Generic Lesson Plan Template

You should submit this form in addition to any computer generated files/documents/models to your group folder on Angel. Please create a .zip file and upload the group of files as a single archive.

Name: Erin Gwara
Grade level(s)/Subject taught: Living Environment
Objectives: Students will use Agent Sheets to determine predator prey relationships.

Please provide a rich **one-page, single-spaced**, description or a *vision* of your best thinking on a way or ways you might teach the planned lesson. (approximately ½ page for the teacher role, ½ page for the student role). Also, construct a tentative rubric that you might use with your students (see example)

Items to include in your lesson plan: (Choose your discipline/concepts from your own area).

1b. *Write* the Science Concept or "key idea" that modeling will be used to teach: (e.g. Organisms maintain a dynamic equilibrium that sustains life).

Key Idea #5—Organisms maintain a dynamic equilibrium that sustains life. Key Idea #6—Plants and animals depend on each other and their physical environment.

Materials:

Overhead/LCD Projector
Computer with Agent Sheets
Student worksheet/journal

"…a rich **one-page, single-spaced**, description or a *vision* of your best thinking…"

Prompts:

1. How will you assess the prior knowledge of the student?
2. How will you begin the lesson?
3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions and Student Actions
4. How will you assess the learning for the lesson?

Using Agent Sheets I plan on having my students see the relationship between predator and prey and the concept of homeostasis.

Students will have already been given notes about different terminology in ecology, such as predator, prey, carnivore, omnivore, herbivore, consumer, producer, homeostasis, dynamic equilibrium, etc. Students will have their bellwork sheet on their desks when they walk in. A question will be posted on the overhead, along with a food web. The question posed would be, "Pick one organism in the food web. If that organism was to become extinct, what would happen to two other organisms? Name the organisms and describe what would happen to their number in the community….would it increase, would it decrease, etc"

Bellwork will be done in three minutes and collected.

Students will then discuss the food web and their responses to the bellwork. I will give them guiding questions to get them thinking about how one organism affects another, and that all things in the environment are interconnected.

I will have an LCD projector and will demonstrate to the class the Predator and Prey Model on Agent Sheets. I will just give them the basics, because I want them to explore the simulation themselves.

Students will use the Predator and Prey Agent Sheet Model to explore what happens as the numbers of carnivores, herbivores, and producers changes in a pond. They will have a worksheet to guide them, and questions to answer in their journal.

Three	Two	One
Student answers all questions completely	Student misses at least three questions	Student misses more than three questions
Student successfully manipulates the population for all three trials	Student successfully manipulates the population for two of the three trials	Student successfully manipulates the population for one of the trials
Student successfully manipulates the behaviors for all three trials	Student successfully manipulates the behaviors for two of the three trials	Student successfully manipulates the behaviors for one of the trials.

Name _____
Journal Entry #55
Predator Prey Model Using Agent Sheets

Imagine yourself as a wildlife manager. You are in control of a population of fish in a lake. There are two types of fish…small yellow fish, which each plants, and large red fish, which eat the small yellow fish. Your job is to figure out the right amount of fish and plants to have the ecosystem remain in balance.

Follow the tasks, step by step. If you come across a question, answer it in your journal

1. Go to Agent Sheets and open up the program Predators and Prey.
2. Read the Readme file.
3. In the Readme file, they say "large fish eat small fish". What kind of organism is this?
4. In the Readme file, they say "small fish eat plants". What kind of organism is this?
5. *Make a prediction.* What do you think will happen to the population of the small fish if there is a lack of plants in the lake?
6. *Make a prediction.* What do you think will happen to the population of the large fish if there is a lack of plants in the lake?
7. *Make a prediction.* What do you think will happen to the population of the plants if there was an increase of the number of large fish?
8. Run the simulation with the number of fish that is given to you at the start. Make sure you slow the speed down enough so you can see what is happening, but don't make it too slow or you'll be there forever!
9. Look at the plot of population that was made during the simulation. Describe what is happening to the population of small and large fish as time goes on.
10. Change the numbers of large and small fish. BEFORE YOU RUN THE SIMULATION, *make a prediction* of what will happen to the populations of fish. Defend your answer.
11. Run the simulation. Did you prediction agree or disagree with the actual outcome? Why?
12. Run the simulation once more, changing the populations of fish again. BEFORE YOU RUN THE SIMULATION, *make a prediction* of what will happen to the populations of fish. Defend your answer.
13. Run the simulation. Did you prediction agree or disagree with the actual outcome? Why?
14. Now you can get a little more advanced. Click on one of the agents—either the small or large fish, and click on "edit behaviors". Change the behavior of one of the fish…for example, you could change the reproductive rate of the fish, or you could change the percentage and probability of hunger.
15. Edit the behaviors and run the simulation AT LEAST three times. In your journal, write down what behavior you manipulated, your prediction of the populations due to the change of that behavior, and what the actual outcome was.
16. **EXTRA CREDIT—the plant agent does not have any behaviors. Create a behavior for the plant that would have an effect on the fish population.**