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مراجعة نهائية وفق الهيكل الوزاري منهج انسابير

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ملفات اكتب للمعلم اكتب للطالب الاختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
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المزيد من مادة
علوم:

إعداد: Hector Charne - yusuf Mai

التواصل الاجتماعي بحسب الصف السابع



الرياضيات



اللغة الانجليزية



اللغة العربية



التربية الاسلامية



المواد على تلغرام

صفحة المناهج
الإماراتية على
فيسبوك

المزيد من الملفات بحسب الصف السابع والمادة علوم في الفصل الأول

إجابات أسئلة صفحات الكتاب وفق الهيكل الوزاري منهج انسابير

1

حل مراجعة عامة للامتحان النهائي وفق الهيكل الوزاري

2

نموذج إجابة أسئلة الاختبار التجريبي الموحد وفق الهيكل الوزاري منهج بريدج

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حل الكراسة التدريبية للاختبار النهائي وفق الهيكل الوزاري

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مؤسسة الإمارات للتعليم المدرسي
EMIRATES SCHOOLS ESTABLISHMENT

مدرسة أم الفضل بنت الحارث ح2

Um Al Fadhel Bint Al Hareth School, C2



السهام إني أستودعك ما

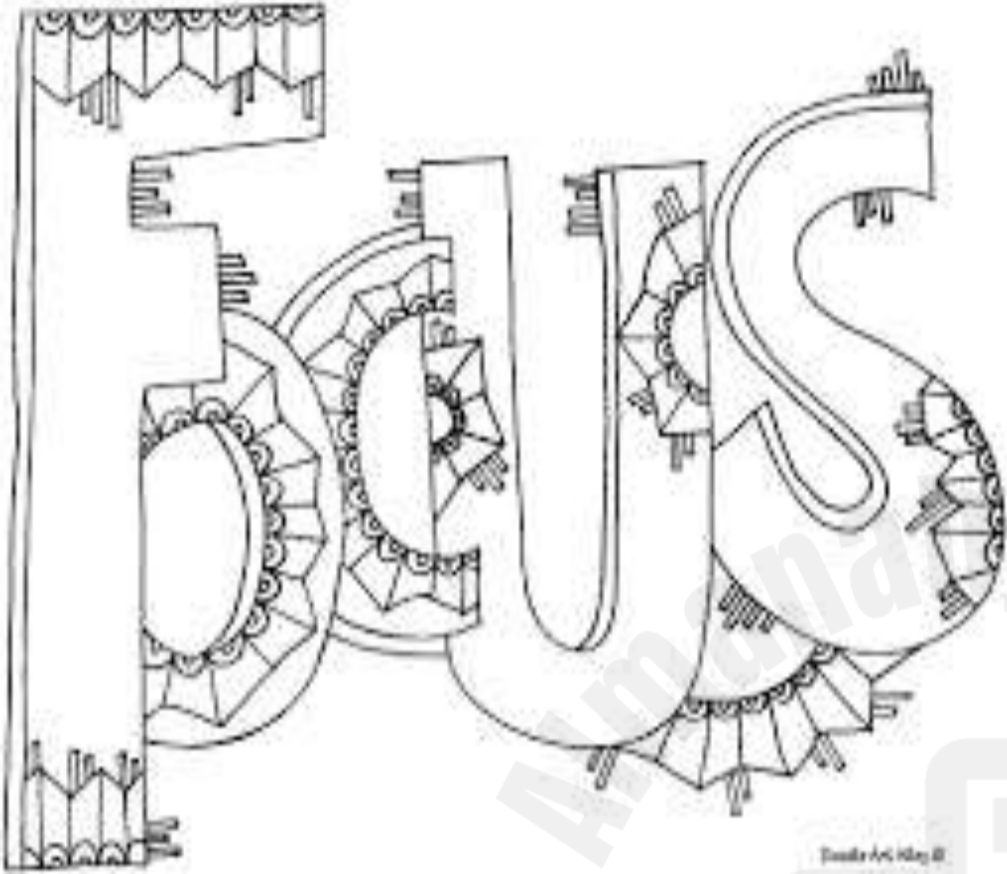
درست وما فهمت

وما حفظت؛ فروه إني

عند حاجتي إليه

Teachers

Ms Mai Yusuf – Ms Charne Hector



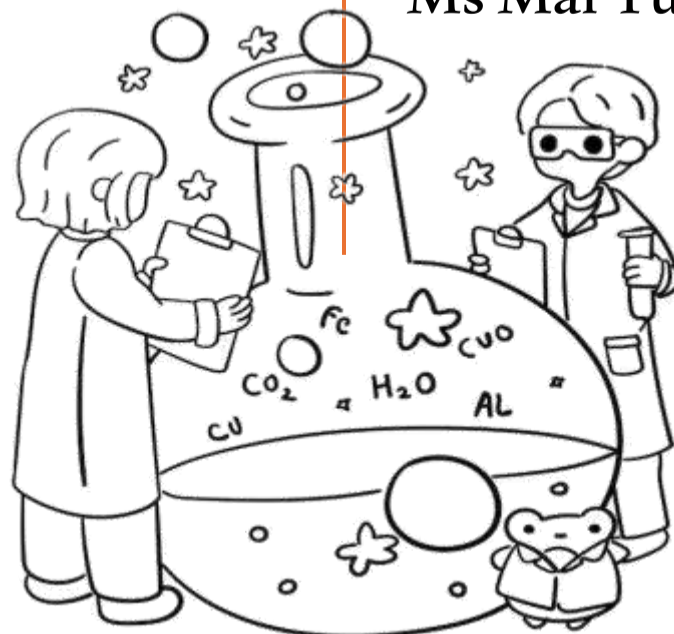
FINAL REVISION

SCIENCE

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Seven



L1: Photosynthesis and cellular respiration

Success Criteria	Example/Exercise	Page	Module
□ Students will explain how light energy is used to make sugars from carbon dioxide and water through the process of photosynthesis.	Investigation Information from the text	10-11	Module1 Lesson 1

1. Which part of the leaf is primarily responsible for capturing light?

- Epidermis
- Cuticle
- Palisade mesophyll
- Spongy mesophyll

2. What is the main function of the stomata in leaves?

- Capture light
- Gas exchange
- Protect leaf surface
- Support leaf structure

3. Which of the following statements about the epidermis is correct?

- It is where photosynthesis occurs.
- It contains chloroplasts.
- It is flat and located at the top and bottom of the leaf.
- It allows gas movement.

4. What does the cuticle of a leaf do?

- Allows gas exchange
- Captures light
- Provides a waxy protective layer
- Contains chlorophyll

5. Which statement about the spongy mesophyll is NOT correct?

- It contains chloroplasts.
- It allows gas movement.
- It is located beneath the palisade mesophyll.
- It is mostly found at the bottom of the leaf.

6. What pigment is found in chloroplasts?

- Carotene
- Chlorophyll
- Xanthophyll
- Anthocyanin

7. Which type of mesophyll is primarily responsible for photosynthesis?

- Spongy mesophyll
- Epidermis
- Cuticle
- Palisade mesophyll

8. Where are stomata mostly found on a leaf?

- On the top surface
- On the bottom surface
- Throughout the leaf
- Only near the veins

9. Which of the following cells is NOT involved in photosynthesis?

- Palisade mesophyll
- Spongy mesophyll
- Epidermis
- None of the above

10. What is the role of chlorophyll in leaves?

- Protects the leaf
- Captures light for photosynthesis
- Allows gas exchange
- Provides structure

11. What is the main characteristic of the cuticle?

- Made of cells
- Allows gas movement
- Waxy and protective
- Contains chloroplasts

12. Which part of the leaf is flat and forms the outer layer?

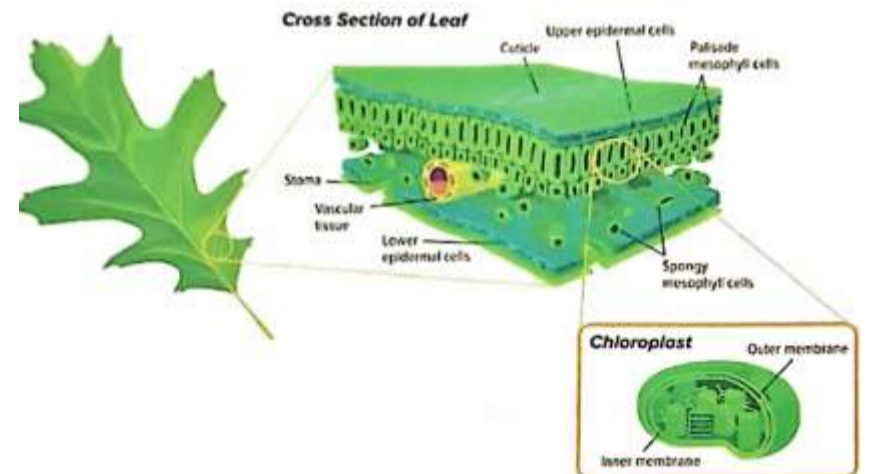
- Cuticle
- Mesophyll
- Epidermis
- Stomata

13. Which of the following is a feature of the spongy mesophyll?

- Flat and protective
- Contains chlorophyll
- Allows gas exchange
- Captures light

14. In which part of the leaf are chloroplasts primarily found?

- Epidermis
- Cuticle
- Palisade mesophyll
- Stomata



15. Which one of the following is NOT a type of mesophyll?

- a) Palisade
- b) Spongy
- c) Epidermis
- d) None of the above

16. What is the role of chlorophyll in photosynthesis?

- a) To absorb sunlight
- b) To break down glucose
- c) To release carbon dioxide
- d) To produce water

Success Criteria	Example/Exercise	Page	Module
<ul style="list-style-type: none"> □ Students will explain for how light energy is used to make sugars from carbon dioxide and water through the process of photosynthesis. □ Students will understand that in organisms, food moves through a series of chemical reactions and the molecules are rearranged to support growth or release energy. 	Collect Evidence	15	Module1
	How are photosynthesis and cellular respiration related?	19	Lesson
	Three-Dimensional Thinking	20	1
	Q1 – P 22	22	
	Real-World Connection (Q5)	24	

17. Which is the best explanation of the change in energy shown on the model?

- a) New energy is produced by plants during photosynthesis.
- b) Large amounts of energy are released into the environment during photosynthesis
- c) Energy from sunlight is destroyed as it powers photosynthesis
- d) Energy input from the environment is stored in food molecules during photosynthesis

18. Which of the following is true about photosynthesis?

- a) It only occurs in animals to release energy.
- b) It requires carbon dioxide and water as reactants and produces oxygen and glucose.
- c) It breaks down glucose to release energy.
- d) It uses oxygen and glucose to produce carbon dioxide and water.

19. Why is cellular respiration important for organisms?

- a) It produces glucose and oxygen needed for plants to grow.
- b) It rearranges food to release energy required for growth and other functions.
- c) It produces oxygen needed for photosynthesis in plants.
- d) It absorbs energy from sunlight to make food for the organism.

20. What would happen if plants could not perform cellular respiration?

- a) They would not need to produce their own food.
- b) They would only be able to grow, but not make their own food.
- c) They would not have the energy needed for growth.
- d) They would produce more oxygen in the atmosphere.

21. What role does photosynthesis play in the atmosphere?

- a) It consumes carbon dioxide and produces sugar.
- b) It maintains the oxygen level in the atmosphere.
- c) It provides animals with glucose directly for energy.
- d) It breaks down water to release carbon dioxide.



