary

Source citations for glossary entries are provided as footnotes in this section.

academic language: Oral and written language used for meaning making. AL is the "language of the discipline" used to engage students in learning and includes the means by which students develop and express content understandings. When completing their edTPA, candidates must consider the AL (i.e., **language demands**) present throughout the learning segment in order to support student learning and language development. The **language demands** include **language functions**; **vocabulary/symbols**; **grammatical structures**; and **written, visual, or verbal communication**.

- **language demand:**²³ Specific ways that academic language (function; vocabulary/symbols; grammatical structures; and written, visual, or verbal communication) is used by students to participate in learning tasks through reading, writing, listening, and/or speaking to demonstrate their disciplinary understanding and language development.
- **language development:** The process through which learners come to understand and communicate language. It is with and through language that students learn, think, and express information, ideas, perspectives, and questions orally and in writing. In Technology and Engineering, language development is a multimodal resource for meaning making, including textual and graphical modes.²⁴
- **language functions:** The literacy-based skill that is being used for the learning task, typically represented by active verbs within the learning outcomes. Common language functions in technology and engineering education include **describing** components of a design such as the keystone of a bridge, **predicting** from models and data, **comparing** based on common attributes, **summarizing** the results of trials, **justifying** conclusions, **evaluating** data, **classifying** based on attributes, **explaining** designs and results of trials, **critiquing** a design based on concepts and/or data, **representing** information mathematically, and so on.
- **vocabulary/symbols:** Words and phrases with subject-specific meanings that differ from meanings used in everyday life; general academic vocabulary used across disciplines; subject-specific words and/or symbols defined for use in the discipline.²⁵
- **written, visual, or verbal communication:** How members of the discipline talk, write, and participate in knowledge construction, using the structures of written and oral language; discipline-specific discourse has distinctive features or ways of

²³ O'Hara, S., Pritchard, R., & Zwiers, J. (2012). Identifying academic language demands in support of the common core standards. *ASCD Express*, 7(17).

²⁴ van Dijk, G., Hajer, M. (2016). Teaching the Language of Technology: Toward a Research Agenda. In: de Vries, M. (eds) *Handbook of Technology Education*. Springer International Handbooks of Education. Springer, Cham.

²⁵ Quinn, H., Lee, O., & Valdés, G. (2012). Language demands and opportunities in relation to next generation science standards for English language learners: What teachers need to know.

structuring oral or written language (text structures) or representing knowledge visually.²⁶

- **grammatical structures (syntax):** The rules for organizing words or symbols together into phrases, clauses, sentences, or visual representations; to organize language in order to convey meaning.²⁷
- **language development supports:** The scaffolds, representations, and pedagogical strategies teachers provide to help learners understand, use, and practice the concepts and language they need to learn within disciplines (Santos, Darling-Hammond, Cheuk, 2012).²⁸ The language supports planned within the lessons in edTPA should directly support learners to understand and use identified language demands (vocabulary/symbols; language function; grammatical structures; and written, visual, or verbal communication) to deepen content understandings.

Advancing Excellence in Technological Literacy: Student Assessment, Professional Development, and Program Standards: Advancing Excellence in Technological Literacy: Student Assessment, Professional Development, and Program Standards (AETL) is a companion document to the Standards for Technological and Engineering Literacy (STEL). Specifically, it presents standards and enabling guidelines for student assessment, professional development of teachers, and the program infrastructure associated with the study of technology in grades K–12. AETL identifies the means for the implementation of STL in K–12 laboratory-classrooms. AETL contains three separate, but interrelated, sets of standards: student assessment practices to be used by teachers, professional development to assure effective and continuous in-service, pre-service education for teachers of technology, and detailed program standards that delineate educational requirements used to promote the development of technological literacy.

aligned: Consistently addressing the same/similar learning outcomes for students.

artifact: In the context of completing the edTPA, artifacts are submitted as part of your evidence of authentic work completed by you and your students, including lesson plans, copies of instructional and assessment materials, video clips of your teaching, and student work samples.

assessment (formal and informal): “[R]efer[s] to all those activities undertaken by teachers and by their students . . . that provide information to be used as feedback to modify teaching and learning activities.”²⁹ Assessments provide evidence of students’ prior academic knowledge, thinking, or learning in order to evaluate what students understand and how they are thinking. Informal assessments may include such things as student questions and responses during instruction and teacher observations of students as they work or perform. Formal assessments may include such things as quizzes, homework assignments, journals, projects and performance tasks.

