MOLLOY COLLEGE

DIVISION OF EDUCATION

LESSON PLAN

Teacher Candidate: Christine Katwaru College Professor: Rickey Moroney

Course: EDU 537 Date: November 30th, 2012

Grade: 9th Topic: Intro to Ecology Content Area: Living Environment

INSTRUCTIONAL OBJECTIVES

After viewing a Power Point presentation on Ecology, containing key terms such as abiotic, biotic, ecosystem, symbiosis, habitat, etc. students will be able to identify five abiotic factors, five biotic factors, and the six levels of biological organization.

STANDARDS AND INDICATORS

Living Environment Standard #4:

Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Indicators:

* This will be evident when students watch the power point presentation on the Smart Board and see illustrations and explanations of how certain biotic and abiotic factors affect the stability of an ecosystem over time.
* This will be evident when students think about the effects of climate, weather, sunlight, water, soil etc on their environment, and when they think about the effect of plants and animals on the environment.

MOTIVATION

The teacher will introduce the Ecology topic by taking a picture of the class and putting it on the first slide of a power point presentation along with the learning objective and Do Now. Then, after discussing what biotic and abiotic factors are, the teacher will ask what biotic and abiotic factors they see in the picture. They will then watch a YouTube video describing an environment and certain biotic and abiotic factors that contribute to it.

MATERIALS

* Camera with upload cord
* Computer with internet
* Pictures of different environments
* Worksheet with 3-4 pictures of different environments that require students to identify at least 5 different biotic factors in each, and five abiotic factors in each.
* Handout showing the simplification of the levels of biological organization (biosphere 🡪 biome 🡪 ecosystem 🡪community 🡪 population 🡪 species)

STRATEGIES

* Direct Instruction
* Group discussion
* Active learning

ADAPTATIONS

* Students will be partnered up to work together on their worksheet. This will help them develop their social skills and will also allow them to learn from each other to confirm if they have learned the content in the best way.
* Throughout the lesson, there will be numerous pictures in the power point presentation that will help learners who require visual effects in order to understand concepts.
* There will be monitors who need to give out and collect worksheets, so they have the opportunity to feel like they are helping the teacher out.
* Students who are less motivated to do class-work will be given the opportunity to do an activity they love (whether it means drawing, playing with a toy or game, etc.) after completing a certain number of questions on the worksheet.
* Students will be required to review their notes with their partner or buddy, to make sure that they have sufficient and accurate study notes, so that students who are not good note-takers will have an opportunity to write down anything they missed.

DIFFERENTIATION OF INSTRUCTION

**Tier I**

Students will receive a worksheet with three pictures of different environments, and the question asking them to list at least five biotic and abiotic factors in each environment. The worksheet will already have an example of each type of factor listed, so that they understand that biotic factors are living and abiotic factors are nonliving.

**Tier II**

Students will receive a worksheet with 4 pictures of different environments that require them to list at least five abiotic and biotic factors within that environment. They will have no examples written out for them.

**Tier III**

Students will receive a worksheet with 6 boxes, four of which have pictures of environments in which they have to list at least five biotic and abiotic factors. In the two empty boxes they must draw their own environment containing both biotic and abiotic factors and indicate which ones are biotic and which ones are abiotic.

DEVELOPMENTAL PROCEDURES

1. Students will see their picture on the Smart Board and will be asked what living things in this picture affect you in terms of space, food availability, where you can sit, what materials you have access to? Then they will be asked what nonliving things in this picture affect them.
2. Students will pair up with each other to have a 5-6 minute discussion about what living and nonliving things they see in the picture that affect them in any way.
3. Students will provide their answers in a class discussion and will compare and contrast their answers. They will then view the power point presentation made by their teacher in which they will learn about abiotic and biotic factors. Within this power point, they will see a YouTube video that explains what biotic and abiotic factors are.
4. Once students have viewed the power point and have taken accurate notes, they will be given a worksheet containing several pictures of different environments (i.e. a lake, a forest, deep ocean, city, etc) and will be asked to identify and list at least five biotic and five abiotic factors in each environment.
5. Before they leave class, they will be given a handout that shows the biological levels of organization, and will be asked to study the levels in order from most complex to simplest because they will have a quiz on it the next day to prepare them for the next lesson.

