Assignment 4A – Learning Map Stages One and Two

Objective:

In this assignment, you will finish and submit a Learning Map addressing Stages One and Two. To complete this assignment, you will use content from Assignments 1A, 2A, and 2B.

Please note that you will need to complete the second part of Stage Two for this assignment.

To ensure additional practice, **make sure you select a different Whole Class OR 3 Focus Students** from your previous ITL courses.

Stage One – Planning Your Instruction

Identify your Lesson Standard(s)

CA Content Standard(s)	List the Standard(s)
	MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. **LS2.A:** Interdependent Relationships in Ecosystems, Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1) ****Supplemental **DCI PS1.B** In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. (MS-LS2-1)* *Growth of organisms and population increases are limited by access to resources. (MS-LS2-1) §* *Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. (MS-LS2-2)* **MP.4** Model with mathematics. (MS-LS2-5)

ELD Standard	List English Learning Development Standard(s)
	English learners read, analyze, interpret, and create a variety of literary and informational text types. They develop an understanding of how language is a complex, dynamic, and social resource for making meaning, as well as how content is organized in different text types and across disciplines using text structure, language features, and vocabulary depending on purpose and audience Collaborative. 1. Exchanging information and ideas with others through oral collaborative discussions on a range of social and academic topics 2. Interacting with others in written English in various communicative forms (print, communicative technology and multimedia) Interpretive 10. Listening actively to spoken English in a range of social and academic contexts Productive. 10. Writing literary and informational texts to present, describe, and explain ideas and information, using appropriate technology 11. Justifying own arguments and evaluating others' arguments in writing

Unpacking the Standard

Before beginning this section, please navigate to this video that describes how to unpack Common Core Standards.

Prior Knowledge	What do students have to know coming into your lesson? Think in terms of instructional academic language and vocabulary.
	Prior to the lesson students have a general understanding of what living and nonliving things are in an ecosystem and are able to identify abiotic and biotic factors. Students understand the main resources that most living things need to survive which fall in the categories of food, water, shelter and air. Students have created line graphs when x and y values are provided as well as have a general understanding of what x, and y, values are. Students have explored ecology webs before and have a general understanding that ecosystems are a web of predator prey interactions rather than a pyramid or linear progression. Students are able to identify predators and prey in different animal relationships.
Big Question(s)	Your Learning Target Question(s)
	1. How does resource availability affect single organisms and populations of organisms? a. What are abiotic and biotic factors? 2. How does observing organisms help predict whole populations and ecosystems? 3. How does one organism impact an ecosystem? 4. How can we use mathematical models to predict or understand the health of an ecosystem?
Concepts	The content we want students to learn, evaluate, and apply.
	Based on the standards the concepts this lesson focuses on are the effects of resource availability on organisms and populations in an ecosystem and that independent relationships in ecosystems, organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and nonliving factors. An additional concept for this lesson is using mathematical models (graphs) to represent the ecological relationships.

Prior Knowledge	What do students have to know coming into your lesson? Think in terms of instructional academic language and vocabulary. Prior to the lesson students have a general understanding of what living and nonliving things are in an ecosystem and are able to identify abiotic and biotic factors. Students understand the main resources that most living things need to survive which fall in the categories of food, water, shelter and air. Students have created line graphs when x and y values are provided as well as have a general understanding of what x, and y, values are. Students have explored ecology webs before and have a general understanding that ecosystems are a web of predator prey interactions rather than a pyramid or linear progression. Students are able to identify predators and prey in different animal relationships.
Skills	What skills do you want students to master? Based on the standard this lesson allows students to utilize the skills of analyzing and interpreting data, providing evidence to support the data and conclusions, and using a model with mathematics.
Task	List both teacher actions (TA) and student actions (SA) for each skill **Skill: Provide evidence** **TA:** Provide population changes based on living and nonliving factors for students to observe the effects of on the population. **SA:** Observe and record data of population changes as the living and nonliving factors change through a period of time. **Skill: Use a model with mathematics** **TA:** Identify the dependent and independent variables of the population model for students to create a graph of population changes. **SA:** Create a mathematical model based on the observed evidence of the effects of the population across time. **Skill: Analyze and interpret data** **TA:** Provide a real-life example of population changes based on resource availability in a particular ecosystem. **SA:** Identify the factors driving the changes in population and predict the effects on the entire ecosystem if the organism's population continues to grow, or if it declines towards extinction.

