# Population age structures

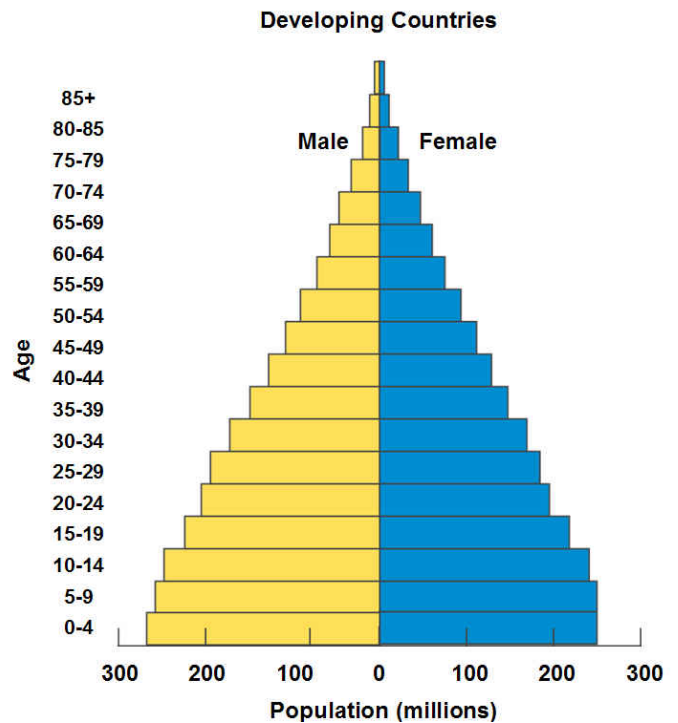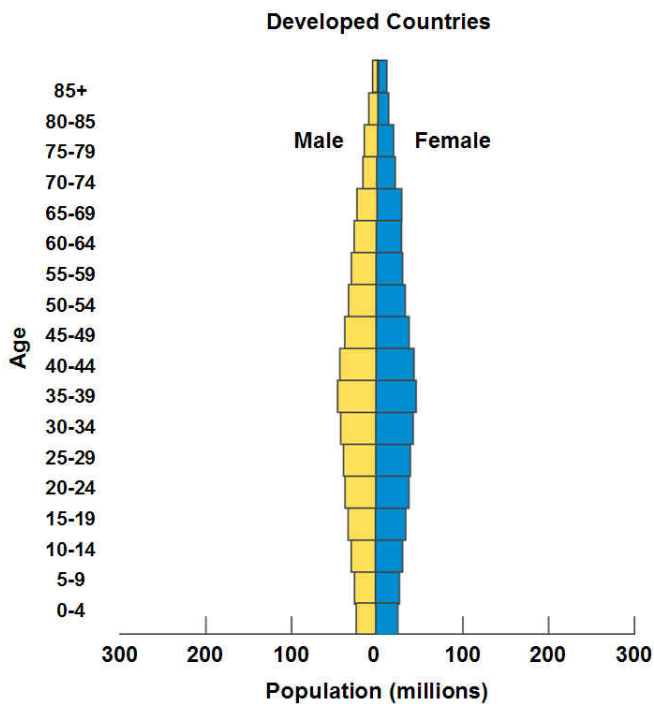| Focus questions	What is an age structure diagram? How does age structure affect population growth? Why is this important to food production?
Vocabulary	Population age structure (population pyramid), reproductive age, pre-reproductive age, post-reproductive age, malnourished, undernourished