²⁶ Quinn, H., Lee, O., & Valdés, G. (2012). Language demands and opportunities in relation to next generation science standards for English language learners: What teachers need to know.

²⁷ Zwiers, J. (2008). Building academic language: Essential practices for content classrooms. San Francisco, CA: Jossey-Bass.

²⁸ Santos, M., Darling-Hammond, L., & Cheuk, T. (2012). Teacher development to support English language learners in the context of common core state standards. Stanford University Understanding Language.

²⁹ Black, P., & William, D. (1998). Inside the black box: Raising standards through classroom assessment. *Phi Delta Kappan*, 80(2), 139–148.

assets (knowledge of students):

- **personal:** Refers to specific background information that students bring to the learning environment. Students may bring interests, knowledge, everyday experiences, family backgrounds, and so on, which a teacher can draw upon to support learning.
- **community:** Refers to common backgrounds and experiences that students bring from the community where they live, such as resources, local landmarks, community events, practices, and so on, that a teacher can draw upon to support learning.

central focus: A description of the important understandings and core concepts that you want students to develop within the learning segment. The central focus should go beyond a list of facts and skills, align with content standards and learning objectives, and address the subject-specific components in the learning segment. For example, the subject-specific components for technology and engineering education are: technology-related conceptual understanding, technical skills, and engineering design or other problem-solving strategies. A central focus for a learning segment might be designing toy cars that can go fast around a circular track. The learning segment would focus on friction and angular velocity, how to collect and record data on multiple trials of a design, and the associated procedural understandings and reasoning/problem-solving skills to efficiently select improvements to the design.

commentary: Submitted as part of each task, and along with artifacts, make up your evidence. The commentaries should be written to explain the rationale behind your teaching decisions and to analyze and reflect on what you have learned about your teaching practice and your students' learning.

deficit thinking: Thinking that is revealed when candidates explain low academic performance based primarily on students' backgrounds, the challenges they face outside of school or from lack of family support. When this leads to a pattern of low expectations, not taking responsibility for providing appropriate support, or not acknowledging any student strengths, this is a deficit view.

design brief: A written plan that identifies a problem to be solved, its criteria, and its constraints. The design brief is to be used to encourage consideration of all aspects of a problem before attempting a solution.³⁰

developmentally inappropriate feedback: Feedback addressing concepts, skills, or procedures well above or below the content assessed (without clearly identified need) OR feedback that is not appropriate for the developmental level of the student (e.g., lengthy written explanations for English learners or feedback to a student with an explanation that references a concept later in the curriculum).

engaging students in learning: Using instructional and motivational strategies that promote students' active involvement in learning tasks that increase their knowledge, skills, and abilities related to specific learning objectives. Engagement in learning contrasts with student participation in learning tasks that are not well designed and/or implemented and do not increase student learning.

³⁰ Standards for Technological and Engineering Literacy (STEL) can be found at <https://www.iteea.org/stel>.

engineering design: The systematic and creative application of scientific and mathematical principles to practical ends such as the design, manufacture, and operation of efficient and economical structures, machines, processes, and systems.³¹

engineering design process/technological design process: Design process. A systematics problem-solving strategy that relies on use of defined criteria and constraints, used to develop possible solutions to a problem or need and to narrow down the possible solutions to one final choice.³²

evaluation criteria: Performance indicators or dimensions that are used to assess evidence of student learning. They indicate the qualities by which levels of performance can be differentiated and that anchor judgments about the learner's degree of success on an assessment. Evaluation criteria can be represented in various ways, such as a rubric, a point system for different levels of performance, or rules for awarding full versus partial credit. Evaluation criteria may examine correctness/accuracy, cognitive complexity, sophistication or elaboration of responses, or quality of explanations.

