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## حل المراجعة النهائية للوحدتين السادسة والسابعة وفق الهيكل الوزاري منهج انسابير

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إعداد: محمد أحمد رجب

## التواصل الاجتماعي بحسب الصف الثاني عشر العام



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5



# Biology Final Revision

## Grad 12 General- Bridge

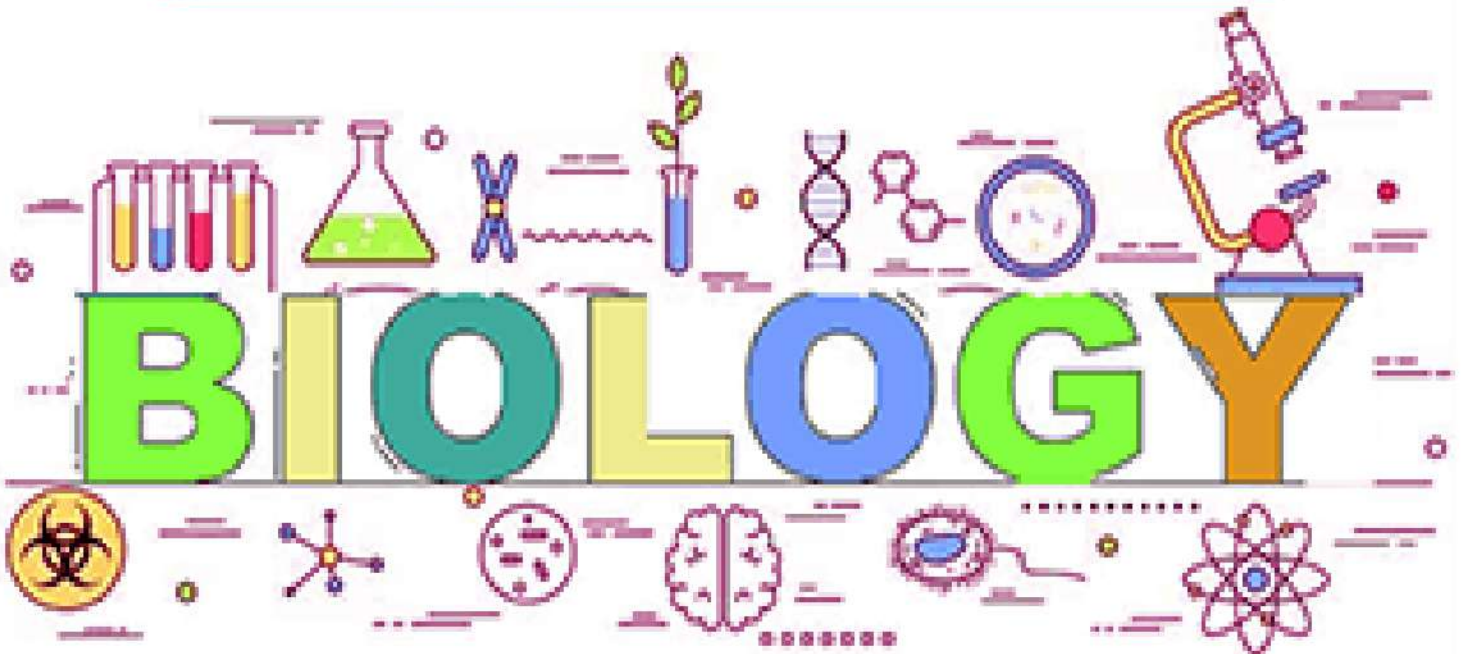
**CH6- Principles of Ecology**

**CH7- Population Ecology**

### Term 3

**2023-2024**

**Teacher: Mohammad Rajab**





Name:-----

Revision Biology: Gr 12 General

CH6- Principles of Ecology

17	154	BIO.3.4.01.041 يقارن أوجه الشبه والاختلاف بين المكونات الحية وغير الحية للأنظمة البيئية اليابسة والمائية المستدامة وغير المستدامة BIO.3.4.01.041 Compare and contrast biotic and abiotic characteristics of sustainable and unsustainable terrestrial and aquatic ecosystems.
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1- A scientific discipline in which the relationships among living organisms and the interaction the organisms have with their environments are studied is called .....

- A. Biology  
B. Biochemistry  
C. Ecology  
D. Geology

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2- What type of activity would you most expect an ecologist to be involved?

- A- identifying and classifying various species of insects in an ecosystem.  
B- locating fossils of distinct species of turtles in a geographical area.  
C- Observing the relationships that woodpeckers have with other species in their environment.  
D- studying the internal organs of a seal to learn how it survives in its environment.

5	157	BIO.3.1.02.032 يفسر إزته مع تدفق الطاقة على المستويات التنظيمية المختلفة للأنظمة الحياتية ، فإن العناصر الكيميائية تندمج من جديد لتشكل نواتج مختلفة ويتم نقل الطاقة من نظام لآخر BIO.3.1.02.032 Explain that as energy flow through different organizational levels of living systems, chemical elements are recombined to form different products and energy is transferred from one system to another.
18	157	BIO.3.4.01.041 يقارن أوجه الشبه والاختلاف بين المكونات الحية وغير الحية للأنظمة البيئية اليابسة والمائية المستدامة وغير المستدامة BIO.3.4.01.041 Compare and contrast biotic and abiotic characteristics of sustainable and unsustainable terrestrial and aquatic ecosystems.

3- Which are biotic factors in a forest environment?

- A. plants and microscopic organisms living in the soil.  
B. pH and salt concentration of the soil  
C. sunlight, soil type and soil nutrients  
D. temperature, air currents and rainfall

4- Which would be an abiotic factor for a tree in the forest?

