

Principals of ecology: Organisms and their relationships



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف التاسع ← علوم ← الفصل الأول ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2026-09-08 12:40:32

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: Adel Rania

التواصل الاجتماعي بحسب الصف التاسع



صفحة المناهج
الإماراتية على
فيسبوك

المزيد من الملفات بحسب الصف التاسع والمادة علوم في الفصل الأول

أنسباير متقدم - chemical reactions

1

ملزمة تحتوي على شرح دروس الفصل كامل بالإضافة الى تمارين بعد كل درس 2026-2027

2

أسئلة على درس المادة - انسباير

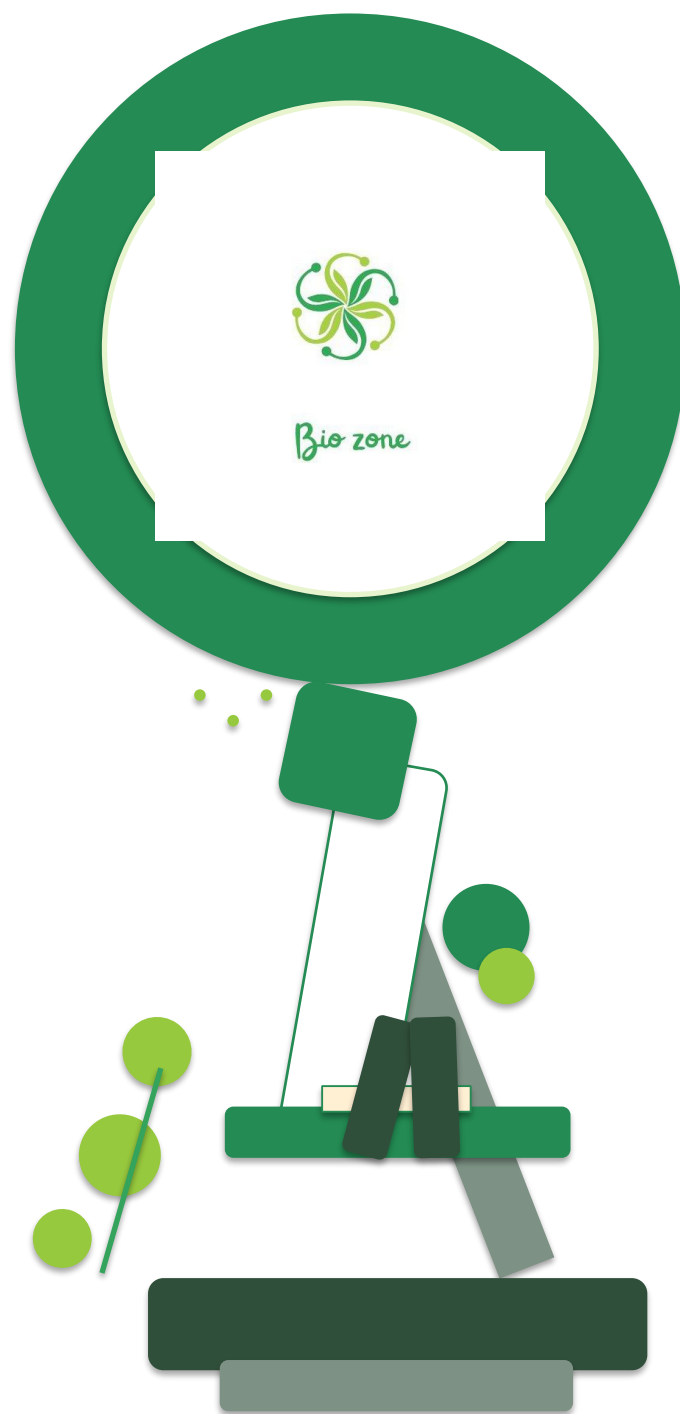
3

حل ورقة عمل مدخل إلى علم الفيزياء

4

اختبار القياس الدولي IBT متبوع بالإجابات

5



BIO

Principals of ecology

Organisms and their relationships



DATE

7/ 09 / 2026



TEACHER

Rania
Adel



GRADE

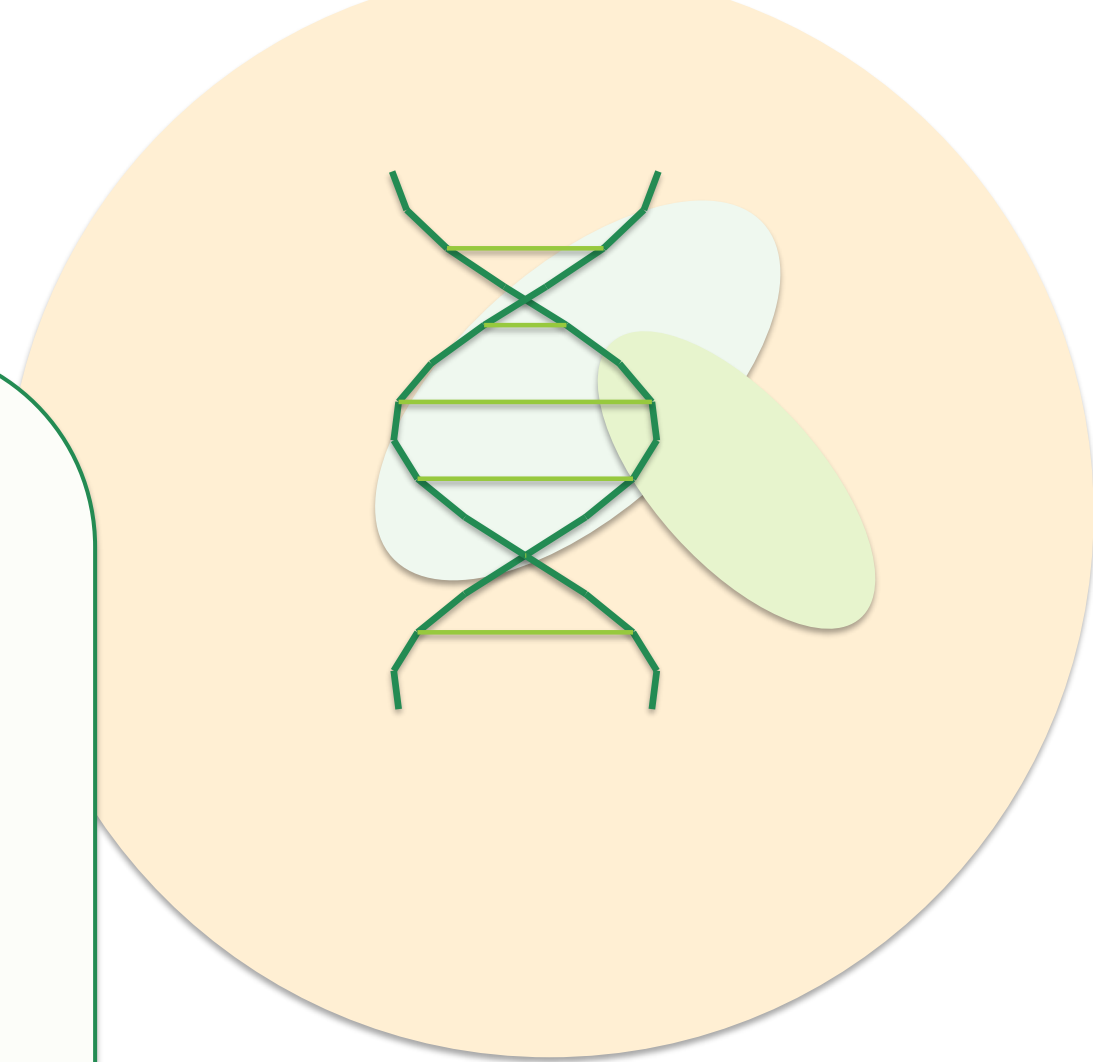
تاسع عام
أنسباير



SUBJECT

Biology

Learn • Understand • Apply





ORGANISMS AND THEIR RELATIONSHIPS

Exploring the Connections
in Our Living World

Science Zone
Rania Adel

Mystery Question!