evidence: Consists of **artifacts** that document how you planned and implemented instruction **AND commentaries** that explain your plans and what is seen in the videorecordings or examine what you learned about your teaching practice and your students' learning. Evidence should demonstrate your ability to design lesson plans with instructional supports that deepen student learning, use knowledge of your students to inform instruction, foster a positive learning environment that promotes student learning, monitor and assess student progress toward learning objectives, and analyze your teaching effectiveness. Your evidence must be submitted electronically using the electronic portfolio management system used by your teacher preparation program.

learning environment: The designed physical and emotional context, established and maintained throughout the learning segment to support a positive and productive learning experience for students.

learning objectives: Student learning outcomes to be achieved by the end of the lesson or learning segment.

learning segment: A set of 3–5 lessons that build one upon another toward a central focus, with a clearly defined beginning and end.

learning task: Includes activities, discussions, or other modes of participation that engage students to develop, practice, and apply skills and knowledge related to a specific learning goal. Learning tasks may be scaffolded to connect prior knowledge to new knowledge and often include formative assessment.

meaning making: The process by which learners make connections with prior knowledge and experiences (i.e., interpreting texts; composing texts; engaging in research; participating in discussions; speaking with others; and listening to, viewing, and giving presentations) and actively construct knowledge by engaging with content in a meaningful and relevant way.

³¹ (1) Katehi, L., Pearson, G., & Feder, M. (Eds.). (2009). *Engineering in K–12 education: Understanding the status and improving the prospects*. Washington, DC: National Academy of Engineering and National Research Council; (2) Accreditation Board for Engineering; and (3) Standards for Technological and Engineering Literacy (STEL) can be found at <https://www.iteea.org/stel>.

³² Standards for Technological and Engineering Literacy (STEL) can be found at <https://www.iteea.org/stel>.

patterns of learning: Includes **both** quantitative and qualitative patterns (or consistencies) for different groups of students or individuals. Quantitative patterns indicate in a numerical way the information understood from the assessment (e.g., 10 out of 15 students or 20% of the students). Qualitative patterns include descriptions of understandings, misunderstandings, and/or partial understandings that could explain the quantitative patterns (e.g., “given that most students were able to . . . it seems that they understand”).

planned supports: Instructional strategies, learning tasks and materials, and other resources deliberately designed to facilitate student learning of the central focus.

prior academic learning and/or prerequisite skills: Includes students’ content knowledge and skills as well as academic experiences developed prior to the learning segment.

rapport: A close and harmonious relationship in which the people or groups understand each other’s feelings or ideas and communicate well with each other.

respect: A positive feeling of esteem or deference for a person and specific actions and conduct representative of that esteem. Respect can be a specific feeling of regard for the actual qualities of the one respected. It can also be conduct in accord with a specific ethic of respect. Rude conduct is usually considered to indicate a lack of respect, **disrespect**, whereas actions that honor somebody or something indicate respect. Note that respectful actions and conduct may be context dependent.

rubrics: Subject-specific evaluation criteria used to score your performance on edTPA. These rubrics are included in the handbook, following the directions for each task. The descriptors in the five-level rubrics address a wide range of performance representing the knowledge and skills of a novice not ready to teach (Level 1) to the advanced practices of a highly accomplished beginner (Level 5).

safety: Safety of students and the teacher is essential. Safety is more than a body of content that is taught as a prerequisite to performing in technology and engineering education. Safety is an attitude, a level of consciousness that should exist. Safety is a perception that hazards are present throughout our environment and that these hazards must be controlled to minimize human suffering. Safety can be broken down into several areas:

- The **learning environment** defines the physical facilities that students will occupy while participating in technology and engineering education. The learning environment can be separated into multiple areas: lighting, sound control, temperature, safety zones and color coding, storage, fire prevention and control, housekeeping, first aid requirements, and ergonomics.
- The **developmental level** of the student ultimately determines the safety climate of the classroom. Students must have knowledge of safety rules and procedures (cognitive) and possess the attitudes and values necessary to apply their knowledge of safety (affective). The skill level of students regulates the activities that can be performed safely (psychomotor).³³
- Students must learn how to properly and safely use the myriad of **tools and equipment** available in technology and engineering education.

