Topic, Subject, Class, Date: **Mexican Culture**	
Planning Step 1: Lesson Curriculum: What are the Learning Goals for this lesson?	
Lesson Standards Always include a writing standard.	***SC.7.L.17.1 - Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.*** ***SC.7.L.17.2 - Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.*** ***W.7.1.2 - Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.***
Students Will Be Able To… (Do) • Skills from standards including thinking (cognitive verbs). • This is not activities. • One or more goals should be Higher Order Thinking (Levels of Learning 3 or 4), and/or Reading Comprehension. • Sequence these goals in the order in which they should be learned.	• *Describe common examples of symbiotic relationships (including mutualism, parasitism, and commensalism) and predation.* • *Analyze the relationships among organisms in an ecosystem.* • *Analyze the impact of Two-way Causality at the population level of an ecosystem.* • *Write to explain the interactions between organisms in an ecosystem.*
Students Will Know Knowledge from standards such as vocabulary, facts, formulas.	***Types of symbiotic relationships (mutualism, parasitism, commensalism)*** ***Two-way Causality***
Lesson Essential Question • A question that communicates the Learning Goals. • Reflect the Higher Order Thinking and/or Reading Comprehension Learning Goal(s).	*How do the interactions among organisms impact their chance for survival?*

Planning Step 3: Lesson Instruction: How will students learn?

Activating Strategy

- Plan this after you plan your Learning Activities.
- How will you introduce the Lesson Essential Question?
- How will you draw attention to important vocabulary in the Lesson Essential Question?
- How will you build/link background knowledge?
- What prerequisite content might students need to know before the lesson?
- Which key vocabulary from the Learning Goals needs to be explicitly taught?
- Are there other vocabulary words that you think need to be taught?
- Which vocabulary strategy will you use?
- Previewing:
  - Advance Organizer
  - Prerequisite Content
  - Vocabulary

Introduce the Lesson Essential Question. Discuss the word "interact." Remind students that they just finished learning about biotic interactions (predator and prey). They are now going to learn about other types of interactions in nature.

Scenario: You are going to a faraway planet and you are only allowed to have one other person with you. Who would it be and why? Write 2 reasons why this person is someone you could not live without.

Write a prediction about how the Activating Strategy and the key vocabulary preview will help prepare you for the lesson.

Key Vocabulary (for explicit instruction):

Symbiotic relationships (mutualism, parasitism, commensalism)

Vocabulary Strategy:

Word Map

Previewing (who, when, how):

Divide and Conquer Word Matrix (root, affixes, description, visual cue) for mutualism, parasitism, and commensalism

Graphic Organizer

- How will students store and organize information as they learn during this lesson?
- Base the organizer on the Higher Order Thinking or Reading Comprehension in the *Will Be Able To… (Do)* Learning Goals.
- Determine how the organizer will be previewed for struggling students.
- Determine how the organizer will be scaffolded for struggling students.

Interactions Matrix

Type of Interaction	Effect on X	Effect on Y	Example
Neutralism	0	0	Rabbits and Deer live together.
Amensalism	0	−	Black walnut tree has chemical harming others.
Commensalism	+	0	Cattle egrets feed on insects flushed out of grass
Competition	−	−	Two species fight for limiting resources
Mutualism	+	+	Lichens
Predation or Parasitism	+	−	Lion eats zebra

Preview (who, when, how):

Model how to use Interactions Matrix with pictures of animals or use the children's book Big Friend, Little Friend.

Scaffolding (what, who, when):

Learning Activity 1 The Learning Goal(s) for this Learning Activity and Assessment Prompt: • *Types of symbiotic relationships (mutualism, parasitism, commensalism)* • *Describe conditions that lead to an organism becoming invasive* Consider: • Explicitly teach Higher Order Thinking and/or Reading Comprehension Strategy (if didn't in a previous Learning Activity) • Content students need to learn • Chunk activity: ○ Several opportunities for thinking, talking, writing to learn ○ Distributed summarizing and/or practice ○ Questions to ask ○ Higher Order Thinking and/or Reading Comprehension Questions to ask • Active engagement: ○ Collaborative Pairs, Numbered Heads, Think-Pair-Share, etc. ○ Variety ○ Movement • Previewing prerequisite knowledge/skills • Scaffolding content and process	*Using an Interactive PowerPoint, students will learn about symbiotic relationships in an ecosystem. New learning will be processed by using a "Say Something" discussion structure for each type of interaction and an Interactions Matrix for guided note-taking. Students will work with a partner to add examples of each type of interaction to the matrix.* ***Previewing (who, when, how):*** *Whole Group: Show pictures of the three different types of symbiotic relationships. Students will analyze each for what they see? The focus is on identifying evidence only. Students will create a One Word Summary for each relationship. Then in small groups and using a four-box organizer, students will share and write each of the one word summaries (one word per box) and then use all four in a summary statement.* ***Scaffolding (who, when, how):*** *Struggling Students: Provide a partially completed Interactions Matrix.*
Assessment Prompt for Learning Activity 1 • Formative assessment of the Learning Goal(s). • Ensure the task meets the expectation of the Higher Order Thinking and/or Reading Comprehension Learning Goal.	*Pairs Square: Partners will pair to form a group of four. Pairs will share their examples and explain why they are appropriate for the interaction(s).*
Learning Activity 2 The Learning Goal(s) for this Learning Activity and Assessment Prompt: • *Analyze the relationships among organisms in an ecosystem.* Consider: • Explicitly teach Higher Order Thinking and/or Reading Comprehension Strategy (if didn't in a previous Learning Activity) • Content students need to learn • Chunk activity: ○ Several opportunities for thinking, talking, writing to learn ○ Distributed summarizing and/or practice ○ Questions to ask ○ Higher Order Thinking and/or Reading Comprehension Questions to ask • Active engagement: ○ Collaborative Pairs, Numbered Heads, Think-Pair-Share, etc. ○ Variety ○ Movement • Previewing prerequisite knowledge/skills • Scaffolding content and process	*The teacher will model and think aloud how to analyze a photograph (or video clip) to determine the type of symbiotic relationship (within an ecosystem). Students will work with a partner to analyze additional photos/clips and use mini-whiteboards to vote on the type of interaction that is being shown.*