Why would a tiny bird build its nest in a thorny, dangerous tree?
(Hint: Think about relationships and survival!)



Define Ecology and the Biosphere.



Identify the living and nonliving factors of an environment.



Discover how organisms interact, compete, and survive together.

Science Zone

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What is Ecology? (The Big Picture)

Ecology: The scientific study of relationships among **living organisms** and their **environments**.

The Biosphere: The portion of Earth that **supports life**! It includes **landmasses, freshwater, saltwater,** and everything from deep-ocean vents to the **atmosphere**.



The Biosphere



Did You Know?

Ecologists use **physical** and **computer models** to study environments because it's too difficult to control all the variables in the wild!

The Two Halves of Every Environment



Biotic Factors

The living factors in an organism's environment.

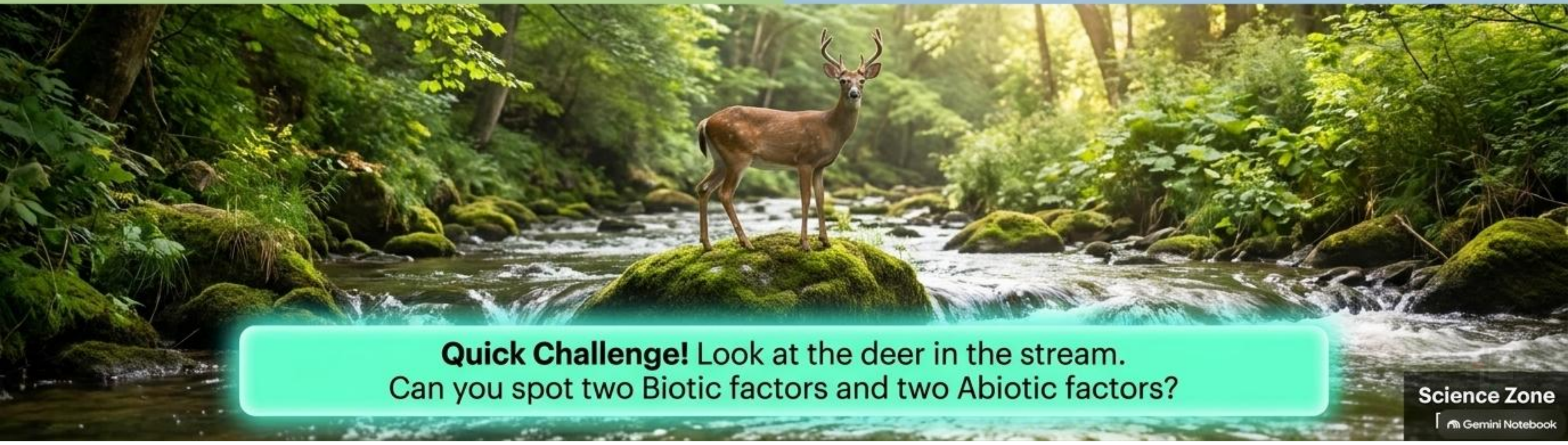
Examples: Plants, animals, fish, algae, microscopic organisms.



Abiotic Factors

The nonliving factors in an organism's environment.