Goals: Learning Objectives

Describe the who, what, where, when, and why. This video can be a helpful resource.

Learning Objective Components: Performance Condition Criterion	Describe what students will know and be able to do the end of the lesson by using a given strategy. Students will create mathematical models of population changes over time and be able to identify what environmental resources are affecting the population changes. Students will be able to interpret real-world population models of how resource availability impacts organisms and ecosystems. Students will provide evidence based on mathematical models for predictions of how resource availability might impact an ecosystem or ecosystems. Decide on your instructional strategy. I will use the instructional strategies of "I do, We Do, you do" and "inquiry-based" strategies to create and interpret mathematical models based on population changes. I will use collaborative groups and solution-based problem solving instructional strategies for students to practice predicting real population changes and use evidence to support their predictions. Complete the following steps below to put together your learning objective.
Strategy	Identify the instructional strategy: Students in my class have higher engagement when there is a connection to real world situations and they get to work in groups to solve a problem. To provide that experience in this lesson, the students will use the skills and knowledge to solve a real-world ecological problem in our local habit. They will work in small groups to collaborate with understanding and solutions. To set the students up to solve an ecological issue in a collaborative effort, we will perform an observational study together as a class to see the process before they perform the mathematical model independently. The in class observation will be an interactive game that simulates population changes based on resources availability. The game will provide the recorded data that will be used to build their first population model. The skills used in both of these steps will be applied during the collaborative small groups to solve a real-world problem.
Performance Verb	List the verbs using Blooms or DOK: -***Provide Evidence*** of how resource availability impacts organisms in the ecosystem of question. -**Predict** how the change in resources may impact the other organisms in the ecosystem. -***Record*** observations of population changes. -***Create*** a mathematical model based on the observed evidence of the effects of the population across time. -***Analyze and interpret*** real-world mathematical models of changes in population to interpret how resource availability is impacting a real ecosystem. **-Predict** how the observed changes in population may impact the larger ecosystem using data and evidence.
Condition 1.Support with Tools and Resources 2. Environment	Describe the circumstances under which the performance takes place: Include: 1. Tools/Resources/Supports (what students will or will not use) 2. Environment (where the performance takes place) 1. Tools/resources/supports: Students will be provided with observational changes of a population based on the basic resources of survival (food, water, and shelter). Students will be able to observe, and record the changes in the population in real time with an interactive simulation game about population changes. Students will be provided an example of how a mathematical model is created using the recorded class data including graphic organizers of the key components of a population graph. Students will work with the class and teacher to build out the first mathmatical model

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	("we do''). Students will be provided with completed mathematical models of real-world examples of resource availability impacts on specific organisms within a california ecosystem. 1. Environment: Students will be presented with the basic classroom structure and expectations. An inclusive and welcoming classroom will be provided for all students to feel welcome to ask questions, discuss, and work together to understand these key structures. Students will perform, observe, and record the population changes outside in a simulation game. Students will analyze and interpret data inside the classroom at their workstations and in their community pods (small groups). Students will have the opportunity to problem-solve with each other without the instructor in order to share their own observations, and solutions within a community based setting.
Criterion Speed or Accuracy How will you measure student learning?	Describe what the criterion is: Mathematical Model: Create a mathematical model based on the evidence observed in game simulation of population changes. [End of unit 1] Mathematical model should have correct x and y values displayed. Data should be represented in a line graph. Extended Response: Using population models as evidence, identify which resources are changing to impact population increases and decreases. Identify examples of food, water, and shelter for the specific organism. [start of unit 2] - *analyzing and interpreting mathematical models as evidence.* Extended response: Analyze and interpret real-world population changes by identifying resources impacting the population and predicting how changes in that population may impact the entire ecosystem. [End of Unit 2] - *analyzing and interpreting mathematical models as evidence and predicting impacts using evidence.* Students will identify the x and y values on the provided models to describe what resources may be causing the population changes. Students will practice making predictions of how further changes in resources may impact the population. Group Project: Provide evidence of how population changes based on resource availability impacts ecosystems by interpreting and analyzing population models of real-world ecosystems.