Assessment Prompt for Learning Activity 2 • Formative assessment of the Learning Goal(s). • Ensure the task meets the expectation of the Higher Order Thinking and/or Reading Comprehension Learning Goal.	*Add an "Importance" column to the matrix. Explain why each relationship is important to the ecosystem.*
Learning Activity 3 The Learning Goal(s) for this Learning Activity and Assessment Prompt: • *Two-way Causality* • *Analyze the impact of Two-way Causality at the population level of an ecosystem.* • *Write to explain the interactions between organisms in an ecosystem.* Consider: • Explicitly teach Higher Order Thinking and/or Reading Comprehension Strategy (if didn't in a previous Learning Activity) • Content students need to learn • Chunk activity: o Several opportunities for thinking, talking, writing to learn o Distributed summarizing and/or practice o Questions to ask o Higher Order Thinking and/or Reading Comprehension Questions to ask • Active engagement: o Collaborative Pairs, Numbered Heads, Think-Pair-Share, etc. o Variety o Movement • Previewing prerequisite knowledge/skills Scaffolding content and process	*The teacher will introduce the concept of Two-way Causality and how it juxtaposes reasoning about populations and reasoning about individuals. Students will read about the importance of reasoning about populations in an ecosystem, and not just considering individual organisms and create a diagram that illustrates the relationship between organisms and the population.* *Written Conversations:* • *Round One - Why is Two-way Causality important regarding symbiotic relationships?* • *Round Two - What examples of Two-way Causality can you think of?* ***Previewing (what, who, when):*** *Cause and Effect – Discuss "causality" using scenario cards (For instance, two-way causality can be seen in symbiotic relationships where an event or action (such as a bee pollinating a flower) results in effects on both organisms (the bee and the flower). Diagram interaction using a cyclical organizer. Point out that Two-way Causality cannot be thought of as unidirectional or linear.*
Assessment Prompt for Learning Activity 3 • Formative assessment of the Learning Goal(s). Ensure the task meets the expectation of the Higher Order Thinking and/or Reading Comprehension Learning Goal.	***Quick Write: Are all symbiotic relationships equally important within an ecosystem? Why?***
+Add 1-2 additional Learning Activities if needed	

Planning Step 2: Lesson Assessment: How will students demonstrate understanding of the Learning Goals for this lesson?	
Assignment • Plan this before planning Lesson Instruction. • How will students demonstrate their knowledge of the *Will Know* Learning Goals and the skills in the *Will Be Able To… (Do)* Learning Goals (especially the Higher Order Thinking and/or Reading Comprehension)? • How will the Assignment be differentiated for support and challenge? • Which students receive differentiation?	*You are an astrobiologist (a scientist who studies life on other planets or moons). You and your team have been sent to a faraway planet, one that can support life as we know it, and has very similar ecosystems to Earth.* *Your mission: You will describe the ecosystem you encounter. It can be a marine, forest, desert or a tropical ecosystem. You must chronicle your observations of two organisms that have a specific type of symbiotic relationship. You must return to Earth with a drawing of your organisms and a written account detailing your mission. Remember to answer the following questions thoroughly:* *What kind of organisms did you identify? Remember, you can imagine animals, plants, fungi, and even one-celled organisms like bacteria.* *What type of symbiotic relationship do they have? How do you know?* *How does the relationship demonstrate two-way causality? Use the Interactions Matrix as a guide for the types of organisms you will "observe and document." Use the Informational Writing Rubric to help you structure your written account.* **Differentiated Assignment for Struggling Students:** *Assign ecosystems that are more accessible for students. Students' will work only with one type of Symbiotic Relationship (e.g. – mutualism).*