



Fundamentals of digital and ecological transitions

Applied ecology and climate change

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A.y. 2024-2025

185SP_1 - APPLIED ECOLOGY AND CLIMATE CHANGE 2024

Corso Impostazioni Partecipanti Valutazioni Report Altro ▾

! Questo corso è attualmente visibile a tutti e l'iscrizione spontanea è possibile.
L'istanza di iscrizione **Iscrizione spontanea (Studente)** consente l'iscrizione spontanea senza limitazioni a tempo indeterminato.
Se non si vuole che nessun utente di Moodle possa accedere liberamente a questo corso, si prega di limitare le impostazioni dell'iscrizione spontanea.

▼ Introduzione

Annunci

Codice Teams:
tpsux5v

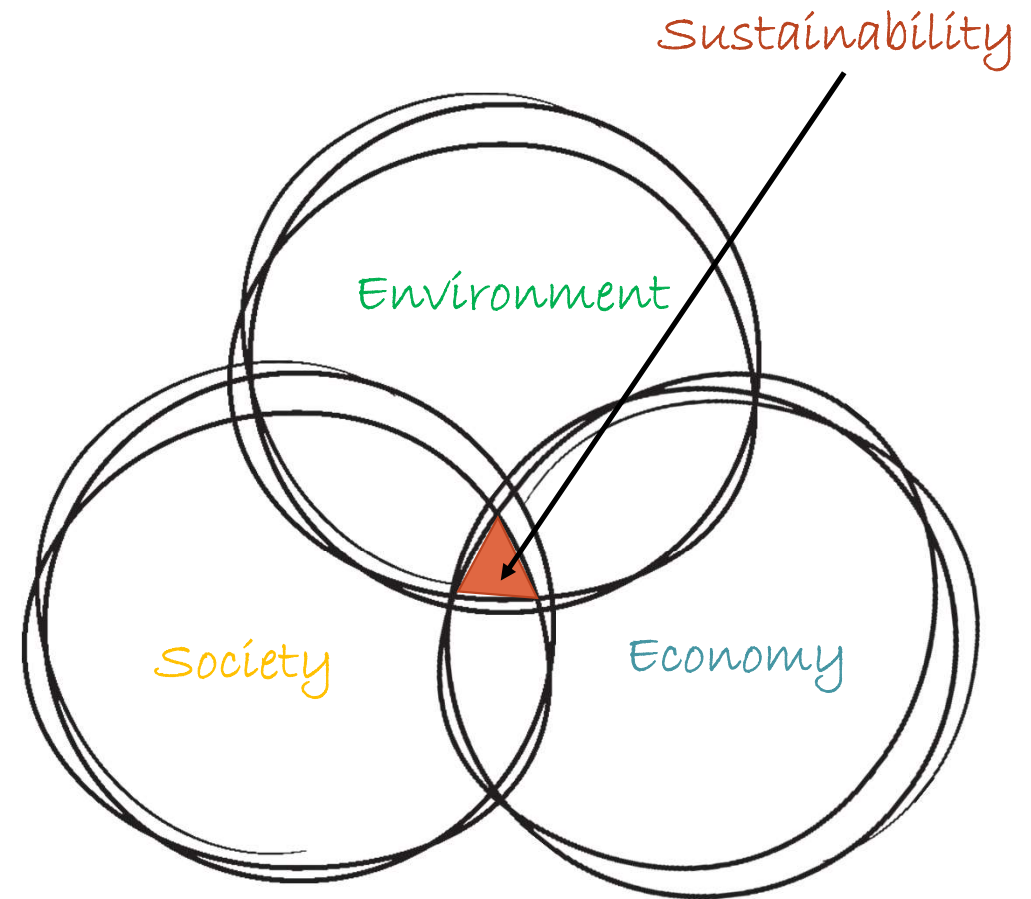
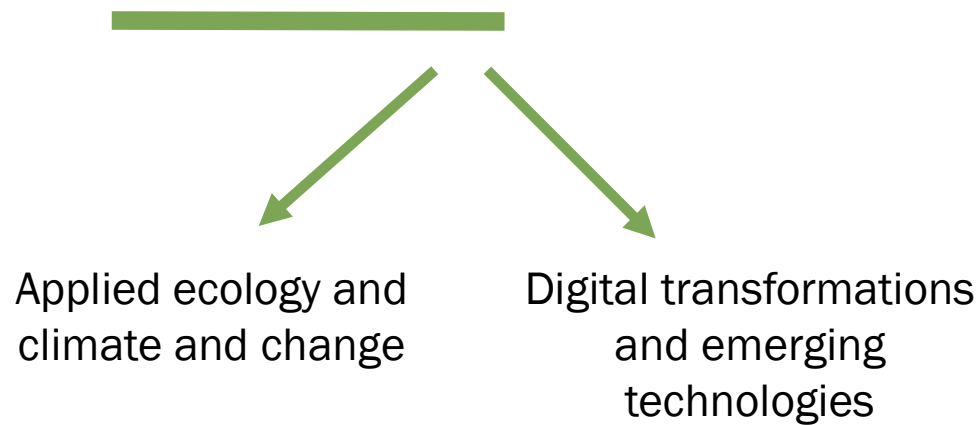
▼ Nuova sezione

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▼ Nuova sezione



Fundamentals of digital and ecological transitions



Course

01. Introduction: Understanding Environmental Dynamics

Ecology fundamentals, ecosystem dynamics, biodiversity

03. Urbanization and Considerations for Nature-Based Solutions

Urban Expansion Effects: Impacts on natural habitats and biodiversity; - **Nature-Based Solutions:** Integrating natural elements into urban design for sustainability.