22. Which of the following is NOT true about plants' leaves?

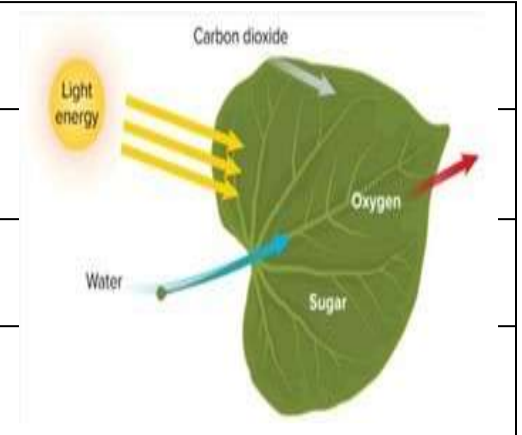
- a) The color is green because chlorophyll reflects green light only
- b) They are the major food-producing organs
- c) They contain stoma in the upper epidermal layer only
- d) They have many different types of cells in their structure

23. Which of the following is NOT correct?

- a) The sun is the main source of energy for most life on Earth
- b) Not all energy an organism gets is used for life processes, some is released as thermal energy
- c) Energy cannot be created, but it can change form. This is called law of conservation of energy
- d) Energy is like matter, it cycles through ecosystems, instead of flowing in one direction

24. Which of the following is the correct equation for photosynthesis?

A	$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{energy}$
B	$6CO_2 + 6H_2O + \text{light energy} \rightarrow C_6H_{12}O_6 + 6O_2$
C	$C_6H_{12}O_6 + 6H_2O \rightarrow 6CO_2 + 6O_2$
D	$6O_2 + \text{light energy} \rightarrow C_6H_{12}O_6 + 6CO_2$



25. Which of the following is the correct equation for cellular respiration?

A	$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{energy}$
B	$6CO_2 + 6H_2O + \text{light energy} \rightarrow C_6H_{12}O_6 + 6O_2$
C	$C_6H_{12}O_6 + 6H_2O \rightarrow 6CO_2 + 6O_2$
D	$6O_2 + \text{light energy} \rightarrow C_6H_{12}O_6 + 6CO_2$

26. What are the main reactants in photosynthesis?

- Glucose and oxygen
- Carbon dioxide and water
- Oxygen and water
- Carbon dioxide and glucose

27. Which of the following is correct match for the process labeled by X?

- Photosynthesis - $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
- Photosynthesis - $C_6H_{12}O_6 + 6O_2 + ATP \rightarrow 6CO_2 + 6H_2O$
- Cellular respiration - $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ATP$
- Cellular respiration - $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2 + ATP$

28. Which of the following is correct match for the process labeled by Y?

- Photosynthesis - $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
- Photosynthesis - $C_6H_{12}O_6 + 6O_2 + ATP \rightarrow 6CO_2 + 6H_2O$
- Cellular respiration - $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ATP$
- Cellular respiration - $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

29. What are the products of cellular respiration?

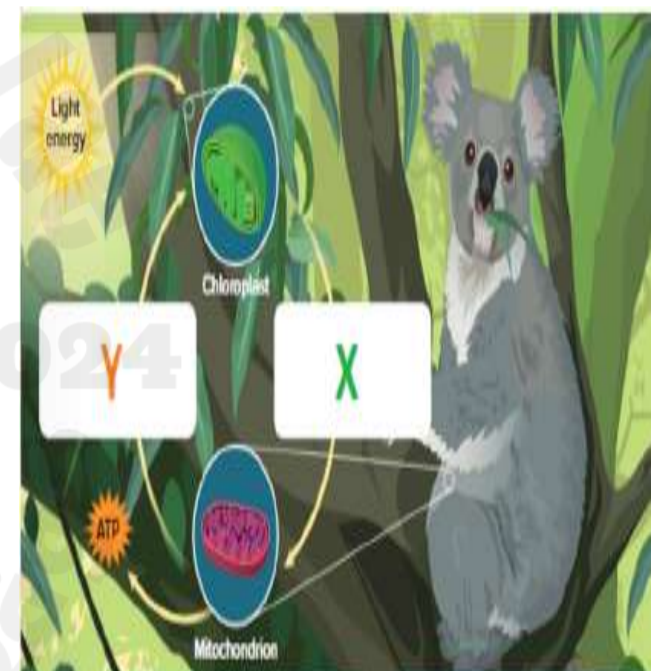
- Oxygen and glucose
- Carbon dioxide, water, and energy
- Water and oxygen
- Carbon dioxide and glucose

30. Why is cellular respiration essential for animals?

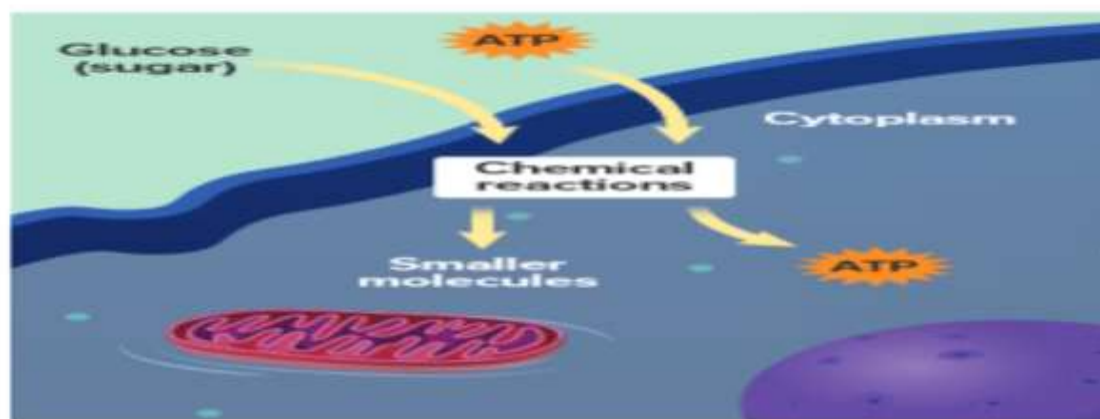
- It releases oxygen needed by animals to survive.
- It breaks down food to release energy for bodily functions.
- It helps animals produce their own food.
- It stores food for later use.

31. How do photosynthesis and cellular respiration relate to each other in plants?

- Photosynthesis provides the energy directly used by plants.
- Cellular respiration allows plants to use the energy stored in the glucose made during photosynthesis.
- Photosynthesis and cellular respiration are separate processes with no interaction.
- Cellular respiration produces oxygen, which plants use for photosynthesis.

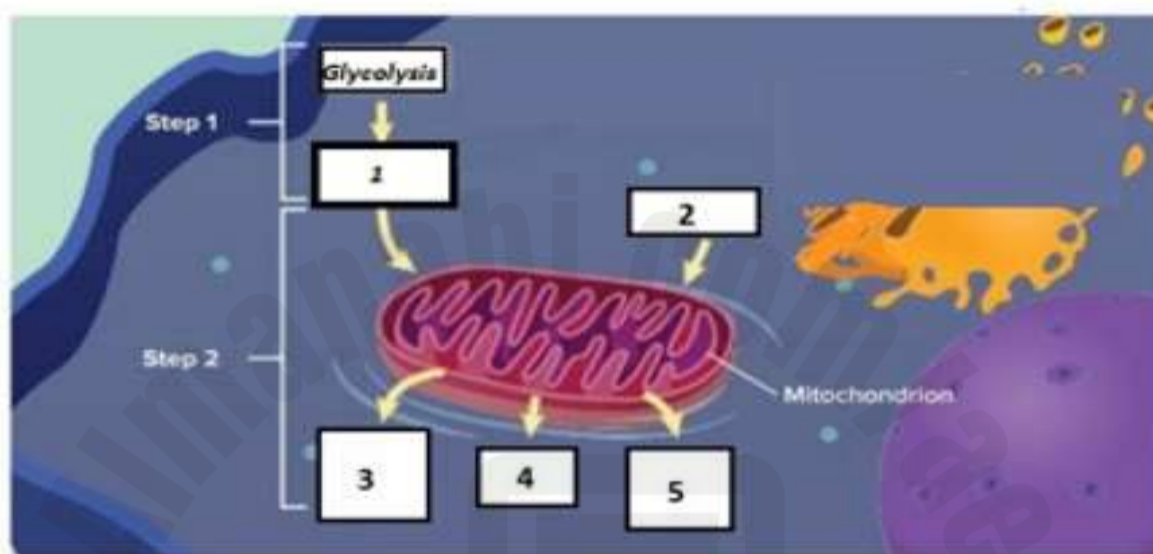


32. Which of the following is correct regarding the cellular respiration in eukaryotic cells?



- a) The first step of cellular respiration occurs in the mitochondria
- b) The second step of cellular respiration occurs in the cytoplasm
- c) The process in which glucose is broken down into smaller molecules is called glycolysis
- d) The waste products from cellular respiration are oxygen, water and ATP

33. Which of the following equations correctly complete the reaction below in the figure?



a	$6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
b	$\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + \text{ATP} \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
c	$6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
d	$6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{ATP}$

34. What is the primary source of energy for photosynthesis?

- a) Water
- b) Carbon dioxide
- c) Light energy
- d) Chemical energy

35. During photosynthesis, which substances are converted into glucose and oxygen?

- a) Glucose and water
- b) Carbon dioxide and water
- c) Oxygen and glucose
- d) Light energy and oxygen

36. What role do producers play in an ecosystem?

- a) They decompose organic matter.
- b) They consume other organisms.
- c) They produce energy-rich compounds.
- d) They recycle nutrients.

37. Which of the following are decomposers responsible for?

- a) Producing glucose
- b) Breaking down dead organisms
- c) Consuming other animals
- d) Releasing oxygen
- e)

38. Which molecule is essential for the process of photosynthesis to occur?

- a) Nitrogen
- b) Glucose
- c) Chlorophyll
- d) Protein

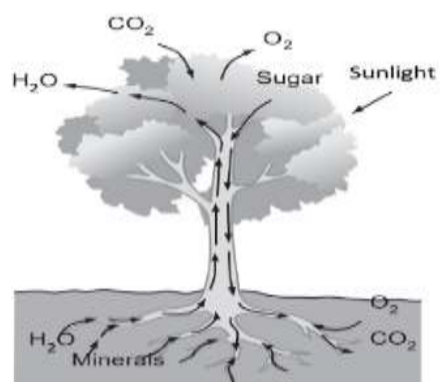
39. Which of the following statements best describes the main difference between photosynthesis and cellular respiration?

- a) Photosynthesis releases energy, while cellular respiration stores energy.
- b) Photosynthesis produces oxygen and glucose, while cellular respiration breaks down glucose to release energy.
- c) Both photosynthesis and cellular respiration occur only in plants.
- d) Photosynthesis requires oxygen, while cellular respiration requires carbon dioxide.

40. The diagram shows how matter moves in a tree.

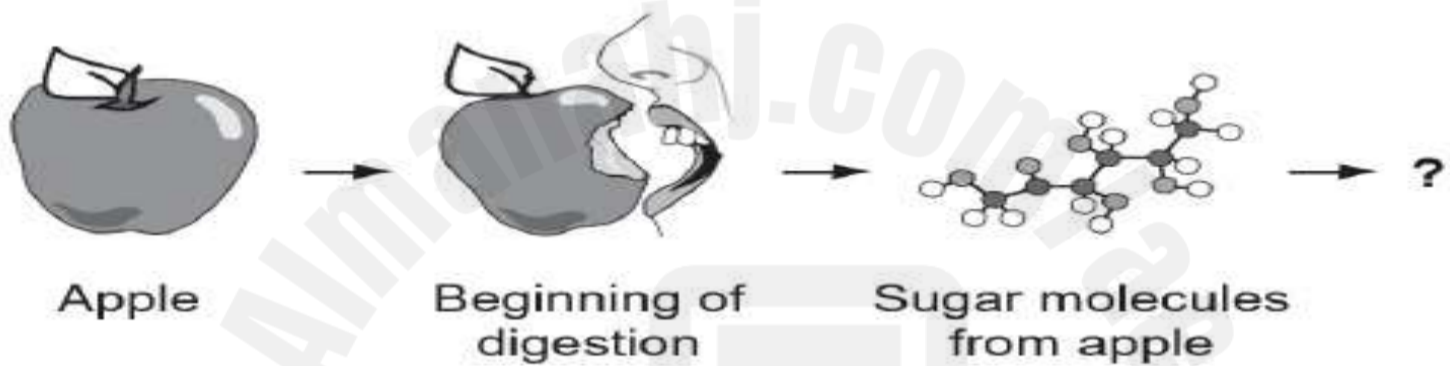
Which statement describes one way that the source of the energy released during cellular respiration is delivered to tree cells?

