

مراجعة وفق الهيكل الوزاري منهج انسباير المسار M مع الإجابات



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الحادي عشر العام ← علوم ← الفصل الثالث ← ملفات متنوعة ← الملف

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ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
علوم:

إعداد: Hossam May

التواصل الاجتماعي بحسب الصف الحادي عشر العام



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الحادي عشر العام والمادة علوم في الفصل الثالث

مراجعة نهائية وفق الهيكل الوزاري منهج انسباير المسار A-101-M

1

حل مراجعة اعتماداً على صفحات وفق الهيكل الوزاري

2

الهيكل الوزاري الجديد 2025 منهج بريدج الخطة M-101







3

تجميعية شاملة وفق الهيكل الوزاري منهج بريدج الخطة M


4

مراجعة مع حل أسئلة اختبارات وزارية وفق الهيكل الوزاري

5



Revision for Biology G11 **Gen-M**



Biology Teacher\ May Hossam
Term 3 academic Year 2024-2025

School Principal
Salama Khalfan Al Mazrouei

Question

1

Page

Sort the following factors as either density dependent or density independent.

Density-Independent				Density-dependent			
Drought		Hurricane		Predation relationships		Symbiotic relationships	
Flooding		Temperature		Disease		Competition	
drought	flooding	hurricane	predation relationships	symbiotic relationships	disease	competition	temperature

Why is disease considered a density-dependent environmental factor?

لماذا يعتبر المرض عامل يعتمد على الكثافة؟

- ☒ Population density affects amount of contact.
 - ☐ Disease spreads easily in a low-density population.
 - ☐ Disease won't spread in high-density populations.
 - ☐ Disease may be influenced by weather.
- ☐ تؤثر كثافة الجماعة الأحيائية على مقدار الاتصال بين الكائنات
 - ☐ المرض ينتشر بسهولة في الجماعة ذات الكثافة المنخفضة.
 - ☐ المرض لا ينتشر في الجماعة ذات الكثافة العالية.
 - ☐ يتأثر المرض بالطقس

Question 1



Which of the following is a density-dependent limiting factor?

☐ winter frost (thin layer of ice) destroying most of the year's grape crops in Italy

☐ drought in the Kalahari, threatening the life of kudu, wildebeest, and lions

☐ drastic changes in water pH, causing fish to die

☒ a decline in the moose population after wolves move into the area ✓

A limiting factor is a factor that controls the growth of a population. Factors that depend on population density are called density-dependent limiting factors. Identify the density-dependent limiting factors.

☐ flooding

☐ forest fires

☒ competition ✓

☒ parasitism ✓

☐ pollution

☐ cold weather

Question

1



4-Which is a density-dependent factor?

- ☒ A. disease
- ☐ B. fire
- ☐ C. flooding
- ☐ D. weather

5-Which is a density-independent factor?

- ☐ A. competition
- ☒ B. extreme cold
- ☐ C. parasites
- ☐ D. predation

Question

1

Page

Which is a density-independent factor for a flock of Canada geese on a large lake?

ما العامل الذي لا يعتمد على الكثافة وراء تواجد قطع من الإوز الكندي على بحيرة كبيرة؟

- | | | | |
|----------------------------------|-----------------------|---------------------|----|
| <input type="radio"/> | Intestinal worms | الديدان المعوية | a. |
| <input type="radio"/> | Infectious virus | فيروس معدٍ | b. |
| <input type="radio"/> | Dwindling food supply | إمداد غذاء متضائل | c. |
| <input checked="" type="radio"/> | Unusually cold winter | شتاء أبرد من العادى | d. |

2 Which limiting factor is density independent?

- A disease
- ☒ B drought
- C competition
- D food supply

7 What are forest fires, temperature fluctuations, and floods all examples of?

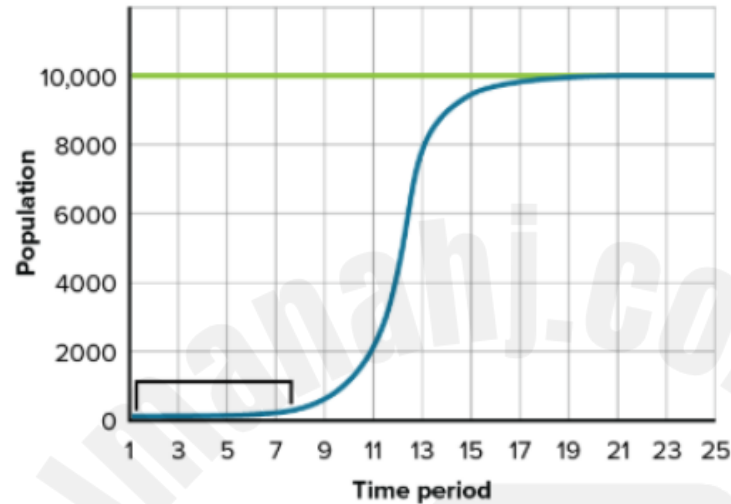
- A biotic, density-dependent factors
- B biotic, density-independent factors
- C abiotic, density-dependent factors
- ☒ D abiotic, density-independent factors

Question 2

Figure 2

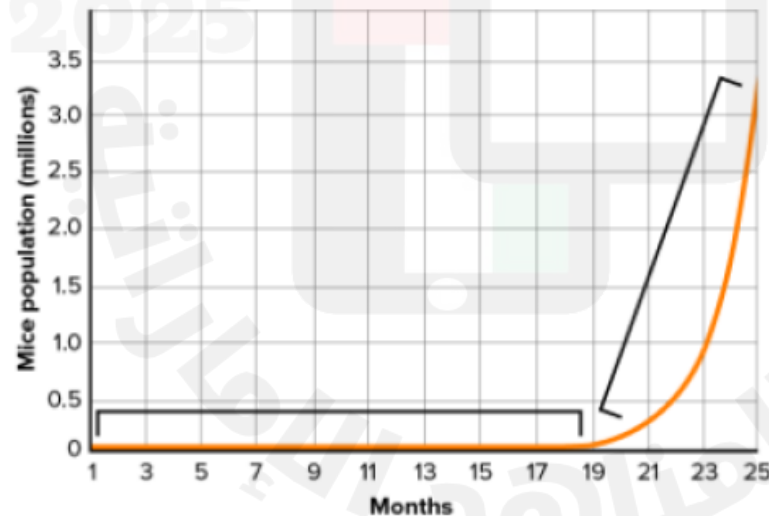
Page

The type of growth represented by this graph is Select Choice ▼ population growth.



- ☐ linear
- ☐ random
- ☐ exponential
- ☒ logistic

What type of growth is represented by the J-shaped curve shown below?



