

Before beginning this task, read the complete directions provided in the CalTPA Candidate Handbook.

Case Study 1: Subject-Specific and Developmentally-Appropriate Pedagogy

A. Contextual Information for Case Study 1

1. Elements of a Learning Experience in a Unit

Grade:	8 th
Content Area:	General Science
Subject Matter:	Introductory Physical Science
Time Period for the Learning Experience:	Two 45-minute sessions in two consecutive days.

State-adopted Academic Content Standards for Students

Reactions

5. Chemical reactions are processes in which atoms are rearranged into different combinations of molecules. As a basis for understanding this concept:
 - d. Students know physical processes include freezing and boiling, in which a material changes form with no chemical reaction.

Investigation and Experimentation

9. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
 - a. Plan and conduct a scientific investigation to test a hypothesis.

Learning Goals for the Learning Experience

Students will be able to do the following with a focus on solutions

- Determine how temperature affects the physical state of water
- Measure and display data accurately and in an organized fashion

Instructional Resources Available

Goggles, rubber gloves, thermometers, beakers, stands, water, Bunsen burners, graph paper

2. Class Description

Students are in an 8th grade science class. They particularly need to have opportunities to learn content in different ways and to revisit content. Many of the students enjoy the school environment and like to socialize with each other. Most of the students are active in after-school activities, including sports, clubs, tutoring, and jobs, which leaves little time for homework. The majority of the class plans to attend the local community college or technical computer school. There are some students who are unsure about what careers they want to pursue. About two-thirds of the students in this class have at least one other class with their classmates.

3. Developmental Needs of the Students in Grade 8

- understand connections between the lesson content and life outside of school
- develop advanced thinking and problem-solving skills
- develop socially and handle the intense social peer pressure to conform while maintaining individuality

B. Questions for Case Study 1

1. Given the contextual information for Case Study 1, think about a lesson you might use with these students that addresses the subject matter learning goals and the developmental needs of the students described. In the columns below describe:

- **Instructional strategies**
- **Student activities**
- **Instructional resources**

Note: Instructional strategies are what the teacher does during instruction and student activities are what the students do during the lesson.

Instructional Strategies	Student Activities

2. Based on your knowledge of the content and of student development, explain why the instructional strategies, student activities, and resources you listed in question 1:

<ul style="list-style-type: none"> • are appropriate for this class 	
<ul style="list-style-type: none"> • address the developmental needs of these students 	
<ul style="list-style-type: none"> • help these students make progress toward achieving the state-adopted academic content standards for students in this content area 	

— END OF CASE STUDY 1 —

Case Study 2: Assessment Practices

A. Contextual Information for Case Study 2

1. Elements of a Learning Experience in a Unit

Grade:	High School
Content Area:	Integrated Science
Subject Matter:	Introduction to Life Science
Time Period for Whole Unit:	3 weeks

State-adopted Academic Content Standards for Students

Cell Biology

1. Fundamental life processes of plants and animals depend on a variety of chemical reactions that are carried out in specialized areas of the organism's cells. As a basis for understanding this concept, students know:
 - a. Cells are enclosed with semi-permeable membranes that regulate their interaction with their surroundings.
 - b. Enzymes are proteins and catalyze biochemical reactions without altering the reaction equilibrium. The activity of enzymes depends on the temperature, ionic conditions, and the pH of the surroundings.

Investigation and Experimentation

1. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept, and to address the content of the other four strands, students should develop their own questions and perform investigations. Students will:
 - a. Select and use appropriate tools and technology to perform tests, collect data, analyze relationships, and display data.

Learning Goals for Whole Unit

Students will be able to do the following:

- Identify basic cellular structures and functions (prior knowledge)
- Identify the structure and function of a semi permeable membrane
- Identify osmotic pressure
- Understand and adapt the mechanism of osmosis
- Identify the basic structure of proteins
- Identify common proteins
- Understand how enzymes catalyze biochemical reactions
- Analyze the effects of temperature, ionic conditions and pH on enzymatic activity
- Select and use appropriate scientific equipment in a safe manner
- Perform a scientific investigation to collect and display data and to analyze relationships

2. Teacher Reflection on Student Assessment for this Unit

“I am not satisfied with the assessment plan I used for the last unit of study. I gave the students a diagnostic test at the beginning of the unit, two quizzes during the unit, and a final test, all of which came from the teacher’s guide. I feel, though, that I need additional information on what students really know and understand, their misconceptions, what they learned during the instruction, and their progress toward achieving the learning goals. I am looking for ways to improve my assessment plan, so I can have a more complete understanding of how well these students learned the subject matter.”