- a) Water is transported from the roots to the leaves.
- b) Sugars are transported from the leaves to the roots.
- c) Minerals are transported from the roots to the leaves.
- d) Carbon dioxide is transported from the leaves to the roots.



41. Meera is drawing a model of what happens when a person eats an apple.

Which statement best describes the next step in Meera's model?



- a) Sugar molecules break down further to release energy inside of cells.
- b) Sugar molecules combine chemically to absorb energy made by cells.
- c) Sugar molecules break down further to release oxygen for use by cells.
- d) Sugar molecules combine with other molecules to absorb waste material from cells.

Sample Writing questions [FRQ]

Photosynthesis Process

Q1: Answer the following questions:

a. What are the main inputs/ outputs required for photosynthesis?

Input	Output

b. Describe the role of chlorophyll in photosynthesis.

c. Explain the steps of photosynthesis

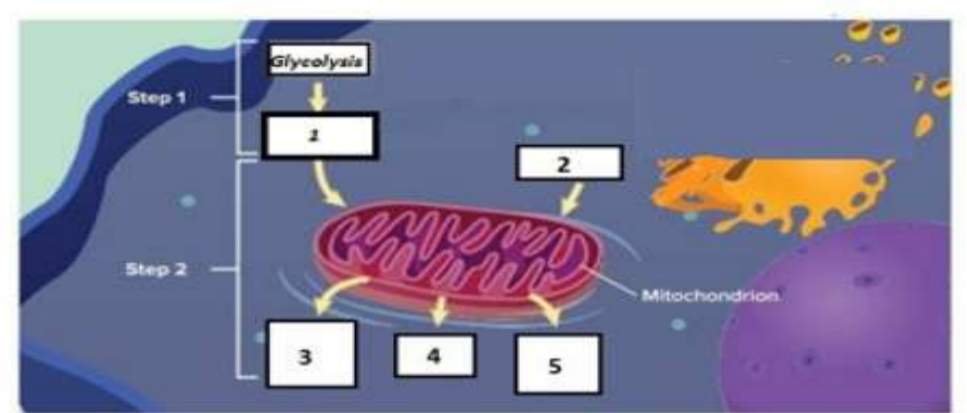
Q2: Study the opposite figure and answer:

1. How do plants, such as sunflowers, use sunlight to produce food?



2. Label the missing parts of the Cellular Respiration process

1. _____
2. _____
3. _____
4. _____
5. _____



3. Explain how plants and animals process energy from food.

Q3: Study the below figure and answer:

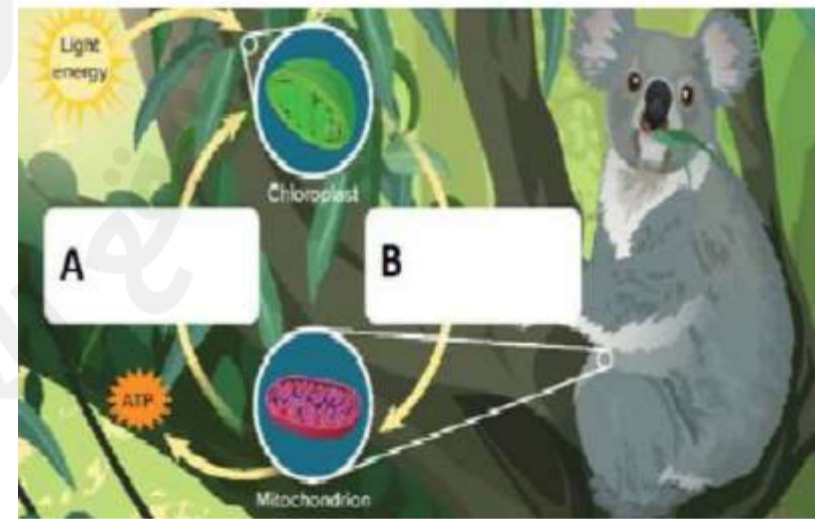
1. Label the image of the system below to track the energy transfer in photosynthesis and cellular respiration.

A _____

B _____

2. Identify inputs and outputs of each part of the system.

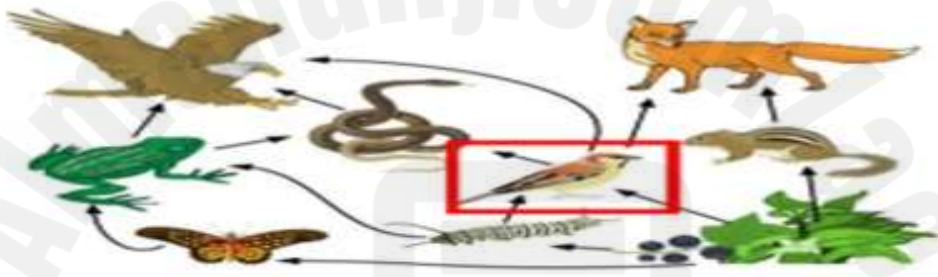
	Photosynthesis	Cellular respiration
Input		
Output		
Equation		



3. Explain the transfer of energy and cycling of matter by modeling the chemical reactions of photosynthesis and cellular respiration below. Use arrows to show movement in your model.

L2: Flow of Energy

Success Criteria	Example/Exercise	Page	Module
<input type="checkbox"/> Students will describe how energy is transferred between producers, consumers, and decomposers in ecosystems.	Evidence (A)	28	Module1
	Text in page/Definition from text	30	Lesson 2
	Three-Dimensional Thinking	35	
	Go online/ Collect Evidence/ Trophic levels figure	38	
	Summarize it	40	
	Three-Dimensional Thinking	41	

- In what form is energy typically lost from an ecosystem?
 - In the form of light
 - In the form of chemical energy
 - In the form of thermal energy
 - In the form of oxygen gas
- What happens to the energy that is NOT transferred to the next trophic level in an ecosystem?
 - It is destroyed
 - It is converted to matter
 - It is lost as heat
 - It is stored in plants
- Which of the following does NOT describe energy flow in ecosystems?
 - Energy flow usually starts with the sun
 - Energy moves from one organism to another
 - Energy moves in one direction
 - Energy is constantly recycling
- In the following food web, how do you classify the animal in the box?
 

- Herbivore
- Carnivore
- Producer
- Omnivore

- In the following food web, how do you classify the animal in the box?
 

- Herbivore
- Carnivore
- Producer
- Decomposer

- In what form is energy that is NOT used for life processes released from living things?
 - Light energy
 - Sound energy
 - Thermal energy
 - Chemical energy
- Which of the following flows through ecosystems in one direction?
 - carbon
 - energy
 - nitrogen
 - water
- which of the following statements is correct:
 - Energy, just like water, cycles through ecosystems.
 - Energy cycles while water flows through ecosystems
 - Energy flows while water cycles through ecosystems
 - None of the above

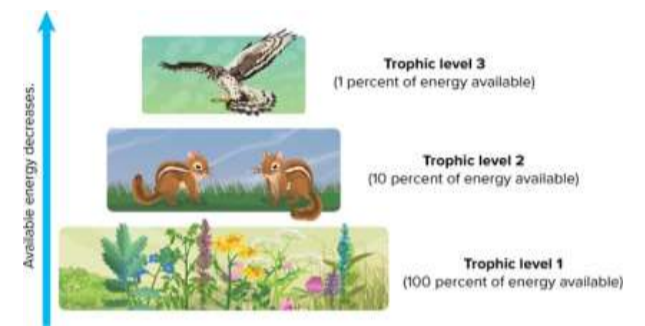
9. Energy pyramid is broader at base and narrower at top, as the energy _____



- a) It increases along the food chain on every trophic level by 10%
- b) Decreases along the food chain, and only 10% of energy transferred to the next trophic level
- c) Decreases along the food chain, and only 1% of energy transferred to the next trophic level
- d) Increases along the food chain on every trophic level by 1%

10. Which of the following is TRUE about an energy pyramid?

- a) It shows how energy decreases at higher trophic levels
- b) 90 % of energy is transferred from one trophic level to the next one.
- c) It includes only herbivores
- d) It includes only decomposers

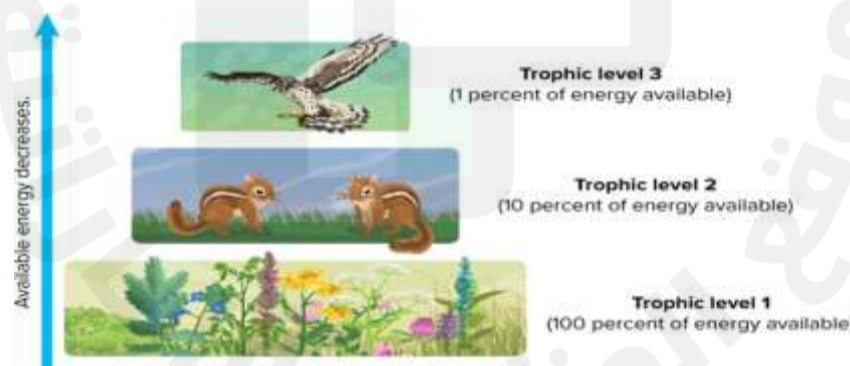


11. Which of the following explains why producers represent the base of the energy pyramid?



- a) Because producers are only found at the bottom of the pyramid
- b) Because predators eat more organisms in their own level than organisms in other level
- c) Because consumers eat both producers and other consumers
- d) Because organisms use most of the available energy to fuel their life processes

12. How much energy is typically transferred from one trophic level to the next in an energy pyramid?



- a) 1%
- b) 10%
- c) 25%
- d) 50%

13. If a secondary consumer has 20 units of energy available, how much energy was originally captured by the producers that fed the primary consumers.

- a) 20,000 units of energy
- b) 2,000 units of energy
- c) 200 units of energy
- d) 2 units of energy

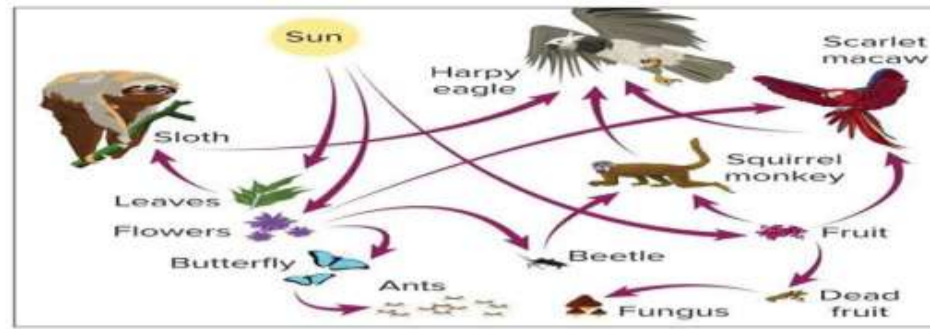
14. If a producer (like a plant) captures 1,000 joules of energy from sunlight, how much energy is available to the primary consumer that eats the plant?