- ☐ linear
- ☐ random
- ☒ exponential
- ☐ logistic

Question

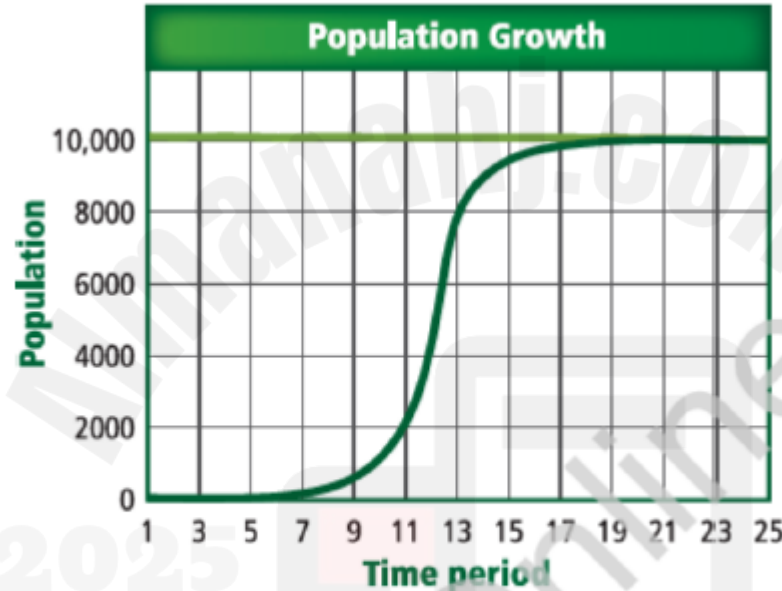
2

Figure 2



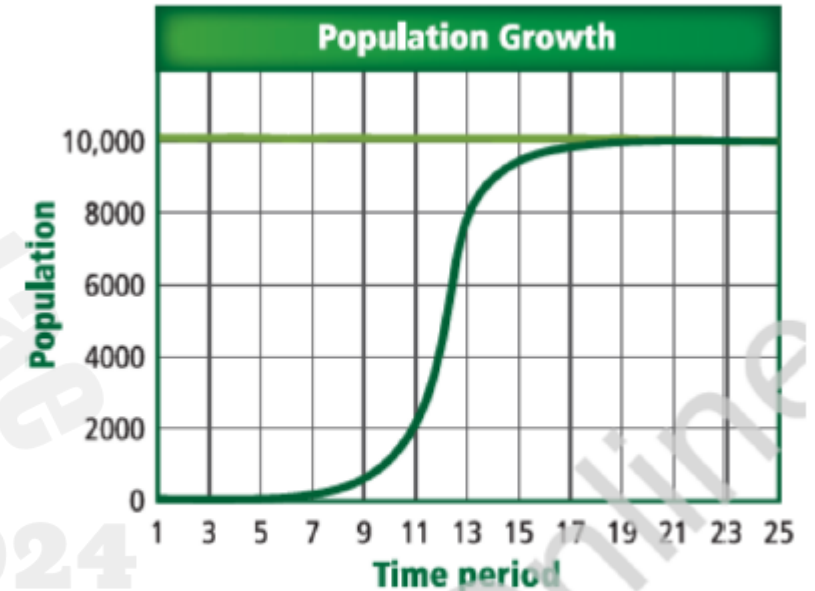
Page

22. What do the time periods 1–7 represent? ماذا تمثل الفترة من 1 الي 7



- ☐ carrying capacity القدرة الاستيعابية
- ☐ geometric growth النمو الجيومتري
- ☐ acceleration phase طور التسارع
- ☒ lag phase طور التباطؤ ✓

20. Which population growth model does this graph illustrate? نوع النمو الموضح بالشكل



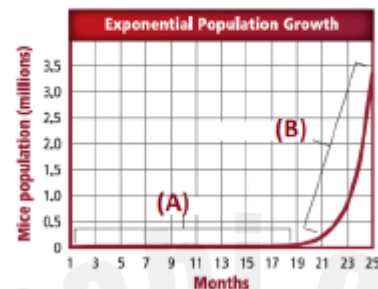
- ☐ exponential growth الاسي
- ☐ lag phase طور التباطؤ
- ☒ logistic growth اللوجستي ✓
- ☐ straight-line growth نمو الخط المستقيم

Question 2

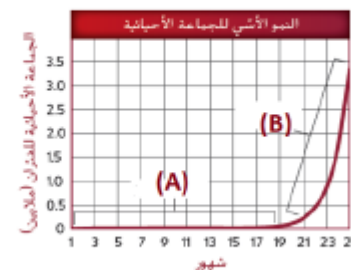
Figure 2

Page

The graph below represents the population growth of mice over time, What does the letter (A) refer to?



الرسم البياني أدناه يوضح نمو جماعة أحيائية من الفئران ،
ما الذي يشير إليه (الحرف A)؟



- | | | |
|----|----------------------|--------------|
| a. | Exponential growth | النمو الأسّي |
| b. | Acceleration phase | طور التسارع |
| c. | Lag phase | طور التباطؤ |
| d. | Straight-line growth | النمو الخطّي |

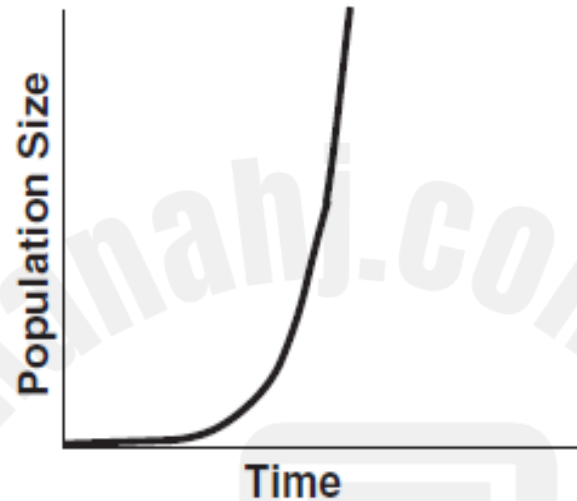
Question

2

Figure 2

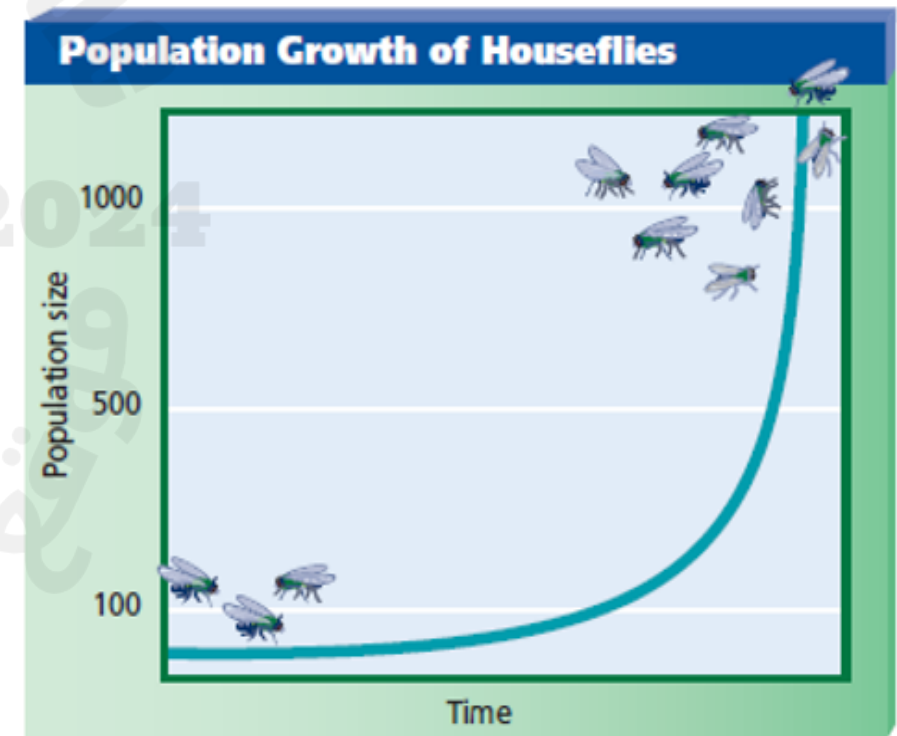
Page

- 5 What type of growth is represented by the J-shaped curve shown below?



- A sinusoidal
- B linear
- C exponential
- D random

7. According to the graph, the growth rate of a house fly population _____.
- a. increases, then drops suddenly
 - b. increases, at a steady rate
 - c. increases rapidly
 - d. levels off after a certain amount of time

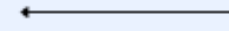


Question

3

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population change from high birth rates and death rates to low birth rates and death rates



demographic transition

Trends in Human Population Growth

The graph in **Figure 12** on the previous page is somewhat deceptive. Population trends can be altered by events such as disease and war. **Figure 13** (next page) shows a few historical events that have changed population trends. **Figure 12** could also easily be misinterpreted because human population growth is not the same in all countries. However, population growth trends are often similar in countries that have similar economies.

For example, one trend that has developed during the previous century is a change in the population growth rate in industrially developed countries such as the United States. An industrially developed country is advanced in industrial and technological capabilities and has a population with a high standard of living. Criteria for determining developed countries include average national income, individual average health and education, and national export and import of goods.

In its early history, the United States had a high birthrate and a high death rate. It was not uncommon for people to have large families and for individuals to die by their early forties. Many children also died before reaching adulthood. Presently, the birthrate in the United States has decreased dramatically and the life expectancy is greater than seventy years. This change in a population from high birth and death rates to low birth and death rates is called a **demographic transition**.

