1. Define *population*. *“A group of organisms of the same species living in the same area at the same time.”*(1 p. 36)

1.Draw a box diagram to show the effects of *natality, mortality, immigration* and *emigration* on a population:

1. Outline under which conditions a population will:
2. Grow
3. Remain stable
4. DeclineIn the space below, draw a population growth curve.

Annotate it to explain the *exponential, transition* and *plateau* phases and *carrying capacity (K)*.

1. State three factors that set limits to population growth.
2. ToK Discussion: Read this passage from Thomas Malthus’ *An Essay on the Principles of Population*, written in 1798. Find out more about Malthus and his ideas.

*"The power of population is so superior to the power of the earth to produce subsistence for man that premature death must in some shape or other visit the human race. The vices of mankind are active and able ministers of depopulation. They are the precursors in the great army of destruction, and often finish the dreadful work themselves. But should they fail in this war of extermination, sickly seasons, epidemics, pestilence, and plague advance in terrific array, and sweep off their thousands and tens of thousands. Should success be still incomplete, gigantic inevitable famine stalks in the rear, and with one mighty blow levels the population with the food of the world."*

* 1. What are his predictions for the population?
  2. Look at human population growth over the last 300 years. What was the population in Malthus’ day? How about now? What about predictions for 2050?
  3. How have we as a species been able to keep the human population in the exponential phase for so long? Is this sustainable?

1. Use the population growth tutorial here:

<http://bcs.whfreeman.com/thelifewire/content/chp54/5402002.html>

What are the effects of:

1. Manipulating *K*?
2. Manipulating *r*?
3. Manipulating *N0*?