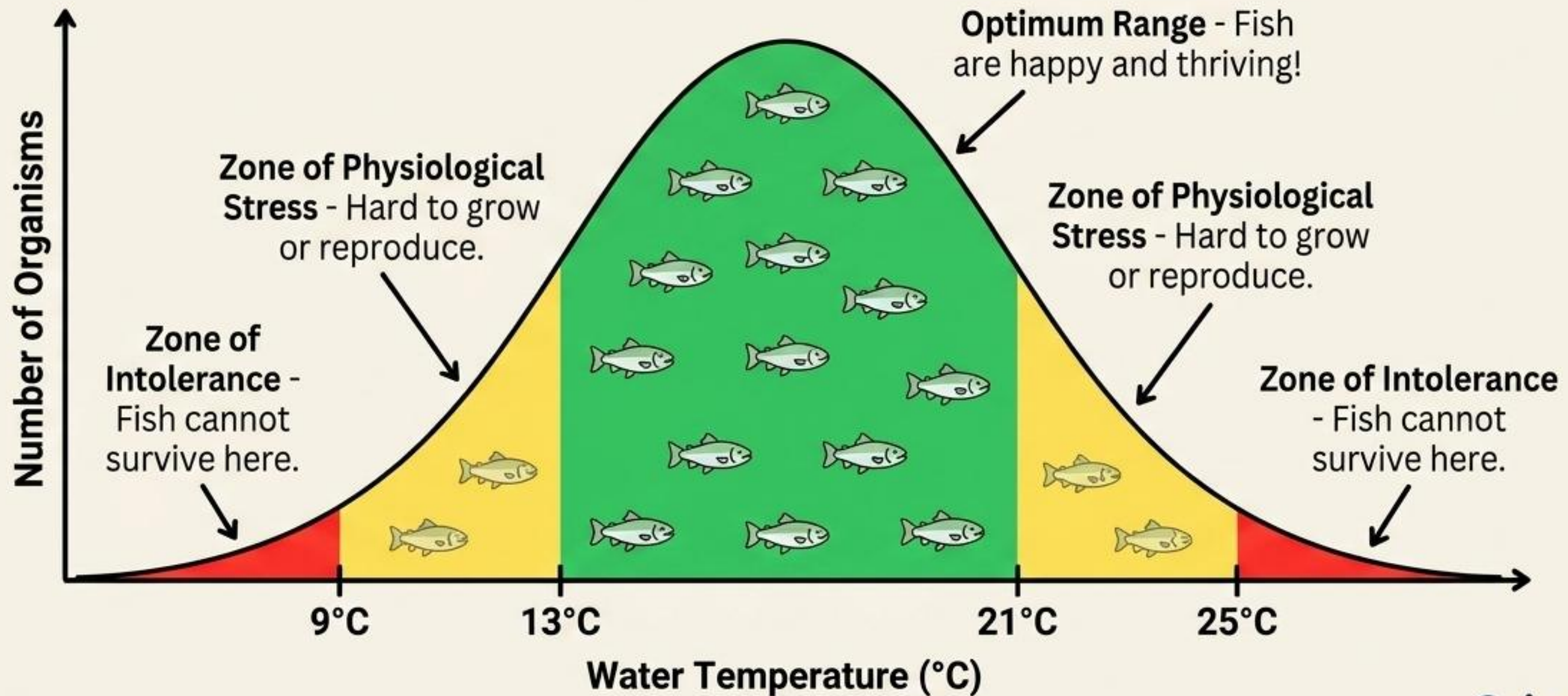
Examples: Temperature, air/water currents, sunlight, soil type, rainfall.



Quick Challenge! Look at the deer in the stream.
Can you spot two Biotic factors and two Abiotic factors?