3. Assessment Plan

	Day 1	Day 6	Day 11	Day 15
Goals Assessed	<i>Identify basic cellular structures and functions</i>	<i>Identify the basic structure of common proteins and the mechanism of osmosis</i>	<i>Identify how enzymes catalyze biochemical reactions, appropriate scientific equipment, and safety measures</i>	<i>Identify cellular structures and functions, common proteins, osmosis, enzyme catalysis, scientific equipment, and safety measures</i>
Type	Formal, diagnostic test from curriculum guide; multiple choice; formative	Formal quiz from the textbook; multiple choice; formative	Formal quiz from the textbook; multiple choice; formative	Formal, final chapter/unit exam from textbook; multiple choice and fill in the blank; summative
Purpose	Assess previous knowledge and skills	Assess acquired concepts and skills	Assess acquired skills and concepts	Assess acquired knowledge and skills from instructional unit
Implementation	Individual assessment; paper and pencil; teacher corrects with an answer key	Individual assessment; paper and pencil; teacher corrects with an answer key	Individual assessment; paper and pencil; teacher corrects with an answer key	Individual assessment; paper and pencil; teacher corrects with an answer key
Feedback Strategies	Tell students of scores and inform student of correct and incorrect items	Inform students of correct and incorrect items	Inform students of correct and incorrect items	Inform students of correct and incorrect items
Informing Instruction	To determine what needs to be reviewed and where to begin teaching	To determine who has learned the material presented	To determine who has learned the material presented	To determine the achievement level of each student towards the goals

B. Questions for Case Study 2

1.a.	Identify one strength in the assessment plan and explain why it is a strength in relation to the learning goals of this unit.	
1.b.	Identify one weakness in the assessment plan and explain why it is a weakness in relation to the learning goals of this unit.	

2. Suppose you found the following additional assessment in a supplementary resource. Think about how the additional assessment could improve the teacher’s assessment plan.

Additional Assessment

1. Compare and contrast the effects of temperature, ionic conditions, and pH on enzymatic activity based on the results of your scientific investigation performed in the lab.
2. Which of the three conditions – temperature, ionic conditions, or pH – has the greatest effect on enzymatic activity? Why? Use your investigation results to justify your answer.

Explain to the teacher how it might be used to improve the plan by answering the following questions:

2.a.	When in the plan would you use this assessment?	
2.b.	What goals would be assessed by this assessment?	
2.c.	What type of assessment would it be?	
2.d.	What would be the purpose of the assessment?	
2.e.	How would you implement the assessment?	
2.f.	What feedback strategies would you use?	
2.g.	How would the results of the	

	assessment inform instruction?	
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3. Explain how using the additional assessment as you described in question 2 improves the teacher's assessment plan and what specific information about what the students really know and understand about the content area, their misconceptions, and their progress toward achieving the learning goals would be gained.

— END OF CASE STUDY 2 —

Case Study 3: Adaptation of Subject specific Pedagogy for English Learners

A. Contextual Information for Case Study 3

1. Elements of a Learning Experience for 2 Days in a Unit

Grade:	High School
Content Area:	Integrated Science
Subject Matter:	Introduction to Life Science
Time Period for Whole Unit:	3 weeks

State-adopted Academic Content Standards for Students

Evolution

8. Evolution is the result of genetic changes that occur in constantly changing environments. As a basis for understanding this concept, student know:
 - a. How natural selection determines the survival of groups of organisms.
 - b. A great diversity of species increases the chance that at least some organisms survive major changes in the environment.
 - c. The effects of genetic drift on the diversity of organisms in a population.
 - d. How reproductive or geographic isolation affects speciation.

Learning Goals for Whole Unit

Students will be able to do the following with a focus on evolution:

- Perform, analyze, and present scientific inquiry
- Plan and conduct a long-term investigation
- Collect information by observing, measuring, and graphing
- Compare, contrast, and evaluate basic principles of evolution

Relationship to Preceding and Subsequent Learning Experiences

Basic principles of evolution will be covered in a manner similar to other scientific units. Science process skills are important inquiry tools, and opportunities for developing them are provided throughout the unit. Some of the skills, such as observation and measurement, have been covered in the other scientific units. This investigation will form the basis of the next unit on ecosystems.