Learning Objective Components: Performance Condition Criterion	Describe what students will know and be able to do the end of the lesson by using a given strategy. Students will create mathematical models of population changes over time and be able to identify what environmental resources are affecting the population changes. Students will be able to interpret real-world population models of how resource availability impacts organisms and ecosystems. Students will provide evidence based on mathematical models for predictions of how resource availability might impact an ecosystem or ecosystems. Decide on your instructional strategy. I will use the instructional strategies of "I do, We Do, you do" and "inquiry-based" strategies to create and interpret mathematical models based on population changes. I will use collaborative groups and solution-based problem solving instructional strategies for students to practice predicting real population changes and use evidence to support their predictions. Complete the following steps below to put together your learning objective.
	[End of Unit 3] -*analyzing and interpreting mathematical models as evidence for predicting impacts on entire ecosystem of real-world populations.* Students will create a visual presentation of their assigned environment. The presentation will include a description of the living organism being studies, the abiotic factors present in the ecosystem as resources for that organism, and an analysis of their population model. Students will make predictions of what is causing the changes in population as well as what may further impact that population in the future using the evidence of the model and background information. Students will identify 3 possible impacts the observed population change might have on the rest of the ecosystem.
Write a Learning Objective	Students will in (environment) be able to (verb) by using the strategy of _____, with the support of (tools/resources) with (speed or accuracy) as measured by (how will you record the evidence of student learning). Ex, Students will in small groups, be able to compare wind and solar power by using the strategy of identifying details in the text, by highlighting 5 details of solar power in blue and 5 details of wind power in green, then complete a Venn Diagram of similarities and differences with mastery learning as measured by teacher anecdotal charting. Students will, in small groups, be able to predict how changes in resources will impact populations within an environment by creating and analyzing population changes using mathematical models to provide evidence of the resource availability impact on specific populations and make predictions by identifying 3 possible impacts that population change will have on the ecosystem with the evidence and knowledge of predator prey relationships.
Student Learning Target	I can statement: I can create, and interpret population graphs comparing resource availability over time to predict impact of population changes. I can analyze graphs to use as evidence in my predictions.
Social and Emotional Learning Strategies	- Use Think/Pair/Share for students to hear from each other without the pressure of getting it wrong/right. - Provide review of skills used in previous lessons to support prior knowledge before adding in new skills. - Remind the students that when interpreting data, there may not be right or wrong answers as long as you use the data to defend your conclusions. - Offer collaboration for students to discuss together before sharing their final thoughts.

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	- Use guiding questions to check for understanding and check in with low-impact polls. - Use exit ticket reflections to check for individual understanding and make adjustments to support all students.
Student Misconceptions	The largest misconception in this assignment is when the students begin making predictions based on the observed data. Being able to read, and analyze a population model has many right and wrong answers to what the numbers are saying. These models are good to see what is happening in real time but may not reflect what will happen in the future. Predicting future patterns has more grey area and includes many other factors that are not being interpreted during this class. Students should use the models as evidence for their claims and understand there is no true prediction, or right answer, but it is considered a good prediction as long as it is supported by the evidence being presented.

Stage Two - Instructional Approach: Teaching

Write a Description of Students' Assets and Learning Needs (Whole Class)

Prior academic knowledge related to the specific content you plan to teach	Describe what skills students already have coming into this lesson – what are they already able to do? Prior to the lesson students have a general understanding of what living and nonliving things are in an ecosystem and are able to identify abiotic and biotic factors. Students understand the main resources that most living things need to survive which fall in the categories of food, water, shelter and air. Students have created line graphs when x and y values are provided as well as have a general understanding of what x, and y, values are. Students have explored ecology webs before and have a general understanding that ecosystems are a web of predator prey interactions rather than a pyramid or linear progression. Students are able to identify predators and prey in different animal relationships.
English language proficiency levels (Standard English learners and English learners	List students and their CELDT or ELPAC levels: **SM:** Bilingual, high proficiency in English when conversing with peers. **ER:** limited English proficiency, can converse with peers in both English and Spanish but needs support when using English to read and write about new academic information. Bilingual and able to continue practice using Spanish at home while using English in the classroom.