- a) 1,000 joules
- b) 100 joules
- c) 10 joules
- d) 900 joules

15. Which of the following explains why does the top receive the least amount of energy?

- a) Energy is lost as heat
- b) Producers do not store energy
- c) Only herbivores can use the energy
- d) Energy is used for reproduction only

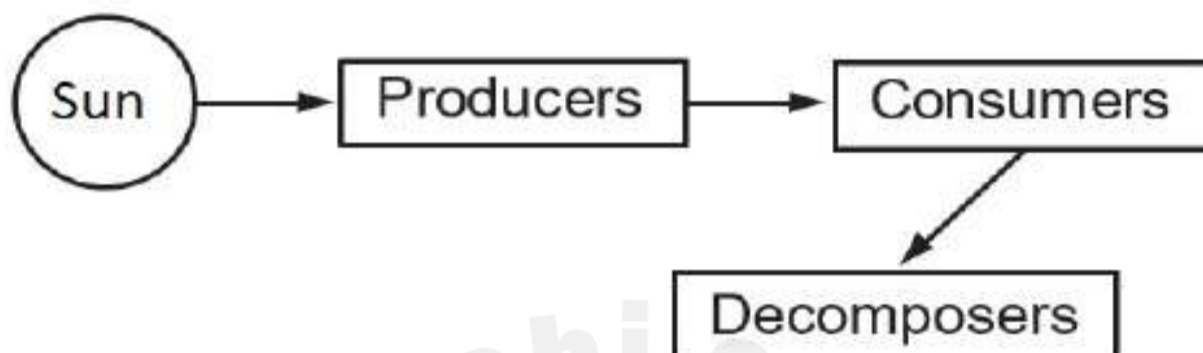
16. Analyze the food web. Which statement is correct?



- a) The model tracks the transfer of energy as energy flows in this ecosystem
- b) The transfer of matter back into the environment occurs only at the detritivore level
- c) The model shows the transfer of matter only
- d) The decomposers in the model use matter but not energy for their life processes

17. A student draws this diagram to show the energy flow in an ecosystem that contains producers, consumers, and decomposers.

The diagram is incomplete. Which statement best describes how the student should complete the diagram?



- a) Draw arrows to represent the input from other energy sources.
- b) Draw arrows to represent the energy lost to the environment at each level.
- c) Draw an arrow to indicate energy flow from consumers to producers.
- d) Draw an arrow to indicate energy flow from decomposers back to producers.

18. In an energy pyramid, approximately 10 percent of the energy available in one trophic level is transferred to the next level. Which statement helps explain why this occurs?

- a) Consumers eat both producers and other consumers
- b) Organisms use most of the available energy to fuel their own life processes
- c) Predators eat more organisms in their own level than organisms in other levels.
- d) Producers exist in only the lowest level of pyramid.

19. What does the Law of Conservation of Energy state?

- a) Energy can be created but not destroyed.
- b) Energy cannot be created or destroyed, only transferred or transformed.
- c) Energy can be destroyed but not transferred.
- d) Energy is always lost in every transfer.

20. How does the Law of Conservation of Energy apply to maintaining the human body temperature of 37 degrees Celsius?

- a) The human body creates new energy to maintain its temperature.
- b) Energy consumed as food is converted to maintain body functions, including temperature.
- c) Energy is continuously lost, and new energy is created to sustain body temperature.
- d) The body does not need energy to maintain its temperature.

21. How do different organisms obtain energy?

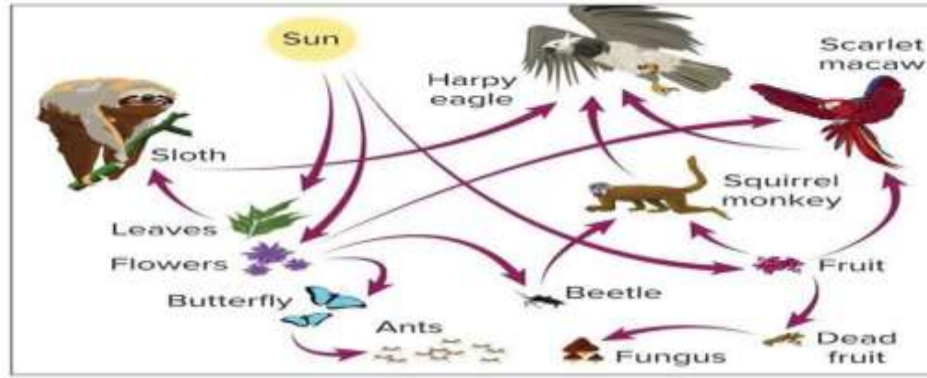


- a) All organisms get energy directly from the Sun.
- b) Only plants get energy from the Sun; animals get energy by consuming other organisms.
- c) Organisms get energy by absorbing it from the air.
- d) Plants and animals both directly consume get energy by photosynthesis.

22. Why does energy flow in an ecosystem rather than cycle?

- a) Energy flows because it eventually returns to the Sun.
- b) Energy flows because it moves from one organism to the next and does not return to its original source.
- c) Energy cycles because it is reused by each organism.
- d) Energy cycles between the Sun and organisms continuously.

23. Which type of consumers does Squirrel monkey belong to?



- a) Herbivore
- b) Carnivore
- c) Omnivore
- d) Detritivore

24. In a food chain, which organism is considered a primary consumer?

- a) Grass
- b) Rabbit
- c) Hawk
- d) Mushroom

Sample Writing questions [FRQ]

Q1: Answer the following questions:

1. How do producers obtain energy?

2. How do consumers obtain energy?

3. How do decomposers obtain energy?

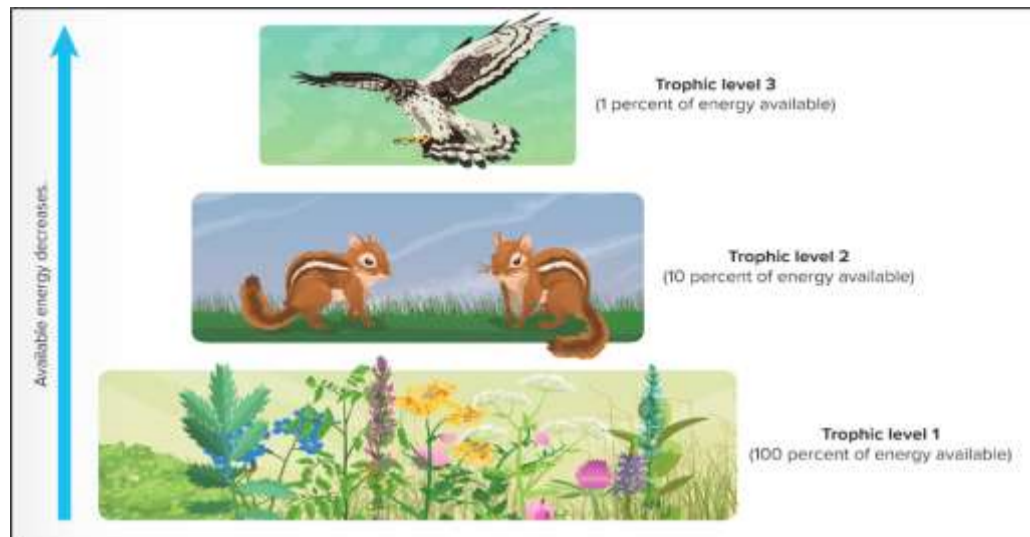
4. Why are decomposers vital in an ecosystem?

4. Draw a model of a food chain. Use arrows to model the flow of energy. Label each organism as a producer or consumer and label each type of consumer.



5. How does energy move through opposite food chain?

Q2: Study the opposite figure and answer the following questions:

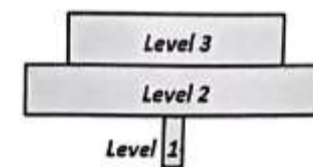


1. Calculate the available energy for primary consumer if the plants received 700 joules

2. Calculate the available energy for a secondary consumer if the plants received 1000 units

3. Calculate the available energy for plants if the primary consumer received 800 units

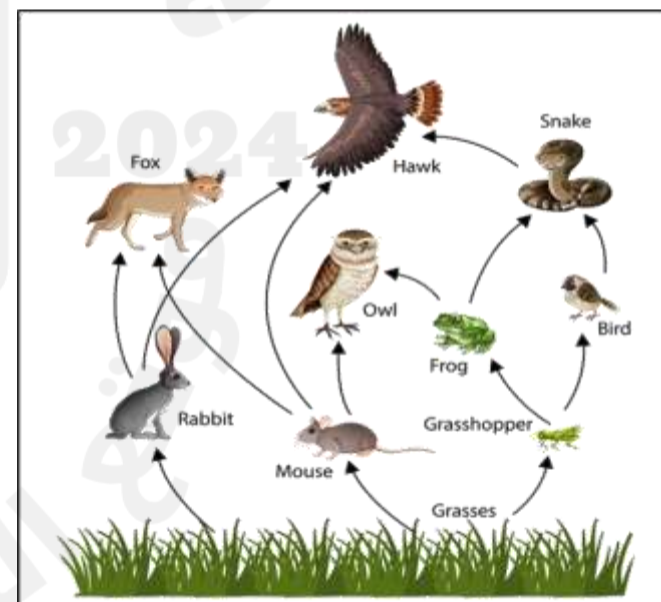
4. Is the opposite diagram a correct representation for the energy transfer? Explain your answer



Q3: Study the opposite figure and answer the following questions:

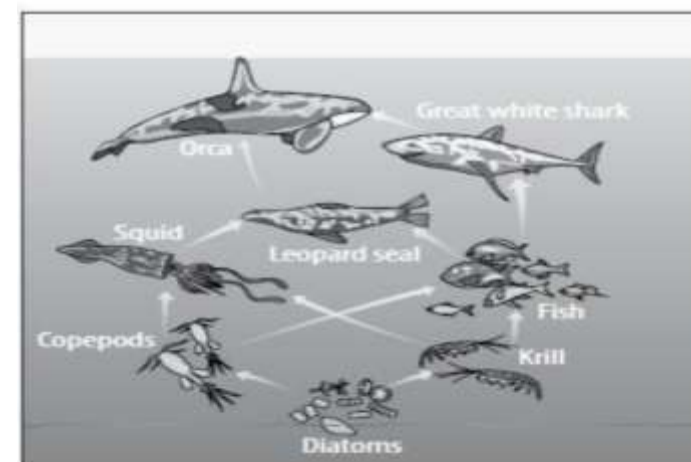
Complete the following chart:

Organism	How does it obtain energy?	Type?
Fox
.....	Grasshopper	.....
Grasses
Hawk
.....	Herbivore



What would happen if hawk were removed from the food web?

Organism	How does it obtain energy?	Type?
Diatoms
.....	Leopard seal	.....
Orca
Fish
.....	Herbivore



Calculate the original energy captured by diatoms, if fish received 350 joules of energy.

