
Core Proposition 2: Teachers know the subjects they teach and how to teach those subjects to students.

STANDARD INDICATOR 2.1

SUBJECT KNOWLEDGE

Teachers who possess a firm command of their subject areas understand factual information as well as major themes and concepts. They also comprehend the process of creative investigation and inquiry, whereby discoveries are made and new knowledge is formed, as demonstrated in the work of scholars and artists. For instance, physics teachers know the role of hypothesis generation and experimentation in scientific inquiry; geometry teachers know the modes of justification for substantiating mathematical claims; fine arts teachers understand how creative ideas are developed and meaning is conveyed through performance; social studies teachers know how historians use evidence to interpret past events; and English language arts teachers understand the relationship between reading, writing, speaking, and listening. Literacy, a foundational component of learning across content domains, is instrumental to comprehending subject matter and connecting one discipline to another.

Accomplished teachers value the relationships among subject areas, using those relationships to forge multiple paths to knowledge. Thus, early and middle childhood generalists know about geography and its relationship to economics and history, and world language teachers know how political history and human migration inform an appreciation of language and culture. As those examples illustrate, accomplished teachers understand not only how content areas relate but also how they influence student learning.

Recognizing how knowledge is established within and across subject areas is crucial to the instruction of logical reasoning. Critical thinking does not occur in the abstract, for thinkers always evaluate something. Accomplished teachers realize the fundamental role that disciplinary study plays in the development of critical analysis and conceptual understanding. Knowing that multiple perspectives and interpretations of each content area exist, educators expose students to different modes of critical thinking and show them how to reason analytically about subject matter. While maintaining the integrity of disciplinary methods, content, and structures of organization, accomplished teachers encourage students to question prevailing norms and assumptions so they can think for themselves.

For example, early childhood generalists may not delve as deeply into cellular structure as high school biology teachers do, but they present foundational knowledge that introduces students to the joys of discovery, while inspiring a desire to explore the natural world in which they live. Similarly, physical education teachers may focus on locomotor movement—such as walking, hopping, or skipping—to help students with moderate and profound physical limitations develop gross motor skills and achieve maximum independence. Teachers must possess a thorough understanding of subject matter to help their students develop critical skills and pursue lifelong learning—the hallmark of accomplished teaching at every developmental level.

Adapted from NBPTS, *What Teachers Should Know and Be Able to Do*, 2nd ed. (2016, pp. 18–20).

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Key Elements of Teacher Practice Related to Standard Indicator 2.1

- Understanding factual information and organizing concepts of a particular subject and ability to organize the content in meaningful ways for student learning;
- Appreciating how content-specific knowledge is created—hypotheses, experiments, gathering of evidence, justification of claims, and so on, and incorporating this in the planned and presented content;
- Planning and implementing instruction designed to engage students in thinking critically and analytically about content;
- Integrating of reading, writing, speaking, and listening strategies to support comprehension of and access to the content;
- Making connections to other disciplines and encouraging multiple perspectives and interpretations; and
- Keeping current with knowledge of research and discoveries within the content area and incorporating this new information into instruction.

Questions for Reflection and Planning

- What are the central organizing concepts and understandings I want my students to take away from this learning opportunity?
- What opportunities are there for integrating reading, writing, listening, or speaking strategies to support student learning with the content I am teaching?
- Have I identified the essential academic language and content-specific vocabulary that is key to understanding and communicating about this content?
- What meaningful connections to other disciplines might I make when teaching this content?
- Does the selected content provide ways for students to think critically and analytically?
- How will I introduce and encourage students to consider multiple perspectives and interpretations, and question [prevailing beliefs](#) and assumptions?
- How has content within my discipline changed or evolved? How might I incorporate this into my instruction?

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2.1 LEVEL 1

Standard Indicator 2.1. Subject Knowledge. The teacher demonstrates an understanding of how knowledge and skills in his or her subject domain are created, organized, and linked to those of other disciplines as appropriate.

Level 1, Ineffective

Performance-Level Descriptors

*The teacher structures unit and individual lesson content to emphasize limited factual information and content-specific vocabulary. The teacher does not make connections to **central organizing concepts/essential questions**.*

The teacher does not incorporate content that provides opportunities for students to reason analytically about the subject matter.

The teacher's statements of content contain significant inaccuracies.

The teacher's integration of reading, writing, listening, or speaking strategies is limited and does not support student comprehension of the subject matter.