02. Impact of Human Activities on the Environment

- **Economic-Industrial Influence:** Effects on ecosystems and biodiversity; - **Transportation Impact:** Land and water use; - **Invasion of Alien Species:** Ecological disruptions; - **Pollution:** Environmental degradation and health concerns.

04. Interactive Learning: Addressing Global CO₂ Increase and Mitigation

Game-Based Learning Approach: Understanding the consequences of rising CO₂ levels.

05. Exam

Oral interview: 3 questions, at least



Course calendar

From today (October 4) up to November 29th

Friday from 11:00 to 13:00

Building A, room D



Except (NO lesson):
Friday November 1



Individual



Population



Community



Ecosystem



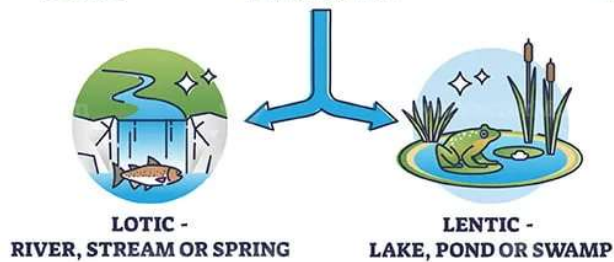
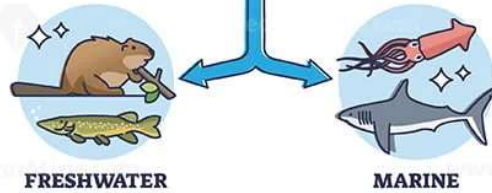
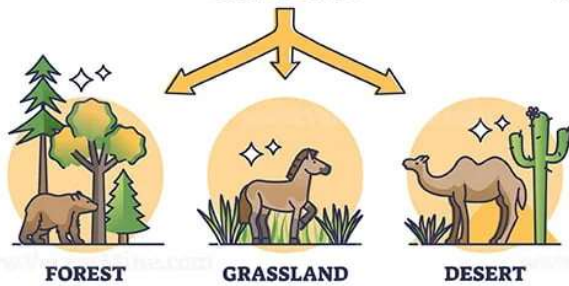
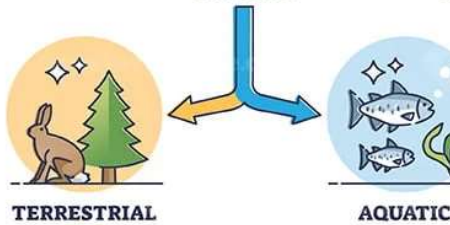
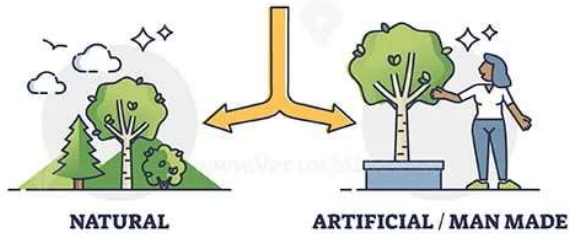
Biome