- A- a caterpillar eating its leaves.  
B- Wind blowing through its branches.  
C- a bird nesting in its branches  
D- Fungus growing on its roots.

5- Which of the following are considered as biotic factors?

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- A- Air or water currents  
B- Sunlight  
C- Migratory animals such as birds  
D- Rainfall or nutrients

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6- The following are abiotic factors in a forest environment except.....

- A. **microscopic organisms living in the soil.**
- B. pH and salt concentration of the soil.  
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- C. soil type and soil nutrients.
- D. temperature, air currents and rainfall.

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7- The salmon need other members of their species to reproduce and depend on other organisms for food and, in turn, are a food source for other organisms. Which factors in the ecosystem do these organisms represent?



- A- Abiotic factors
- B- Nonliving factors
- C- **Biotic factors**
- D- Environmental factors

1	BIO.3.4.01.039 يبيّن تفسيراً يتنبأ من خلاله بأنماط التفاعل بين الكائنات الحية عبر أنظمة بيئية متعددة BIO.3.4.01.039 Explain and predict patterns of interactions among organisms across multiple ecosystems	158
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8- In the ecology levels of organization, levels increase in complexity as.....

- A. **the numbers and interactions between organisms increase.**
- B. the numbers and interactions between organisms decrease.
- C. the numbers and interactions between organisms do not change.
- D. the numbers and interactions between organisms disappear.

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9- The lowest level of organization is....

- A. Biosphere
- B. Ecosystem
- C. biological community
- D. **Organism**

10- The most complex level of organization is...

- A. **Biosphere**
- B. Ecosystem
- C. biological community
- D. Organism

11- Organisms of a single species that share the same geographic location at the same time make up..

- A. Biosphere
- B. Ecosystem
- C. biological community
- D. **Population**

12- What is the name for a group of interacting populations that occupy the same area at the same time?

- A. Ecosystem
- B. Habitat
- C. **biological community**
- D. biotic collection

13- Which would be considered an ecosystem?

- A. bacteria living in a deep ocean vent
- B. biotic factors in a forest
- C. **living and nonliving things in a pond**
- D. populations of zebras and lions

Other examples

- **Aquarium**
- **A dead or rotting tree stump**

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14- Which of these levels of organization includes all the other levels?

- A. Community
- B. Individual
- C. **Ecosystem**
- D. Population

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4	BIO.3.4.01.039 Explain and predict patterns of interactions among organisms across multiple ecosystems BIO.3.4.01.039 Explain and predict patterns of interactions among organisms across multiple ecosystems	160
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15- Which defines habitat?

- A- all the biotic factors in an ecosystem
- B- **an area where an organism lives**
- C- an area in which various species interact
- D- the role or position that an organism has

16- Which defines niche?

- A- all the biotic factors in an ecosystem
- B- an area where an organism lives
- C- an area in which various species interact
- D- **the role or position that an organism has**

17- In the figure below represent the area where an organism lives and spend its life on a single tree. What is the tree called?

- A- Biome
- B- Ecosystem
- C- **Habitat**
- D- Niche

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18- In the photo, what term best describes the bee's role of gathering pollen?

- A. **Niche**
- B. Parasite
- C. Predator
- D. Habitat



19- Suppose two leaf-eating species of animals live in a habitat where there is a severe drought, and many plants die because of the drought. Which term describes the kind of relationship the two species probably will have?

- A. Commensalism      B. Competition      C. Mutualism      D. predation

3	يقارن أوجه التشابه والاختلاف بين المكونات الحية وغير الحية للأنظمة البيئية على اليابسة وفي الماء المستدامة وغير المستدامة BIO.3.4.01.041 Compare and contrast biotic and abiotic characteristics of sustainable and unsustainable terrestrial and aquatic ecosystems	161
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20- The algae provide food for the fungi, and the fungi provide a habitat for the algae. What type of symbiotic relationship is this?

- A. Commensalism      B. Competition  
C. Mutualism      D. Parasitism

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21- The lichens benefit from the relationship by gaining more exposure to sunlight, but they do not harm the tree. What type of symbiotic relationship is this?

- A. Predation      B. competition  
C. Commensalism      D. parasitism



- a. ينمو الكولبيديوم أسرع من البراميسيوم عند درجتى حرارة 22°C ،  
لكن البراميسيوم ينمو أسرع عند درجة حرارة 30°C
- b. ينمو الكولبيديوم أسرع من البراميسيوم عند درجتى حرارة 22°C ،  
لكن البراميسيوم ينمو أسرع عند درجة حرارة 26°C
- c. ينمو الكولبيديوم أسرع من البراميسيوم عند درجتى حرارة 30°C ،  
لكن البراميسيوم ينمو أسرع عند درجتى حرارة 22°C، 26°C





28- Use inorganic substances such as hydrogen sulfide and carbon dioxide as a source of energy

A. photosynthesis

B. Chemoautotrophs

C. photoautotrophs

D. Heterotrophs

In the figure below, which of the following are considered as heterotrophs biotic factors?

في الشكل أدناه، أي مما يلي يعد من العوامل الحيوية غير ذاتية التغذية؟



Shrimp روبيان  
(A)



Ferns سراخس  
(B)



Algae طحالب  
(C)



Mushroom مشروم  
(D)

A and B

B and C

C and D

A and D

29- In figure, which of the following are considered as Autotrophs biotic factors?

A and B

B and C

C and D

A and D



Shrimp روبيان  
(A)



Ferns سراخس  
(B)



Algae طحالب  
(C)



Mushroom مشروم  
(D)

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30- What is the classification of the lynx within the group of the hetrotrophs?