Question

3

The change in a population from high birth and death rates to low birth and death rates is called a.....

يسمى التغيير في عدد السكان من معدلات المواليد والوفيات المرتفعة إلى معدلات المواليد والوفيات المنخفضة بـ

- A. demographic formation
- ☒ B. demographic transition
- C. demographic position
- D. demographic illustration

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Question

4,10

Figure 14

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Get It?

Compare and contrast the age structures of the countries shown in Figure 14.

Age Structure in Human Population for 2015

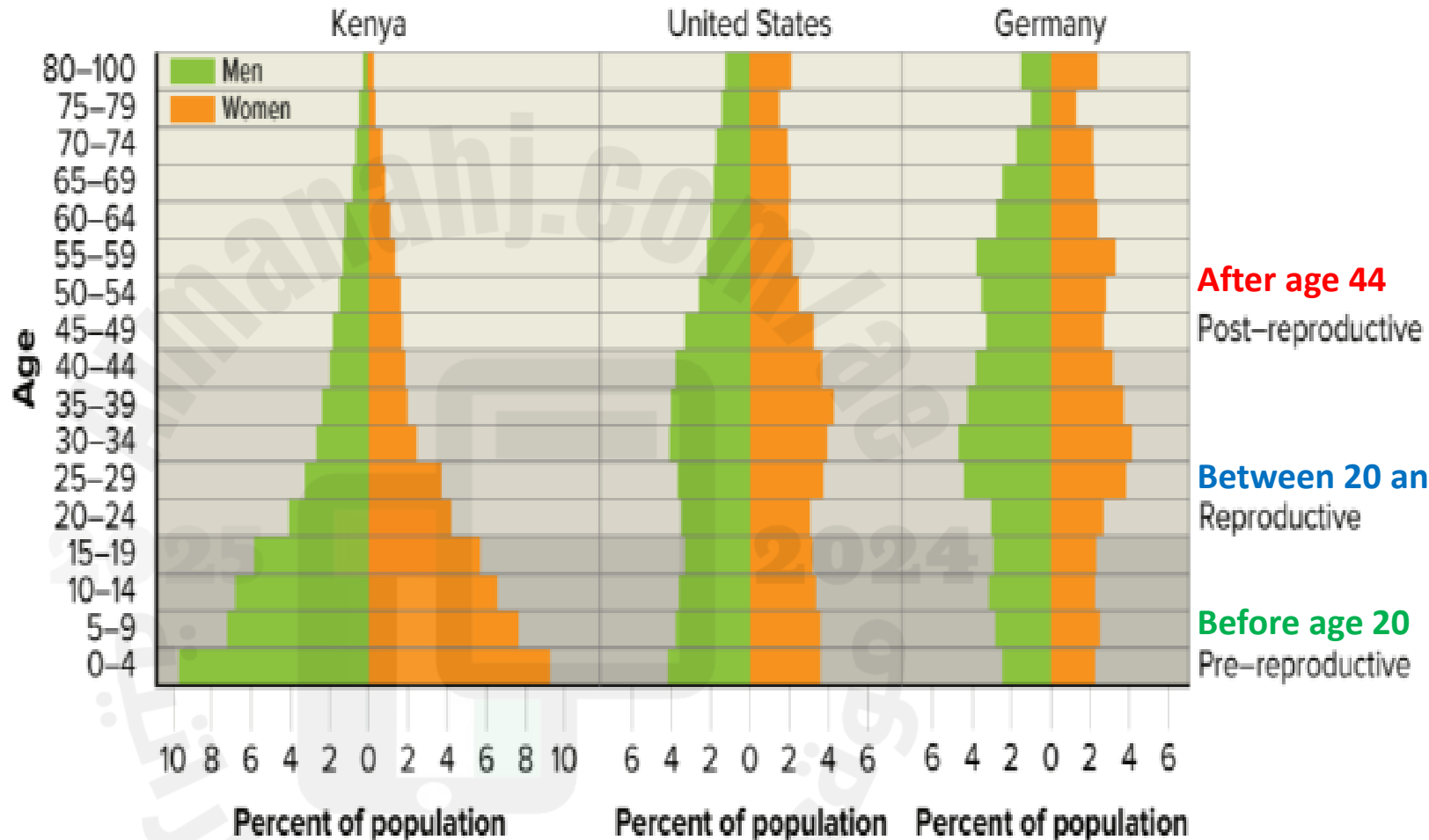


Figure 14 The relative numbers of individuals in pre-reproductive, reproductive, and post-reproductive years are shown for three representative countries.

Rapid growth

Slow growth

negative growth

Question

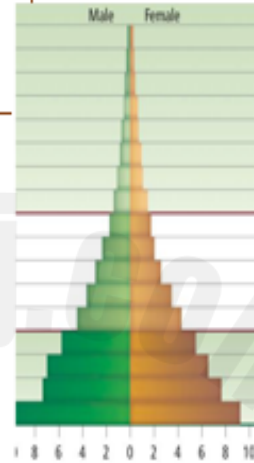
4,10

Figure 14

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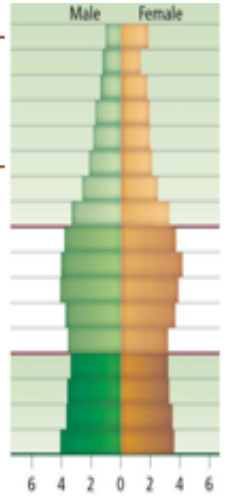
9-What is the type of growth in human population?

- A. Negative growth
- ☒ B. Rapid growth
- C. Slow growth
- D. All of the above



10-What is the type of growth in human population?

- A. Negative growth
- B. Rapid growth
- ☒ C. Slow growth
- D. All of the above

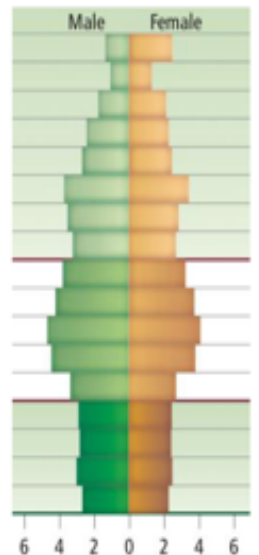


11-Describes the relative numbers of organisms of each age within a population and is often represented by a graph

- A. Demographic transition
- B. Population growth rate
- ☒ C. Age structure diagram
- D. Fertility rate

12-What is the type of growth in human population?

- ☒ A. Negative growth
- B. Rapid growth
- C. Slow growth
- D. All of the above



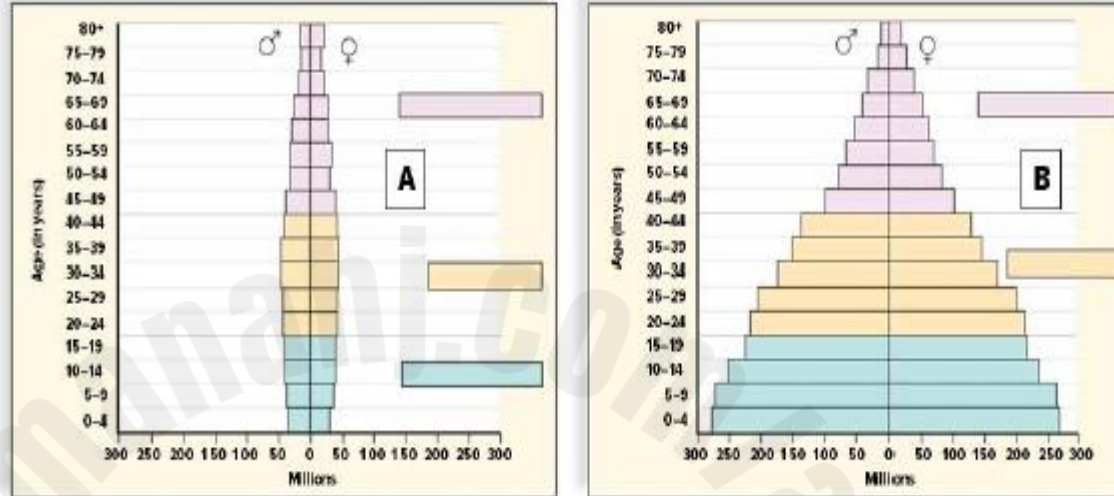
Question

4,10

Figure 14

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17) Which of these diagrams represents an age structure diagram of more-developed countries?



