Name: _____   Date: _____

Predictions, Investigations, and Results: Planting Fruit Trees and Orangutan Population Size
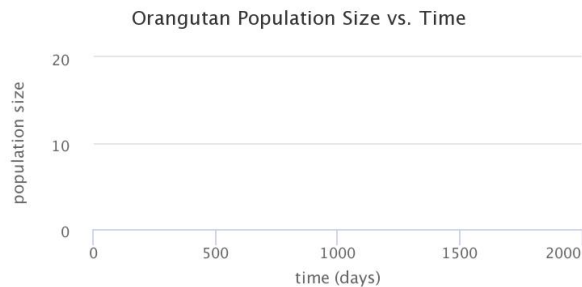
Investigation 1
What will happen to the orangutan population if we add births and deaths to our simulation under "normal" environmental conditions?

Investigation 1 plan		
Area of forest	% of fruit trees	Number of termites

The box next to "starve?" should be checked so orangutans with energy levels equal to 0 die.

The box next to "reproduce?" should be checked so orangutans reproduce at energy levels of 200.

Prediction: How do you predict the size of the orangutan population will change over time? Sketch your predictions on the graph below.

Orangutan Population Size vs. Time

Investigation 1 results – trial 1			
Average orangutan population size	Range of orangutan population size	Number of orangutans born	Number of orangutans died

Sketch the Orangutan Population Size vs. Time Graph

Orangutan Population Size vs. Time

Investigation 1 results – trial 2			
Average orangutan population size	Range of orangutan population size	Number of orangutans born	Number of orangutans died

Sketch the Orangutan Population Size vs. Time Graph
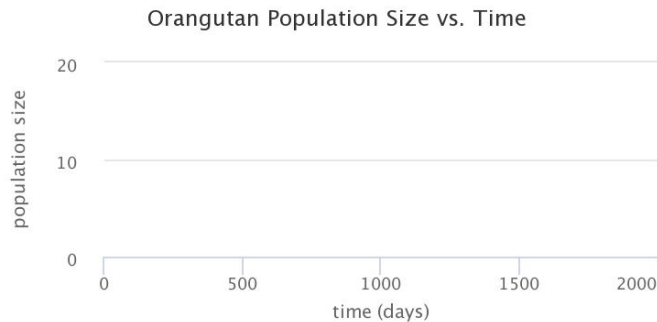
Orangutan Population Size vs. Time

Making sense:

1. What claims can you make about the question, "What will happen to the orangutan population if we add births and deaths to our simulation under "normal" environmental conditions?"

2. Why did the population size fluctuate?

3. Why was it important that we conduct two trials?

Investigation 2
Could planting more fruit trees help the orangutan population increase?

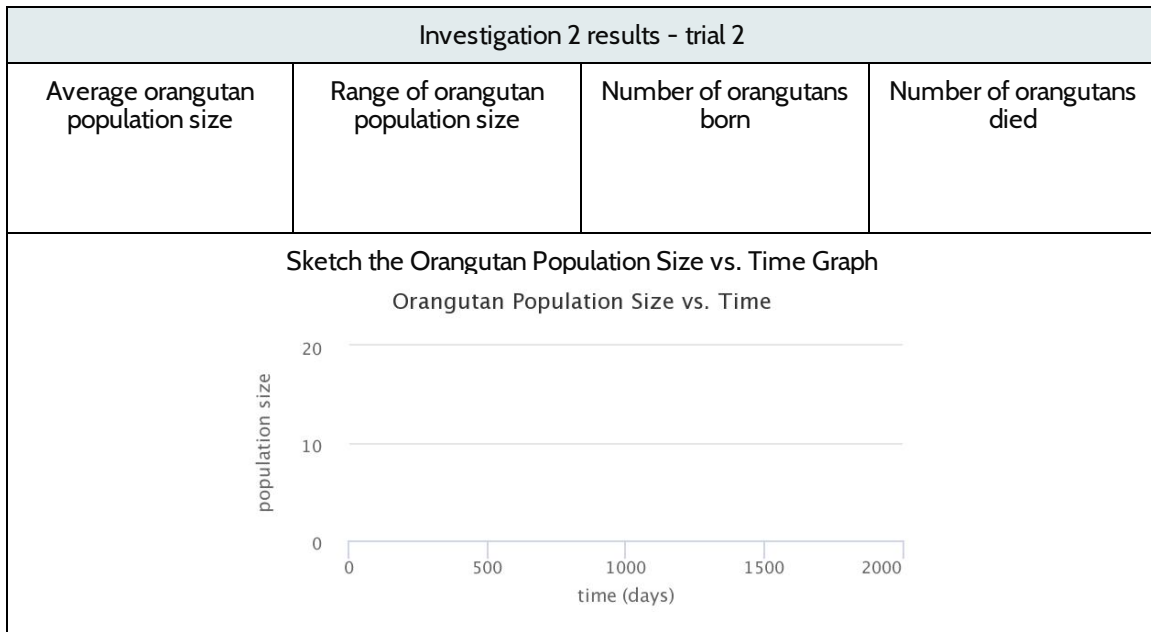| Investigation 2 plan		
Area of forest	% of fruit trees	Number of termites