A- Herbivore

B- Omnivore

C- Carnivore

D- Detritivore



7	BIO.3.1.02.032 يفسر إنه مع تدفق الطاقة على المستويات التنظيمية المختلفة للأنظمة الحياتية ، فإن العناصر الكيميائية تندمج من جديد لتشكل نواتج مختلفة ويتم نقل الطاقة من نظام لآخر		165
	BIO.3.1.02.032 Explain that as energy flow through different organizational levels of living systems, chemical elements are recombined to form different products and energy is transferred from one system to another.		
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	BIO.3.1.02.032 Explain that as energy flow through different organizational levels of living systems, chemical elements are recombined to form different products and energy is transferred from one system to another.	Figure 13	

31- Which of the following represent the second trophic level?

- A- Mouse                                      B- **Grasshopper**  
C- Plant                                         D- Snake

32 - Which type of heterotroph best describes the grasshopper?

- A- **herbivore**                                      B- omnivore  
C- carnivore                                        D- detritivore

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33- Why is this mouse classified as an omnivore?

- A- It consumes grasshoppers.  
B- It is consumed by snakes.  
C- **It consumes both grasshoppers and plants.**  
D- It is a third level consumer.

34- What does the illustration represent?

- A- **food web**                                      B- an ecological pyramid  
C- a food chain                                    D- a pyramid of energy

35- Which organisms in the illustration is an autotroph?

- A- frog    B- fox  
C- grasshopper                                    D- **grass**

36- How many food chains are there in the food web shown below?

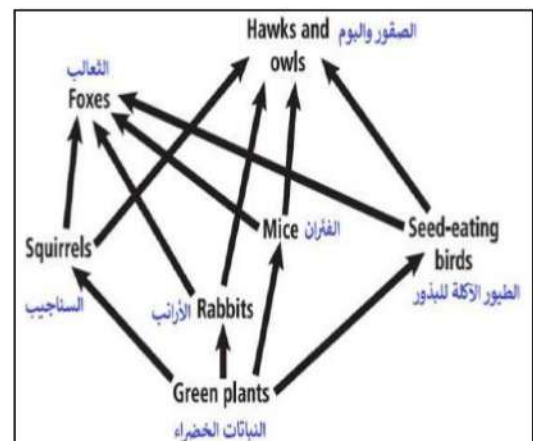
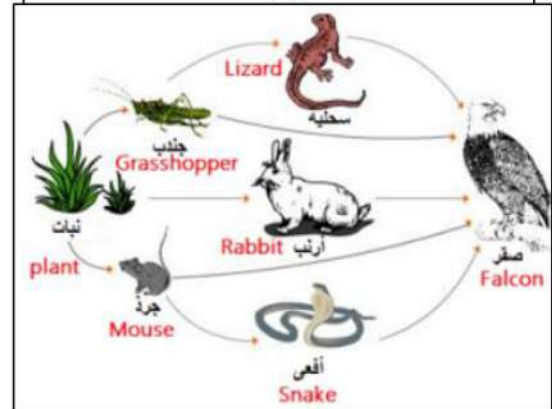
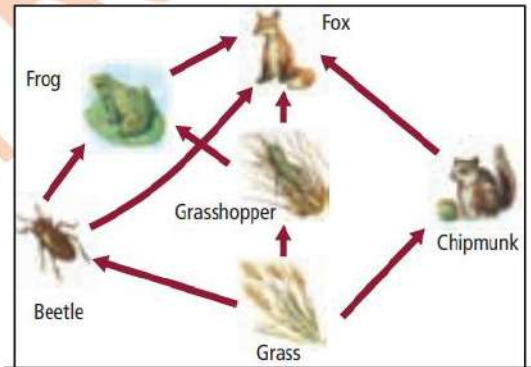
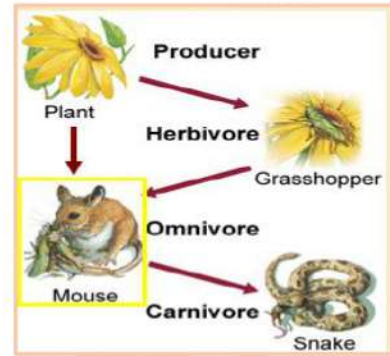
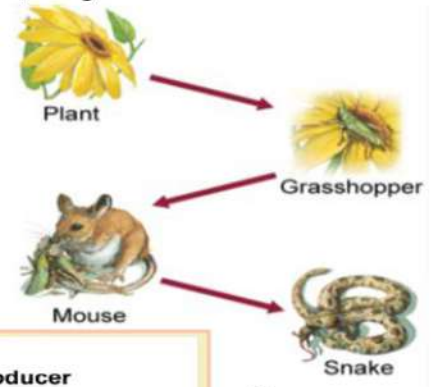
- A- 4     B- **5**  
C- 6     D- 7  
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37- Which part of the food web above contains the greatest biomass?

- A- Foxes    B- **green plants**  
C- Mice     D- rabbits

38- Which part of the food web above contains the least biomass?

- A- **Foxes**    B- green plants  
C- Mice     D- rabbits



39- What happens to the energy that the fox uses for maintaining its body temperature?

- A. It is taken up by decomposers that consume the fox.
- B. **It moves into the surrounding environment.**
- C. It stays in the fox through the metabolism of food.
- D. It travels to the next trophic level when the fox is eaten.