	AS: Limited English Proficiency, excellent note taker and needs additional support to prepare for discussions with peers. Needs support with reading writing, and may benefit from more time working through activities in a small group or personalized mentoring setting.
Cultural and linguistic resources and funds of knowledge (i.e., *knowledge and skills derived from cultural experience*	Cultural resources and funds of knowledge: **SM:** Hard worker. Many lived life experiences that he has overcome. Strong sense of self and willingness to take lead on his own successes. **ER:** Born in mexico. Takes pride in his heritage and enjoys connecting with his peers. First-generation and takes pride in the connection to his heritage that exists in his community. **AS:**Family is Bilingual and Bi-ethnic with family from central america and Mexico. Family has different religious representation which allows AS to offer a unique lens of many aspects of life. New to the area and family has past experiences that have slowed down connection to the community here. Linguistic resources and funds of knowledge: **SM:** Bilingual. High interest in being academically successful. **ER:** Bilingual, can converse with peers easily with both English and Spanish. He speaks Spanish at home. **AS:** Bilingual, excellent note taker with color codes. AS advocates for themselves and benefits from extra time after class reviewing notes and preparing for application.
Prior experiences and interests related to the content	How might you incorporate or build on their experiences and interests as assets to this lesson: **SM:** SM is a hard worker and enjoys working in groups and on community related projects. This lesson will engage SM by offering collaborative opportunities that may help solve local issues. The organisms and ecosystems being discussed throughout the units will have direct connections to the local habits. **ER:** ER enjoys connecting with peers and working on projects that connect to his heritage or community. This lesson supports ER by offering a collaborative solution-based project that ER can bring his interests and motivation to solve. ER will be able to work with his peers to create solutions that impact different communities. When working on the final projects, there will be opportunity for ER to explore an ecosystem that interests him to learn about it more in depth. **AS:** AS is an excellent note taker and benefits from color-coding. The process of creating mathematical charts will help AS create visual models of the observations and create color codes to connect what is being discussed to what we are seeing. AS would benefit from the models having consistent and clear color-codes that help connect the visuals to the data throughout the projects and assignments.
Lesson management structure	What behavioral expectations will you model and expect? -The class agreements that are expected in every class will be expressed throughout this unit. -Small group agreements for collaborative exercises and discussions will be upheld and modeled by both the instructor and students. -Respect to all ideas, and thoughts will be models and expected as we learn new skills to analyze ecosystems. -Positive reinforcements for sharing ideas, answering questions, as well as treating others respectfully will be expressed by the instructor. - Project management expectations and participation will be expressed and modeled at the beginning of the project so everyone has a clear understanding of individual roles and expectations. -Problem solving and mediation will be expected throughout all group collaboration time.

Content of the Lesson

What do you expect students to deeply understand about the lesson? What do you expect students to retain after the lesson and use in future learning?	I expect students to deeply understand that availability of basic environmental resources (food, water, and shelter) will impact the population of organisms that depend on those resources. I also expect students to have a general understanding of how to begin building population models when provided the x and y values. I expect students to begin using the visual models as evidence to support predictions or understanding of real life ecosystems. I expect students to take-away how populations change depending on their environment and how ecologists use math and graphs to map these interactions. I also expect students to gain confidence in how scientists use data and visuals as evidence to support their predictions or theories.
What misunderstandings or misconceptions do you expect students might have from the lesson?	I predict the students may have a misconception that there is only one way to interpret data and may aim to find the "right" answer. I also expect that there may be some misunderstanding about the significance of the data in making predictions when looking at the ecosystem in such a microscopic way. In reality this narrow lens will help practice using data as evidence but is excluding a lot of information of what is happening at a systemic level within the ecosystem.
What knowledge and skills do you expect students to have after engaging in the lesson?	I expect students to gain the skills of creating line graphs using population changes of an organism over time and using that graph to talk about what might be happening in that ecosystem with that organism. I expect the students to begin thinking about how everything is connected in an ecosystem and small changes to one organism can affect another.