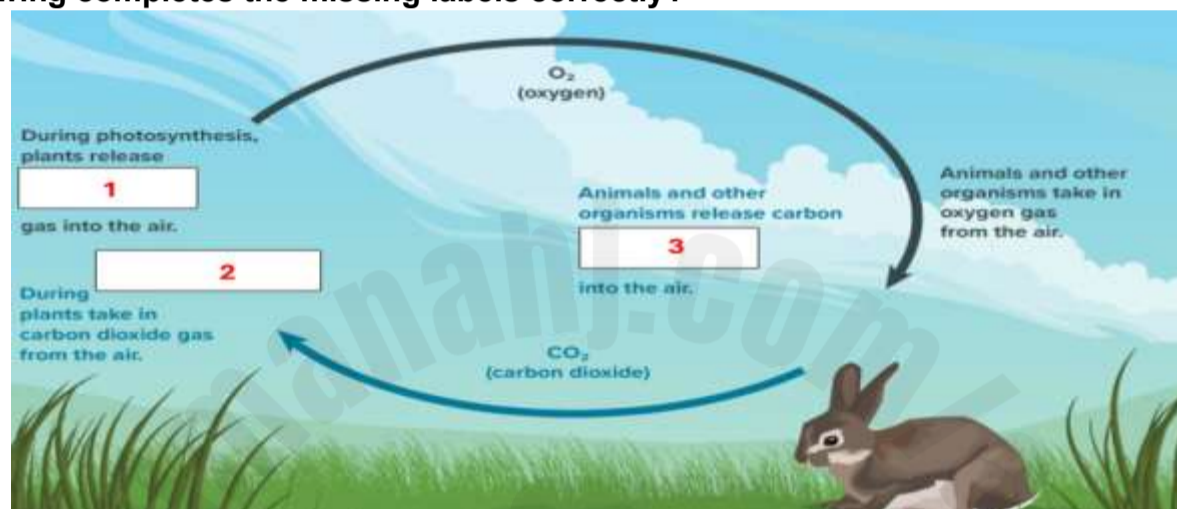
L3: Cycling of matter

Success Criteria	Example/Exercise	Page	Module
<input type="checkbox"/> Students will describe how matter cycles through living and non-living parts of ecosystem. <input type="checkbox"/> Students will understand that atoms are conserved as they cycle through the ecosystem.	Collect Evidence/Definition from text	50	Module1
	Collect Evidence	52	Lesson 3
	Nitrogen Cycle figure	53	
	Collect Evidence/ Oxygen cycle figure	54	
	Summarize it	56	
	Three-Dimensional Thinking	57	

1. Which of the following is NOT true about systems that cycle matter?

- Living things play a role in the cycling of matter
- Matter changes form as it cycles
- Some matter is destroyed as it cycles through the environment
- Matter is constantly cycling through the environment

2. Which of the following completes the missing labels correctly?



1. Oxygen 2. Photosynthesis 3. Carbon dioxide
1. Carbon dioxide 2. Photosynthesis 3. Oxygen
1. Oxygen 2. Respiration 3. Carbon dioxide
1. Carbon dioxide 2. Respiration 3. Oxygen

3. How is energy transferred from producers to consumers in an ecosystem?

- Through sunlight
- Through the consumption of plants
- By decomposing matter
- By releasing oxygen into the air

4. How do decomposers contribute to the cycling of matter in ecosystems?

- By producing oxygen
- By breaking down dead organisms
- By consuming plants
- By photosynthesizing

5. Which of the following describes a symbiotic relationship?

- Two species competing for the same resource
- One organism preying on another
- Two species benefiting from each other
- An organism living independently

6. Why is photosynthesis important for the survival of most ecosystems?

- It releases carbon dioxide
- It produces food for plants and animals
- It decomposes dead matter
- It consumes energy

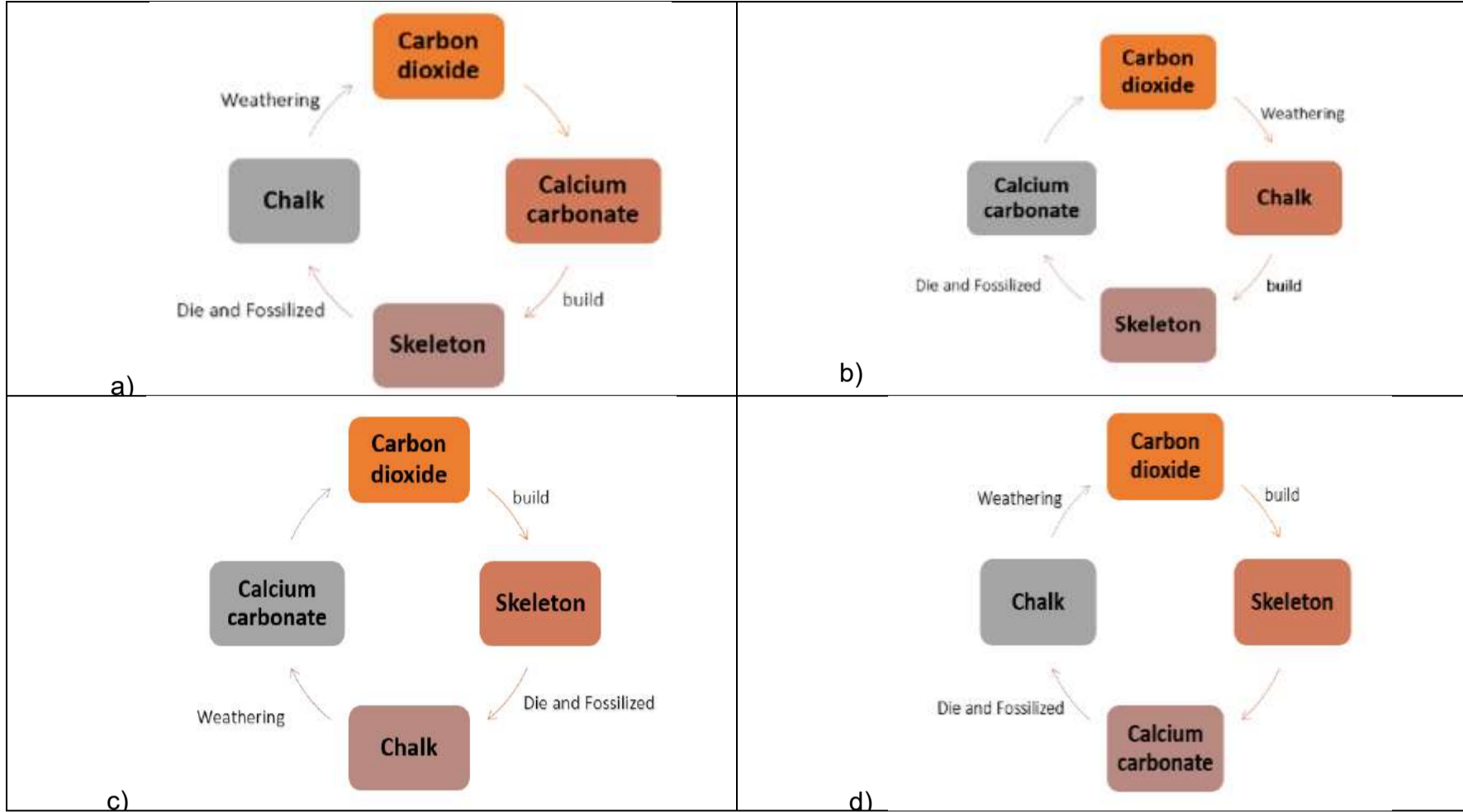
7. Which step involves the conversion of nitrogen from the atmosphere into a form usable by plants?

- Nitrogen fixation
- Nitrogen change to protein
- Denitrification
- Decomposition

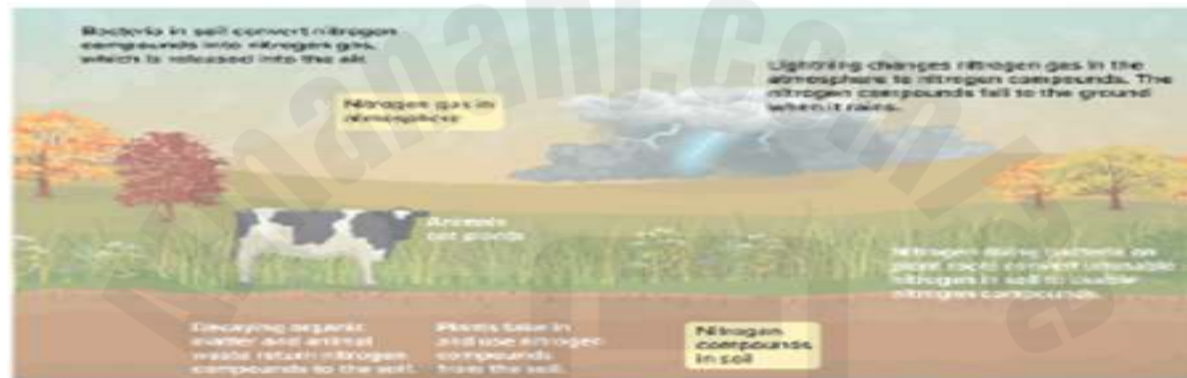
8. 15. How do human activities impact the balance of ecosystems?

- By increasing biodiversity
- By maintaining the natural flow of energy
- By introducing pollutants and causing habitat destruction
- By ensuring all species thrive equally

9. Which of the following is the correct sequence of carbon movement through phytoplankton in the carbon cycle?

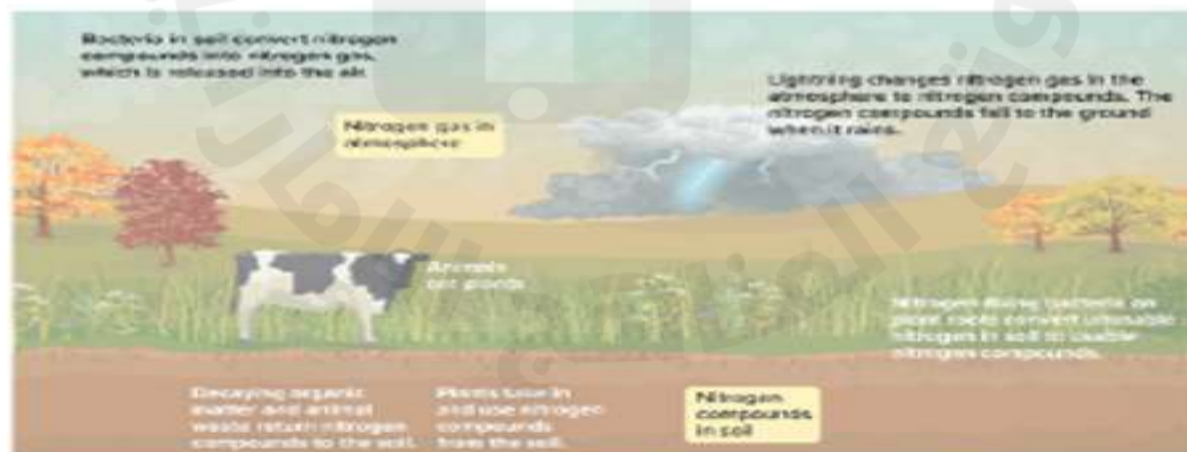


10. Which of the following steps takes place after animals feeding on the plants in the nitrogen cycle?



- a) Bacteria on plant roots fix nitrogen to make it usable
- b) Plants use nitrogen from the soil to make protein
- c) Decaying waste returns nitrogen to the soil
- d) Lightening change nitrogen gas into nitrogen compounds

11. Which of the following steps takes place before animals feeding on the plants in the nitrogen cycle?



- a) Bacteria on plant roots fix nitrogen to make it usable
- b) Plants use nitrogen from the soil to make protein
- c) Decaying waste returns nitrogen to the soil
- d) Lightening change nitrogen gas into nitrogen compounds

12. Which of the following processes contributes to water vapor entering the atmosphere from plants?

- a) Evaporation
- b) Condensation
- c) Precipitation
- d) Transpiration

13. What happens to water after it falls to Earth's surface as precipitation?

- a) It only enters bodies of water
- b) It only soaks into the soil
- c) It either enters bodies of water or soaks into the soil
- d) It remains in the atmosphere

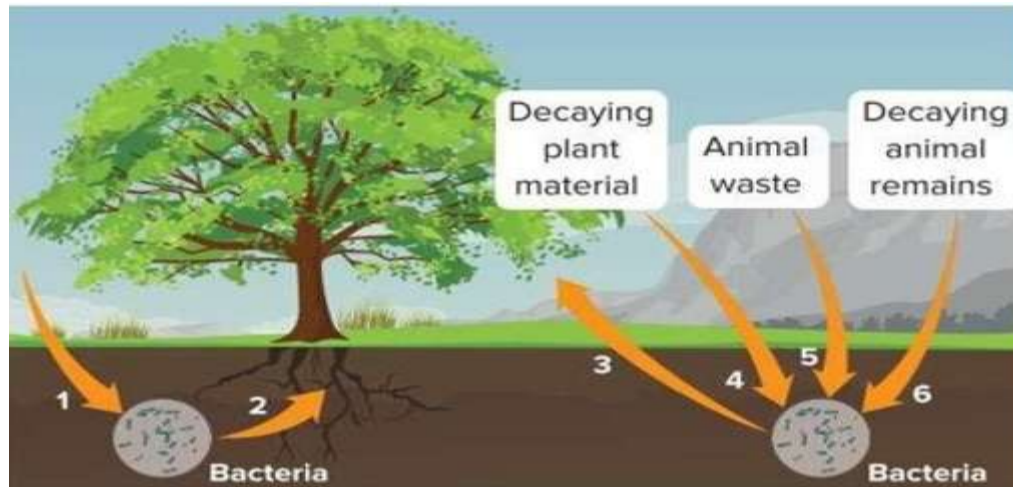
14. Which process in the water cycle involves water vapor cooling and forming clouds?

