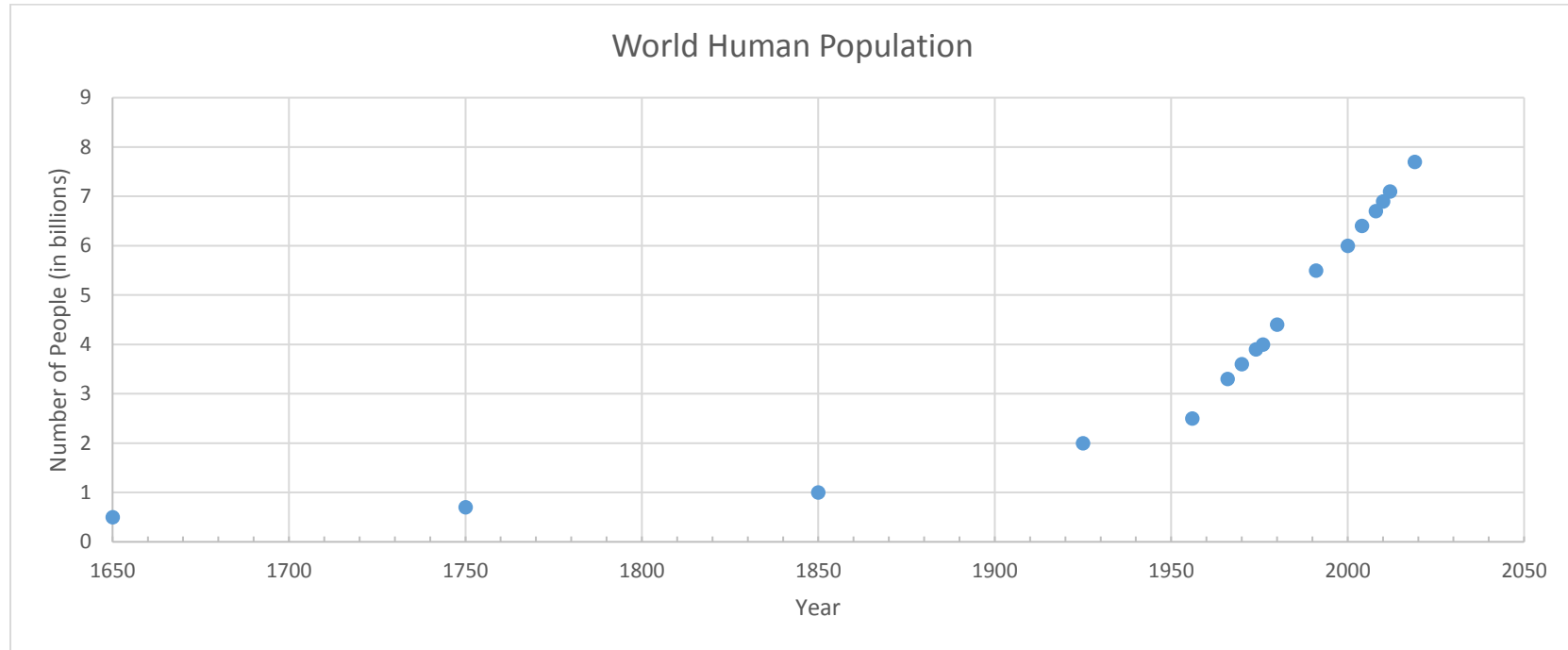


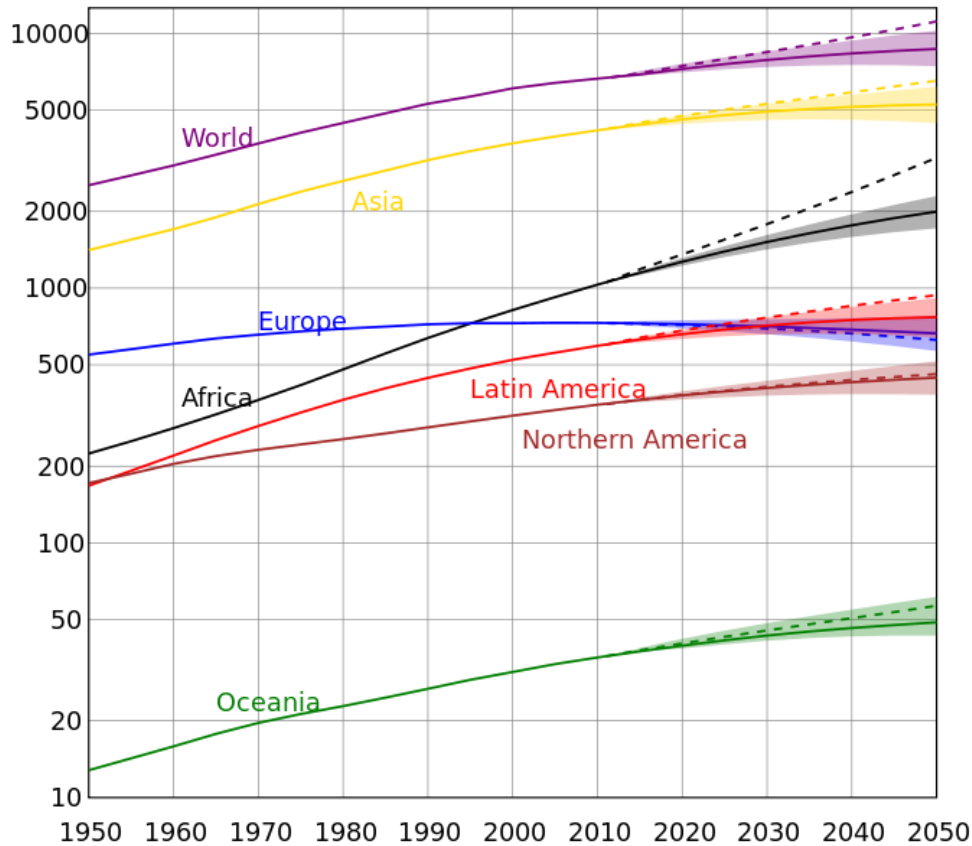
Population Dynamics – Station #1



1. It took 1650 years for the population to double from 0.25 billion to 0.50 billion in 1650 AD. How long did it take for the population to double:
 - a. A second time?
 - b. A third time?
 - c. A fourth time?
2. Based on your graph, in what year will the population reach 8 billion?
3. What kind of growth is being shown in this graph? Is this sustainable?
4. If the carrying capacity of Earth was 9 billion people, when would we reach this number, according to your graph? What will happen when the population exceeds the Earth's carrying capacity?

