

EDMS 316 Signature Assignment

Science Methods

Planning Task 1: Planning for Instruction and Assessment

What Do I Need to Think About?

In Planning Task 1, you will describe your plans for the learning segment and explain how your instruction is appropriate for the students and the content you are teaching. As you develop your plans, you need to think about the following:

- What do your students know, what can they do, and what are they learning to do?
- What do you want your students to learn? What are the important understandings and core concepts you want students to develop within the learning segment?
- How will you use your knowledge of your students' assets to inform your plans?
- What instructional strategies, learning tasks, and assessments will you design to support student learning and language use?
- How will your learning segment support students to develop and use language that deepens content understanding?
- How is the teaching you propose supported by research and theory about how students learn?

What Do I Need to Do?

With a Partner:

- **Select a class.** If you teach more than one class, select one focus class for this assessment. If your placement for science 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.
- **Identify a learning segment to plan and identify a central focus.** Review the curriculum for your grade level (refer to the *California Science Framework* and *NGSS*) and select a learning segment of **3 consecutive lessons**. 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 using scientific concepts and applying scientific practices through inquiry to explain a real-world phenomenon or predict reasonable outcomes based on patterns in evidence and/or data.
- **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 of the 3 lessons 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. (**Template provided**)
 - Your lesson plans must include the following information:
 - 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
 - Informal and formal 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) that support diverse student needs
 - 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.

Individually:

- **Respond to the commentary prompts** listed in the Planning Commentary section (**attached**).

Submit (to your instructor and on Taskstream):

- **Your 3 original lesson plans, including**
 - **Key instructional materials.** These are 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.
 - **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.)
- **Planning Commentary**
 - **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.

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Planning Commentary

In Planning Task 1, you will write a commentary, responding to the prompts below. Your commentary should be **no more than 9 single-spaced pages, including the prompts.**

1. Central Focus (Rubric 1)

- a. Describe the central focus and purpose of the content you will teach in the learning segment.
- b. Given the central focus, describe how the standards and learning objectives within your learning segment address the use of science concepts, the application of scientific practices through inquiry, and the development and evaluation of evidence-based explanations of or reasonable predictions about a real-world phenomenon based on patterns of evidence and/or data.
- c. Explain how your plans build on each other to help students **understand relationships** between scientific concepts, scientific practices through inquiry, and the phenomenon in the learning segment.

2 & 3 Knowledge of Students to Inform Teaching (Combination of Commentary Prompts and Rubrics for EdTPA 2 and 3)

For the prompt below, describe what you know about **your** students **with respect to the central focus** of the learning segment.

- a. Personal, cultural, and community assets related to the central focus—**What do you know about your students' everyday experiences, prior knowledge, cultural and language backgrounds, practices, and interests?**
- b. Justify how your knowledge of students guided your choice or adaptation of learning tasks and materials. Be explicit about the connections between the learning tasks and students' **prior academic learning, their assets, and research/theory.**

To support your justifications, refer to the instructional materials and lesson plans you have included as part of Planning Task 1. **In addition, use principles from research and/or theory to support your justifications.**

- c. Describe and justify why your instructional strategies and planned supports are appropriate for **the whole class, individuals, and groups of students with specific learning needs.**

Consider the variety of learners in your class who may require different strategies/support (e.g., students with IEPs or 504 plans, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students).

4. Supporting Science Development through Language (Rubric 4)

As you respond to prompts 4a–d, consider the range of students' language assets and needs—what do students already know, what are they struggling with, and/or what is new to them?

- a. **Language Function.** Using information about your student's language assets and needs, describe how the language function "**explain**" is essential for students to develop understanding of science concepts, the phenomenon, and the application of scientific practices through inquiry within your central focus.
- b. Identify a **key learning task (activity)** from your plans that provides students with opportunities to practice using the language function. Identify the lesson in which the learning task occurs. (Give the lesson/day and number.)
- c. **Additional Language Demands.** Given the language function (**explain**) and learning task (activity) identified above, describe the following associated language demands (written or oral) students need to understand and/or use:
 - Vocabulary and/or symbols
 - Discourse
- d. **Language Supports.** Refer to your lesson plans and instructional materials as needed in your response to the prompt. Identify and describe the planned instructional supports (during and/or prior to the learning task) to help students understand, develop, and use the identified language demands (function, vocabulary and/or symbols, syntax, or discourse).

5. Monitoring Student Learning In response to the prompts below, refer to the assessments you will submit as part of the materials for Planning Task 1. (Rubric 5)

- a. Describe how your planned formal and informal assessments will provide direct evidence of students' understanding of science concepts, the real-world phenomenon, **AND** the application of scientific practices through inquiry **throughout** the learning segment.
- b. Explain how the design or adaptation of your planned assessments allows students with specific needs to demonstrate their learning.

