APPENDIX D-1

LESSON PLAN FORM

Intern: \_\_Jocelyn Miller\_\_\_\_ Date: \_\_\_11/5/14\_\_\_ Group Size: \_\_\_24\_\_\_

Estimated time for Lesson: \_\_\_\_45 min\_\_\_\_\_ Mentor teacher approval: \_\_\_\_\_\_\_\_\_

Content Area: \_\_\_7th Grade Life Science\_\_\_\_\_\_

Topic: \_\_\_\_\_\_Oh Deer\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Source:**

https://www.naturebridge.org/sites/default/files/Oh%20Deer\_1.pdf

**L.A. Content Standard & Benchmark:**

[CCSS.ELA-LITERACY.RST.6-8.7](http://www.corestandards.org/ELA-Literacy/RST/6-8/7/)
Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

37. Identify and describe the effects of limiting factors on a given population (SE-M-A2)

38. Evaluate the carrying capacity of an ecosystem (SE-M-A2)

**Background**

There are 4 basic resources for any animal species' survival: food, water, shelter and ample space. The place where all 4 are present is known as the animal's habitat. A wildlife population grows when there is access to all 4 resources. As the population grows and the habitat is used more, sometimes resources decline to a point at which the population can no longer be supported. When this happens, the population declines, which enables the resources to replenish themselves. The cycle begins again with the animal population increasing, peaking, declining, and repopulating. A population is affected by a variety of factors, including disease, extreme weather conditions, environmental pollution, predator and prey relationships, and habitat destruction. These are collectively known as limiting factors, as they prevent a population from growing so large that it depletes all resources in the habitat. However, if too many limiting factors are present, a wildlife population can decline significantly or even become extinct.

**Objectives**

Students will identify the 4 limiting factors that affect all animals: food, water, shelter, and space.

Students will learn that limiting factors such as lack of resources or diseases naturally regulate animal populations, and are part of the carrying capacity of an ecosystem.

Students will graph their results and look for patterns and fluctuations in population size.

Students will use appropriate vocabulary, such as limiting factor, carrying capacity, and habitat.

**Methods of Assessing Learning:**

Students will graph their results in their lab notebooks. Discussion questions to gauge how well students understood the concepts presented by the game.

**Materials**

• Chalk board or dry erase board

• Chalk or dry erase markers

**Management Considerations:**

Choose outdoor location with enough space for students to spread out and not run into each other

**Accommodations for different ability levels and learning styles:**

If there is a student who cannot run due to a disability, illness, etc. have her or him toss a Nerf ball from the sidelines at the running Deer, role-playing a car or a hunter. Any Deer that get hit by the Nerf ball become a Resource for the next round.

**Justification:**

This activity models the concepts of competition, carrying capacity, and limiting factors, and is kinesthetic and easy to set up and explain.

**Procedures/Activities:**

Before class begins, set up boundaries by marking out two parallel lines 10 - 20 yards apart on the floor or ground.

**Engage**

• Brainstorm with students the four essential resources: food, water, shelter, and space.

• Divide the students into two groups, one representing Deer and the other representing the Resources animals need to survive (food, water, shelter and space)

• Instruct the Deer that they are trying to survive by deciding what resource they need this season. They indicate whether they are seeking food, water, shelter, or space with the appropriate hand signals.

• Teach everyone hand signals representing: food, water, shelter and space.

• Explain the rules of the game BEFORE going outside

**Explore**

• The Deer line up behind one line and the students playing the Resources do the same at the opposite line. Begin with a practice round, allowing students to face each other

• Count the number of Deer and the number of Resources and write them down. At the start, both lines should be even.

• Once the Deer have chosen which resource they are looking for, they cannot change it until the next round.

• At the same time the students who are representing the Resources repeat the same process as the Deer, choosing which resource they represent and use the appropriate hand signal. Once the students in the Resource line have which resource they represent, they may not change their hand signal until the next round of play.

• Once both sides have chosen their hand signals the Deer can run to the line of Resources and pick a student who represents the Resource that they are seeking (i.e. their hand signals match.) and take them back to the Deer line. A student playing a Resource cannot move until a Deer has claimed her or him.

• If a Deer cannot find the resource he or she is looking for then he or she dies and becomes part of the resource line. Resources that are not claimed remain on the resource line.

• Once everyone understands the game, all students stand with their backs turned so they cannot see the other line.

• Ask the students to choose which resources they want to represent and to make the hand signals.

• On the count of three, all the students turn around and show their signs to the opposite line and the game begins

• The Deer bring their Resources back to their line, showing that they have met their needs for this season and reproduced successfully. The students claimed by Deer now become Deer themselves for the next round.

• After each round, students count the number of Deer and the number of Resources. The teacher keeps two running totals, one for the Deer and one for all the Resources.

• After multiple rounds, students gather together to share any observations they made during the game.

• Graph the Deer population and analyze the data for any patterns, reminding students that each round represents a season in a Deer's life.

• On the same graph, track the number of Resources as a whole in a different color. This visual helps students analyze trends. The Deer population fluctuates with the availability of Resources, increasing and shrinking in opposition to each other.

**Explain**

• What do animals need to survive?

• What are some of the limiting factors?

• Do populations remain the same or change?

• What are other factors that might affect the Deer population? (Examples include disease, dramatic weather changes, habitat destruction, elimination or introduction of predators, pollution, the introduction of competing species, etc.)

**Elaborate**

In at least one round quietly instruct all the Resources to pick one resource to be, e.g. water. In the debriefing you can highlight that round. What could have happened in the round where the only resource available was water? (Limiting factor/event was a flood.)

**Evaluate**

Students should include appropriate graphs in their lab notebooks.

There will be questions regarding these concepts on the end of unit test.