- ☒ A) Diagram A
- ☐ B) Diagram B

5) What is the age structure diagram for a population that has a birthrate higher than its death rate and larger population in prereproductive ages than in reproductive and postreproductive ages?

- ☒ A) This population can expect to see a pyramid-shaped diagram that will cause the population to grow in the near future.
- ☐ B) This population can expect to see an urn-shaped diagram that will cause the population to grow in the future.
- ☐ C) This population can expect to see a bell-shaped diagram that will cause the population to grow in the future.
- ☐ D) This population can expect to see a pyramid-shaped diagram that will cause the population to decrease in the future.
- ☐ E) This population can expect to move into a logistic growth curve in the near future.

Question

4,10

Figure 14

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In the age structure of the human population, the age group that has the working population is the

في الهيكل العمري للسكان ، فإن الفئة العمرية التي تضم السكان العاملين هي

- A. Pre-reproductive stage
- ☒ B. Reproductive stage
- C. Post-reproductive stage

In the age structure of the human population, the age group that has the eldest population is the

- A. Pre-reproductive stage
- B. Reproductive stage
- ☒ C. Post-reproductive stage

In the age structure of the human population, the age group that has the youngest population is the

- ☒ A. Pre-reproductive stage
- B. Reproductive stage
- C. Post-reproductive stage

Question 5

the study of human population, size, density,
distribution, movement, and birth and death rates



demography

Human Population Growth

The study of human population size, density, distribution, movement, and birth and death rates is **demography** (de MAH gra fee).

The study of the size, density, distribution, and movement of the human population is _____.

دراسة حجم وكثافة وتوزيع وحركة البشر هي _____.

- A. bioinformatics
- ☒ B. demography
- C. ecology
- D. ethnography

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Question

6

عدد المواليد

عدد الوفيات

الهجرة الداخلية

الهجرة الخارجية

Match each term with its correct definition.

Column A (Term)	Column B (Definition)	
1. Natality	Number of individuals entering a population	3
2. Mortality	Number of individuals born in a population	1
3. Immigration	Number of individuals leaving a population	4
4. Emigration	Number of individuals dying in a population	2

The movement of individuals out of a population is called:

A – Natality

B – Immigration

C – Emigration

D – Mortality

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Question 6



Page

1-What term is used to describe the number of individuals moving into a population?

- A. emigration
- B. imitation
- ☒ C. immigration
- D. migration

What term is used to describe the number of individuals **born** in a given time period?

- A. emigration
- ☒ B. natality
- C. immigration
- D. mortality

What term is used to describe the number of **deaths** that occur in the population during a given time period?

- A. emigration
- B. natality
- C. immigration
- ☒ D. mortality

Question

7

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Discuss how technological advances have affected human population growth.



Get It?

Explain the factors that have contributed to an increase in the survival rate of the human population.

1- Agriculture and domestication



2- Technological advances and medicine



3- Improvement in shelter



Question

8

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Compare the population growth rate in industrially developed countries to that in developing countries.

Another important factor in keeping the human population at or below the carrying capacity is the amount of resources from the biosphere that are used by each person. Currently, individuals in industrially developed countries use far more resources than those individuals in developing countries, as shown in **Figure 15**. This graph shows the estimated amount of land required to support a person through his or her life, including land used for production of food, forest products and housing, and the additional forest land required to absorb the carbon dioxide produced by the burning of fossil fuels. Countries such as India are becoming more industrialized, and they have a high growth rate. These countries are adding more people and are increasing their use of resources. At some point, the land needed to sustain each person on Earth might exceed the amount of land that is available. At that time the human population will likely have exceeded Earth's carrying capacity.

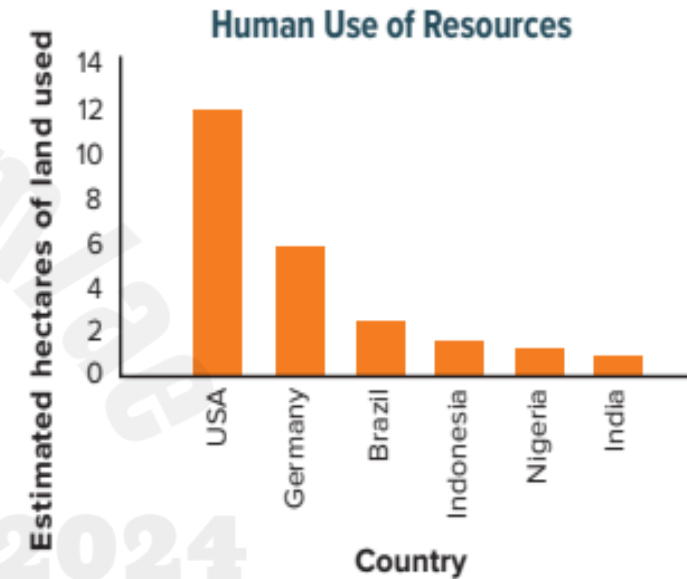


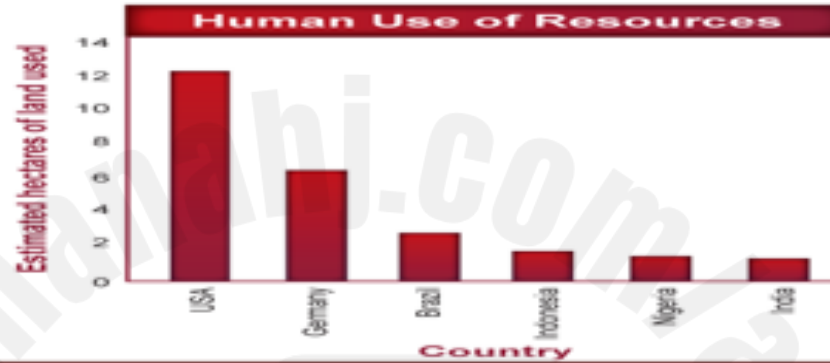
Figure 15 The amount of resources used per person varies around the world.

Question

8

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15-Based on the information in the graph, infer which statement accurately represents the information provided.



- A. India has very little land for farming.
- B. Germany is smaller per acre than the United States.
- ☒ C. More land is used to support an individual in the United States.
- D. A person in Indonesia requires more land than a person in Brazil.

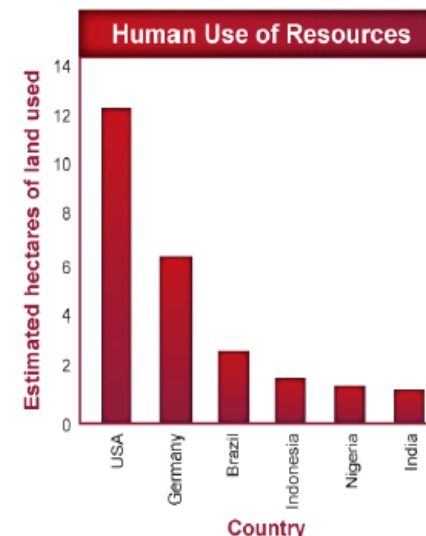
Question

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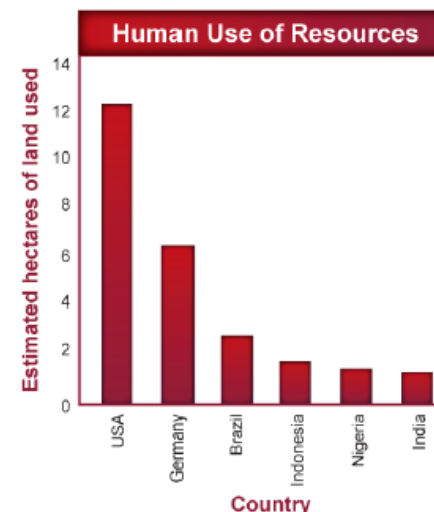
Based on the information in the graph, infer which statement accurately represents the information provided.