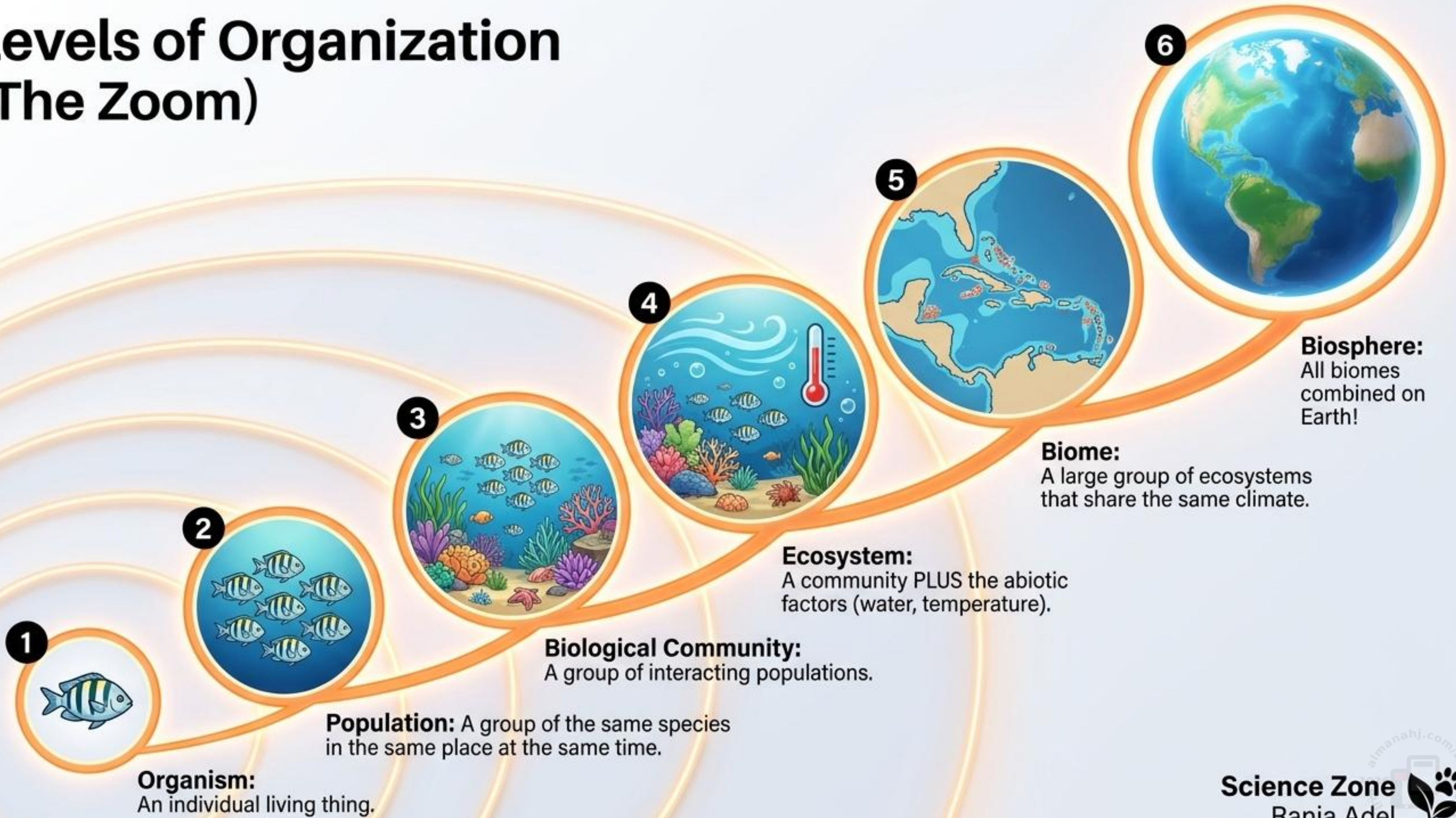
Survival Limits: Range of Tolerance

Tolerance: The ability of an organism to survive changes in biotic or abiotic factors.



Tolerance of Steelhead Trout

Levels of Organization (The Zoom)





Common Mistake: Thinking a habitat and a niche are the exact same thing!

Habitat



Home Address

Habitat: The area where an organism lives.

Analogy: It's like the organism's Home Address.
(Example: A single tree or a grove of trees).

Niche



Job

Niche: The role or position an organism has in its environment (how it meets its needs for food, shelter, reproduction).

Analogy: It's like the organism's Job.
(Example: Eating specific insects and using bark for nesting).

Community Interactions for Survival



Competition

Occurs when more than **one organism uses a resource (food, water, space)** at the same time.

During a drought, animals compete for scarce water. The strong survive, while the weak die or move away.



Predation

The act of one organism pursuing and consuming another for food.

Surprise Fact! Animals aren't the only predators. Plants like the Venus flytrap emit sticky substances to trap insects, snap shut, and digest them!

Living Together: Symbiotic Relationships

Symbiosis is the close relationship that exists when two or more species live together.

Mutualism

+ / +



Both organisms benefit!

Example: Sloth & Algae.

Algae gets a home and moisture; the sloth gets green camouflage to hide.

Commensalism

+ / — (Neutral)



One benefits, the other is not helped or harmed.

Example: Clownfish gets food and protection from the anemone. The anemone isn't affected.

Parasitism

+ / —



One benefits at the expense of the other (the host).