ASSESSMENT

Students will identify on a worksheet the biotic and abiotic factors present in different environments. They will be able to understand the difference between abiotic and biotic and will be able to explain how each factor they identify affects the environment. In order to be considered successful, they must be able to list a minimum of five abiotic factors per environment and five biotic factors per environment.

INDEPENDENT PRACTICE

At home, students will choose a country from anywhere in the world (i.e. India, Russia, Spain, France, etc) and will write three paragraphs describing a city in that country and will list at least four biotic and abiotic factors in that city. Students will share their research with the class the next day. This will help them incorporate multiculturalism into their assignment.

FOLLOW-UP ACADEMIC INTERVENTION AND ACADEMIC ENRICHMENT

Academic Intervention: Students who are not successful in reaching the objective will meet with the teacher for a minimum of thirty minutes after school to orally discuss biotic and abiotic factors, what they are, and examples of what some of them are in different environments, and why these examples are considered biotic or abiotic. They will also complete a worksheet containing pictures of environments in which they must identify biotic and abiotic factors.

Academic Enrichment: Students who easily and successfully complete the objective will be given the task to pair up with someone, collect an oak tag board, and draw a picture of an environment. They can use one of the environments from their worksheet for inspiration. They will have two questions on the board that say: “What Biotic Factors Do You See?” and “What Abiotic Factors Do You See?” The answers to these questions will be on the back of the board. These boards will be posted around the room.

WORKSHEETS

NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_

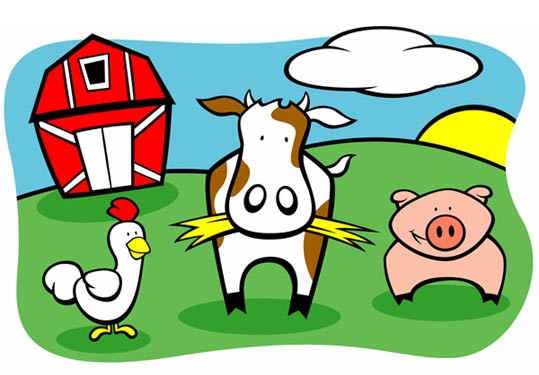
Living Environment - 9th Grade

Ecology ☺

1. List at least 5 abiotic factors present in the picture below. List at least five biotic factors.



1. List at least 5 abiotic factors in the picture below. List at least 5 biotic factors. (Hint: there may be factors present in the picture that you cannot see)



1. List at least 3 abiotic factors in the following picture. List at least 3 biotic factors.



RUBRIC

|  |  |
| --- | --- |
| |  | | --- | | **Research Report : Abiotic & Biotic Factors In Other Countries**  Teacher Name: **Ms. Katwaru**    Student Name:     \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CATEGORY | 4 | 3 | 2 | 1 |
| Organization | Information is very organized with well-constructed paragraphs and subheadings. | Information is organized with well-constructed paragraphs. | Information is organized, but paragraphs are not well-constructed. | The information appears to be disorganized. |
| Amount of Information | All topics are addressed and all questions answered with at least 2 sentences about each. | All topics are addressed and most questions answered with at least 2 sentences about each. | All topics are addressed, and most questions answered with 1 sentence about each. | One or more topics were not addressed. |
| Quality of Information | Information clearly relates to the main topic. It includes several supporting details and/or examples. | Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples. | Information clearly relates to the main topic. No details and/or examples are given. | Information has little or nothing to do with the main topic. |
| Sources | All sources (information and graphics) are accurately documented in the desired format. | All sources (information and graphics) are accurately documented, but a few are not in the desired format. | All sources (information and graphics) are accurately documented, but many are not in the desired format. | Some sources are not accurately documented. |

REFERENCES

Bartsch, J. (2012). *The living environment*. New Jersey: Pearson Education, Inc.