Biosphere



TYPES OF ECOSYSTEM



BIOMES



SAVANNA



TROPICAL RAINFOREST



MARINE



DESERT



TEMPERATE FOREST



FRESHWATER



GRASSLAND



BOREAL FOREST



TUNDRA



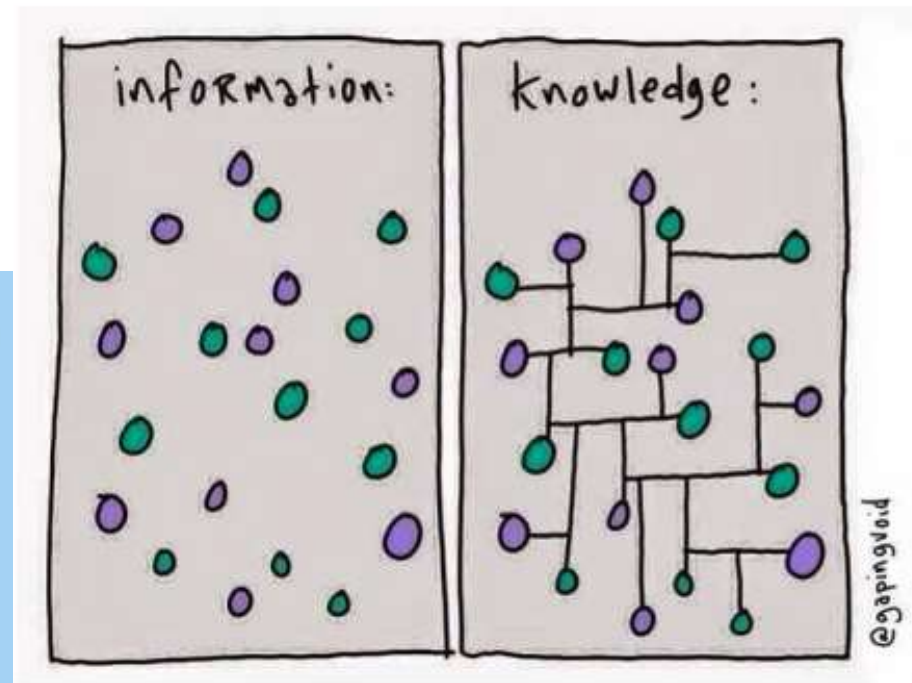