Critical Attributes

- The teacher's instruction does not reference **central organizing concepts**.
- The teacher's instruction is limited to sharing basic factual information and vocabulary, some of which may be inaccurate.
- The teacher does not recognize content-specific prerequisite relationships.
- The teacher presents a singular perspective on the content.
- The teacher does not involve students in using appropriate literacy skills to make sense of the content or connect to other disciplines.

Possible Examples

- During a unit on the Civil War, the focus of instruction is on memorizing names, dates, and places, with little to no emphasis on key socio-political events underlying the war.
- A third-grade teacher expects students to use only memorization to learn basic math facts without providing instruction in relational strategies, such as using fact families to assist with efficient recall.
- A sixth-grade science teacher engages students in an ecology unit on biomes without asking students to locate them on globes or maps.
- A kindergarten teacher corrects a student by saying, "That is a square, not a rectangle."
- A teacher presents fractions using only a circular model.
- The teacher has the students copy dictionary definitions of unit vocabulary, with little emphasis on contextual understanding or real-world connections.

Implications for Professional Learning
(adapted from InTASC Learning Progressions 1.0)

Develop the ability to: Use a broad repertoire of representations of content that promotes accurate understanding of content and learners' **higher order thinking**.

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Teaching practice is advanced through professional learning that will, for example:

Deepen knowledge in content area.

- Read journals in the content area.
- Access and process frameworks for building learners' academic language (e.g., journals, books, Internet).
- Engage in a structured course or workshop to thoroughly understand the content standards for the grade level and subject.

Strengthen analysis and reflection on current content knowledge.

- Identify personal content-related strengths and weaknesses and work with content area colleagues or specialists to create and implement a professional development plan.

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2.1 LEVEL 2

Standard Indicator 2.1. Subject Knowledge. The teacher demonstrates an understanding of how knowledge and skills in his or her subject domain are created, organized, and linked to those of other disciplines as appropriate.

Level 2, Developing

Performance-Level Descriptors

*The teacher structures unit and individual lesson content to emphasize factual information but connections to **central organizing concepts/essential questions** are not clear.*

The teacher incorporates content that provides limited opportunities for students to reason analytically about the subject matter.

The teacher's statements of content are generally accurate and emphasize the use of some specific content vocabulary.

The teacher's integration of reading, writing, listening, or speaking strategies does not clearly support student comprehension of the subject matter.

Critical Attributes

- The teacher references some **central organizing concepts** but does not make clear connections for students to the ongoing instruction.
- The teacher's instruction is limited to sharing basic factual information that is mostly accurate.
- The teacher does not place importance on the generation of multiple perspectives.
- The teacher makes a few connections to other disciplines, but some relationships may be unclear or lack relevance.
- The teacher misses opportunities to present necessary content-specific prerequisite relationships students need to fully comprehend the content.
- The teacher involves students in using a few basic literacy strategies to make sense of the content and academic vocabulary.

Possible Examples

- A middle school art teacher engages students in understanding the basic elements of art but does not ask students to consider how effectively they have used them in their own pieces.
- A teacher implements instruction on area and perimeter separately without making connections between the two concepts.
- While teaching about global warming, the teacher gives students an article that provides only one point of view and does not invite students to share differing views.
- A preschool teacher reads a narrative about a boy and the snow but does not have students make any connections between the story and their earlier recess time on the snowy playground.
- A teacher begins instruction in decimals before students have fully grasped the concept of place value of whole numbers.
- A teacher gives students a list of vocabulary words and asks students to highlight them in the text.

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- Engage in a structured course or workshop to thoroughly understand the content standards for the grade level and subject.

Strengthen analysis and reflection on current content knowledge.

- Identify personal content-related strengths and weaknesses and work with content area colleagues or specialists to create and implement a professional development plan.

Expand professional connections in the content area.

- Interact with colleagues at conferences and professional development sessions to learn and apply new developments in content.

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2.1 LEVEL 3

Standard Indicator 2.1. Subject Knowledge. The teacher demonstrates an understanding of how knowledge and skills in his or her subject domain are created, organized, and linked to those of other disciplines as appropriate.

Level 3, Effective

Performance-Level Descriptors

*The teacher structures unit and individual lesson content to clearly address **central organizing concepts/essential questions** and factual information.*

The teacher statements of content are accurate and emphasize the use of specific content vocabulary.

The teacher integrates reading, writing, listening, or speaking strategies to support student comprehension of the subject matter. Connections are made to other disciplines as appropriate to enhance student understanding.

The teacher incorporates content that provides opportunities for students to explore multiple perspectives and reason analytically about the subject matter.