- A. Brazil is smaller per acre than the United States.
- B. More land is used to support an individual in Nigeria.
- ☒ C. A person in India requires less land than a person in Brazil.
- D. Nigeria has very little land for farming



Based on the information in the graph, infer which statement accurately represents the information provided.

- A. Germany has very little land for farming.
- B. India is smaller per acre than the United States.
- C. More land is used to support an individual in India.
- ☒ D. A person in Indonesia requires less land than a person in Brazil.



Question 9

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1. **Compare and contrast** spatial distribution, population density, and population growth rate.

The number of organisms per unit of living area is called

_____.

What is population density?

- A. pattern of spacing of a population in an area
- ☒ B. number of organisms in an area
- C. characteristics of a population
- D. manner in which a population grows

Brine shrimp are able to survive only in certain lakes that have a very high salt concentration. Which is the correct population characteristic of brine shrimp?

- A. logistic It is density-dependent.
- B. It is limited by biotic factors.
- ☒ C. It has a limited spatial distribution.
- D. It is randomly dispersed in the environment.

Question 11

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Earth's carrying capacity for humans

Calculating population growth rates is not just a mathematical exercise. Scientists are concerned about the human population reaching or exceeding the carrying capacity. As you learned in Lesson 1, all populations are limited by the carrying capacity of their ecosystems, and the human population is no exception. Many scientists suggest that human population growth needs to be reduced. In many countries, voluntary population control is occurring through family planning. Unfortunately, if the human population continues to grow—as most populations do—and areas become overcrowded, disease and starvation will occur. However, technology has allowed humans to increase the carrying capacity of Earth, at least temporarily. It might be possible for technology and planning to keep the human population at or below Earth's carrying capacity.

3. **Assess** the consequences of exponential population growth of any population. **قيم العواقب للنمو الأسّي لأي جماعة أحيائية.**



Disease
أمراض



Overcrowded
ازدحام



Starvation
مجاعات

Question 12



When the birthrates and death rates of a country are equal, the country is experiencing Zero Population Growth (ZPG)

Which of the following is true of a population with a growth rate of zero with no emigration or immigration?

- ☐ The birthrate exceeds the death rate.
- ☒ The birthrate equals the death rate.
- ☐ The birthrate is less than the death rate.

Question 13



What might be happening when a population stops increasing and begins decreasing? Select all that apply.

- ☐ Immigration exceeds emigration.
- ☐ The number of births is less than the number of deaths.
- ☐ The number of births exceeds the number of deaths.
- ☐ Emigration exceeds immigration.

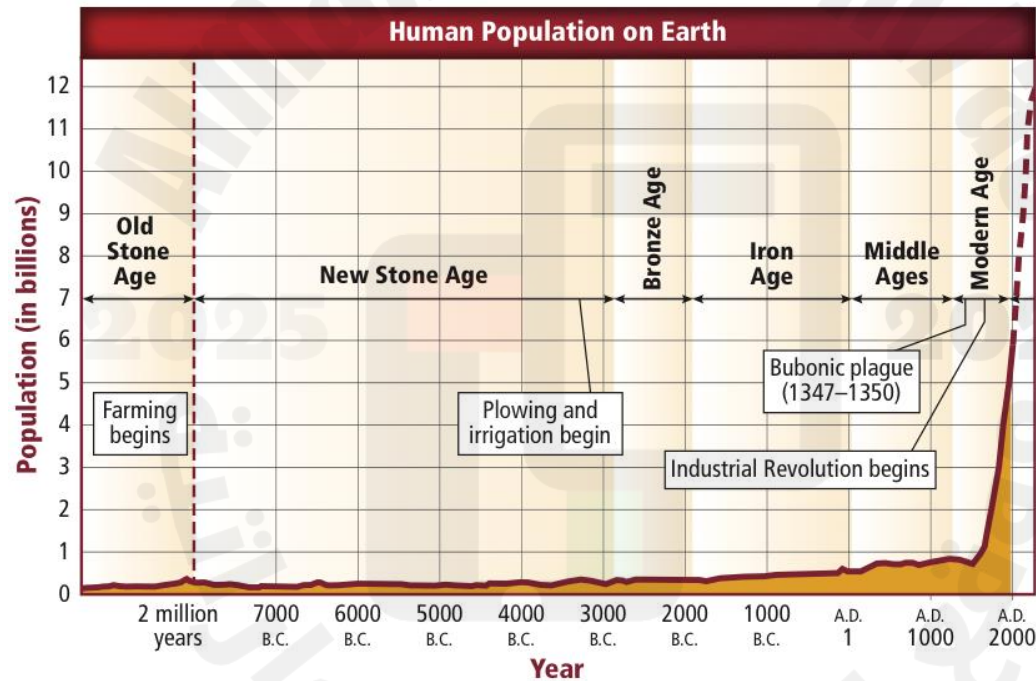
Twenty gray squirrels moving out of a forest into a new ecosystem is an example of Emigration.

Question 14

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1. **Describe** the change in human population growth over time.

4. **Summarize** why the human population began to grow exponentially in the Modern Age.



The human population on Earth was **constant** until **recent** times

The human population on Earth began to grow at an **exponential rate**.

Question 14



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A population reaches the carrying capacity:

تصل الجماعة الأحيائية إلى القدرة الاستيعابية:

تكون في استراتيجية r
is reached in r -selected populations .a

تصل إليها عندما تكون الموارد محدودة
is reached as resources become limiting .b

تصل إليها بنهاية النمو الأسّي
is reached at the end of exponential growth .c

تصل لها عندما تكون البيئة مضارة
is reached when the environment begins to be harmed .d

Question 15

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Zero population growth

Another trend that populations can experience is zero population growth. **Zero population growth** (ZPG) occurs when births plus immigration equals deaths plus emigration for a generation. This will mean that the population has stopped growing, because births and deaths occur at the same rate. Once the world population reaches ZPG, the age structure eventually should be more balanced with numbers at pre-reproductive, reproductive, and post-reproductive ages being approximately equal.

Zero population growth is a goal of many countries and societies. Many population planners and environmentalists believe that ZPG will contribute to the sustainability of Earth's ecosystems.

Zero population growth leads to an unbalanced age structure in the population.

A – True

☒ B – False

Question 15

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2-When does zero population growth occur?

- ☒ A. when birth rate equals death rate
- ☐ B. when death rate exceeds birth rate
- ☐ C. when birth rate exceeds death rate
- ☐ D. when there are zero births

8-What will happen to the human population when the birthrate equals the death rate?

- ☐ A. CDC
- ☐ B. HPG
- ☐ C. PGR
- ☒ D. ZPG

Question 16

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Get It?

Describe two reasons why a species might not be able to expand its range.

A species may fail to thrive in a new environment if the Density-independent factors, such as temperature or soil type, are not suitable for its survival.

Question 17



Get It?

Compare the population growth rates in the United States and the United Kingdom, which has a birthrate of 12 (per 1000), death rate 8.8 (per 1000), and migration rate 2.5 (per 1000).

$$\text{PGR (\%)} = \frac{\text{Birth rate} - \text{death rate} + \text{migration rate}}{10}$$

$$\text{PGR (United states)} = \frac{14.1 - 8.3 + 2.9}{10} = 0.87 (\%)$$

$$\text{PGR (United Kingdom)} = \frac{12 - 8.8 + 2.5}{10} = 0.57 (\%)$$

During one year, the birthrate in a country is 28 births per 1000 people, and the death rate is six deaths per 1000 people. What is the population growth rate?

$$\text{PGR (\%)} = \frac{\text{Birth rate} - \text{death rate} + \text{migration rate}}{10}$$

$$\text{PGR (\%)} = \frac{28 - 6}{10} = 2.2 (\%)$$

Question 17

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The United States has a birthrate of 14.1 (per 1000), death rate of 8.3 (per 1000), and migration rate of 2.9 (per 1000). This gives a PGR of 0.87 percent for the United States. Honduras has a birthrate of 26.9 (per 1000), death rate of 5.4 (per 1000), and migration rate of -1.3 (per 1000). This gives a PGR of 2.02 percent for Honduras.

Calculate the PGR of the United States using the following data.