→ *Determine an increased % of fruit trees to use in your investigation (above 30%) to test the question, "Could planting more fruit trees help the orangutan population increase?"*

Prediction: How do you predict the size of the orangutan population will change over time with the increased number of fruit trees? Sketch your predictions on the graph below.

Orangutan Population Size vs. Time

Investigation 2 results – trial 1			
Average orangutan population size	Range of orangutan population size	Number of orangutans born	Number of orangutans died
Sketch the Orangutan Population Size vs. Time Graph			

Orangutan Population Size vs. Time

Investigation 2 results - trial 2			
Average orangutan population size	Range of orangutan population size	Number of orangutans born	Number of orangutans died

Sketch the Orangutan Population Size vs. Time Graph

Orangutan Population Size vs. Time

Making sense:

1. Record your class data table in the space below:

2. What claims can you make about the question, "Could planting more fruit trees help the orangutan population increase?"

3. Why can you make this claim? What is your evidence?
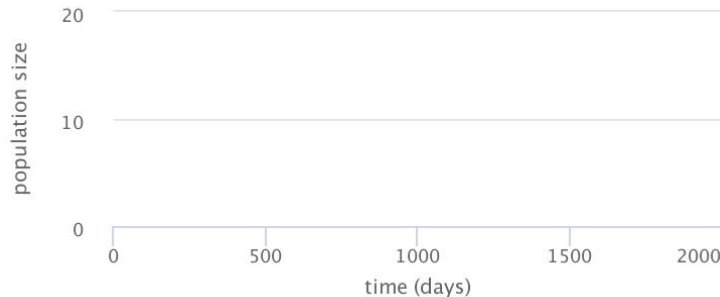
4. What questions do you have now?

Investigation 3
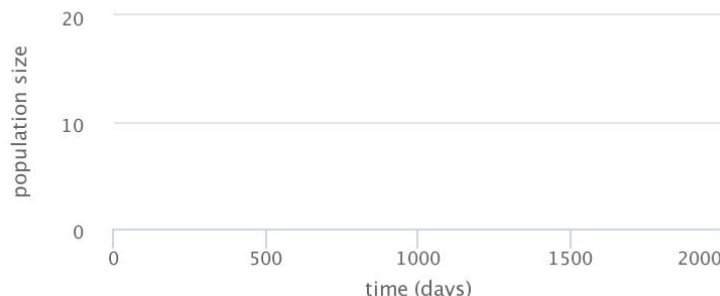### *What is the smallest percentage of fruit trees that could still support an orangutan population?*

Investigation 3 plan
Which % of fruit trees will you test?

Prediction: How do you predict the size of the orangutan population will change over time with the decreased number of fruit trees? Sketch your predictions on the graphs below.

% of fruit trees_____	% of fruit trees_____	% of fruit trees_____
Orangutan Population Size vs. Time	Orangutan Population Size vs. Time	Orangutan Population Size vs. Time

Investigation 3 results – trial 1
% of fruit trees:_____

Average orangutan population size	Range of orangutan population size	Number of orangutans born	Number of orangutans died

Sketch the Orangutan Population Size vs. Time Graph

Orangutan Population Size vs. Time

Did your orangutan population survive? _____

Investigation 3 results - trial 2			
% of fruit trees:_____			
Average orangutan population size	Range of orangutan population size	Number of orangutans born	Number of orangutans died
Sketch the Orangutan Population Size vs. Time Graph			

Orangutan Population Size vs. Time

Did your orangutan population survive? _____

Investigation 3 results - trial 3			
% of fruit trees:_____			
Average orangutan population size	Range of orangutan population size	Number of orangutans born	Number of orangutans died
Sketch the Orangutan Population Size vs. Time Graph			

Orangutan Population Size vs. Time

Did your orangutan population survive? _____

Making sense:

   1. Record your class data table in the space below:

   2. What claims can you make about the question, "What is the smallest percentage of fruit trees that could still support an orangutan population?"

   3. Why can you make this claim? What is your evidence?

   4. How might our findings help us design a solution to the oil palm problem?