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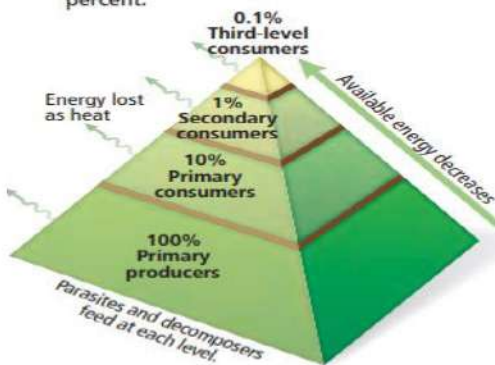
6 BIO.3.1.02.032 Explain that as energy flow through different organizational levels of living systems chemical elements are مختلفا ويتم نقل الطاقة من نظام لآخر

الشكل 14

166

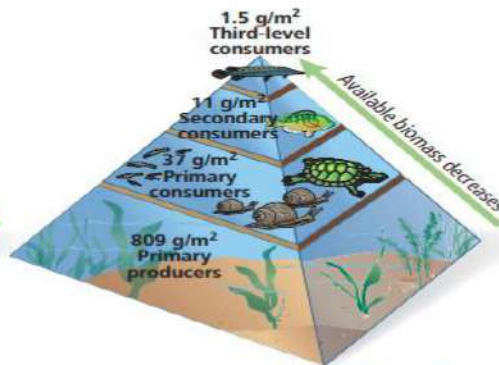
**Pyramid of Energy**

In a pyramid of energy, each level represents the amount of energy that is available to that trophic level. With each step up, there is an energy loss of 90 percent.



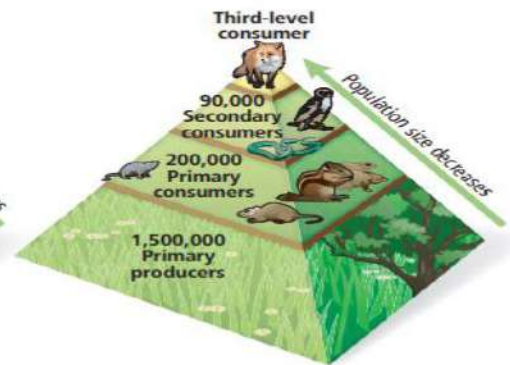
**Pyramid of Biomass**

In a pyramid of biomass, each level represents the amount of biomass consumed by the level above it.



**Pyramid of Numbers**

In a pyramid of numbers, each level represents the number of individual organisms consumed by the level above it.



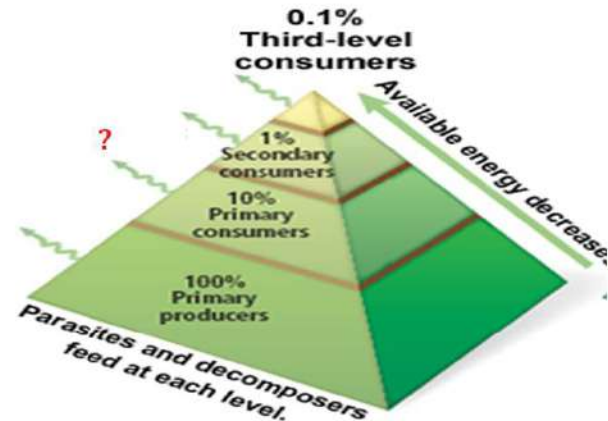
40- How much energy is transferred from one level to another in the energy pyramid?

- A- 1%
- B- **10%**
- C- 90%
- D- 100%

42- What type of energy is lost in the energy pyramid?

- A- light
- B- chemical
- C- **heat**
- D- nuclear

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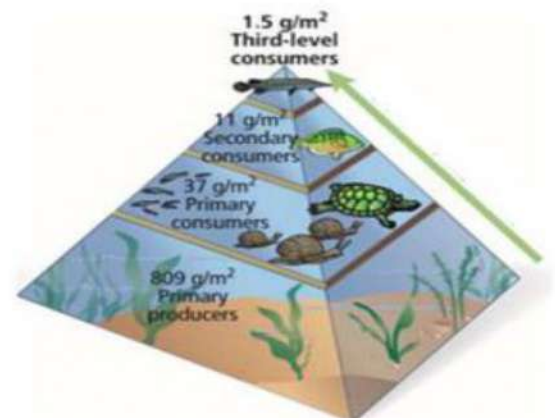


43- In an ecosystem, the amount of energy at the primary producer is 900 kJ. How much energy is in the secondary consumers (third level)?