A population age structure diagram is the proportion of the population (and of each gender) at each age level. (Each level in the above graphic represents an age group in increasing order—youngest at the bottom and oldest at the top.)
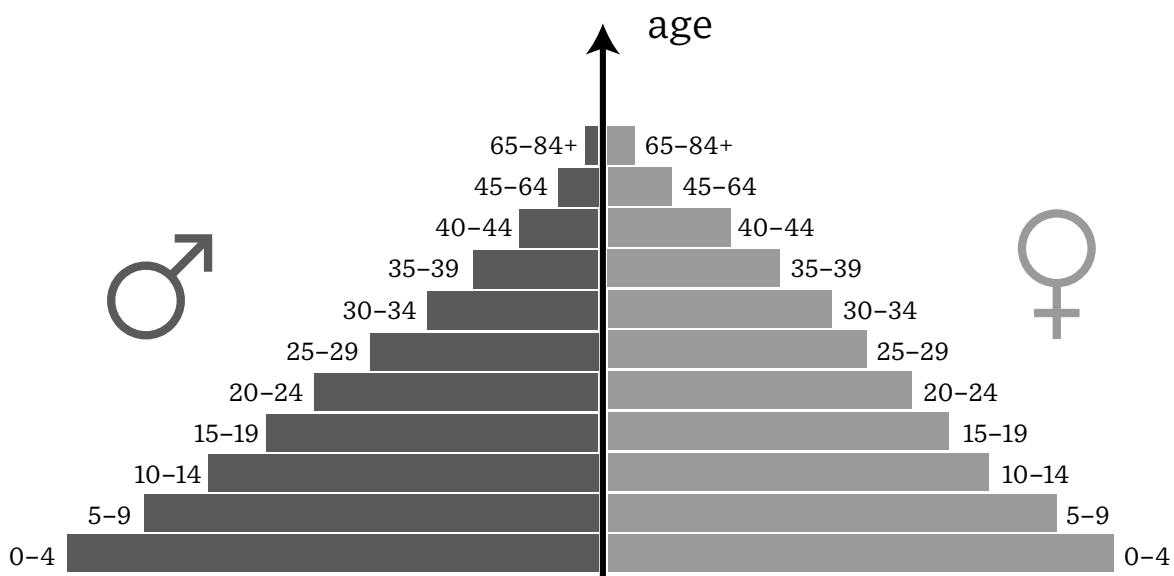
Procedure

1. Draw two lines on the pyramid above.
   a. The first line should be drawn above the third level of the pyramid which encompasses the age groups 0–14. Label this area of the pyramid the **pre-reproductive** age group.
   b. The second line includes the next six levels, so draw it above the 35-44 portion. Label this area of the pyramid the **reproductive** age group.
   c. Above the line drawn in b is the 44–85+ age group. Label this area of the pyramid the **post-reproductive** age group.
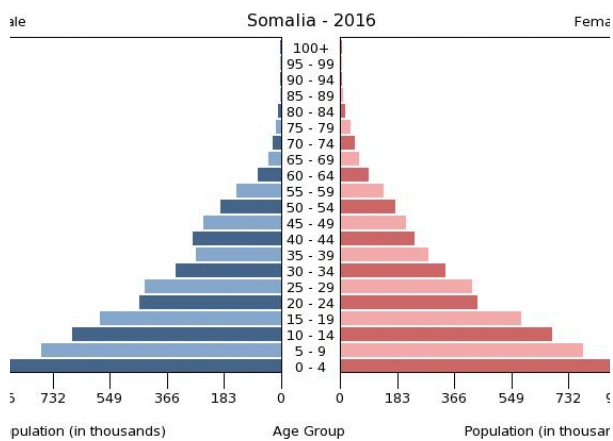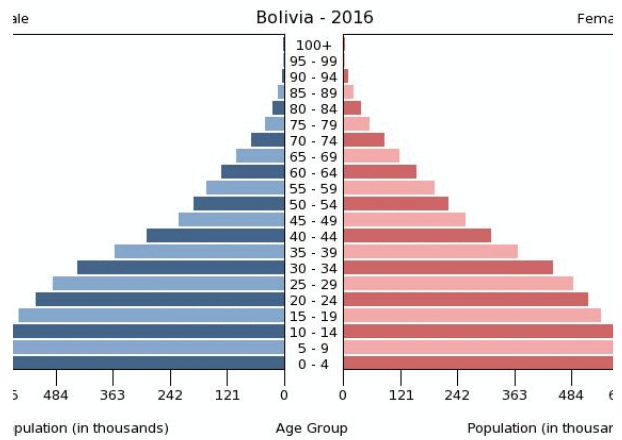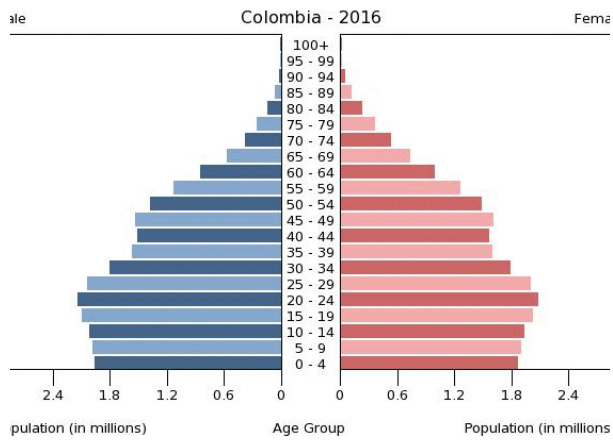
Developed Countries

Male   Female

Age

85+
80-85
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4

300 200 100 0 100 200 300
Population (millions)