Assessment / Checking for Understanding

What essential questions will you ask to determine if students are not meeting, meeting, or exceeding the learning goal(s) of the lesson?	**Prior to the start of the simulation game:** 1. What are the basic resources that every living thing or animal needs to survive? **After the simulation game:** 1. What made the population increase? 2. What made the population decrease? 3. If a wild fire came through and all the grass (food) was burned, what might you predict will happen to the deer population? **After building first population model:** 1. What does the x-value equal? 2. What does the y-value equal? 3. Where on this graph shows the deer population increasing? Decreasing? 4. Where on this graph shows a lack of resources? 5. Where on this graph shows the population at its peak?

	When provided a real-world example model: 1. What organism is being observed? 2. What are the essential resources for this organism? 3. What does the x-value equal? 4. What does the y-value equal? 5. Where is the population increasing? 6. Where is the population decreasing? 7. What do you think is causing the population to increase? Decrease? 8. If this population disappeared or went extinct, what do you think would happen to the rest of the ecosystem? 9. If this population continued to grow and not stop increasing, what do you think would happen to the environment?
What will students do to demonstrate achievement of content during the lesson? Identify the UDL Principle Guidelines incorporated.	Students will participate in the simulation game and work as a class to build a mathematical model of the observed population changes. Students will create their own model and label the key components of the graph and what is happening. Students will turn in an exit ticket of their first analysis that predicts what will happen if all the food is wiped away by fire. UDL Principle Guidelines: ● Group game for simulation that collects data in real time. ● I Do, We do, You do to build the first model. Show models on paper/whiteboard and show how online softwares can build similar models. ● Use color codes as we build the first model that will stay consistent with all population model components. ● Exit ticket reflection using images, words or both to explain predictions. Students will work in groups to identify the key components of a real life population model. Students will work together to predict what might be causing the change in population based on what we know about that organism and its environment. Students will work together to complete an exit ticket of their prediction on what is causing the population to increase or decrease. UDL Principle Guidelines: ● Offer digestible real-world examples of population models of a local ecosystem. Offer pictures and visual background knowledge (pictures, articles, or videos) to learn about that organism. ● Use the same color codes from the first unit to get familiar with the new graphs. ● Highlight previously learned skills that can be used to solve unfamiliar problems Students will create a visual presentation to present about their organism, its environment, and the population model they were given. They will share their predictions and use evidence of the graph to help support their ideas. UDL Principle Guidelines: ● Use technology and creative resources to build a presentation. ● Use the same resources previously provided to support the presentation. ● Offer an example of a complete presentation that meets the standard of the assignment.

	• Offer the students time to reflect on their own progress to identify areas where they need support.
How will you know students understand the content? What evidence will you collect? Identify the UDL Principle Guidelines incorporated.	I will collect a complete model that represents the observed data from the simulation game. The model will include all labels, and one interpretation of what is impacting the changes in population. UDL Principle Guidelines: • Group game for simulation that collects data in real time. • I Do, We do, You do to build the first model. Show models on paper/whiteboard and show how online softwares can build similar models. • Use color codes as we build the first model that will stay consistent with all population model components. • Exit ticket reflection using images, words or both to explain predictions. I will collect a color coded model that interprets a real-world example that was analyzed in a group. This assignment will monitor progress and should contain the same pieces of information as the first assignment but done without the Teacher first building the graph. UDL Principle Guidelines: • Offer digestible real-world examples of population models of a local ecosystem. Offer pictures and visual background knowledge (pictures, articles, or videos) to learn about that organism. • Use the same color codes from the first unit to get familiar with the new graphs. • Highlight previously learned skills that can be used to solve unfamiliar problems I will collect the final digital presentation of their evidence, interpretation, and understanding of their organisms and ecosystem. UDL Principle Guidelines: • Use technology and creative resources to build a presentation. • Use the same resources previously provided to support the presentation. • Offer an example of a complete presentation that meets the standard of the assignment. • Offer the students time to reflect on their own progress to identify areas where they need support.

