Learning About Carrying Capacity With *Star Wars*®: The Gungan Frontier™

Curriculum Connection: "The number of organisms an ecosystem can support depends on the resources available and abiotic factors, such as quantity of light and water, range of temperatures, and soil composition. Given adequate biotic and abiotic resources and no disease or predators, populations (including humans) increase at rapid rates. Lack of resources and other factors, such as predation and climate, limit the growth of populations in specific niches in the ecosystem." ***National Science Education Standards***

Lesson Plan (Grades 5-10):

As part of a study of ecology, allow your students to apply and extend what they're learning in the following activity.

For Your Students:
Select the "Advanced" option from **The Gungan Frontier** menu.
Load your ship with gimer bush **only**.
Release all the gimer bushes on your ship on the surface of the moon.
Select "Fast" from the Settings menu bar.
Open the graph window and observe changes in the *gimer bush* population.

_ What type of growth curve do you see?
_ Do you believe that this curve is sustainable? Explain.
_ As the simulation continues, does the curve support your opinion about its sustainability?
_ What happens to the population of the gimer bush? Does it level off? Explain.
_ With only the gimer bush present is it likely that the population would be able to maintain this population indefinitely? Explain.

Select "Disaster" from the Settings menu bar.
Move the setting to "Disease."
Return to the graph window and observe the impact on the gimer bush population.

_ What happened to the growth curve? Explain.
_ Notice the rate of change. Is it constant?
_ What factor(s) may influence the severity of growth/death rate changes?
_ What is the value of having a diverse (multiple species) ecosystem?
_ Identify an earth ecosystem that shows little diversity.
_ Which of the two ecosystems mentioned above is more susceptible to catastrophic change? Explain.

(Thanks to Eric Thiel, Science Teacher, Amador High School, Pleasanton, California, for this idea.)