ecosystem

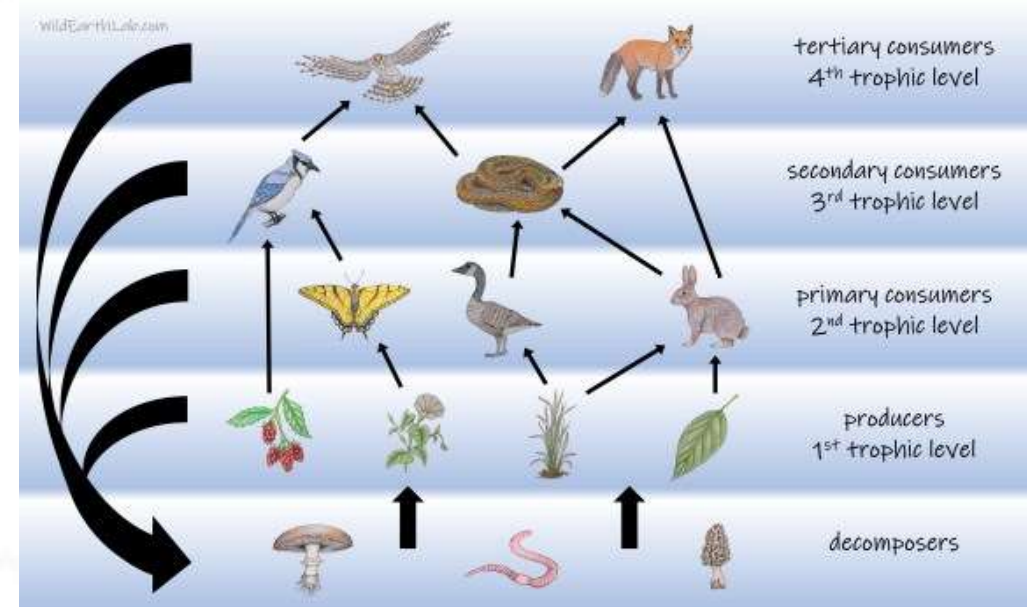
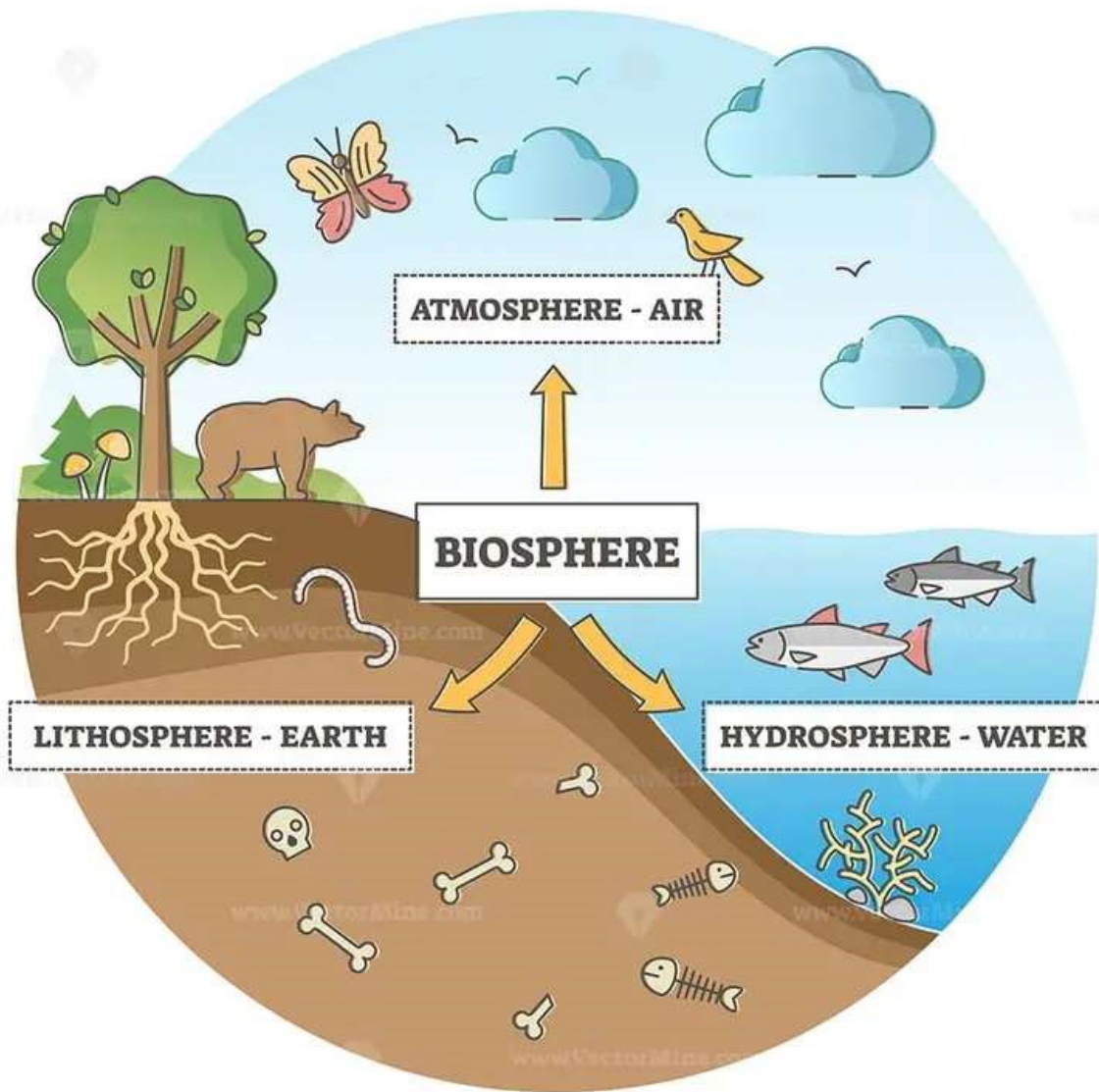
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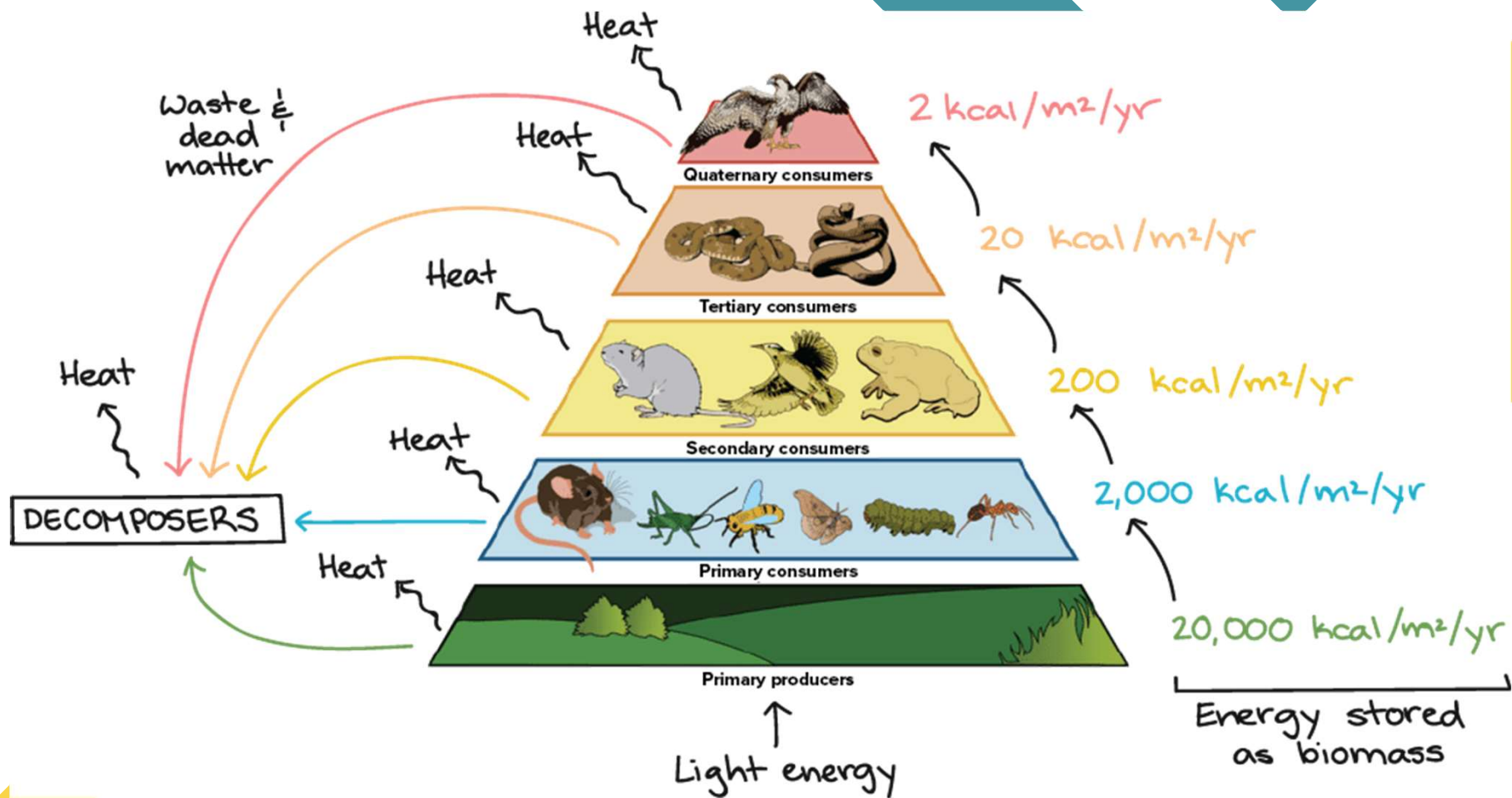
noun **ECOLOGY**