- a) Evaporation
- b) Precipitation
- c) Condensation
- d) Transpiration

15. Which stage of the water cycle can involve snow or hail?

- a) Evaporation
- b) Transpiration
- c) Precipitation
- d) Condensation

16. According to the opposite diagram, what is the function of the bacteria shown in the model?



- a) They prevent nitrogen from harming the plants
- b) They remove the nitrogen from the soil
- c) They remove the oxygen from the soil
- d) They return nitrogen to the system

17. Which of the following best defines fossil fuels?

- a) Renewable energy sources formed from decomposed plant and animal matter
- b) Non-renewable energy sources formed from the remains of ancient plants and animals over millions of years
- c) Sources of energy derived from modern plant material
- d) Synthetic fuels created in laboratories from organic compounds

18. Which of the following best defines fossil fuels?

- a) Formed quickly from decomposed matter
- b) Formed after decomposed materials exposed to high heat and pressure to hundreds of millions of years
- c) Formed after combustion of decomposed matter
- d) b and c

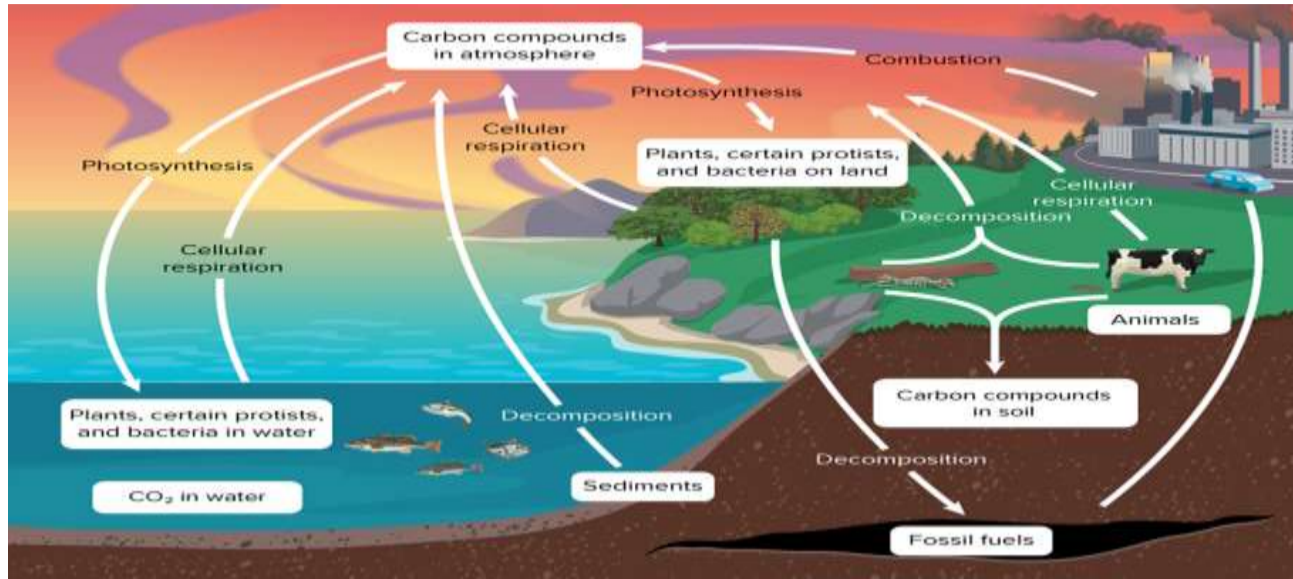
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موقع المناهج الإماراتية

Sample Writing questions [FRQ]

Q1: Analyze the carbon cycle and answer the questions that follow:

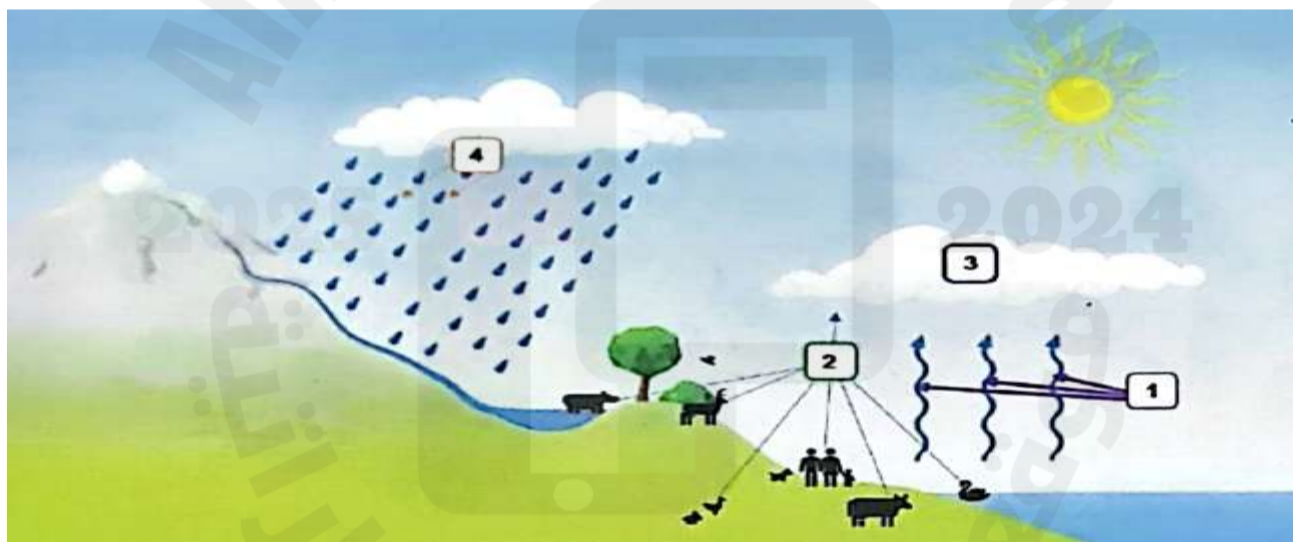


1. How does carbon enter the atmosphere?

2. How is carbon used?

3. Where do plants get carbon from?

Q2: Complete the missing labels of the water cycle and answer the following questions:

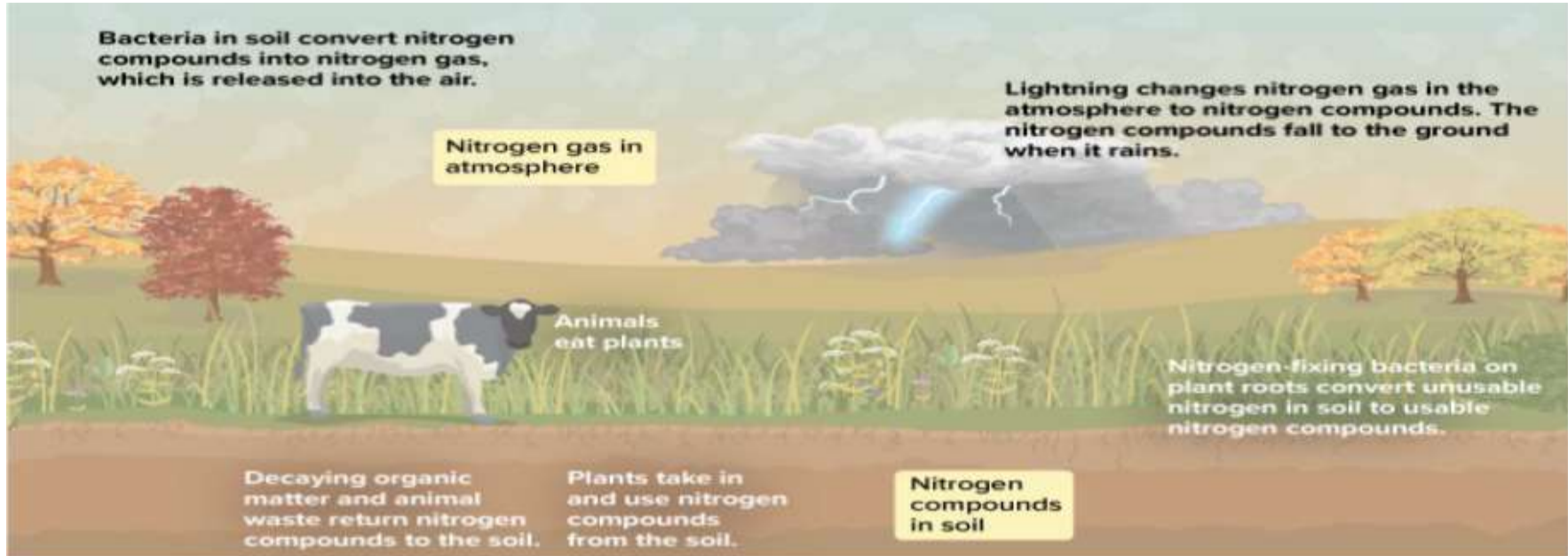


1. Explain how water moves through the atmosphere

2. What would happen if the plant were removed from the cycle?

3. What would if step 4 did NOT occur?

Q3: Examine the figure and draw arrows to show the path nitrogen takes according to the descriptions:



2. Explain Why Nitrogen is important?

3. Define the

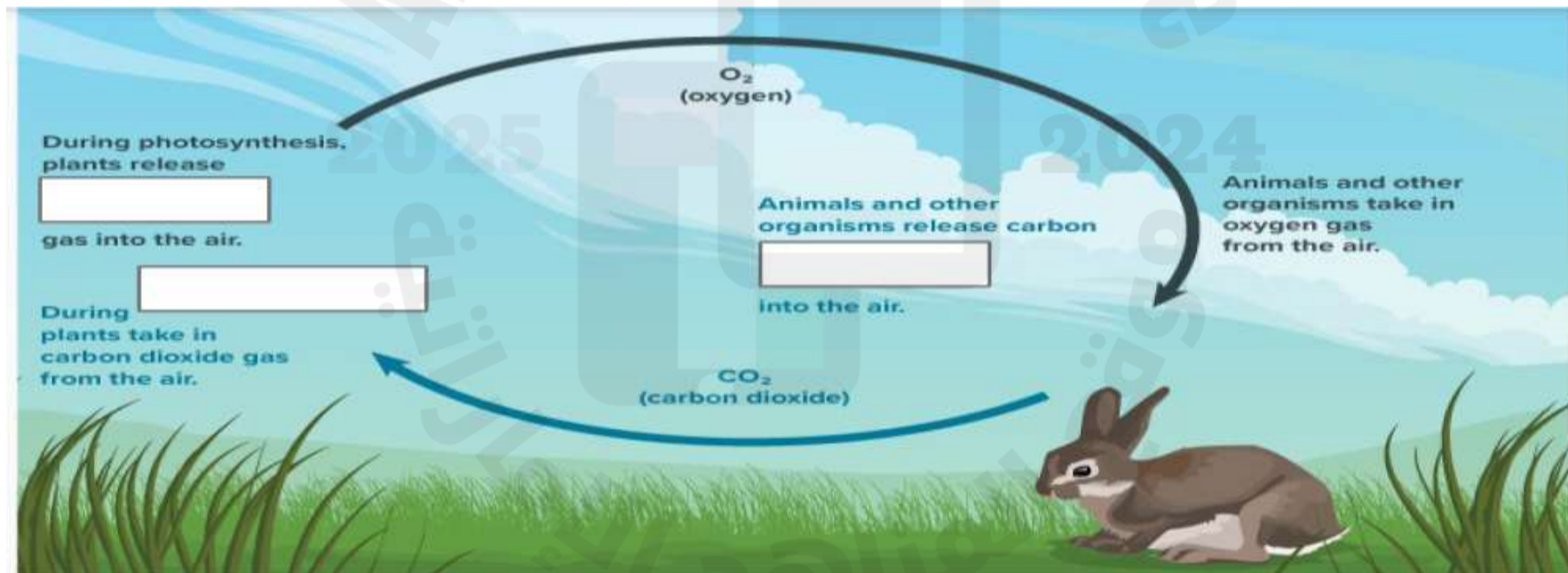
term Nitrogen Fixation?