³³ Deluca, V. W., & Haynie, W. J. (Eds.). (2006). *Safety system design for technology education* (3rd ed.). Reston, VA: International Technology Education Association/International Technology and Engineering Educators Association.

- Students must learn the **processes** of tool and equipment usage when constructing artifacts.
- **Material(s)** handling, storage, and disposal are important concepts that must be learned in technology and engineering education.
- The planning and maintaining of the learning environment requires *feedback* from the students and the teacher on how to better maintain and approach safety in technology and engineering education.

significant content inaccuracies: Content flaws in commentary explanations, lesson plans, or instructional materials that will lead to student misunderstandings and the need for reteaching.

Standards for Technological and Engineering Literacy (STEL): The Role of Technology and Engineering in STEM Education: *Standards for Technological and Engineering: The Role of Technology and Engineering in STEM Education* presents core disciplinary standards for grade-level bands, eight guiding principles for technology and engineering practices, and descriptions of eight technology and engineering contexts that represent the breadth of technological activity with examples of projects, course objectives, etc. The examples for each technology and engineering context portray the interrelationships between a context, a core disciplinary standard, and a principle to guide technology and engineering practice. The standards represent an increased emphasis on technology and engineering design in the PK-12 curriculum. They acknowledge how learning can be enhanced through inquiry, critical thinking, hands-on making and doing, and skills that students can apply throughout their lives.

technical skills: Acquired abilities to choose, use, and maintain tools and processes to complete a task.

technological and engineering literacy: In the most fundamental sense, technological literacy is a general understanding of technology. This understanding may not be comprehensive, but it must be developed enough so that a person can function effectively in a technology-dependent society where rapid technological change is the norm. People are not expected to be experts but are expected to be comfortable enough to, say, read and understand a newspaper article that includes information about that field or apply that knowledge in some aspect to daily life—for example, knowing that a car requires regular maintenance. The goal of technological literacy is to provide people with the tools they need to participate intelligently and thoughtfully in the world around them.

Technological and engineering literacy is ‘the ability to understand, use, create, and assess the human-designed environment in increasingly sophisticated ways over time.’³⁴

technology and engineering education: Technology and Engineering Education (T&EE) is a program that resides at the P–12 school levels for all students and at post-secondary institutions for those students interested in teaching or obtaining employment in the technology/engineering fields. Technology and engineering education is primarily taught by technology and engineering teachers, with a focus on engineering design. T&EE may be considered a stand-alone discipline or part of a larger discipline in science, technology, engineering, and mathematics (STEM). Regardless of the approach, T&EE focuses on

³⁴ (1) Garmire, E., & Pearson, G. (Eds.). (2006). *Tech tally: Approaches to assessing technological literacy*. Washington, DC: National Academy of Engineering and National Research Council. (2) Standards for Technological and Engineering Literacy (STEL) can be found at <https://www.iteea.org/stel>.

technological literacy and engineering design; engineering design is the verb tense of engineering.

At the P–12 grade levels, the goal is for students to develop technological and engineering literacy, regardless of career aspirations, through hands-on, contextual applications of technological and engineering concepts. T&EE students use a hands-on approach to solve technological problems using problem solving and creativity, while working under constraints, which involves the use of optimization and predictive analysis. At the P–5 grade levels, technology and engineering concepts are integrated into existing coursework such as reading, mathematics, science, and social studies. Typical courses students would take at the 6–12 grade levels in a T&EE program would consist of (a) information and communication technologies, including computer-aided drafting and design; (b) engineering design; (c) construction technology; (d) manufacturing technology; (e) energy, power, and transportation technology; and (f) medical, agricultural, and related biotechnologies. Within these courses, students would utilize troubleshooting, research and development, invention and innovation, and problem solving. The focus of T&EE at the P–12 levels is not to prepare future engineering majors/students, but to provide an education for all students.³⁵

technology-related conceptual understanding: Students demonstrate conceptual understanding in technology and engineering when they recognize and can integrate the core concepts, systems, resources, requirements, optimization and trade-offs, processes, and controls.³⁶ This is often done through design activities that also involve analysis to model systems and predict outcomes, concern for human values (both individual and societal), and the communication of design ideas.