Population Dynamics – Station #2

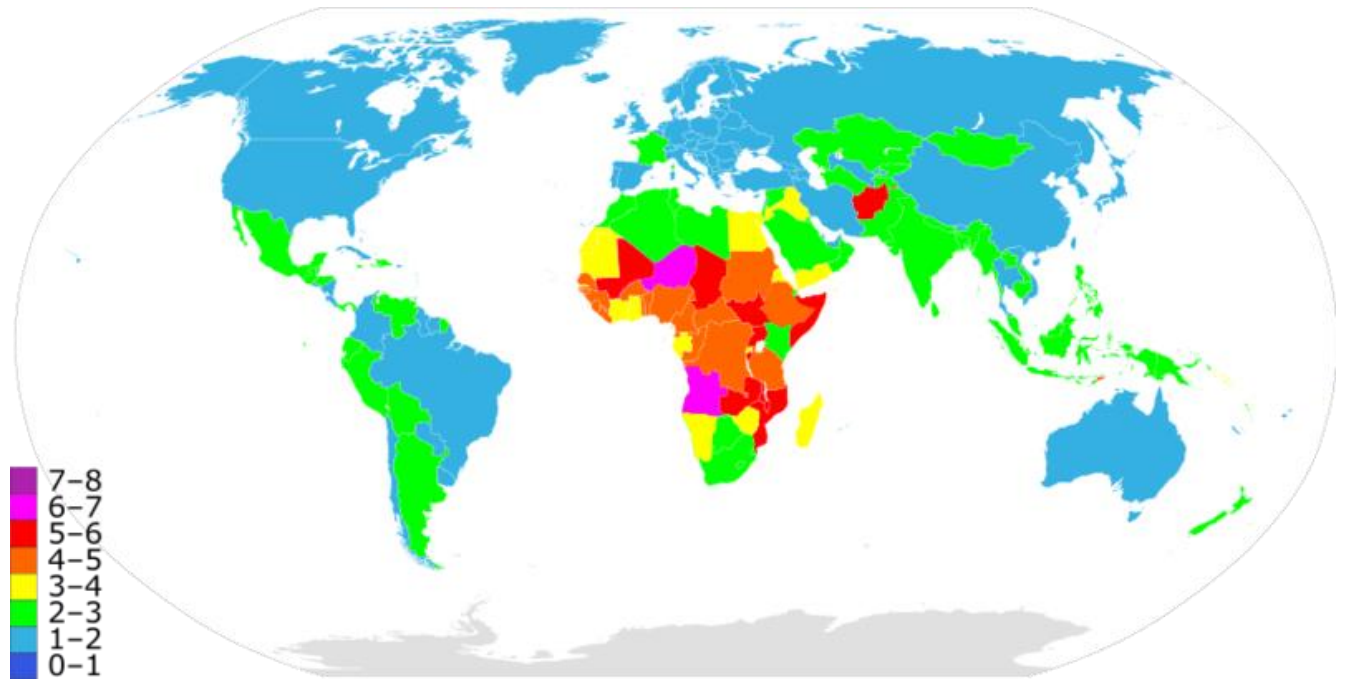
Population Growth by Millions of People



1. Based on the graph, what is the world population in 2020?
2. The solid line shows the average predicted population growth. The dashed line shows the projected growth if birth and death rates remain constant, and the shaded area shows the lowest to highest predicted values. What is the predicted population in 2050 if:
 - a. Birth and death rates remain constant?
 - b. Population growth is at the maximum expected rate?
 - c. Population growth is at the minimum expected rate?
3. Which area has reached its carrying capacity?
4. Which area has had the highest growth rate between 1950 and 2020?

Population Dynamics – Station #3

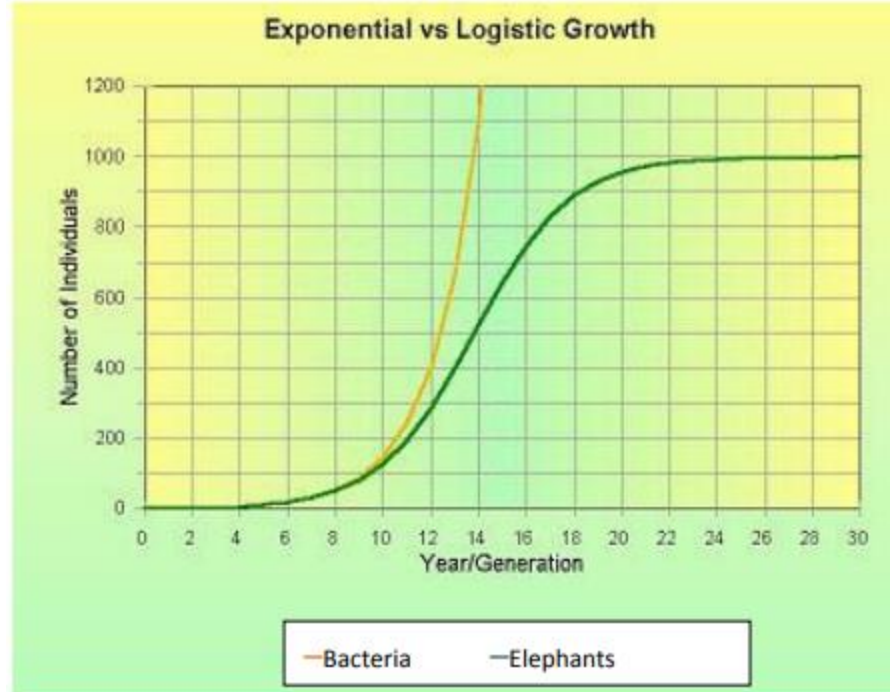
Map of countries by fertility rate (2018)



The image above shows the average number of children born per woman in each country.