a biological community of interacting organisms and their physical environment.
"the marine ecosystem of the northern Gulf had suffered irreparable damage"

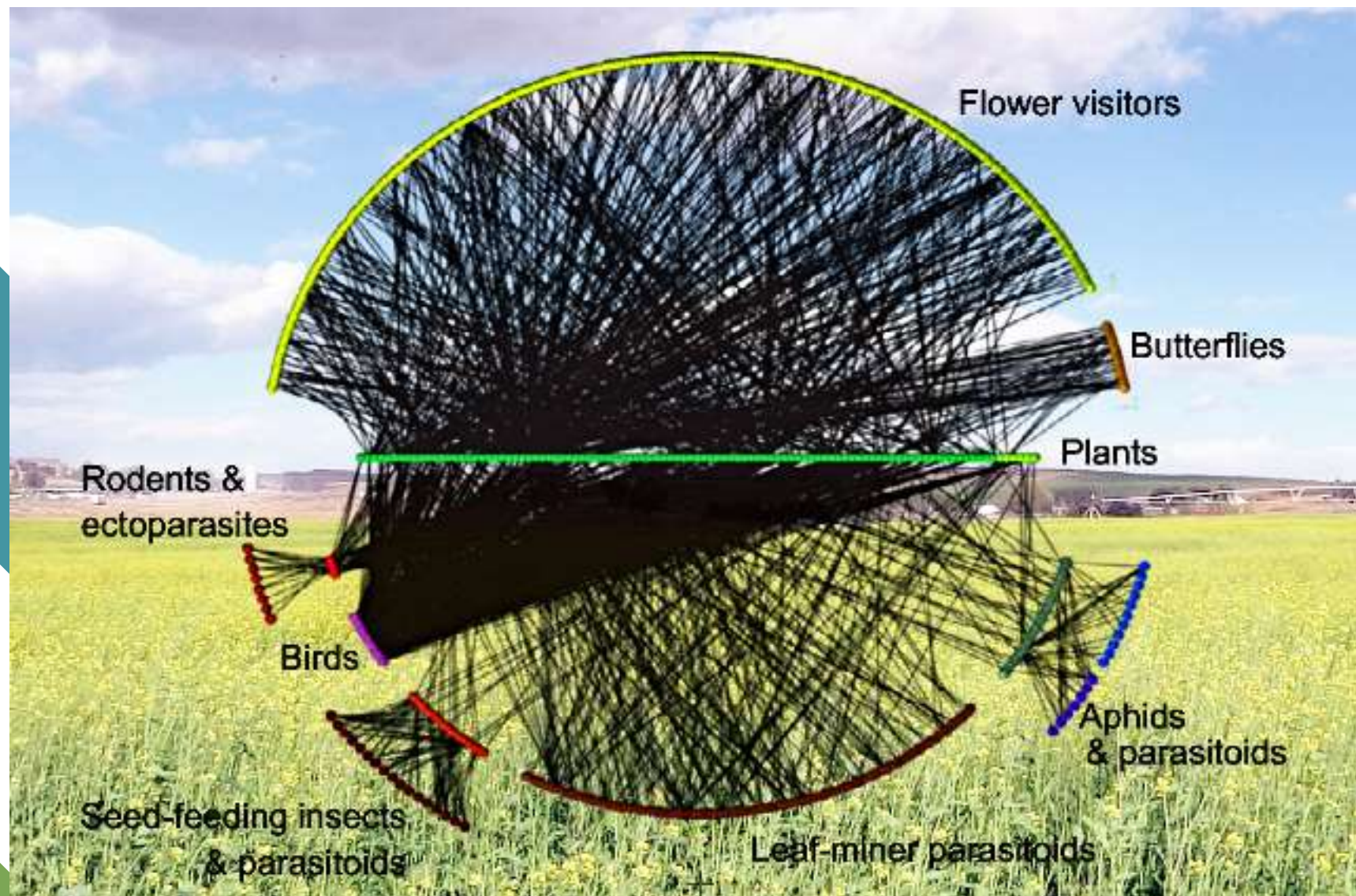
- (in general use) a complex network or interconnected system.
"Silicon Valley's entrepreneurial ecosystem"