Knowns:

United States birthrate = 14.1 (per 1000)

United States death rate = 8.3 (per 1000)

United States migration rate = 2.9 (per 1000)

$$\frac{\text{birthrate} - \text{death rate} + \text{migration rate}}{10} = \text{PGR}(\%)$$

Calculate the PGR of Honduras using the following data.

Knowns:

Honduras birthrate = 26.9 (per 1000)

Honduras death rate = 5.4 (per 1000)

Honduras migration rate = -1.3 (per 1000)

$$\frac{\text{birthrate} - \text{death rate} + \text{migration rate}}{10} = \text{PGR}(\%)$$

Substitute the data given into the formula for PGR.

$$\frac{26.9 - 5.4 + (-1.3)}{10} = 2.02\%$$

Question 18

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The pattern of spacing of a population within an area is called **dispersion**.

1. **Compare and contrast** spatial distribution, population density, and population growth rate.

10-The ecologist finds that over a 1000m² plot of tundra, lemmings tend to concentrate in clumps in drier areas. What is the term for this pattern of spacing?

- A. density
- ☒ B. dispersion
- C. logistic spacing
- D. spatial distribution

14-Brine shrimp are able to survive only in certain lakes that have a very high salt concentration. Which is the correct population characteristic of brine shrimp?

- A. It is density-dependent.
- B. It is limited by biotic factors.
- ☒ C. It has a limited spatial distribution.
- D. It is randomly dispersed in the environment.

Question 19

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Human population growth rate

Although the human population is still growing, the rate of its growth has slowed. **Figure 12** shows the percent increase in human population from the late 1940s through 2016. The graph also includes the projected population increase through 2050.

Notice the sharp dip in human population growth in the 1960s. This was due primarily to a famine in China in which about 60 million people died. The graph also shows that human population growth reached its peak at over 2.2 percent in 1963. By 2016, the percent increase in human population growth had dropped to less than 1.2 percent.

Population models predict the overall population growth rate to be below 0.6 percent by 2050.

The decline in human population growth is due primarily to diseases such as AIDS and voluntary population control.

The projected decline in human population growth by 2050 is mainly due to improved food supply and better shelter.

A – True

B – False

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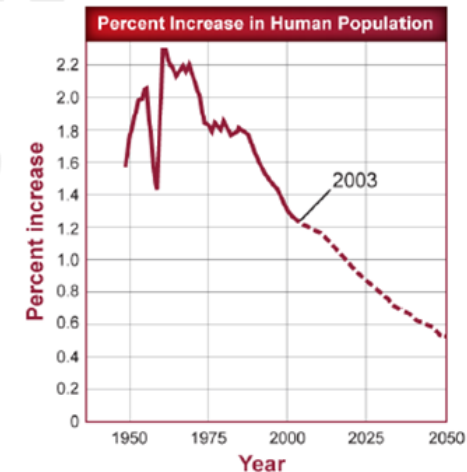
16-Which is a primary reason for the decline in the percent growth of the human population after 1962?

- A. decreased agriculture
- B. famine and wars
- C. setbacks in medicine
- ☒ D. voluntary population control



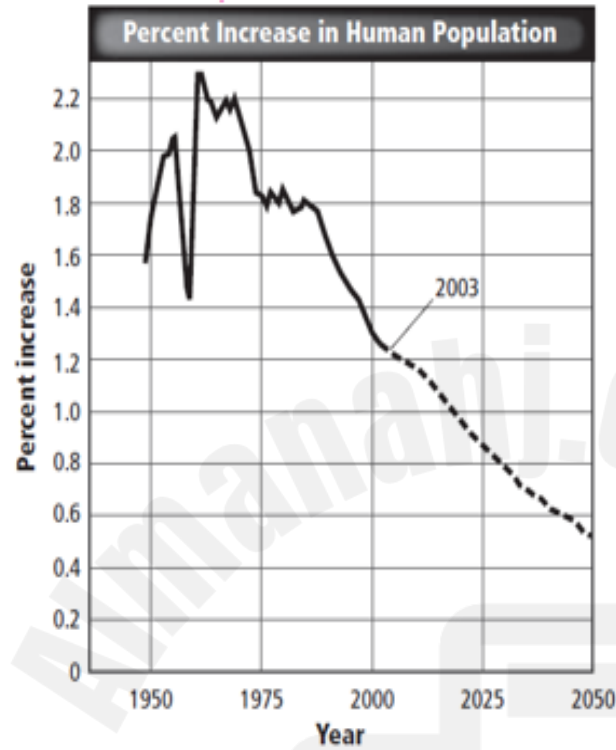
Which is a primary reason for the sharp dip in human population growth in the 1960s ?

- A. decreased agriculture انخفاض الزراعة
- ☒ B. famine المجاعة
- C. setbacks in medicine انتكاسة الطب
- D. voluntary population control نشاط الإنسان



Question 19

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complete the table :

Approximate Growth Rate			
1950	1975	2000	2025 (estimated)
1.7	1.8	1.3	0.9

What are the main reasons for the expected trend in human population between now and 2050?

diseases such as AIDS and voluntary population control

Question 20

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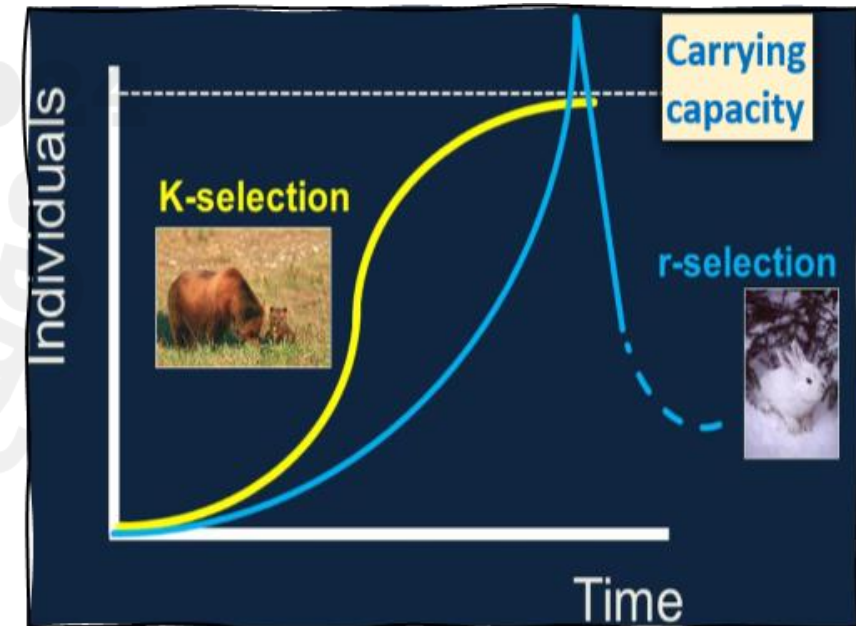
2. **Summarize** the concepts of carrying capacity and limiting factors, and their effects on reproductive patterns.

Population-Limiting Factors

Limiting factors are biotic or abiotic factors that keep a population from continuing to increase indefinitely. Decreasing a limiting factor, such as the available food supply, often changes the number of individuals that are able to survive in a given area. In other words, if the food supply increases a larger population might result, and if the food supply decreases a smaller population would likely result.

Carrying capacity

The **maximum** number of individuals in species that an environment **can** support for the **long** term



Question 20

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2. **Summarize** the concepts of carrying capacity and limiting factors, and their effects on reproductive patterns.

<i>r</i> -strategy	<i>k</i> -strategy
generally, a small organism	generally, a larger organism
Short life span	Long life span
Produces many offspring	Produces few offspring
Controlled by density independent factors	Controlled by density dependent factors



Question 20

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Based on the table below, which letter of the following corresponds to the correct definition of **carrying capacity**?

استناداً إلى الجدول أدناه، أي حرف مما يلي يقابل تعريفاً صحيحاً للقدرة الاستيعابية؟

A	عدد الكائنات الحية في كل وحدة مساحة. The number of organism per unit area.
B	عدد الأفراد الذين يغادرون الجماعة الأحيائية. The number of individuals moving away from a population.
C	عدد الأفراد الذين ينضمون إلى الجماعة الأحيائية. The number of individuals moving into a population.
D	أكبر عدد من أفراد نوع ما تستطيع البيئة دعمه على المدى الطويل. The maximum number of individuals in a species that an environment can support for the long term.

a.

