Break into POGIL teams of 4 and assign each team member one of the following roles.

Student Name	Role	Responsibility
	Facilitator	Records the team's predictions and observations.
	Spokesperson	Reports the team's results and conclusions.
	Quality Control	Validates the team's results and conclusions.
	Process Analyst	Keeps track of the team's progress and assesses its performance.

This simulation of sheep and wolves shows how nature attempts to stay balanced. Click on the Model Info Tab (at the bottom of the site) and read about how the simulation works. Then complete the following activities.

1.) Under Model Version, choose **"sheep-wolves-grass."**

  A. use the default settings, except change the initial-number-sheep to 50.
  B. Press the SETUP button.
  C. Press the GO button to begin the simulation.
  D. Look at the monitors to see the current population sizes
  E. Look at the POPULATIONS plot to watch the populations fluctuate over time

Record your groups observations about how the population of sheep and wolves changed over time.

2.) **Hypothesis:** What would happen if there were lots more sheep than there are wolves? Would the sheep inherit the earth?

- See Other Side -

3.) **Prediction:** What does your group predict will happen?

4.) **Experiment:** Test the hypothesis by changing the initial-number-sheep to 500. If the sim is still running, click "Go" to stop it. Then click Go again to run it. Record your observations. Did your prediction match with the results? How was it different than the first run of the simulation?

5.) **(Portfolio)** Reverse the hypothesis: What would happen if there were lots more wolves than there are sheep? Would the wolves live forever? Record your hypothesis, prediction and experiment results.

6.) Explain how the sheep and wolves live in balance in this simulation.

7.) **(Portfolio)** This model chose to include certain features and exclude other features. For example, this simulation only includes sheep, wolves, and grass but there are other predators of sheep and other food sources for the sheep to eat. Why do you think the creators focused on these data elements and not others? Could the lack of other predators and food sources cause the model (the simulation) to come to the wrong conclusions?

> (note: the questions in your portfolio differ slightly from my questions here. Feel free to answer my questions instead of theirs.)