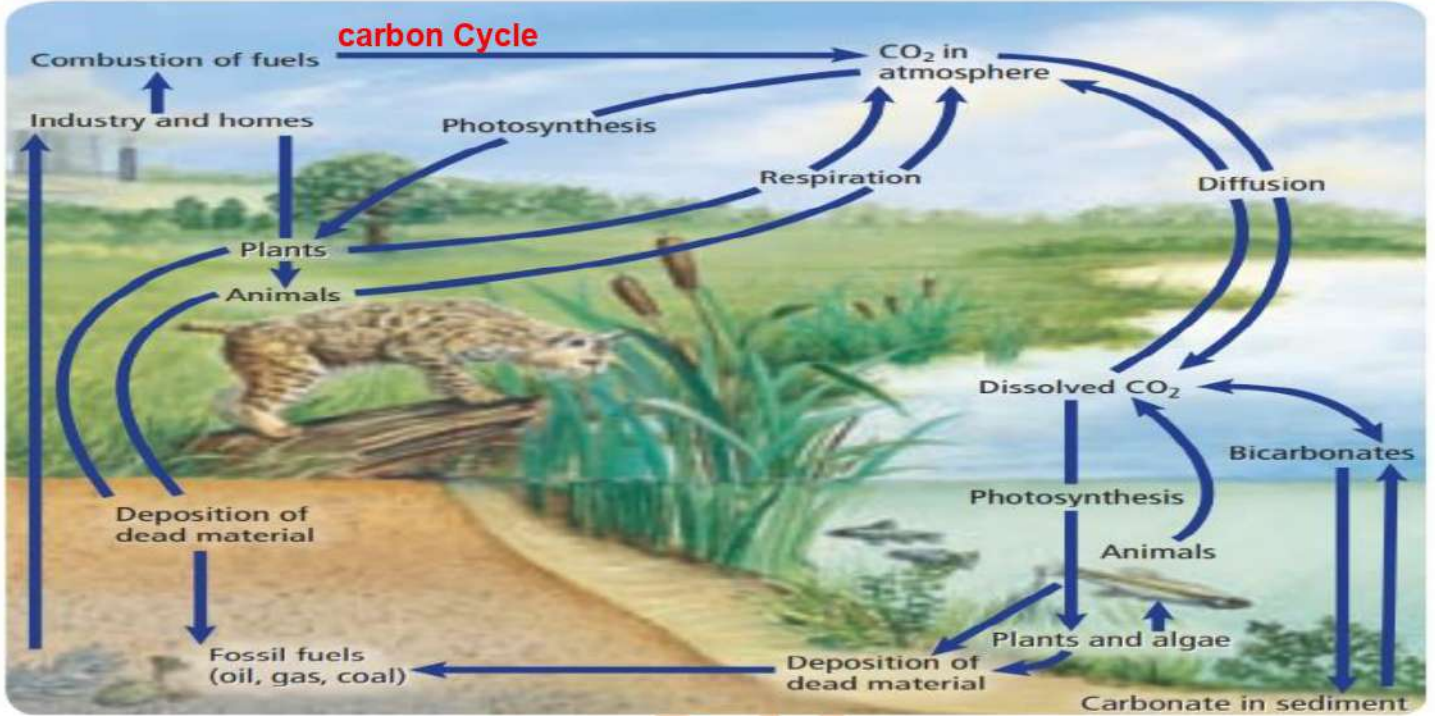
- A- 0.9 kJ
- B- **9 kJ**
- C- 0.1 kJ
- D- 90 kJ

44- What does the below figure represent?

- A. Pyramid of Energy
- B. **Pyramid of Biomass**
- C. Pyramid of Numbers
- D. Biogeochemical cycle

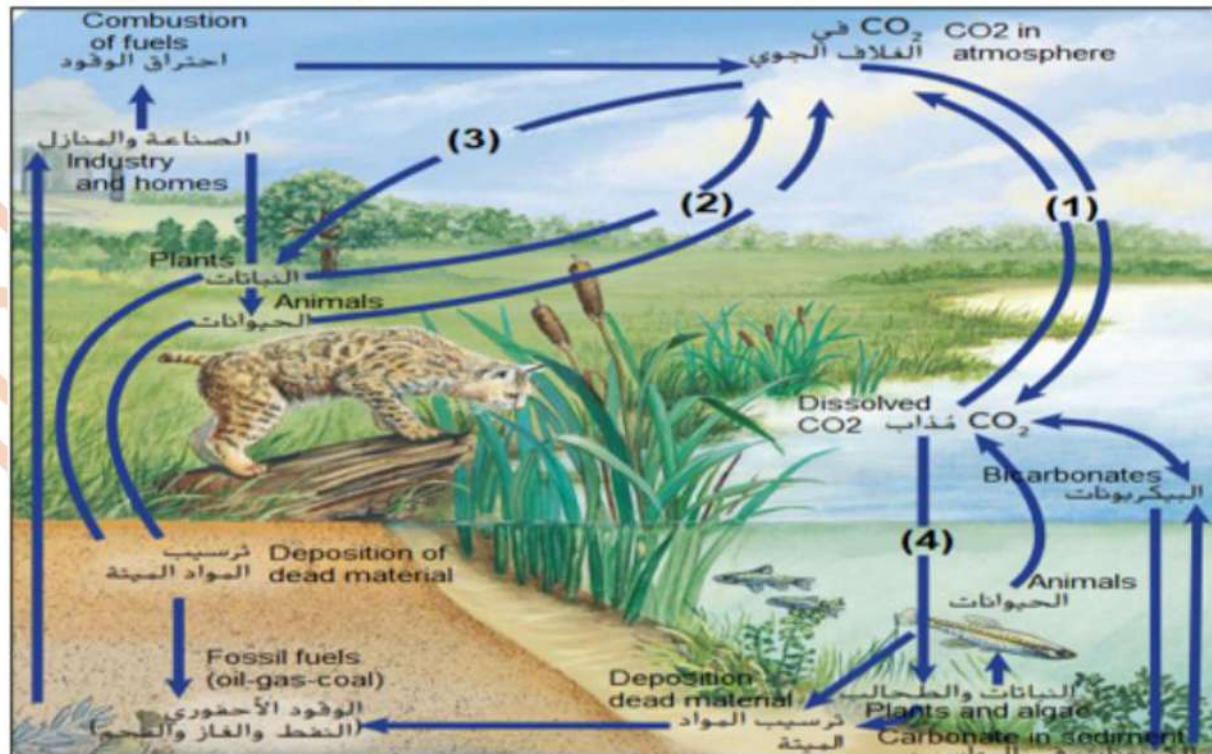


9	<p>BIO.3.4.01.026 Explain that photosynthesis and cellular respiration are important components of the carbon cycle, in which carbon is exchanged between the biosphere, atmosphere, oceans, and geosphere through chemical physical, geological processes.</p>	<p>الشكل 17 Figure 17</p>	169
12	<p>BIO.3.4.01.026 Explain that photosynthesis and cellular respiration are important components of the carbon cycle, in which carbon is exchanged between the biosphere, atmosphere, oceans, and geosphere through chemical physical, geological processes.</p>	<p>الشكل 18 Figure 18</p>	169