A

b.

B

c.

C

d.

D

Question

21



Reducing individual resource use can help keep the human population within Earth's carrying capacity.

A – True

B – False

Which of the following human activities would most likely help maintain Earth's carrying capacity?

A – Overusing non-renewable energy resources

B – Practicing sustainable agriculture and water use

C – Increasing global meat consumption

D – Replacing forests with urban areas

Question

22



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Populations can be limited by the results of human interference. For example, over the last 100 years, building dams and other human activities on the Colorado River have significantly reduced the river's water flow and changed its temperature. In addition, the introduction of nonnative fish species altered the river's biotic factors. Because of the changes in the river, the number of small fish called humpback chub was reduced. During the 1960s, the number of humpback chub dropped so low that they were in danger of disappearing from the Colorado River altogether. Air, land, and water pollution are the result of human activities that also can limit populations. Pollution reduces the available resources by making some of the resources toxic.

Pollution can limit the size of a population by reducing the resources needed for survival, such as clean air, water, and food.

Question 23



Compare and contrast the reproductive strategy of an *r*-strategy organism and a *k*-strategy organism.

Place each organism with the correct reproductive strategy.

r-strategy			k-strategy		
crickets	mice		elephants	primates	
	locusts			horses	

elephants	primates	locusts	horses	crickets	mice
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Question

23

Page

<i>r</i> -strategy	<i>k</i> -strategy
Rate strategy	Carrying-capacity strategy
Adapted for fluctuating environment	Adapted to stable environment
Generally small حجم الكائن صغير	Generally large حجم الكائن كبير
Short life span دورة حياة الكائن قصيرة	Long life span دورة حياة الكائن طويلة
Many offspring العديد من الأبناء	Few offspring القليل من الأبناء
Expend little energy to raise young يستهلك طاقة قليلة لتربية الأبناء	Invest more energy into nurturing young يستهلك طاقة كبيرة لتربية الأبناء
Less parental care رعاية أبوية قليلة	More parental care رعاية أبوية كثيرة



Question

23



9-Which organism is the best example of a *k*-strategist?

- A. wolf
- B. grasshopper
- C. rabbit
- ☒ D. whale

Which strategy is considered as an adaptation for living in an environment where fluctuation in biotic or abiotic factors occur?

- A. *k*-strategy reproductive pattern.
- ☒ B. *r*-strategy reproductive pattern.
- C. a low mortality rate.
- D. high mortality rate

Which strategy involve a larger organism that has a long-life span, produces few offspring, and whose population reaches equilibrium at the carrying capacity?

- ☒ A. *k*-strategy reproductive pattern.
- B. *r*-strategy reproductive pattern.
- C. a low mortality rate.
- D. high mortality rate

Question 23

Page

Which of the following organisms does not follow
a r -strategy for reproduction?

أي من الكائنات الحية التالية لا يعتمد استراتيجية r للتكاثر؟



a fruit fly ذبابة الفاكهة
(A)



Locusts الجراد
(B)



Mouses الفئران
(C)



Elephant الفيلة
(D)

Which of the following organism follows an r -strategy
for reproduction?

أي من الكائنات الحية التالية يعتمد استراتيجية r - للتكاثر؟



(A)



(B)



(C)



(D)

Question 23

Page

Which of the following organism follows the r-strategy for reproduction?

أي من الكائنات الحية التالية يعتمد استراتيجية r- للتكاثر؟



(A)



(B)



(C)



(D)

Learning Outcomes Covered

◦ BIO.3.4.03.012

- a. A
- b. B
- c. C
- d. D

23. If angelfish produce hundreds of young several times a year, which statement below is true? ماهي الجملة التي تصف الأسماك التي تنجب المئات عدة مرات سنويا

☐ Angelfish have a k-strategy reproductive pattern. تتكاثر عن طريق استراتيجية K

☒ Angelfish have an r-strategy reproductive pattern. r استراتيجية ✓

☐ Angelfish probably have a low mortality rate. معدل الوفيات منخفض

☐ Angelfish provide a lot of care for their young. تعتني هذه الأسماك بصغارها

Question

23



Page

- 6 Populations of *K*-strategists usually _____ .
- ☒ A are controlled by density-dependent factors
 - B are controlled by density-independent factors
 - C do not reach equilibrium at the carrying capacity
 - D produce as many offspring as possible in a short period of time
- 15 Mice are an example of an *r*-strategist reproduction pattern because _____ .
- A they produce few individuals
 - B they expend great energy raising young
 - ☒ C they produce many offspring
 - D they maintain populations near the carrying capacity

Question

23

Page

17. species whose population growth is controlled by density-dependent factors
النوع الذي يتحكم العامل المعتمد علي الكثافة في نمو الجماعة

☐ carrying capacity القدرة الاستيعابية

☐ exponential growth النمو الاسي

☒ K-selected استراتيجيية K

☐ r-selected استراتيجيية r

Which organism follows an *r-strategy* for reproduction?

ما الكائن الذي يتبع استراتيجيية *r* للتكاثر؟

☐

Zebra الحمار الوحشي

☐

Robin طير أبو الحناء

☐

Mayfly ذباب مايو

☐

Human الإنسان

Question 24



Differentiate between density-dependent and density-independent factors in terms of how they affect population growth.

Contrast density-dependent and density-independent factors. Provide examples with your answer.

Population Limiting Factors

Density-Independent Factors

- Any factor in the environment that does not depend on the number of members in a population per unit area is a **density-independent factor**.
- Weather events
- Fire
- Human alterations of the landscape
- Air, land, and water pollution

Density-Dependent Factors

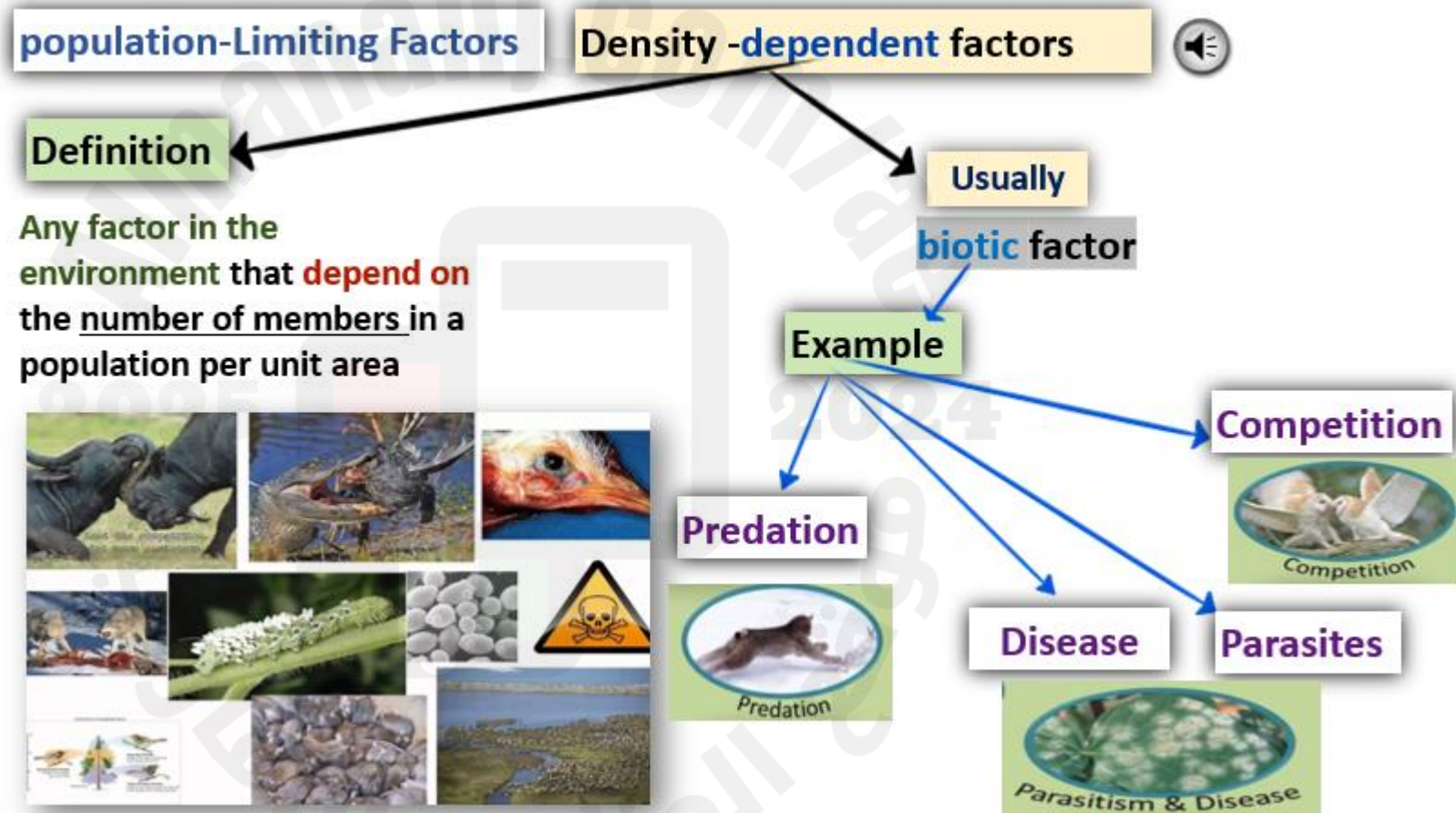
- Any factor in the environment that depends on the number of members in a population per unit area is a **density-dependent factor**
- Biotic factors
- Disease
- Competition
- Parasites