4. How do plants absorb Nitrogen?

5. How do animals get Nitrogen?

Q4: Complete the missing labels of the oxygen cycle and answer the following questions:

1. The Oxygen Cycle: Fill in the correct terms



2. How does oxygen move through the environment?

3. Model the carbon, nitrogen, oxygen or water cycle, using arrows to show movement. Include inputs and outputs from one of the other cycles.

L1: Resources in Ecosystems

Success Criteria	Example/Exercise	Page	Module
<input type="checkbox"/> Students will analyze and interpret data to explore how organisms are dependent on their interactions with living and nonliving factors in their environment. <input type="checkbox"/> Students will understand the effects of different limiting factors such as resource availability on organisms and populations of organisms in an ecosystem.	Collect Evidence	75	Module2
	Definition from text	77	Lesson
	Investigation	78	1
	Definition from text	80	

1. How the giant moa specie can be classified?

- a) Extinct species
- b) Endangered species
- c) threatened species
- d) Overpopulated species



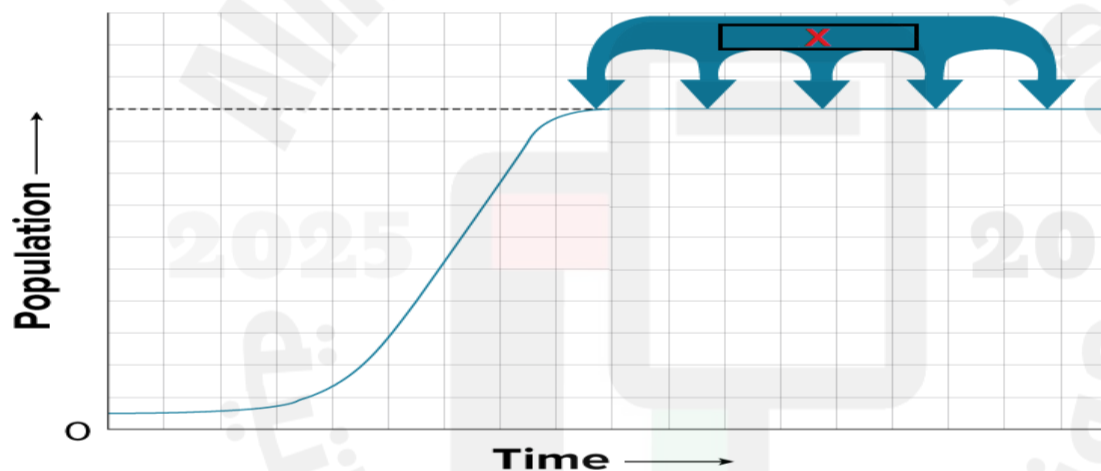
2. Which of the descriptions about the organization of an ecosystem is correct?

- a) Communities make up species, which make up populations (communities < species < populations)
- b) Populations make up species, which make up communities (populations < species < communities)
- c) Species make up communities, which make up populations (species < communities < populations)
- d) Species make up populations, which make up communities (species < populations < communities)

3. What are limiting factors?

- a) Elements that cause the extinction of a species in an ecosystem
- b) Environmental conditions that restrict the growth of a population within an ecosystem
- c) within an ecosystem
- d) The maximum number of species an ecosystem can support without degrading
- e) Natural disasters that disrupt population growth in ecosystems

4. Which of the following is labelled part by X in the graph bellow?



- a) Biotic potential
- b) Limiting factor
- c) Extinction
- d) Overpopulation

5. Which of the following describes how predation affects pika populations?



- a) It increases the population size of pikas.
- b) It limits the pika population size by controlling how many can survive.
- c) It ensures pikas have more food resources.
- d) It has no effect on pika populations.

6. Competition among pikas affects their population by:

- a) Increasing the available resources for all pikas.
- b) Reducing the need for each pika to search for food.
- c) Causing pikas to compete for limited resources, limiting how large the population can grow.
- d) It increases the pika population by removing predators

7. How does disease impact pika populations?

- a) It promotes population growth by reducing competition.
- b) It quickly reduces the size of the population.
- c) It increases the pika population by removing predators.
- d) It has no effect on the pika population.

8. Which term describes a species that no longer has any living individuals?

- a) Threatened species
- b) Endangered species
- c) Extinct species
- d) Overpopulated species

9. Why did the population of the giant moa bird in New Zealand become extinct?

- a) They were overhunted by humans.
- b) A natural disaster wiped them out.
- c) They migrated to a different area.
- d) They lost their food supply due to climate change.

10. What is an endangered species?

- a) A species whose population is stable and thriving.
- b) A species that is at risk of extinction.
- c) A species that is overpopulated.
- d) A species that faces no environmental threats.

11. Which of the following best describes the relationship between endangered species and extinction?

- a) Endangered species are not at risk of extinction and are able to thrive in their environment
- b) Endangered species are at risk of extinction if they do not receive protection and conservation efforts.
- c) Extinction occurs only in species that are not endangered.
- d) Endangered species can survive without human intervention, even if their population decreases drastically

12. Which of the following is NOT part of Earth's biosphere?

- a) Pacific Ocean
- b) Rocky Mountains
- c) the Moon
- d) Cuba

13. What is the difference between a population and a community?

- a) A population is made up of all species in an area. A community is made up only of one species.
- b) A population is made up of only one species. A community is made up of all species in an area.
- c) A population is made up of all the species and nonliving things in an area. community is made up of all species in an area.
- d) The words mean the same thing.

14. What is the effect of the growth of a population in an ecosystem?

- a) fewer resources for each individual in the population
- b) a greater amount of resources in the ecosystem
- c) a decrease in the amount of resources needed by each individual
- d) an increase in the size of the ecosystem

15. What is the difference between a community and an ecosystem?

- a) An ecosystem consists of living and nonliving things in an area. A community is all the members of one species in the area.
- b) An ecosystem consists of living and nonliving things in an area. A community is all the populations in the area.
- c) An ecosystem consists of nonliving things in an area. A community is all the living things in the area.
- d) An ecosystem consists of all the populations in an area. A community is all the nonliving things in the area.

16. Which of these is a limiting factor?

- a) food supply
- b) shelter
- c) existence of predators
- d) all of the above

17. How the sea otter species can be classified?

- a) Extinct species
- b) Endangered species
- c) threatened species
- d) Overpopulated species

18. How the gorilla species can be classified?

- a) Extinct species
- b) Endangered species
- c) threatened species
- d) Overpopulated species

19. Which of the following actions were taken to protect threatened species?

- a) Allowing overhunting for species with high economic importance
- b) Passing laws to protect threatened species against overhunting
- c) Preventing using of renewable resurces
- d) Using of fossil fuels



Sample Writing questions [FRQ]

Q1: study the following figure and answer the following questions:

1. Identify the limiting factors:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____



2. Explain the impact of limiting factor on the population of Pika.

3. How is predation important for the population of prey?

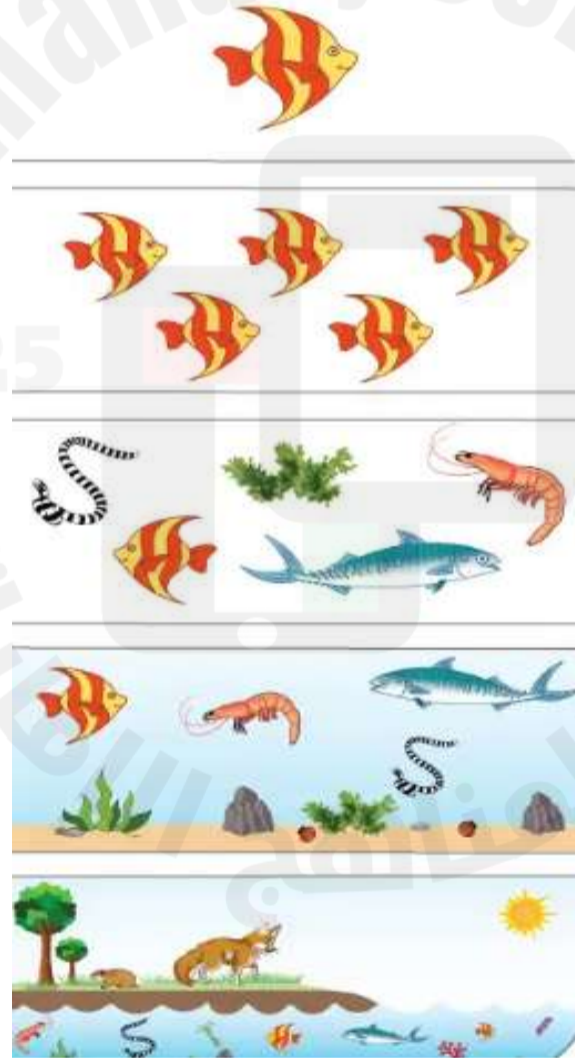
Q2: Study the following picture of animals in Etosha National Park, answer the following questions:

1. Define the following terms

Term	Definition
Species	
Population	
Community	
Ecosystem	
Biosphere	



2. Label the following diagram:



L2: Interaction within ecosystems

Success Criteria	Example/Exercise	Page	Module
<input type="checkbox"/> Students will explore patterns of interactions among organisms.	Three-Dimensional Thinking/ Collect Evidence	95	Module2 Lesson
<input type="checkbox"/> They will explain the nature of these relationships and understand that they may be symbiotic or nonsymbiotic.	It's your turn Collect Evidence Summarize it	96 98 100	2

1. Epiphytes benefits from attaching to tree trunks by getting more living space and sunlight. The trees are neither helped nor harmed by the plants as shown in the figure below, how can you describe this relationship?

- Commensalism
- Parasitism
- Mutualism
- Cooperative

2. What type of symbiotic relationship exists between the Barbell fish and the hippos?

- Commensalism
- Parasitism
- Mutualism
- Predation



3. Which of the following best describes mutualism?

- One species benefit while the other is harmed.
- Both species benefit from the relationship.
- One species benefit while the other is unaffected.
- Both species are harmed in the relationship

4. In the relationship between clownfish and sea anemones, how does the sea anemone benefit?

- It receives protection from predators.
- It receives energy from the clown fish's waste.
- It is unaffected by the clown fish's presence.
- It uses the clownfish as food.

5. Which of the following is an example of commensalism?

- A hunting wasp laying eggs in a spider's body.
- Epiphytes growing on tree trunks for more space and sunlight.
- Barbel fish cleaning hippos' mouths.
- Clownfish living among sea anemone tentacles.

6. How does parasitism differ from mutualism?

- Both species are harmed in parasitism, while both benefit in mutualism.
- One species benefit and the other is harmed in parasitism, while both benefit in mutualism.
- One species is unaffected in parasitism, while both are unaffected in mutualism.
- Both species benefit in parasitism, while one benefits and the other is harmed in mutualism.

7. What is the role of the Barbel fish in its relationship with the hippos?

- It harms the hippos by feeding on their flesh.
- It benefits by cleaning the hippos and feeding on parasites.
- It is unaffected by the hippos' presence.
- It lays eggs inside the hippos to provide food for its larvae.

8. Which of the following describes a parasitic relationship?

- A bird building its nest in a tree.
- A wasp laying eggs inside a paralyzed spider.
- Barbel fish following and grooming hippos.
- A clownfish living among sea anemone tentacles.