Structured Student Learning Activities

What activities will the students be involved in during the lesson to support their achievement of	**Activity 1:** Simulation Game called “Oh Deer” to collect population changes based on resource availability. UDL Guidelines: • Interactive role playing game that sparks interest and engagement. **Activity 2:** Creating a Line graph based on “Oh Deer”.

the learning goal(s)? Identify the UDL Principle Guidelines incorporated.	UDL Guidelines: • Using observed data, create a visual on paper and online to make a mathematical model. • Use the instructional strategy of "I do, We do, You do". • Use color codes as we build the first model that will stay consistent with all population model components. • Exit ticket reflection using images, words or both to explain predictions. **Activity 3:** Real-world Population Model breakdown UDL Guidelines: • Offer digestible real-world examples of population models of a local ecosystem. Offer pictures and visual background knowledge (pictures, articles, or videos) to learn about that organism. • Use the same color codes from the first unit to get familiar with the new graphs. • Highlight previously learned skills that can be used to solve unfamiliar problems **Activity 4:** Group Project connecting to real-world population impacts. • Use technology and creative resources to build a presentation. • Use the same resources previously provided to support the presentation. • Offer an example of a complete presentation that meets the standard of the assignment. • Offer the students time to reflect on their own progress to identify areas where they need support.
How will you group students and manage group work to support student learning? Identify the UDL Principle Guidelines incorporated.	The first activity, students will work as a class to participate in "Oh Deer". UDL Guidelines: • To recruit interest and optimize relevance this activity uses role playing and participation. • To Sustain effort and persistence this activity encourages fostering collaboration and community The second activity students will complete their graphs independently with support from the teacher and their assigned seating pods. UDL Guidelines: • To promote self regulation this activity develops self assessment and reflection • To promote comprehension this acidity highlights patterns, critical features, big ideas, and relationships. Activities 3 and 4 will be working in their assigned pods. UDL Guidelines: • To sustain effort and persistence this activity fosters collaboration and community-based problem solving. • To encourage physical interaction this activity optimizes access to tools and assistive technologies.

	• To encourage expression and communication this activity uses multiple tools for construction and composition.

Instruction to Support Learning

What instructional strategies will support student learning through multiple modalities? How will you use gradual release? Identify the UDL Principle Guidelines incorporated.	I hope to gain student engagement and relevance with the introduction activity being a game simulation and role playing. This activity puts the students into an environment to collect data in real time. The observed changes in population during the game will be used as quantifiable evidence for our first population model. This will allow the data to feel familiar as they were able to not only witness the population changes but experience them as well. We will then use the data collected in the game to create our first model. I will create the model with the help of the students and then have them help identify main parts of the model to prepare for analysis. At the end of this lesson they will begin critically thinking about that simulation with a reflection on how to interpret this model for predictions. This final reflection will be used as a formative assessment to gauge understanding and allow for independent reflection and understanding. The following activity will be using the same skills but looking at data that was collected by others from an environment that is in California. I hope that by focusing on local environments, the students will continue to be invested in the purpose of the evaluation. The skills that were performed as a class the day before will be performed once again as a small group collaborative exercise. This will create a gradual release and allow them to practice the same skills again. They will also be able to associate the information on the model with videos and images of the organism at question to add in more context and further engagement. At the end of this lesson, the students will collaborate and use the information and graph to begin interpreting its significance without the help of the teacher. This will be another formative assessment but challenge the students to use evidence from the graph to support their ideas. The final project will be more of a creative representation of the analysis they completed prior to this activity. They will work in their groups to create a presentation of their organism, its environment, and their analysis on the population changes they observed. This will allow them to work together and collaborate while showcasing their individual interests and skills. The extension of this project will also help the Teacher address gaps to best support the students' understanding of the material. The final presentation will be the final assessment of the lesson.
What resources, materials, and/or educational technology will you or your	The materials and technology needed for this lesson are as follows: • Access to an outdoor area. • White boards for students and teachers. • Laptops or computers with google sheets or excel, Slides or PowerPoint, and internet. • Headphones.

students use during the lesson?	• Art supplies including posters • Real-world population models representing local ecosystems. • background research provided by the teacher for real world ecosystems with images, videos, and information about that ecosystem.
What adaptations and accommodations, including, as appropriate, assistive technologies, will support individual student learning needs beyond the UDL supports built into the lesson?	Adaptations and accommodations include: • Digital software for creating population graphs. • Headphones for controlling sound while using technology. • Word banks and Word graphs to help with vocabulary. • Color coding vocabulary banks that align with the mathematical models and are used repetitively and consistently. • Text to speech and speech to text technologies for working with technology. • Images and videos provided that connect to the text being discussed.

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