Developing Countries

Male   Female

Age

85+
80-85
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
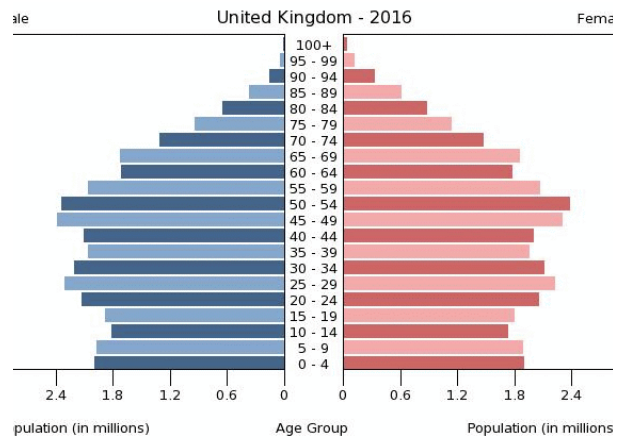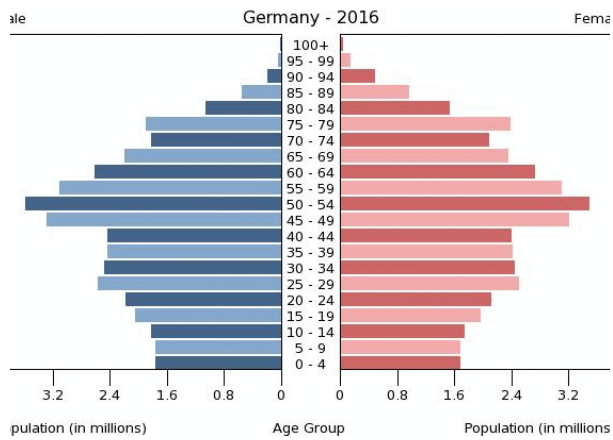
300 200 100 0 100 200 300
Population (millions)

2. These diagrams help to determine how a country's population will grow. Take a look at the two structures above. Label the 3 categories in these diagrams as you did above.

   a. Calculate approximately how much the population could increase if each female of reproductive age from a developed country has only 1 child in her lifetime.

   b. Calculate approximately how much the population could increase if each female of reproductive age from a developing country has 2 or more children in her lifetime.

   c. Which of the structures above shows imminent population growth?

3. Look at the age structures below. Predict the growth of the populations in each country as high, medium, low, or negative. Write your answers next to each country. (Visit **indexmundi.com** to compare the actual numbers of individuals in each age group.)

Bangladesh - 2016

Male — Female

Age Group
100+
95 - 99
90 - 94
85 - 89
80 - 84
75 - 79
70 - 74
65 - 69
60 - 64
55 - 59
50 - 54
45 - 49
40 - 44
35 - 39
30 - 34
25 - 29
20 - 24
15 - 19
10 - 14
5 - 9
0 - 4

7.2 5.4 3.6 1.8 0   0 1.8 3.6 5.4 7.2

Population (in millions) Age Group Population (in millions)

United States - 2016

Male — Female

12 9 6 3 0   0 3 6 9 12

Population (in millions) Age Group Population (in millions)

Germany - 2016

Male — Female

3.2 2.4 1.6 0.8 0   0 0.8 1.6 2.4 3.2

Population (in millions) Age Group Population (in millions)

United Kingdom - 2016

Male — Female

2.4 1.8 1.2 0.6 0   0 0.6 1.2 1.8 2.4

Population (in millions) Age Group Population (in millions)

Colombia - 2016

Male — Female

2.4 1.8 1.2 0.6 0   0 0.6 1.2 1.8 2.4

Population (in millions) Age Group Population (in millions)

Bolivia - 2016

Male — Female

484 363 242 121 0   0 121 242 363 484

Population (in thousands) Age Group Population (in thousands)

Somalia - 2016

Male — Female

732 549 366 183 0   0 183 366 549 732

Population (in thousands) Age Group Population (in thousands)

Reflection

1. Looking at the countries that have the largest potential for population growth, what are the causes of their large population growth?

2. Are these causes related to resource availability? Why do you think this?

3. What might a country do to decrease population growth? What has been done (i.e. policies in China, Thailand, India)?

4. What is meant by ecosystem limits?

5. What innovations have humans introduced to alter ecosystem boundaries and limits?

6. What additional actions might humans take to address those limitations?

Rubric for self-assessment

Skill	Yes	No	Unsure
I can read an age structure diagram.			
I can predict human population growth using an age structure diagram.			
I can list the limitations of an age structure diagram to predict human population growth			