# Paradise Island

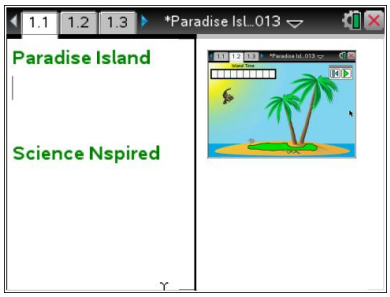
## Student Activity

Name _____

Class _____

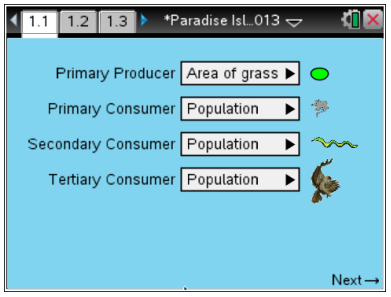
**Open the TI-Nspire document *Paradise_Island.tns***

Welcome to Paradise! On this Island you will be able to control the populations of grass, mice, snakes, and hawks. You must determine a good balance of each population in order to sustain all the life within the island. If you are able to maintain all populations for 10 years, you win! However, if you do not determine the correct balance, all of the organisms die and the island is lost.

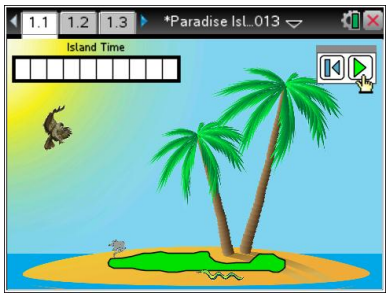



**Move to page 1.2.**

Read the instructions for the simulation.




1. The goal is to correctly set the initial populations of a variety of organisms to ensure that they all survive for a minimum of 10 years. Use the drop down menus to select the initial values for each population. Once you have done this, select NEXT → at the bottom left corner of the screen. Select the Play button to run the simulation.




2. Observe the outcome of your initial population values. If all of the organisms die before 10 years, you can select the Reset Button and try again with new values. Continue to select new outcomes until you can sustain an island community for 10 years.

3. Once you are able to keep all populations alive for 10 years, explore the graphs on pages 1.3 -1.6 and the spreadsheet on 1.7 to see how each population fluctuated. Note: Do not select the reset button once you have successfully run the simulation or you will delete all of the data from the graphs.

**Tech Tip:** If you are unable to view the entirety of the data on pages 1.3 - 1.6, select menu **> 5: Window/Zoom > 2: Zoom-Data.**

**Tech Tip:** To access the Directions again, select menu or **Document Tools ( ) > Paradise Island > Directions.**

**Tech Tip:** To access the Directions again, select > **Paradise Island > Directions.**

**Move to pages 2.1 – 2.11.**

After completing the simulation on page 1.2, answer questions 1 – 11 below and/or in your .tns file.

Q1. Identify the ecological role of the following organism: grass

A. producer
B. primary consumer
C. secondary consumer
D, tertiary consumer

Q2. Identify the ecological role of the following organism: mouse

A. producer
B. primary consumer
C. secondary consumer
D, tertiary consumer

Q3. Identify the ecological role of the following organism: snake

A. producer
B. primary consumer
C. secondary consumer
D, tertiary consumer

Q4. Identify the ecological role of following organism: hawk

A. producer
B. primary consumer
C. secondary consumer
D, tertiary consumer

Q5. Describe the scenario that would sustain the island's ecosystem for 10 years.

Q6. Based on your response to question 5, why is this ecosystem successful? Use evidence from the scenario and graphs to defend your answer.

Q7. Describe a scenario that would not sustain the island's ecosystem for 10 years.

Q8. Based on your response to question 7, why is this ecosystem unsuccessful?

Q9. What tropic level should have the most number of organisms?

A. producer
B. primary consumer
C. secondary consumer
D, tertiary consumer

Q10. What tropic should have the least number of organisms?

A. producer
B. primary consumer
C. secondary consumer
D, tertiary consumer

Q11. Justify your answers for questions 9 & 10.