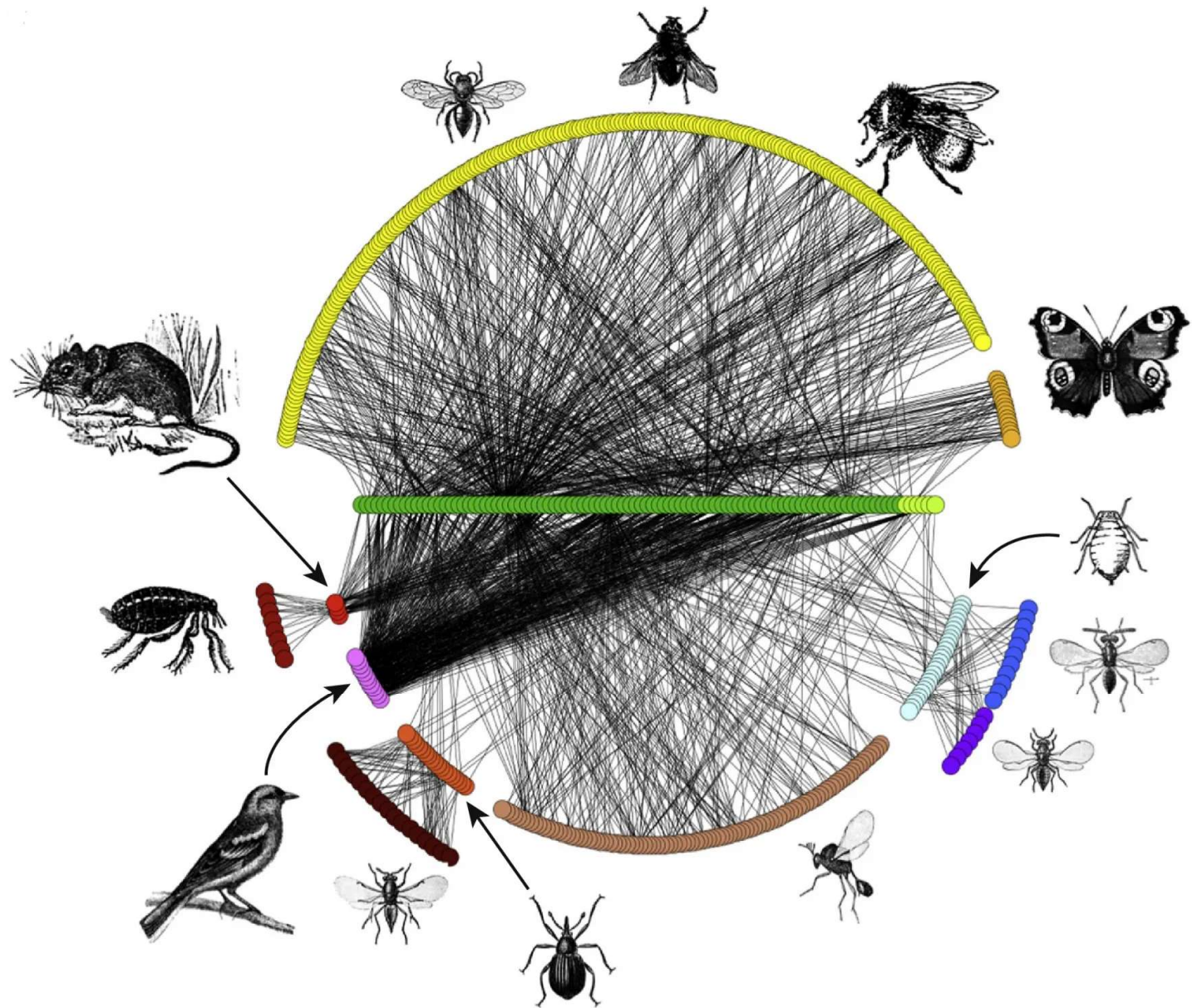






Every organism lives at a specific trophic level, depending on what it eats





Credit: Quintessence Network DOI: 10.1016/j.tree.2015.12.003

Species Interactions

Competition

Occurs when two or more species vie for the same resource that is in limited supply. Can be interspecific (between species) or intraspecific (within a species).

Predation

One species (predator) hunts and consumes another (prey). This interaction influences population sizes and evolutionary adaptations.

Herbivory

A form of predation where herbivores feed on plants, affecting plant community composition and primary productivity.

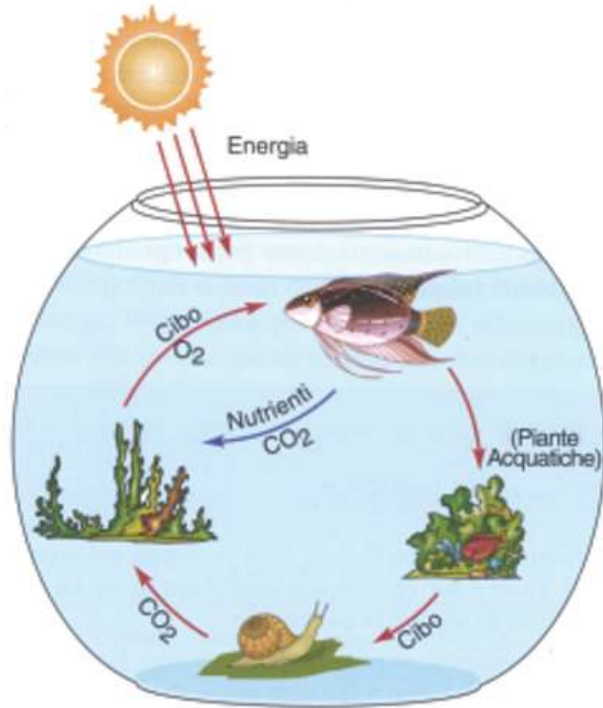
Symbiosis

Close, long-term interactions between different species, including:

- **Mutualism.**
- **Commensalism**
- **Parasitism**



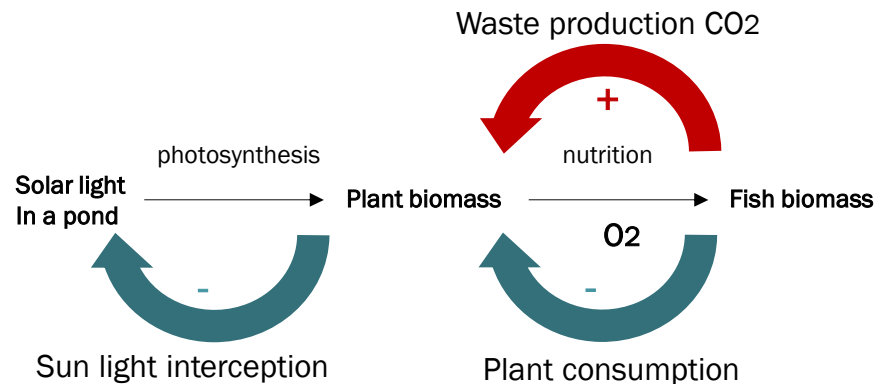
Hierarchical levels of organization in ecology



The ecology focuses in systems that are above the level of a single organism.

These are:

