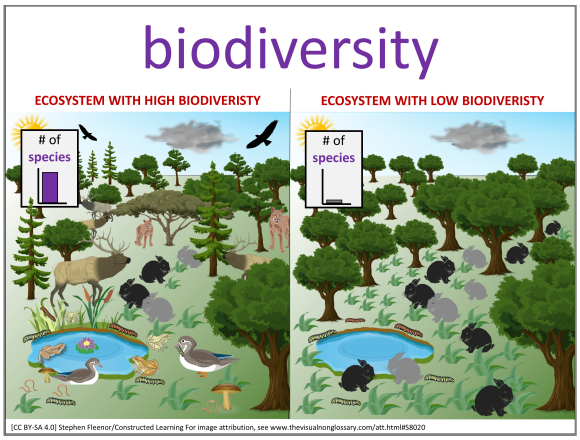
Teacher Guide for the Lesson on **biodiversity**



Standard:
8.12(C)

Content Objective:
We can describe how biodiversity contributes to the stability and sustainability of an ecosystem and the health of the organisms within the ecosystem.

Language Objective: Answer the following question in complete sentences using the sentence stem and the key vocabulary of the lesson:

> Why might **organisms** living in a biodiverse **ecosystem** be healthier than a less biodiverse **ecosystem**?
>
> *Organisms living in a biodiverse **ecosystem** might be healthier than **organisms** in a less biodiverse **ecosystem** because...*

Other key vocabularies: stability, organisms, ecosystem

By studying this visual, students might:

Notice	Wonder
• The ecosystem with high biodiversity has many different species of plants and animals.	• Why do ecosystems with more biodiversity have more predators?
• The ecosystem with low biodiversity has mostly the same type of animal.	• What would happen if one species disappeared from the low biodiversity ecosystem?

• There are more predators shown in the high biodiversity ecosystem.	• Does biodiversity affect how long organisms live?
• The pond in the high biodiversity ecosystem has more species around it.	• How does biodiversity protect the health of the ecosystem?
• The graphs show a difference in the number of species between the two ecosystems.	• Why are some animals missing from the low biodiversity ecosystem?

EXTENDING THE DISCUSSION

- After randomly calling on students, if there is anything from this list that was not mentioned, then ask the class, "Did anyone notice...?"
- After students have shared what they notice, ask the class, "Did anyone wonder...?" using the suggestions above or anything else you might think is interesting or relevant to the lesson.

Structured Conversation Prompts

OBSERVATIONAL	RELATIONAL	INFERENTIAL
What is **biodiversity**? **Biodiversity** is...	How is **biodiversity** related to **stability**? **Biodiversity** is related to **stability** because...	Why might **organisms** living in a biodiverse **ecosystem** be healthier than a less biodiverse **ecosystem**? Organisms living in a biodiverse **ecosystem** might be healthier than **organisms** in a less biodiverse **ecosystem** because...

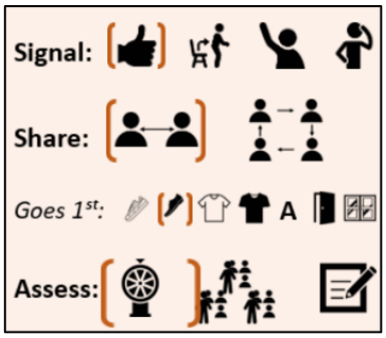
Example Student Responses to the Observational Question

Low-Level	High-Level
Biodiversity is how many animals and plants there are.	Biodiversity is the variety of different species living in an ecosystem.

RESPONDING TO RESPONSES

Emphasize and celebrate each student's use of the key vocabulary to support a culture of "no wrong answers."

STRUCTURING STUDENT CONVERSATIONS



Have students list observations from the visual as a warm-up, then use the Q-SSS-A process to guide small-group conversations. In the slide decks, brackets can be moved to prepare the structured conversation. In the example to the right, students will be instructed: Q-SSS-A.

- To put a thumb up, then lower their hand when they are ready to answer the question
- To share with their elbow/shoulder partner, and that the student with the darkest shoe will share first
- That they will be randomly called on after the conversation

Here is an example of structuring a conversation with Q-SSS-A.

Note: the inferential question is the same as the language objective. It is recommended that students answer the inferential question in a small-group discussion before answering it individually as the closure or exit ticket of the lesson.

Structured Reading

READING PURPOSE	PAT LIST	POST-READING DISCUSSION
The purpose for reading is to learn how biodiversity supports the stability of an ecosystem and helps organisms stay healthy.	• The meaning of biodiversity • How biodiversity is connected to stability • Ways biodiversity helps organisms stay healthy • What happens when an ecosystem has low biodiversity	What might happen to an ecosystem if biodiversity is very low? *If biodiversity is very low, an ecosystem might...*

STRUCTURING THE READING

Communicate the purpose of reading to the students and instruct them to make a note every time they see something on the PAT ("Pay Attention To") list. How you have students note items on the PAT list is up to you. This could include:

- Putting an asterisk in the margin
- Underlining text that supports the PAT list
- Putting a comment in the margin

Follow the reading with the post-reading discussion. Structure this discussion using the Q-SSS-A process just like the structured conversations in this lesson.

Note: you might find the relational question is better discussed before or after the reading. This depends on whether the relational question is directly related to the reading or might make connections across units.

DIFFERENTIATING THE READING

You will notice that three different reading passages are provided with this lesson. Look at the shapes in the top-left of each passage to determine the grade level.

BELOW GRADE LEVEL	ON GRADE LEVEL	ABOVE GRADE LEVEL
 *Triangle is bottom-left*	 *Square is bottom-left*	 *Circle is bottom-left*

In a class with students at diverse reading level proficiencies, you can give the appropriate reading passage to different students, while having all students follow the same PAT list and post-reading

discussion.