Question 24

Page

Differentiate between density-dependent and density-independent factors in terms of how they affect population growth.

Contrast density-dependent and density-independent factors. Provide examples with your answer.



Question 24



population-Limiting Factors

Density -independent factors



Definition

Any factor in the environment that **does not depend on** the number of members in a population per unit area

Example

Usually

abiotic factor

biotic factor

Human activities

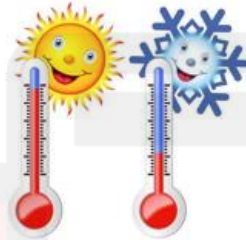
Unintended

abiotic factor

nature phenomena



Tornadoes



Extreme
heat or cold



Hurricanes



Drought



Flooding



Water Pollution



Air pollution



Question 25

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Carrying capacity Ecosystems have limits to the numbers of organisms and populations they can support. The maximum number of individuals in a species that an environment can support for the long term is the **carrying capacity**. You will notice in **Figure 8**, on the previous page, that logistic growth levels off at the line on the graph identified as the carrying capacity.

Carrying capacity is limited by such factors as the availability of living and nonliving resources and from such challenges as predation, competition, and disease. Organisms would have the capacity to produce populations of great size were it not for the fact that environments and resources are finite. This fundamental tension affects the abundance (number of individuals) of species in any given ecosystem. When populations develop in an environment with plentiful resources, there are more births than deaths. The population soon reaches or passes the carrying capacity. As a population nears the carrying capacity, resources become limited.

If a population exceeds the carrying capacity, deaths outnumber births because adequate resources are not available to support all of the individuals. The population then falls below the carrying capacity as individuals die. The concept of carrying capacity is used to explain why many populations tend to stabilize.

2. **Summarize** the concepts of carrying capacity and limiting factors, and their effects on reproductive patterns.

7-Which factor can limit the carrying capacity of a population?

- A. emigration
- B. predation
- ☒ C. available nutrients
- D. extreme temperatures

Question 25

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Based on the table below, which letter of the following corresponds to the correct definition of **carrying capacity**?

استناداً إلى الجدول أدناه، أي حرف مما يلي يقابل تعريفاً صحيحاً للقدرة الاستيعابية؟

A	The number of organism per unit area.	عدد الكائنات الحية في كل وحدة مساحة.
B	The number of individuals moving away from a population.	عدد الأفراد الذين يغادرون الجماعة الأحيائية.
C	The number of individuals moving into a population.	عدد الأفراد الذين ينضمون إلى الجماعة الأحيائية.
D	The maximum number of individuals in a species that an environment can support for the long term.	أكبر عدد من أفراد نوع ما تستطيع البيئة دعمه على المدى الطويل.

a.

A

b.

B

c.

C

d.

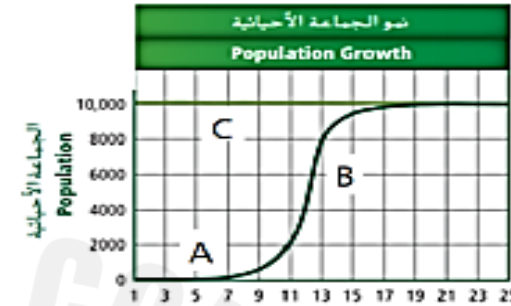
D

Question 25

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What does the horizontal line (C) on this graph represent?

نقط الأفقي (C) في هذا الرسم البياني؟



Learning Outcomes Covered

• BIO.3.4.01.033

a.

The carrying capacity

b.

The exponential growth

c.

The geometric growth

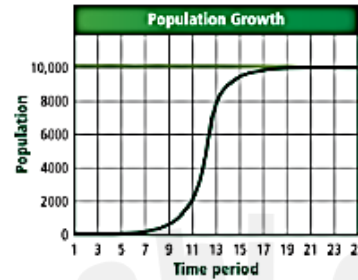
d.

The straight-line growth

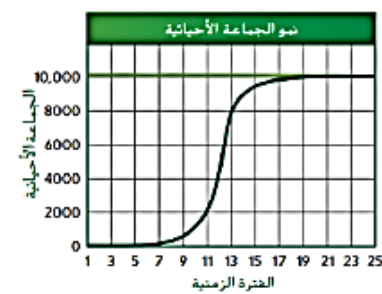
Question 25

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What is the horizontal line on this graph called?



ماذا يسمى الخط الأفقي في هذا الرسم البياني؟



Learning Outcomes Covered

o BIO.3.4.01.033

- | | | | |
|----|----------------------|--------------------|----------------------------------|
| a. | Carrying capacity | القدرة الاستيعابية | <input checked="" type="radio"/> |
| b. | Exponential growth | النمو الأسّي | <input type="radio"/> |
| c. | Geometric growth | النمو الهندسي | <input type="radio"/> |
| d. | Straight-line growth | النمو الخطي | <input type="radio"/> |

8 The phrase *carrying capacity* refers to _____.

- A storing extra food for winter
- B the number of organisms a habitat can support**
- C transporting food to organisms in an area
- D the maximum possible weight of an individual organism

Question 25

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Which of the following is a characteristic of exponential population growth?

أي مما يلي يُعد سمة من سمات الزيادة السكانية الأسية؟

☐

يتم استهلاك الموارد بشكل أسي طوال كافة المراحل
Resources are consumed exponentially during all phases

a.

☐

الزيادة السكانية الأولية سريعة
Initial population growth is rapid

b.

☐

معدل الزيادة يتناسب بشكل عكسي مع عدد السكان
Growth rate is inversely proportional to population size

c.

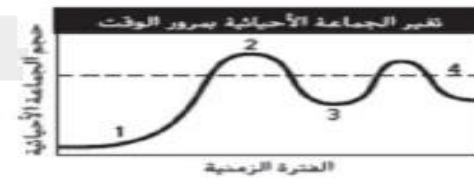
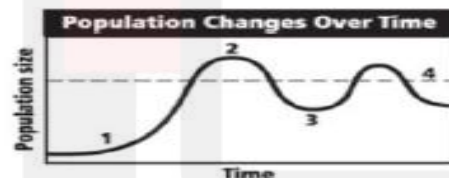
☐

مرحلة التباطؤ تتبع النمو السريع
The lag phase follows rapid growth

d.

Which part of the graph below indicates the carrying capacity of the habitat?

أي جزء من الرسم البياني أدناه يمثل القدرة الاستيعابية للموطن البيئي؟



☐

1

a.

☐

3

b.

☐

2

c.

☐

4

d.



الإمارات العربية المتحدة
وزارة التربية والتعليم



Remember... Study your textbook First!

With my best wishes

Biology Teacher\ May Hossam



School Principal
Salama Khalfan Al Mazrouei