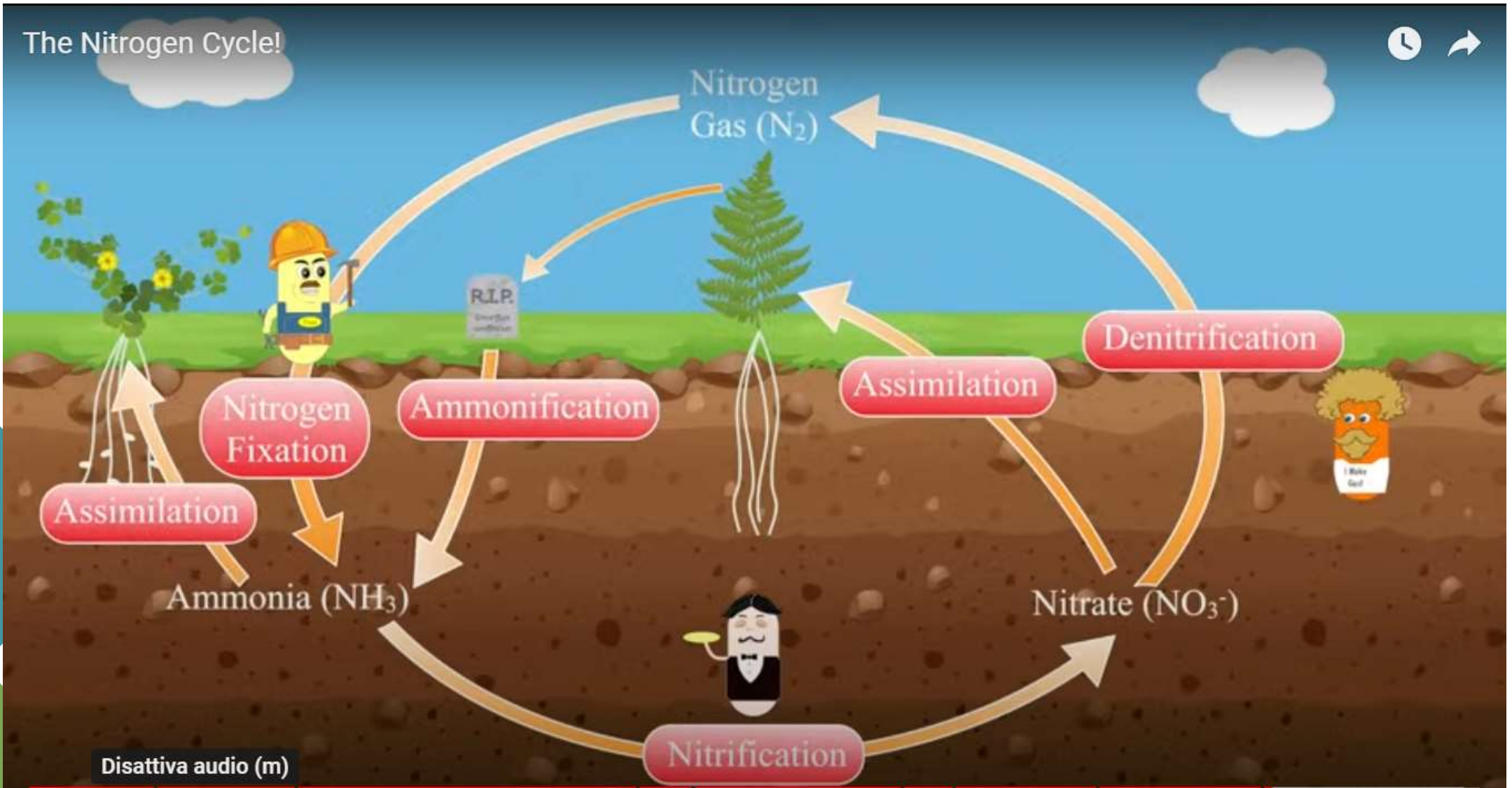
- Populations
- Community
- Ecosystem
- Biome
- Ecosphere



The ecosystem is the first level of the hierarchical ecology:

It includes **biotic** component and **abiotic** one and the interactions between the two.

