

BSC 307 5-E Model Lesson Plan

Title: Biodiversity Jenga!	Grade Level: 9th
Objectives: At the completion of the activity; <ol style="list-style-type: none">1. Students should be able to describe the importance of diversity of an ecosystem.2. Students should be able to identify the roles and relationships of organisms within a community.3. Students should be able to evaluate the impact of adding/removing a species on an ecosystem.4. Students should be able to evaluate the impact of natural disasters on an ecosystem.	
Illinois Learning Standards: Stage I 12.B.1 Apply scientific inquiries or technological design to explain change and stability of biodiversity, investigate biotic and abiotic factors of ecosystems, and identify the roles and relationships of organisms in their community in terms of impact on populations and the ecosystem.	
Engagement: Biodiversity Jenga game. Students will be given a game of Jenga that has a different species taped to each block. The original Jenga tower will represent a healthy ecosystem. The order of the blocks should represent a food web. For example, producers such as sunlight, plants, etc. should go near the bottom since they are the source that feeds every other animal. Then smaller animals that feed on those plants should be stacked next. Finally larger animals that feed on the smaller animals and plants should be near the top. Students will take turns removing a block which will resemble that particular species being completely removed/becoming extinct. When the students remove a block they must generate an idea as to why/how the particular species is removed. (The rabbits die off because there is no more grass for them to eat, a strong storm wiped out a large number of the wolves and ruined their homes leaving the survivors without shelter, etc.) After the students remove the block they must add a new invasive species from a different pile/pool of Jenga blocks by placing it on the top of the tower.	
Exploration: Students get to play the game together and afterward voice some questions that they had before/during/after the game. The teacher will mark the questions down on the board. Then students make their own decisions to answer the questions on the provided worksheet while in pairs. Students choose 2 questions from the list made by the class to answer on their own.	

Explanation:

Students are asked to explain their experiences and answer questions from a worksheet. Class discussion will cover the questions from the sheet as well as student questions that still remain or have recently formed.

Elaboration:

Students will be asked to come up with an example of a different ecosystem. They are expected use what they have just learned to describe what events could potentially change this new ecosystem and what the impacts might be.

Evaluation (Assessment Strategies):

Student comprehension of biodiversity will be evaluated through teacher observation in the Jenga game, question synthesis, worksheet, and class discussion. Their performance and comprehension will be assessed on the worksheet, as well as their ability to apply the information to a different scenario and generate an example of their own ecosystem.

Rationale:

The Biodiversity Jenga game manages to highlight major concepts about biodiversity and ecosystems while actively engaging students in a fun and interactive game. Main ideas highlighted by the Illinois State Standards about biodiversity include population dynamics, importance of diverse ecosystems, and impacts of changes to the ecosystem and are all concepts practiced in the game, worksheet, and discussion portions of this activity. Brainstorming questions opens the floor to discussion, discovery, and extension. The worksheet checks for comprehension and application of the concepts in self-generated settings.

Resources:

Morrisseau, S. Biodiversity Jenga. [Online] Retrieved October 15, 2011.
Available: <http://vitalventure.gmri.org/activities/biodiversity-jenga/>

Name: _____

Biodiversity Jenga!

Rules:

- The entire Jenga tower represents a typical Illinois prairie ecosystem.
- You will notice that each Jenga block has a different species taped to it.
- Players will take turns removing one species (block) at a time.
- The removal of a block signifies that that species has become extinct.
- When a player removes a block they must state to their group a feasible reason as to why that species has become extinct. (Ex = The rabbits went extinct because there was a wildfire that wiped out the population, etc.)
- YOU MAY ONLY USE EACH EXAMPLE ONCE!
- After the block is removed it can be set aside in an “extinction pile”.
- The player who removed the block must then take a new block from the “invasive species pile” and place it at the top of the ecosystem (tower).
- Then the next player can take their turn.

The purpose of the game is not to find a winner, but to observe how extinction impacts an ecosystem.

BEFORE YOU START!

1. Describe the set-up of the original ecosystem. Consider what kinds of organisms are at the bottom/middle/top of the tower. Why do you think it is set up this way?

6. What was the impact on the ecosystem (tower) when invasive species were added?

7. Pick two of your classmate's questions from the board. Write these questions down in the space below and do your best to answer them.

Question #1:

Answer:

Question #2:

Answer:

Sum it up!

8. Does it seem MORE or LESS beneficial for an ecosystem to be diverse and have a lot of different species? Why do you think so?

9. Think of an example of another diverse ecosystem! Describe the setting of the ecosystem and list at least 8 examples of different species that would be found there. Then, list at least 3 possible threats to the ecosystem. (Think weather, health, predators, invasive species, etc.)

Ecosystem: _____

Description:

Species (8):

Possible Threats (3):