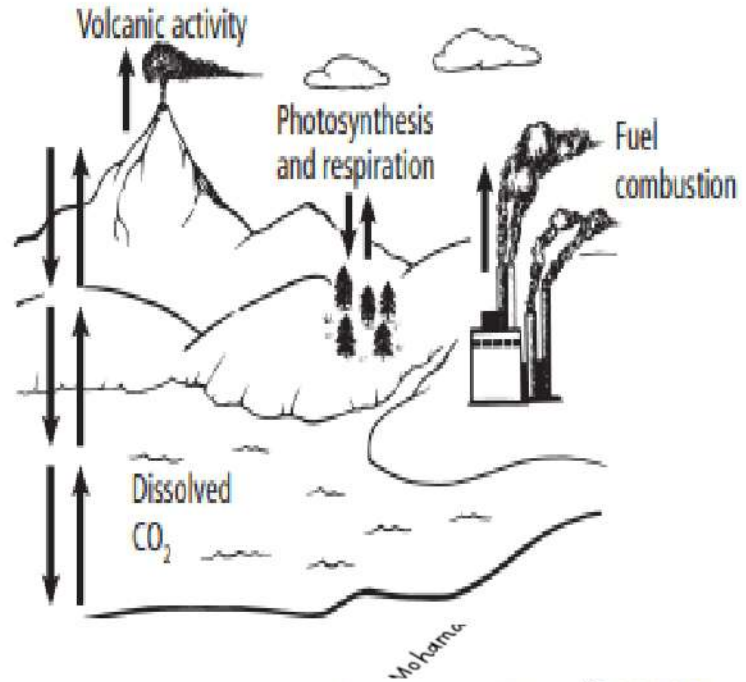
45- Which of the following refers to the process of photosynthesis?

- A- 1 and 2
- B- 2 and 3
- C- 3 and 4
- D- 4 and 2



46- Which part of the diagram below relates to carbon leaving a long-term cycle?

- A. Dissolved CO<sub>2</sub>
- B. **Fuel combustion.**
- C. Photosynthesis and respiration
- D. Volcanic activity



47- Which part of the diagram relates to carbon moving from an abiotic to a biotic part of the ecosystem?

- A. Dissolved CO<sub>2</sub>
- B. Fuel combustion and Coal formation
- C. **Photosynthesis and respiration**
- D. Volcanic activity

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48- Which of the following is a form of the long-term carbon cycle?

- A- Carbohydrates in food
- B- Carbon dioxide in the atmosphere
- C- proteins in living organisms
- D- **Calcium carbonate in limestone rock.**

الشكل 18 تتكون المنحدرات البيضاء في دوفر، إنجلترا، بالكامل تقريباً من كربونات الكالسيوم أو الطباشير. ويشكل الكربون والأكسجين الموجودان في هذه المنحدرات جزءاً من دورة الكربون والأكسجين على المدى الطويل.

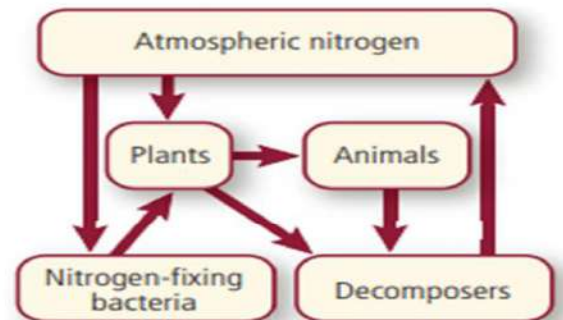


10	شرح كيف تدور المادة ضمن البيئة وكيف تعزز على الاستدامة BIO.3.4.01.040	الشكل 19	170
	BIO.3.4.01.040 Explain how matter is recycled within the environment and it promotes sustainability.	Figure 19	

50- Where is the largest concentration of nitrogen found?

- A- animals
- B- bacteria
- C- **atmosphere**
- D- plants

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51- What is the name of the process in which bacteria and lightning convert nitrogen into compounds that are useful to plants?

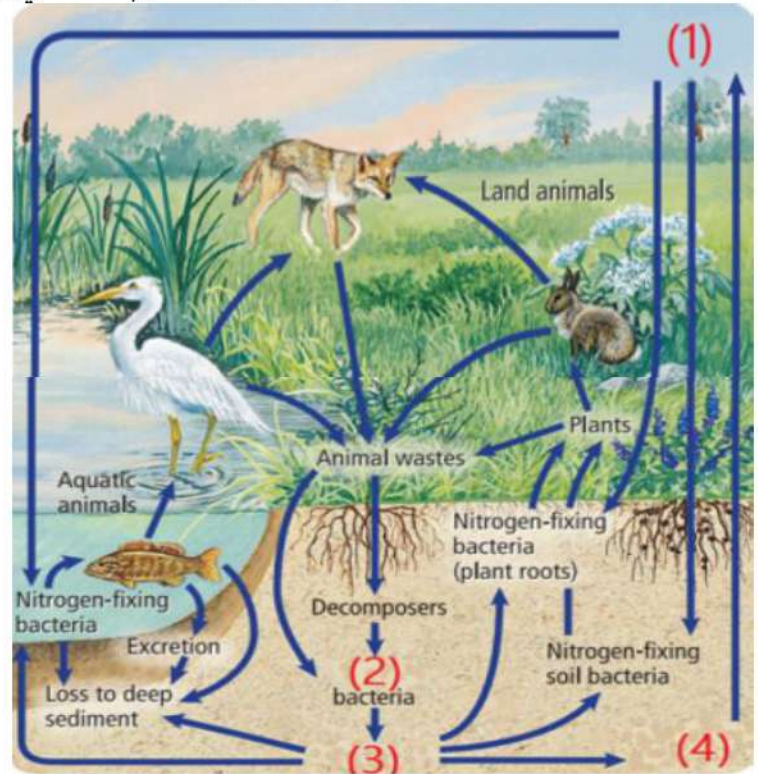
- A- Ammonification
- B- Nitrate cycling
- C- Denitrification
- D- **Nitrogen fixation**

52- Nitrogen cycle: What does the number (4) refer to?