2. Outline of Plans for Days 1 and 2

The following outline addresses some of the academic content standards and unit goals, but it is not expected that the students will achieve them during the two days.

Instructional Strategies

- On Day 1, lead a discussion about the term “species” – characteristics, examples, and extinction. Write student ideas on the board. Have students independently read a handout concerning a recently discovered new species of beetle. Then present the

following Case Study: “Suppose you have discovered a new species of living thing. Write three or four paragraphs describing the species, one unusual structure it has, the characteristics of the structure, and how this structure might help the species survive a specific drastic environmental change.” Have students write paragraphs using newly acquired scientific terms/vocabulary to explain their answer to classmates.

- On Day 2, allow students to complete written response. Have students practice with a partner orally summarizing their written work. Then have them individually share their oral summaries with the whole class and receive feedback.

Student Activities

- Participate in discussion about “species.” Read the handout about a newly discovered species. Listen to and carefully consider the questions. Write three or four paragraphs to address the questions.
- Complete the written response. Practice with a partner to orally summarize their written work. Present oral summary to whole class. Provide feedback to other students.

Progress Monitoring

- Teacher will use class discussions, written responses to questions, projects, scientific inquiry investigations, portfolio, and chapter test to determine level of learning.
- Students will receive written and oral comments from the teacher and other students.

3. Student Description

Elena is a 14 year-old 9th grader and an English learner. She is from Mexico and both of her parents are professionals. Her extended family includes aunts, uncles, and cousins. Her grandparents live in Mexico and she and her family visit them in the summer. She has been in the United States for one and a half years. She is literate in Spanish and often reads Spanish literature. Her report cards from her school in Mexico indicate above average grades. Elena is somewhat shy socially but is well liked and works well in small groups. She is seldom absent from school. The CELDT results indicate overall score in the Early Intermediate range, and she has been identified as an English learner.

Written Response to: “What is your favorite family day?”

A Special Family Celebration

As special family time is when my family celebrate the anniversary of my grandmother and grandfather. They are my abuelita and abuelito. Why is it especial? I like this because all my family come to my grandparent house for make especial food of my country. The fiesta is very especial. My grandparent have marry 45 year. They live in Mexico my tia, tio and primos all go to Mexico for all family celebrate together. We like have all family together. My primos and me see friends in our city . We give grandparent big picture of all family. Grandparent like fiesta and gift. They are much happy.

Transcript of Oral Response to: “Tell my about your dance class.”

I like my dance class at community center. I need class for forget my problems. Is like help. I forgot my problems. When I dance, I like my dress because everybody look me and say, "Oh, that look pretty." Everybody take my picture. I was in newspaper. When I dancing, I feel very good. I like that because I represent my country.

B. Questions for Case Study 3

1.	Identify two specific learning needs the student has as an English learner, based on the student description and the responses.	
2.a.	Identify one instructional strategy or student activity from the outline of plans that could be challenging for the student.	
2.b.	Explain why the strategy or activity you chose could be challenging to the student. Use your knowledge of English learners and your analysis of the student's learning needs in your explanation.	
3.a.	Describe how you would adapt the strategy or activity you identified above to meet the learning needs of the student. Consider specific subject matter pedagogy when writing your description.	
3.b.	Explain how your adaptation would be effective for the student in making progress toward the learning goals of the lesson.	

	<i>(In your explanation of the adaptation, refer to specific aspects of the student description and to the samples of proficiency in English.)</i>	
3.c.	Explain how your adaptation would be effective for the student in making progress toward English language development. <i>(In your explanation of the adaptation, refer to specific aspects of the student description and to the samples of proficiency in English.)</i>	
4.a.	Which progress monitoring assessment from the outline of plans would you choose to monitor this student’s progress toward achieving the learning goal(s)?	
4.b.	Give a rationale for your choice of progress monitoring assessment. Use your knowledge of content in this unit, and this student’s English language abilities in your rationale.	
5.	Based on what you learned about this student’s English proficiency, what would be your next steps in planning to facilitate her English language development? Consider specific information from the student description and her written and oral language samples when responding.	

— END OF CASE STUDY 3 —

Case Study 4: Adaptation of Subject-Specific Pedagogy for Students with Special Needs

A. Contextual Information for Case Study 4

1. Elements of a Learning Experience for 3 Days in a Unit

Grade:	8 th
Content Area:	General Science
Subject Matter:	Introductory Physical Science
Time Period for Whole Unit:	3 weeks

State-adopted Academic Content Standards for Students

Motion

1. The velocity of an object is the rate of change of its position. As a basis for understanding this concept:
 - d. Students know the velocity of an object must be described by specifying both the direction and the speed of the object.