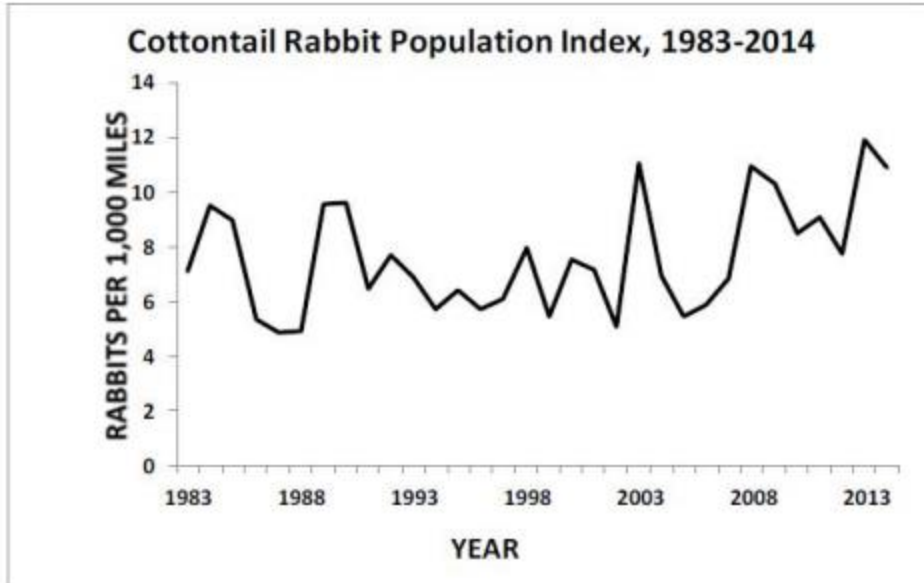
1. What do the many of the blue areas have in common?
2. Which area of the world (continent) has the highest number of children born?
3. Suggest a reason why there are such high birth rates in that area of the world, and a strategy for how that rate could be decreased.

Population Dynamics – Station #4



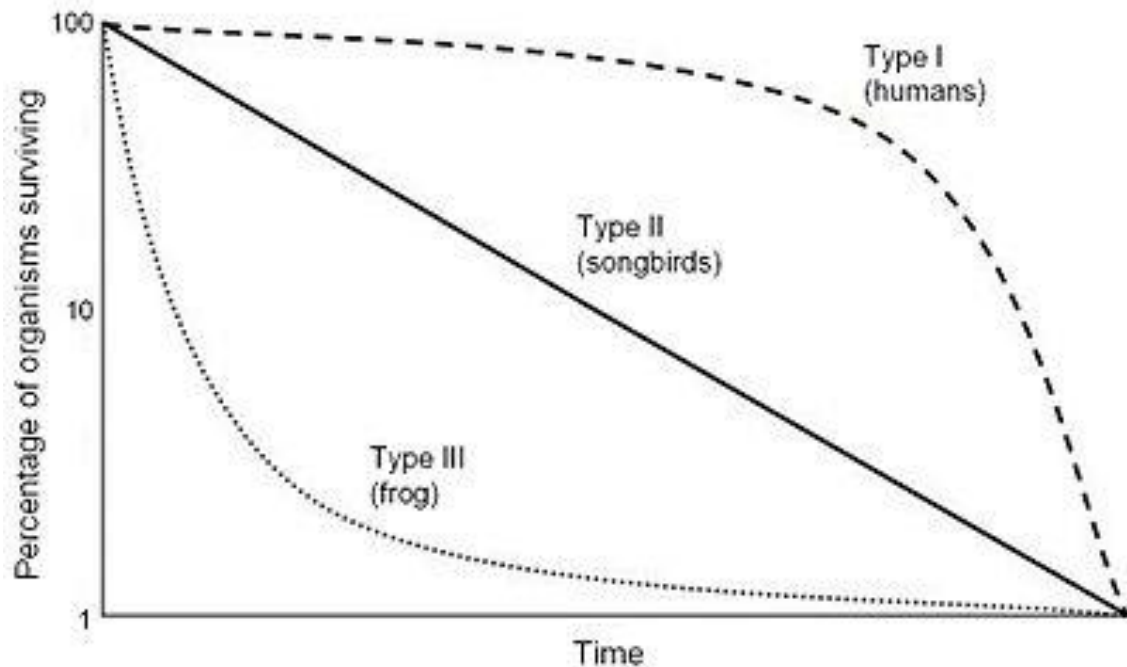
1. Which of the two curves shows exponential growth? Which is logistic growth?
2. Explain why the curves are different for bacteria and elephant populations.
3. What is the carrying capacity of the organism with the logistic growth? When is this capacity reached?
4. What will happen to the curve of the organism undergoing exponential growth as time goes on? Explain why.

Population Dynamics – Station #5



1. What type of growth curve does this graph show?
2. What is a possible explanation for why the rabbit population fluctuates (goes up and down) like it does?
3. What is the approximate carrying capacity for cottontail rabbits in this ecosystem?
4. Give a reason for why the carrying capacity may be increasing.

Population Dynamics – Station #6



This graph is called a survivorship curve.

1. How is the survival rate at birth different for frogs, songbirds and humans?
2. Which type of animal has the most of its population reach "old age"?
3. Give a reason to explain why the line for frogs curves the way it does.
4. Give a reason to explain why the line for songbirds looks the way it does.