Consider the variety of learners in your class who may require different strategies/support (e.g., students with IEPs or 504 plans, English language

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Scoring Rubrics

Rubric 1: Planning for Scientific Understandings

How do the candidate's plans build students' abilities to use science concepts and scientific practices during inquiry to explain or make predictions about a real-world phenomenon?

Level 1 ¹	Level 2	Level 3	Level 4	Level 5
<p>Candidate's plans for instruction focus solely on memorization and following prescribed procedures for an "inquiry" with no opportunities for students to engage in scientific practices through inquiry.</p> <p>OR</p> <p>There are significant content inaccuracies that will lead to student misunderstandings.</p> <p>OR</p> <p>Standards, objectives, and learning tasks and materials are not aligned with each other.</p>	<p>Candidate's plans for instruction include opportunities for students to engage in scientific practices through inquiry.</p>	<p>Candidate's plans for instruction build on each other to support students to</p> <ul style="list-style-type: none"> • learn science concepts, • investigate a phenomenon by engaging in scientific practices through inquiry, AND • construct explanations of the phenomenon or reasonable predictions based on evidence and/or data. 	<p>Candidate's plans for instruction build on each other to support students to</p> <ul style="list-style-type: none"> • learn science concepts, • investigate a phenomenon by engaging in scientific practices through inquiry, AND • construct evidence-based explanations of the phenomenon or support predictions with patterns in evidence and/or data. 	<p>Candidate's plans for instruction build on each other to support students to</p> <ul style="list-style-type: none"> • learn science concepts, • investigate a phenomenon by engaging in scientific practices through inquiry, AND • construct and evaluate evidence-based explanations of the phenomenon or predictions based on patterns in evidence and/or data.

¹ 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.

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 use science concepts and scientific practices during inquiry to explain or make predictions about a real-world phenomenon?

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

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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
<p>Candidate's justification of learning tasks is either missing OR represents a deficit view of students and their backgrounds.</p>	<p>Candidate justifies learning tasks with limited attention to students'</p> <ul style="list-style-type: none"> • prior academic learning OR • personal, cultural, or community assets. 	<p>Candidate justifies why learning tasks (or their adaptations) are appropriate using examples of students'</p> <ul style="list-style-type: none"> • prior academic learning OR • personal, cultural, or community assets. <p>Candidate makes superficial connections to research and/or theory.</p>	<p>Candidate justifies why learning tasks (or their adaptations) are appropriate using examples of students'</p> <ul style="list-style-type: none"> • prior academic learning AND • personal, cultural, or community assets. <p>Candidate makes connections to research and/or theory.</p>	<p>Level 4 plus: Candidate's justification is supported by principles from research and/or theory.</p>

Rubric 4: Identifying and Supporting Language Demands

How does the candidate identify and support language demands associated with a key science learning task?				
Level 1	Level 2	Level 3	Level 4	Level 5
<p>Language demands² identified by the candidate are not consistent with the selected language function³ OR task.</p> <p>OR</p> <p>Language supports are missing or are not aligned with the language demand(s) for the learning task.</p>	<p>Language supports primarily address one language demand (function, vocabulary and/or symbols, syntax, discourse).</p>	<p>General language supports address use of two or more language demands (function, vocabulary and/or symbols, syntax, discourse).</p>	<p>Targeted language supports address use of</p> <ul style="list-style-type: none"> • vocabulary and/or symbols, • language function, AND • one or more additional language demands (syntax, discourse). 	<p>Level 4 plus: Language supports are designed to meet the needs of students with different levels of language learning.</p>

Rubric 5: Planning Assessments to Monitor and Support Student Learning

How are the informal and formal assessments selected or designed to monitor students' progress toward using science concepts and scientific practices during inquiry to explain or predict a real-world phenomenon?				
Level 1	Level 2	Level 3	Level 4	Level 5
<p>The assessments only provide evidence of students' ability to memorize and follow prescribed procedures.</p> <p>OR</p> <p>Candidate does not attend to ANY ASSESSMENT requirements in IEPs and 504 plans.</p>	<p>The assessments provide limited evidence to monitor students' understanding of</p> <ul style="list-style-type: none"> • science concepts, • the phenomenon, AND • the application of scientific practices during scientific inquiry during the learning segment. 	<p>The assessments provide evidence to monitor students' understanding of</p> <ul style="list-style-type: none"> • science concepts, • the phenomenon, AND • the application of scientific practices during scientific inquiry during the learning segment. 	<p>The assessments provide multiple forms of evidence to monitor students' progress toward developing understanding of</p> <ul style="list-style-type: none"> • science concepts, • the phenomenon, AND • the application of scientific practices during scientific inquiry <p>throughout the learning segment.</p>	<p>Level 4 plus: The assessments are strategically designed to allow individuals or groups with specific needs to demonstrate their learning.</p>