variety of learners: Students in your class who may require different strategies or support. These students include but are not limited to students with IEPs or 504 plans, English learners, struggling readers, students with poor spatial skills, underperforming students or those with gaps in academic knowledge, and/or gifted students.

work artifact: Sometimes thought of as a project that students would complete as part of a lesson or unit of instruction, a work artifact is considered the physical evidence and/or visual representation that students submit to their teacher that would allow the teacher to properly assess student knowledge and skill. Work artifacts in technology and engineering education could be in many forms. Examples of work artifacts could include, but are not limited to, CAD models and drawings, portfolios, written work, engineering design notebooks, prototypes, or other physical components that are common to technology and engineering education content.

³⁵ Merrill, C. (n.d.). Technology and engineering education description. This definition was sent to World Book Encyclopedia in March of 2012 for inclusion as the definition of technology and engineering education.

³⁶ Standards for Technological and Engineering Literacy (STEL) can be found at <https://www.iteea.org/stel>.

Appendix: Academic Language

Language Demands

I. Functions

Definition	Examples (bolded and underlined within learning objectives)
- Purposes for which language is used. - Content and language focus of learning tasks often represented by the active verbs within the learning outcomes	Learning Objectives: - Students will be able to <u>explain</u> the importance of bridges. - Students will be able to <u>describe</u> the keystone of an arch bridge. - Students will be able to <u>critique</u> the <u>design</u> of a bridge in terms of its ability to overcome different forces.

II. Vocabulary/Symbols—Includes words, phrases, and symbols used within disciplines

Definition	Examples
Words and phrases with subject-specific meanings that differ from meanings used in everyday life	ruler, square, face, shear, isometric, oblique, expressions, product
General academic vocabulary/symbols used across disciplines	compare, evaluate, describe, draw and model, identify, design
Subject-specific words and/or symbols defined for use in the discipline	simplification, logic gates, logic notation, orthographic

III. Written, Visual, or Verbal Communication

Definition	Examples
- How members of the discipline talk, write, and participate in knowledge construction, using the structures of written and oral language - Discipline-specific written, visual, or verbal communication has distinctive features or ways of structuring oral or written language (text structures) or representing knowledge visually	- Designing a circuit using a formal design process - Explaining essential elements of a system - Drawing an orthographic view representation of a given object

IV. Grammatical Structures (syntax)

Definition	Examples
■ The rules for organizing words or symbols together into phrases, clauses, sentences, or visual representations ■ One of the main functions of grammatical structures is to organize language in order to convey meaning.	■ Symbols and representations on a two-dimensional drawing corresponding to a three-dimensional scale model ■ Correctly labeling the lines in a two dimensional drawing ■ Formulas for calculating forces, for example $F = ma$ – Force = mass times acceleration ■ Labels for sectional view drawings

V. Visual Representation (work artifact)

Definition	Examples
■ Being precise and accurate with definitions and symbols in labeling, measurement, and drawings ■ Examples of visual representations could include, but are not limited to, CAD models, drawings, and prototypes.	■ Constructing two-dimensional drawings to scale to represent a three-dimensional model or object

Example of Planned Language Development Supports

To help programs and candidates begin to develop their understanding of language development supports, **start by examining a key standard or learning objective.**

The chart below identifies sample language demands with related examples of supports based on one selected learning objective in technology and engineering education.

Example learning objective: Students will *critique* the design of a physical prototype of a *wearable* medical *device* using several *manufacturing processes*.

Identified Language Demands	Planned Language Development Supports
Design (Function)	Model how to critique the design of a wearable medical device
Wearable device (Vocabulary/symbols)	Review vocabulary/symbols and discuss meanings in the context of the wearable devices modeled
Manufacturing process (Written, visual, or verbal communication)	Review charts that describe several manufacturing processes