- A- Denitrifying bacteria
- B- Nitrifying bacteria
- C- Atmospheric nitrogen
- D- Soil nitrates

53- Nitrogen cycle: What does the number (1) refer to?

- A- Denitrifying bacteria
- B- Nitrifying bacteria
- C- Atmospheric nitrogen
- D- Soil nitrates



- 2- Nitrifying bacteria
- 3- Soil nitrates

11	BIO.3.4.01.040 يشرح كيف تدور المادة ضمن البيئة وكيف تعزز على الاستدامة	171
BIO.3.4.01.040 Explain how matter is recycled within the environment and it promotes sustainability.		

54- Which of the following processes locks phosphorus in a long-term cycle?

- A. organic materials buried at the bottom of oceans.
- B. phosphates released into the soil.
- C. animals and plants eliminating wastes.
- D. rain eroding mountains.

55- Phosphorus moves from the short-term cycle to the long-term cycle through.....

- A- weathering or erosion of rocks
- B- precipitation and sedimentation to form rocks.
- C- dead organisms or producing waste products.
- D- Plants absorb the phosphorus.

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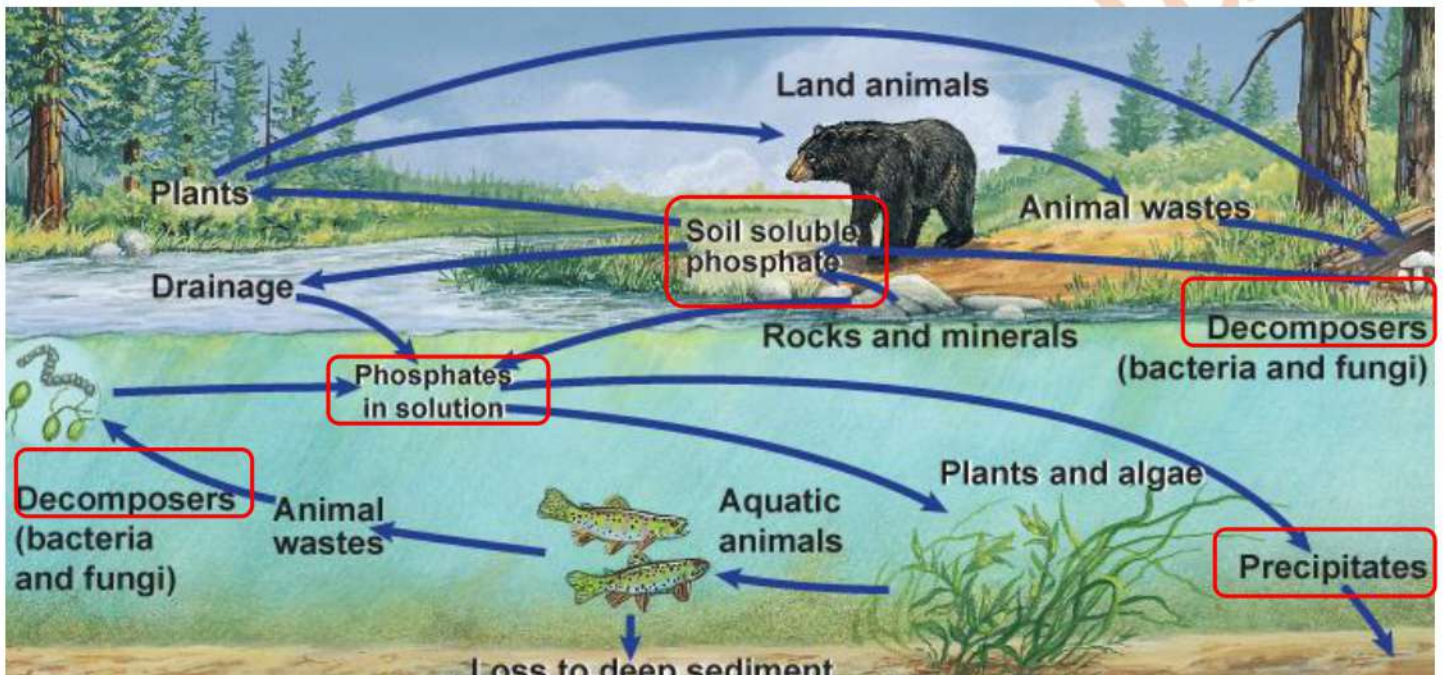
56- It is present only in small amounts in soil and water. Therefore, it is a factor that limits the growth of producers:

- A- Carbon
- B- Nitrogen
- C- Phosphorus
- D- Oxygen

The phosphorus has a short-term cycle and a long-term cycle.  
Which of the following **returns** the phosphorus to the soil?

للفسفور دورة قصيرة المدى وأخرى بعيدة المدى.  
أي مما يلي يقوم بإعادة الفسفور إلى التربة؟

- a. المحللات  
Decomposers
- b. الحيوانات البرية  
Land animals
- c. مياه الأمطار  
Rainwater
- d. البناء الضوئي  
Photosynthesis



### CH7- Population Ecology

16	BIO.3.4.01.033 يشرح كيف أن الأنظمة البيئية ديناميكية بطبيعتها، وكيف يمكن أن تتغير خصائصها مع مرور الزمن	184-185
BIO.3.4.01.033 Explain that ecosystems are dynamic in nature and that their characteristics can vary over time.		

