Name: Date:

Oh Deer! Ecosystem Modeling

Essential question: How are habitat resources, native, and invasive species related in an ecosystem?

Do Now:
- Draw a sketch of living and nonliving parts of an ecosystem.
- Add lines to show which things are connected or interact with each other.
- Label the different parts of your drawing.

By the end of this activity I will be able to…

MS LS2-1	Level 1	Level 2: *all of level 1 and…*	Level 3: *all of level 2 and…*	Level 4: *all of level 3 and…*
Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem	Identify resources that species need to survive in an ecosystem.	Explain how species and habitat resources are connected in an ecosystem. Give an example from the game to show this.	Explain how native and invasive species and native species ae connected in an ecosystem. Give an example from the real world to show this.	Make a suggestion that would improve the game to make it more like a real ecosystem.

Once you have completed the activity, circle the highest level that you achieved.

Oh Deer Instructions:

1. Start each round with species and habitat resources in two different lines facing in opposite directions.

2. Decide on your signal (food, water, shelter, or space).

3. When your teacher says, "Go," turn around to face the other line, showing your signal.

4. **Species**: Walk or run to a classmate in the habitat resource line showing the same signal. **Habitat resources**: stay in your place.

   o Species that DO find a habitat resource that matches their signal survive and reproduce. **Take the habitat resource back to your starting line to become a species.**

   o Species that do NOT find a matching resource die and become part of the habitat. **Go to the habitat resource line.**

   o If more than one species tries to get the same habitat resource, the one to get there first survives.

5. Collect data on the number of species and the number of habitat resources at the end of each round.

6. Repeat this process for at least 10 rounds.

Oh Deer! Model Interpretation

Features of the model	(is like...) Features in the real world	They are similar because...
Example: a "native crab" student signals "shelter"	*Example: A Jonah crab needs a rocky place to hide, or t may get scooped up by a fisherman .*	*Example: In order to continue being a Jonah crab, they have to have shelter. Otherwise they might turn into a resource (like food) for something else.*

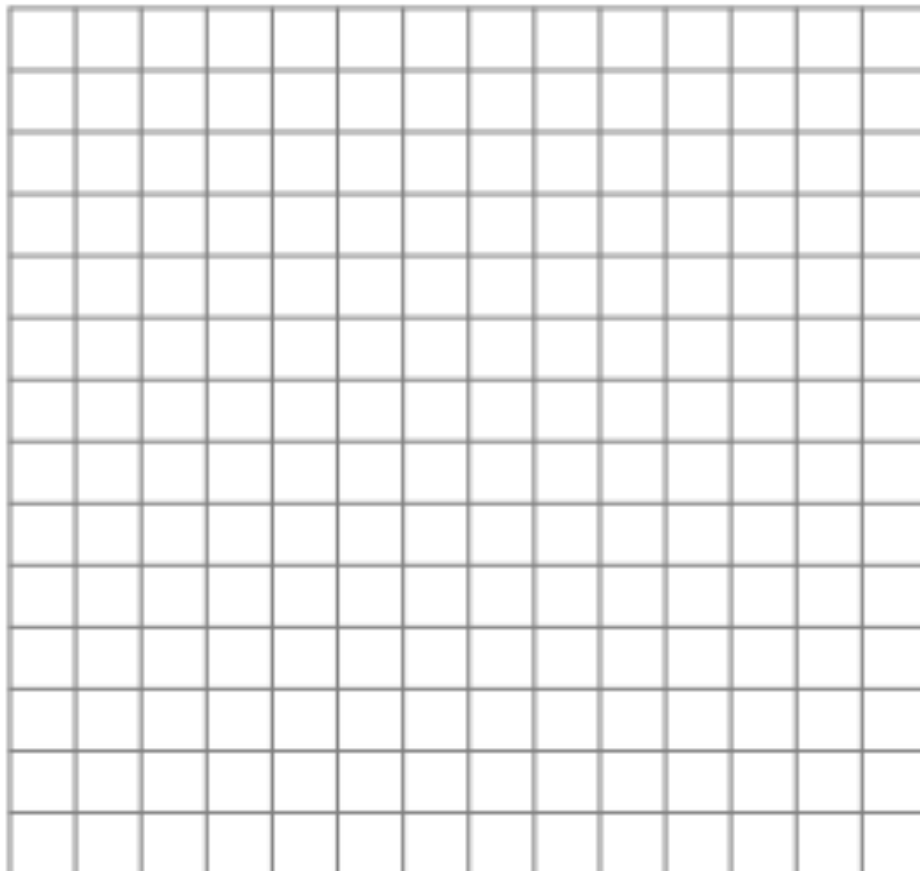| Limitations of the model (what doesn't the model show us about the real world?):

What changes could be made to improve the model? |
|---|
| |

Fill in the chart below with your section of the class data. In the "Explanation of data section," write down what happened to make the native species abundance increase or decrease.

Oh Deer! Data and Explanation Chart

Year	# of Native Species	# of Invasive Species	# of Habitat Resources	Explanation of the Data
				← Copy the data for the year prior to your assigned time period here, so you can see how the populations change from year to year.

My graph of our class data:

Legend:

1. What do you notice about your data? Describe the shape of each of the lines, changes in directions, and overall increases or decreases.

Habitat resources:

Native species:

Invasive species:

2. Do you notice any connection between the number of habitat resources and native species? What happened *in the* game that could explain this?

3. Do you see any change in the number of resources or the native species once the invasive species was introduced? What happens *in the real world* that could explain this?

4. Based on the data that you have, make a prediction: if you were to continue to play the game for another 5 rounds, what would happen to the number of habitat resources, native, and invasive species?

Use dotted lines to draw your prediction onto your graph for the next 5 years of data.

5. Go back to your drawing at the start of this activity and add or make changes to your ecosystem drawing.