9. In commensalism, how is one species affected?

- One species benefit, while the other is harmed.
- One species benefit, while the other is unaffected.
- Both species are harmed.
- Both species benefit.

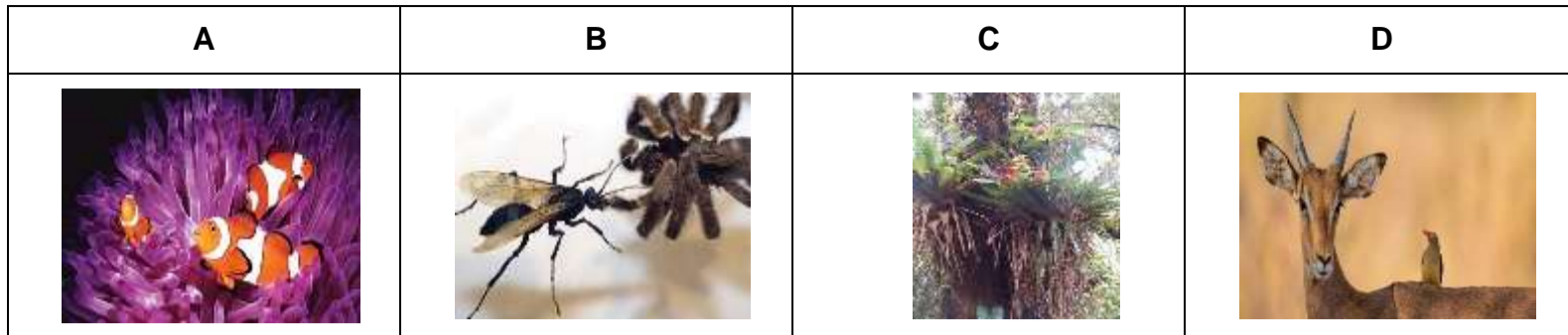
10. In a predator-prey relationship, _____

- the predator hunts the prey for food
- the prey hunts the predator for food
- the prey keeps the predator population from growing too large
- the prey are producers

11. A symbiotic relationship in which both partners benefit is called _____

- commensalism
- mutualism
- parasitism
- predation

12. Which of the following is a parasitic relationship?



- a) A and B
- b) B and C
- c) B and D
- d) A and B

13. Which of the following is an example of a cooperative relationship in ecosystems?

- a) A lion hunting a zebra
- b) Leafcutter ants carrying leaves to grow fungus for food
- c) A wolf competing with a raven for meat
- d) An osprey catching a fish

14. What is the primary benefit of predator-prey relationships in ecosystems?

- a) To increase prey populations
- b) To keep prey populations from growing too large
- c) To help predators find food more easily
- d) To promote competition among prey species

15. Which of the following best describes a competitive relationship in an ecosystem?

- a) One organism hunts and eats another.
- b) Organisms cooperate to find food.
- c) Organisms share the same habitat and compete for resources.
- d) Both organisms benefit from the relationship.

16. How do elephants benefit from cooperative relationships within their population?

- a) They hunt for food more effectively.
- b) They compete for sunlight and space.
- c) They raise their young and watch for predators together.
- d) They reduce their population size.

17. What is the role of predators in maintaining healthy prey populations?

- a) Predators help remove weak or injured individuals from prey populations.
- b) Predators help prey populations grow.
- c) Predators provide food and shelter for prey populations.
- d) Predators compete with prey for resources.

18. What type of relationship exists between leafcutter ants when they work together to carry leaves to their nest?

- a) Predator-prey relationship
- b) Competitive relationship
- c) Cooperative relationship
- d) Commensalism

19. Which of the following is an example of a predator-prey relationship?

- a) A group of elephants raising their young together.
- b) An osprey catching a fish.
- c) Trees competing for sunlight.
- d) Leafcutter ants working together to grow fungus.

20. How does competition affect the organisms involved in a competitive relationship?

- a) Both organisms benefit equally.
- b) One organism benefit while the other is harmed.
- c) Both organisms are harmed.
- d) One organism is harmed, and the other is unaffected.

21. Which of the following scenarios describes a cooperative relationship?

- a) Two trees growing taller to get more sunlight.
- b) An elephant helping another elephant watch for predators.
- c) A lion hunting and eating a zebra.
- d) A spider capturing an insect in its web.

22. What is the main role of predators in predator-prey relationships?

- a) To help the prey population grow larger.
- b) To reduce competition between prey species.
- c) To prevent prey populations from growing too large.
- d) To increase the number of weak individuals in the prey population.

23. Why do trees in a forest compete with each other?

- a) For water and nutrients only.
- b) For space to grow only.
- c) For sunlight, water, and nutrients.
- d) For predators to protect them.

24. How does living in groups benefit squirrel monkeys in a cooperative relationship?

- a) They can compete for the same food source.
- b) They increase the number of predators.
- c) They help each other find food and watch for danger.
- d) They reduce the size of the habitat.

25. If you plant some flowers in a flower bed later weeds grow and the flowers die.

The weeds had been able to get enough resources to survive, while the flowers had not.

This is an example of.....

- a) Competition
- b) Population size
- c) Habitat
- d) Community

26. Which of the following describes cooperative relationships?

- a) Members of the same species compete for resources
- b) Members of different species compete for resources
- c) Members of the same species work together for survival
- d) Members of different species work together for survival

27. If a buzzard and a coyote both need the meat from a dead animal, there is _____ for that food resource

- a) Competition
- b) mutualism
- c) parasitism
- d) predation

Sample Writing questions [FRQ]

Q1: Complete the following table:

Relationship	Description
Symbiosis a. Mutualism	_____ _____
b. Parasitism	_____ _____
c. Commensalism	_____ _____

Q2: Complete the following table:

1. Identify the symbiotic relationship.

2. Explain why cleaner shrimp and the moray eel have symbiotic relationships?



3. One of your classmates believes that the oxpecker is a helpful organism, while another believes it is strictly a parasite.




Which student do you agree with and why? (pg.96)






Q3: Complete the following table:

Relationship	Description
Non-symbiotic a. Predator-prey	_____ _____
b. Cooperative	_____ _____
c. Competitive	_____ _____

Q4: Complete the following table:

Example			
Type of relationship	_____	_____	_____
Explanation	_____ _____ _____	_____ _____ _____	_____ _____ _____

Q5: Complete the following table:

Example			
Type of relationship	_____	_____	_____
Explanation	_____ _____ _____	_____ _____ _____	_____ _____ _____

L3: Changing Ecosystems

Success Criteria	Example/Exercise	Page	Module
<ul style="list-style-type: none"> □ Students will explore the dynamic nature of ecosystems. Focusing on both natural changes and human disruptions. □ They will evaluate how and argue that changes to physical or biological components of an ecosystem affect populations within the ecosystem 	Definition from text	109	Module2
	Definition from text/Collect	115	Lesson
	Evidence	118	3
	Collect Evidence	121	
	Three-Dimensional Thinking Real-World Connection (Q4-Q5)	122	

1. A climax community is a community that _____.
 - a) is about to experience a major change
 - b) has just been radically altered by a natural disaster
 - c) is a stable community that no longer goes through major ecological change
 - d) is always characterized by large trees

2. What is eutrophication?

- e) The process by which soil erosion decreases water quality in rivers and lakes
- f) The introduction of non-native species into an ecosystem
- g) The excessive growth of algae in water bodies due to high nutrient levels, often leading to oxygen depletion
- h) The natural buildup of nutrients in soil from decaying organic matter

3. Which of the following can cause eutrophication?

No	Reason
1	Decaying organisms fall to the bottom of the lake
2	Runoff from fertilizers used in farming
3	High rate of fish reproduction (Population increase)

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3



4. How might a lake suffering from eutrophication affect population of fish?

- a) The population will grow because of the extra nutrients
- b) The population will suffer due to decreases in oxygen and habitat loss
- c) The fish population will not be affected
- d) The size of population will waver

5. Which of the following is an example of resource extraction that can disrupt ecosystems?

- a) Using solar panels for energy
- b) Planting more trees in urban areas
- c) Mining for minerals and deforestation
- d) Practicing crop rotation on farms



6. How can oil drilling negatively impact aquatic environments?

- a) By providing more habitats for marine animals
- b) By causing soil erosion along coastlines
- c) By leading to oil spills that devastate aquatic life
- d) By creating more food resources for fish



7. What effect can air pollution from human activities have on ecosystems?

- a) It provides additional nutrients for plant growth.
- b) It causes harmful gases to enter the atmosphere, impacting plant and animal life.
- c) It improves the reproductive rate of native species.
- d) It only affects human health and no other organisms.

8. What is eutrophication, and how does it relate to pollution?



- a) It is the process of removing nutrients from soil, caused by natural disasters.
- b) It is the accumulation of pollutants in water that leads to an excess of nutrients, harming aquatic ecosystems.
- c) It is the introduction of nonnative species that reduces biodiversity.
- d) It is the recovery of ecosystems after a natural disturbance.

9. Which of the following is a direct consequence of introducing invasive species into an ecosystem?

- a) Increased food sources for native predators.
- b) Stabilization of the ecosystem by filling empty niches.
- c) Disruption of existing populations and potential extinction of native species.
- d) Reduced competition and increased cooperation among species

- 10. In recent decades, average global temperatures have increased significantly. Scientists agree that the widespread destruction of the amazon rain forest continues to climate change. Which mechanism might be cited to support that hypothesis**
- Deforestation cause water on the ground to reflect sunlight
 - Deforestation reduces the number of plants able to absorb carbon dioxide
 - Photosynthesis produces energy, which gives off heat
 - Plants use up energy during cellular respiration
- 11. Which of the following is an example of a natural disruption that can change an ecosystem?**
- Deforestation
 - Drilling for oil
 - Forest fire
 - Building a dam
- 12. How can natural disturbances like forest fires benefit an ecosystem?**
- By decreasing the diversity of plant life
 - By increasing the number of pollutants
 - By controlling the size of certain populations and allowing new plant growth
 - By causing habitat loss and soil erosion
- 13. What is one major consequence of habitat loss due to deforestation?**
- Increased food sources for animals
 - Disruption of forest ecosystems
 - Decreased extraction of natural resources
 - Improved air quality
- 14. How does pollution typically affect populations in an ecosystem?**
- It increases the variety of species in the area.
 - It decreases the amount of available nutrients for organisms.
 - It prevents nonnative species from entering the ecosystem.
 - It causes a more stable environment for native species.
- 15. What impact do nonnative species typically have on ecosystems?**
- They help native species thrive by providing additional food.
 - They usually decrease competition among native species.
 - They can lead to overcrowding and competition, disrupting native populations.
 - They always benefit the ecosystem by increasing biodiversity.
- 16. Which of the following is NOT from the negative impacts of sedimentation?**
- Coastline alteration
 - Increase visibility for animals to find food in water
 - Cover habitats of fish or other animals
 - Clog waterways and flooding



Sample Writing questions [FRQ]

Q1: Study the following diagrams and answer the following questions:

1. Identify what happened from pic A to B.

2. Define it.

3. Define climax community



Q2: Study the following picture showing eutrophication and answer the following questions:

1. Define Eutrophication

2. Explain its effect on Fish populations

3. Mention the reasons why does it happen?



Q2: Study the following figure and answer the following questions:

1. How do physical changes to ecosystems, like forest fires, occur?

2. Explain the effect forest fires.



Q3: complete the following tables to compare different types of successions

5. Complete the following table:

POC		
Type of succession	.....	.....
Explain the steps	.........................	.........................
Pre-existing soil	.....	.....
Time required to develop climax community	.....	.....

اللهم إني أستودعك ما درست وما فحمت وما حفظت؛ فروه لي عند حاجتي إليه
فإنكم التوفيق يارب

Ms Mai Yusuf – Ms Charne Hector