Density-Independent Factors (abiotic)	Density-Dependent Factors (Biotic)
Weather events (drought, flooding, heat or cold) Fire - Air, land, and water pollution	Predation - Disease Competition - Parasites

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؟

- a. الديدان المعوية  
Intestinal worms
- b. فيروس معدي  
Infectious virus
- c. إمداد غذاء متضائل  
Dwindling food supply
- d. شتاء أبرد من العادة  
Unusually cold winter





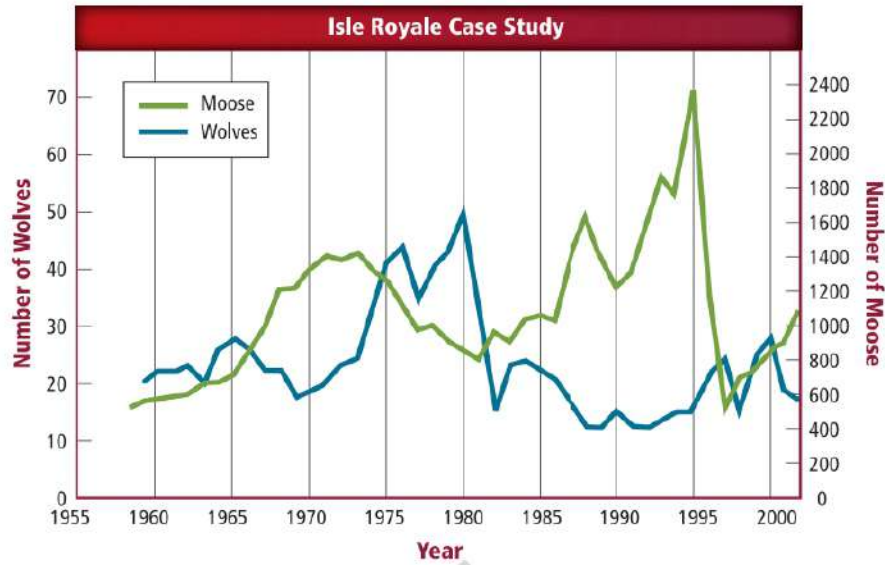
8- What was the approximate ratio of moose to wolves in 1975? -

- A- 35:1 approx.
- B- 50:1 approx
- C- 20:1 approx
- D- 15:1 approx

9- What was the approximate ratio of moose to wolves in 1985? -

- A- 35:1 approx.
- B- 12:1 approx
- C- 20:1 approx
- D- 16:1 approx

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10- Which of the following caused the increase in the number of moose in 1995?

- A- increased wolves
- B- decreased wolves
- C- increased food
- D- decreased temperature

15	BIO.3.4.01.042 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity	188
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11-

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 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 B C D

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

- A. Emigration
- B. Predation
- C. available nutrients
- D. extreme temperatures

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13- Population reaches the carrying capacity:

- A- is reached in r-selected populations.
- B- is reached as resources become limiting.
- C- is reached at the end of exponential growth.
- D- is reached the environment begins to be harmed.

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14- If a population growth larger than its environmental carrying capacity, then:

- A- birth rate may rise significantly.      B- **death rate may rise.**  
C- immigration rate may increase.      D- death rate may fall significantly.

15- Why does the population growth level off at 10,000?

- A. Biotic factors have made survival difficult.  
B. **The population has reached its carrying capacity.**  
C. Density-independent factors have slowed the growth of the population.  
D. Immigration into the population has reached the maximum limit.

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14	BIO.3.4.01.033	يشرح كيف أن الأنظمة البيئية ديناميكية بطبيعتها، وكيف يمكن أن تتغير خصائصها مع مرور الزمن	188 - 189
	BIO.3.4.01.033	Explain that ecosystems are dynamic in nature and that their characteristics can vary over time.	

	Offspring	Life span	Size	Parental care	Controlled by	Examples
r-strategy	many	Short	small	Less	Density-Independent Factors	Locusts- Fruit fly- Mouse
k-strategy	few	Long	larger	More	Density-dependent Factors	Panda- Elephants- whale

16- If angelfish produce hundreds of young several times a year, which statement below is true?

- A. angelfish have a k-strategy reproductive pattern.  
B. **angelfish have an r-strategy reproductive pattern.**  
C. angelfish probably have a low mortality rate.  
D. angelfish provide a lot of care for their young.



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16- Which strategy is considered an adaptation for living in an environment where fluctuation in biotic or abiotic factors occurs?

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

18- One of the characteristics of organisms that adopt the rate strategy, or r-strategy:

- A. **Short life span**      B. larger organism  
C. Produces few offspring      D. Parental care.

19- Which of the following organisms is an example of the rate strategy, or r-strategy?

- A. Zebra      B. Robin  
C. **May fly**      D. human.

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20- Which of the following organisms follows a r-strategy for reproduction?



(A)



(B)



(C)



(D)

21- One of the characteristics of organisms that adopt the K-strategy:

A. Short life span

B. small organism

C. Produces few offspring

D. Less Parental care.

22- Which of the following organisms follows a K-strategy for reproduction?



a fruit fly ذبابة الفاكهة

(A)



Locusts الجراد

(B)



Mouses الفئران

(C)



Elephant الفيلة

(D)

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

A. Mouse

B. grasshopper

C. Rabbit

D. whale

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24- Which of the following organisms is an example of a carrying-capacity strategy, or k-strategy?

A. the elephant (Zebra)

B. Locusts

C. Fruit fly

D. Mouse

With my sincere wishes for good luck and success

Teacher: Mohammad Rajab