Example: Parasitic wasps lay eggs on the hornworm. The wasps benefit, but it harms the host.

Key Takeaways: The Ecosystem Map



The **Biosphere** is Earth's life zone, shaped by **Biotic** (living) and **Abiotic** (nonliving) factors.



Factors limit growth, and organisms have a specific **Range of Tolerance** (like water temperature).



Environments are built in **levels**: from single **Organisms** all in way up to huge **Biomes**.



Species survive through unique **Niches**, **Competition**, **Predation**, and **Symbiosis**.

Final Assessment (Questions 1-5)

1. Which term describes the scientific discipline in which the relationships among living organisms and their interactions with environments are studied?

A. Biosphere

B. Ecology

C. Symbiosis

D. Mutualism

2. What is the **biosphere**?

A. Only the deepest parts of the ocean

B. The nonliving parts of an environment

C. The portion of Earth that supports life

D. A group of interacting populations

3. Which of the following is an example of an **abiotic factor**?

A. A migratory bird

B. Microscopic algae

C. Amount of rainfall

D. A green plant

4. A lush green plant from a swamp is transplanted to a dry desert and dies. Why did the plant most likely die?

A. It could not adjust to the biotic factors of the desert

B. It could not adjust to the abiotic factors of the desert

C. It found a new habitat but no niche

D. It became a predator

5. Any abiotic or biotic factor that restricts the numbers, reproduction, or distribution of organisms is called a:

A. Limiting factor

B. Symbiotic factor

C. Biological community

D. Zone of tolerance

Final Assessment (Questions 6-10)

6. When steelhead trout are in water temperatures between 9°C and 13°C, there are fewer fish and they experience stress. This area on a graph is known as the:

A. Optimum range

B. Zone of intolerance

C. Zone of physiological stress

D. Biological community

7. Individual organisms of a single species that share the same geographic location at the same time make up a:

A. Population

B. Biome

C. Biosphere

D. Biological community

8. What is the next level of organization directly after a biological community?

A. Organism

B. Ecosystem

C. Biome

D. Population

9. How is a biome different from an ecosystem?

A. A biome only contains abiotic factors

B. A biome is smaller than an ecosystem

C. A biome is a large group of ecosystems that share the same climate

D. A biome is made of only one population

10. Which of the following best describes a habitat?

A. The role an organism has in its environment

B. The area where an organism lives

C. The act of consuming another organism

D. The range of temperatures an organism can survive in

Final Assessment (Questions 11-15)

11. The role or position that an organism has in its environment, such as how it meets its needs for food and shelter, is called its:

A. Habitat

B. Niche

C. Population

D. Tolerance

12. During a severe drought, animals gather at a shrinking water hole. Because water is scarce, the strong survive while the weak die. This is an example of:

A. Mutualism

B. Parasitism

C. Commensalism

D. Competition

13. The Venus flytrap is a plant that emits a sticky substance to attract insects, snaps shut when they land, and digests them. This is an example of:

A. Predation

B. Mutualism

C. Commensalism

D. Symbiosis

14. A clownfish finds food and protection by living inside a sea anemone. The anemone is neither helped nor harmed. This relationship is called:

A. Mutualism

B. Commensalism

C. Parasitism

D. Predation

15. Brown-headed cowbirds lay their eggs in the nests of other bird species, forcing the other birds to feed the cowbird babies at the expense of their own young. This is:

A. Mutualism

B. Commensalism

C. Parasitism

D. Competition



Answer Key (Teachers Only)

1. B (Ecology)	9. C (A biome is a large group of ecosystems that share the same climate)
2. C (The portion of Earth that supports life)	10. B (The area where an organism lives)
3. C (Amount of rainfall)	11. B (Niche)
4. B (It could not adjust to the abiotic factors of the desert)	12. D (Competition)
5. A (Limiting factor)	13. A (Predation)
6. C (Zone of physiological stress)	14. B (Commensalism)
7. A (Population)	15. C (Parasitism)
8. B (Ecosystem)	



You are an essential part
of the Biosphere.

Keep exploring your ecosystem.

Science Zone

Rania Adel



Bio zone

Teacher Rania Adel