Critical Attributes

- The teacher uses **essential questions** to make intentional and purposeful connections between the learning activity and **central organizing concepts**.
- The teacher accurately and effectively communicates concepts, processes, and pre-requisite knowledge in the discipline and uses vocabulary and academic language that is clear and appropriate for learners.
- The teacher makes intentional and meaningful connections to other disciplines, as appropriate to student learning.
- The teacher seeks out ways to represent content knowledge to learners by presenting diverse perspectives that engage learners in understanding, questioning, and analyzing ideas.
- The teacher incorporates literacy skills and strategies into instruction to help students to access information and communicate understanding.

Possible Examples

- As the lesson begins, the students review their lab notes from the previous day and discuss with a partner how their data relates to the **essential questions** of the unit of study.
- A STEM teacher models, and carefully monitors, student practice in using metric measurement tools in preparation for an upcoming project.
- When presenting 3-D geometry, the teacher emphasizes precise use of geometric terms and attributes, as well as multiple models (shapes, nets, real-world objects), to guide students toward understanding the academic vocabulary and key concepts.
- As students read an article on EPA regulations in their economics class, the teacher asks if the author provides clues as to what his political affiliation is and asks them to give specific evidence to support their thinking.
- As students share opinions on the current events article, the teacher probes the class: “Do you agree or disagree? Why? What do we know about the source of this information? Does that change anyone’s thinking?”
- In a unit on shadows, the early childhood teacher shares narrative and information texts that include shadows, sets up a shadow area in the classroom where children can use a flashlight and various objects, and has students share with a partner about the shadows they see on the playground.

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Implications for Professional Learning
(adapted from InTASC Learning Progressions 1.0)

Develop the ability to: Make content more comprehensible for learners using a broad repertoire of representations of content that promotes accurate understanding of content and learners' [higher order thinking](#).

Teaching practice is advanced through professional learning that will, for example:

Deepen knowledge in content area.

- Continue to stay current with content through reading journals and blogs, online resources, and attending presentations in the content area.
- Join colleagues in a subject area book study.

Strengthen analysis and reflection on current content knowledge.

- Share content related practice with colleagues and use coaching to improve content representation for learner understanding.

Expand professional connections in the content area.

- Interact with colleagues at conferences and professional development sessions to learn and apply new developments in content.
- Collaborate with others to expand content knowledge and keep up with changes in the discipline.

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2.1 LEVEL 4

Standard Indicator 2.1. Subject Knowledge. The teacher demonstrates an understanding of how knowledge and skills in his or her subject domain are created, organized, and linked to those of other disciplines as appropriate.

Level 4, Distinguished

Performance-Level Descriptors

*The teacher structures unit and individual lesson content to clearly address, and highlight connections among, **central organizing concepts/essential questions** and factual information.*

The teacher incorporates content that provides opportunities for students to explore multiple perspectives, and exposes students to different modes of critical thinking and ways to reason analytically about subject matter.

The teacher statements of content are accurate and support student application of content-specific vocabulary in reasoning about subject matter.

The teacher integration of reading, writing, listening, or speaking strategies enhances student comprehension and application of the subject matter. Connections between the subject matter and other disciplines are often made by students.

Critical Attributes

- The teacher makes intentional and purposeful connections between the learning activity and overarching **essential questions** and frequently asks students to do so as well.
- The teacher probes for student understanding of the content-specific prerequisites skills and relationships, as well as vocabulary, and considers this information when planning and implementing instruction.
- The teacher incorporates the use of literacy strategies throughout instruction to help students analyze and interpret information and communicate understanding of the content.
- The teacher provides and encourages multiple perspectives on aspects of the content that engage learners in questioning **prevailing beliefs** and analyzing ideas to deepen understanding.
- Students identify and communicate meaningful connections they are making to other disciplines and real-world experiences, as appropriate to their learning.

Possible Examples

- To bring closure to each lesson, a teacher has students partner up to share or reflect in journals the connections they see between the essential questions and the activities in which they have engaged.
- In preparation for a class debate, a science teacher provides instruction and practice in using reputable sources of information, making precise and knowledgeable claims, and forming logically sequenced supporting reasons with evidence.
- A music teacher supports the history unit on World War II by preparing a series of music from the period and asking students to discuss how the music was influenced by the war and vice versa.
- When the concept of hydraulic fracturing comes up in a geology unit, one of the students suggests that it might be a good topic upon which to craft opinion pieces to share with the local newspaper on the pros and cons of the process.
- During a second-grade unit on forces of motion, students note how what they are learning relates to how they use the swings, see-saws, and other equipment on the playground.

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