Forces

2. Unbalanced forces cause changes in velocity. As a basis for understanding this concept:
 - a. Students know a force has both direction and magnitude.

Learning Goals for Whole Unit

Students will be able to do the following

- Select and use appropriate tools and technology to perform tests, collect data, analyze relationships and display data
- Identify and communicate sources of unavoidable experimental error
- Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions

Relationship to Preceding and Subsequent Learning Experiences

- Motion and Forces are the foundation of other concepts to be studied in this course. Concepts are necessary for understanding the next unit: Conservation of Energy and Momentum. Students have participated in experiments mostly as classroom demonstrations.

2. Outline of Plans for Days 3, 4, and 5

The following outline addresses some of the academic content standards and unit goals, but it is not expected that the students will achieve them during the three days.

Instructional Strategies

- On Day 3, read textbook about Newton's Laws (vary between independent, silent, and oral reading to whole class). Present additional information about the concepts and lead whole class discussion. Have students respond in writing to the questions in the book.
- On Day 4, do a demonstration experiment about motion and speed with whole class. Demonstrate the key concepts of experimental design and write-up. Students work in small groups to conduct their own trials and to collect, analyze and display data. Students write individual summaries. As a group, they present their findings to the class and receive feedback from others.
- On Day 5, have students read excerpts of entries from a scientist's journal in their textbook. Journal entries describe the scientist's findings regarding the same experiment performed on Day 4. Students discuss the entries with a partner. Each student writes a letter to the scientist comparing his/her group's results to the scientist's and providing a rationale for any differences with specific reference to measurement error. Sample letters are in textbook for Day 5 instruction.

Student Activities

- In class, read textbook, take notes, analyze debates, and participate in class discussion about concepts presented. For homework, complete written responses to questions in textbook.
- Watch demonstration experiment, take notes, and participate in class analysis and discussion. Work in a group to conduct own trials. Individual students write summaries of findings. Present group findings to whole class. Provide feedback to other groups.
- Read journal entries and discuss entries and findings with a partner. Write a letter to the scientist. Read a letter written by another classmate and analyze for scientific understanding and reasonableness.

Progress Monitoring

- Teacher will use class discussions, responses to questions, written summary of findings, group presentation, and letter to scientist to monitor student progress.
- Students will receive written and oral comments from the teacher and other students.

3. Student Description

Alex is a 13-year-old boy in the 8th grade. He had difficulty with the development of his early literacy skills, including the acquisition of sound/symbol relationships and word identification, demonstrated in both his reading and writing. In the second grade, Alex was identified as a student with specific learning disabilities. Since then, Alex has received special education support primarily in a resource room for language arts, while he is included in the general education curriculum. He is able to independently read text at a 5th grade level and continues to struggle with decoding words. Alex also has asthma for which he takes daily medication and occasionally needs to use an inhaler. He is a self-isolating person who does not readily join into whole-class conversations or contribute to group learning situations. His tendency is

to sit alone at lunch and to be by himself during transitional time. There is no in-class support for this student.

B. Questions for Case Study 4

1.a.	Identify one instructional strategy or student activity from the outline of plans that could be challenging for the student, considering the description of the student’s learning disability.	
1.b.	Explain why the strategy or activity you chose could be challenging for the student, based on specific aspects of the student description.	
1.c.	Describe how you would adapt the strategy or activity you identified to meet the needs of the student.	
1.d.	Explain how your adaptation would be effective for the student in making progress toward achieving the learning goal(s) of this unit.	
2.a.	Identify one additional instructional strategy or student activity from the outline of plans that could be challenging for the student, considering the student’s other learning needs.	
2.b.	Explain why the strategy or activity you chose could be challenging for the student, based on specific aspects of	

	the student description.	
2.c.	Describe how you would adapt the strategy or activity you identified to meet the needs of the student.	
2.d.	Explain how your adaptation would be effective for the student in making progress toward achieving the learning goal(s) of this unit.	
3.a.	What progress monitoring assessment would you choose to obtain evidence of the student's progress toward a learning goal(s)?	
3.b.	Give a rationale for your choice of assessment. Use your knowledge of academic content in this unit, and this student's learning needs in your rationale.	

— END OF CASE STUDY 4 —