Cycle of Nitrogen

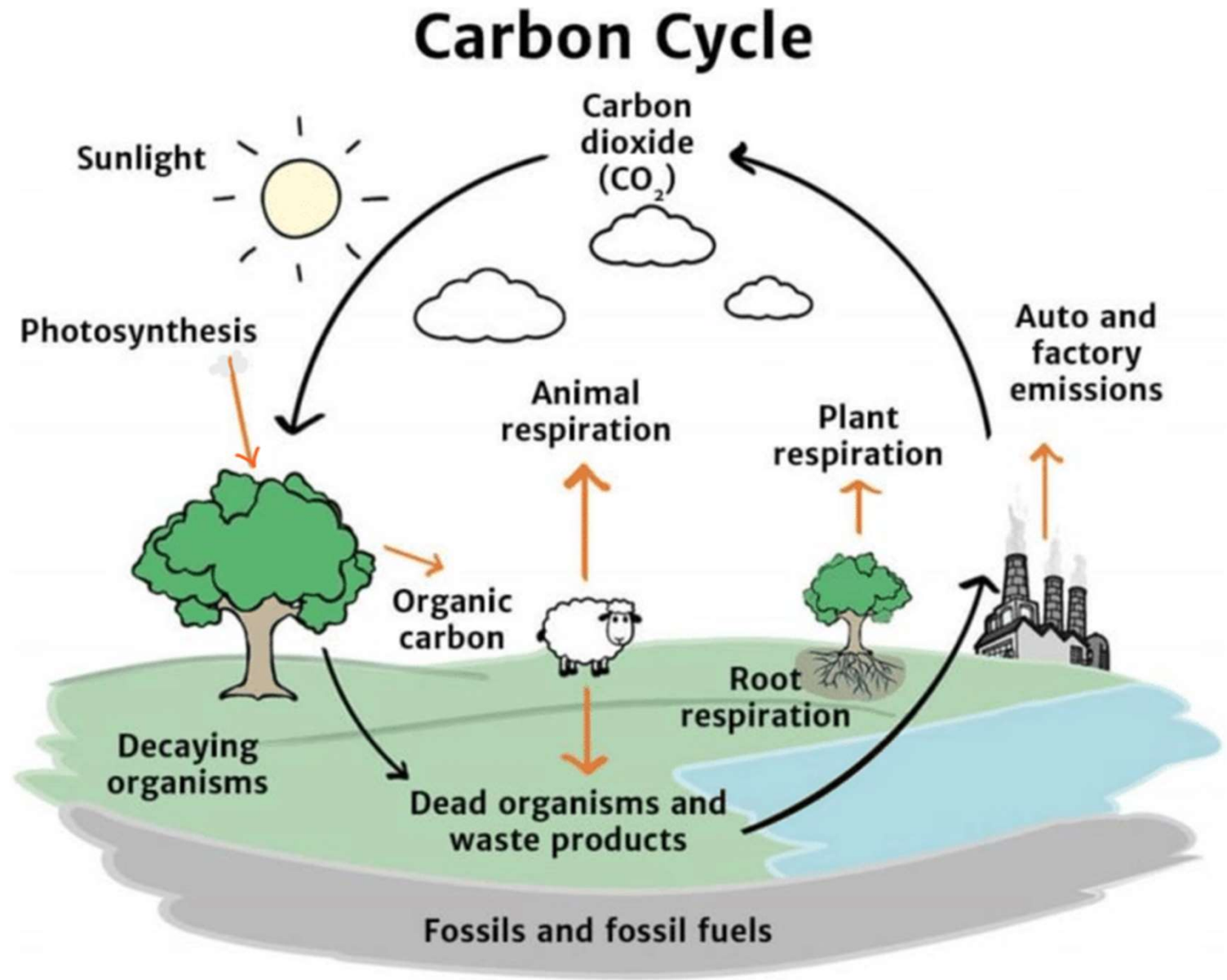


Video

<https://www.youtube.com/watch?v=uip4Q6t7yfQ>

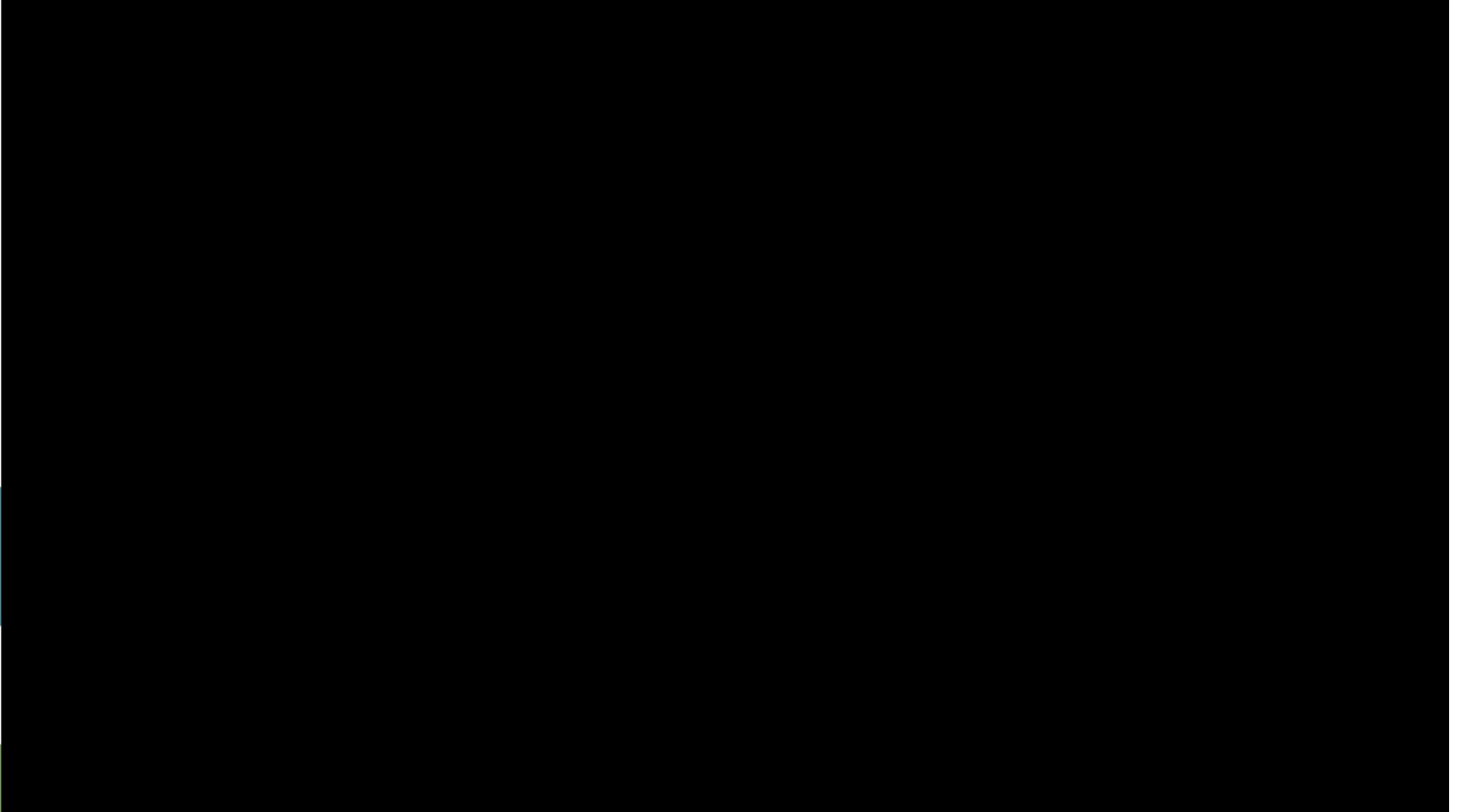


Cycle of Carbon



Video

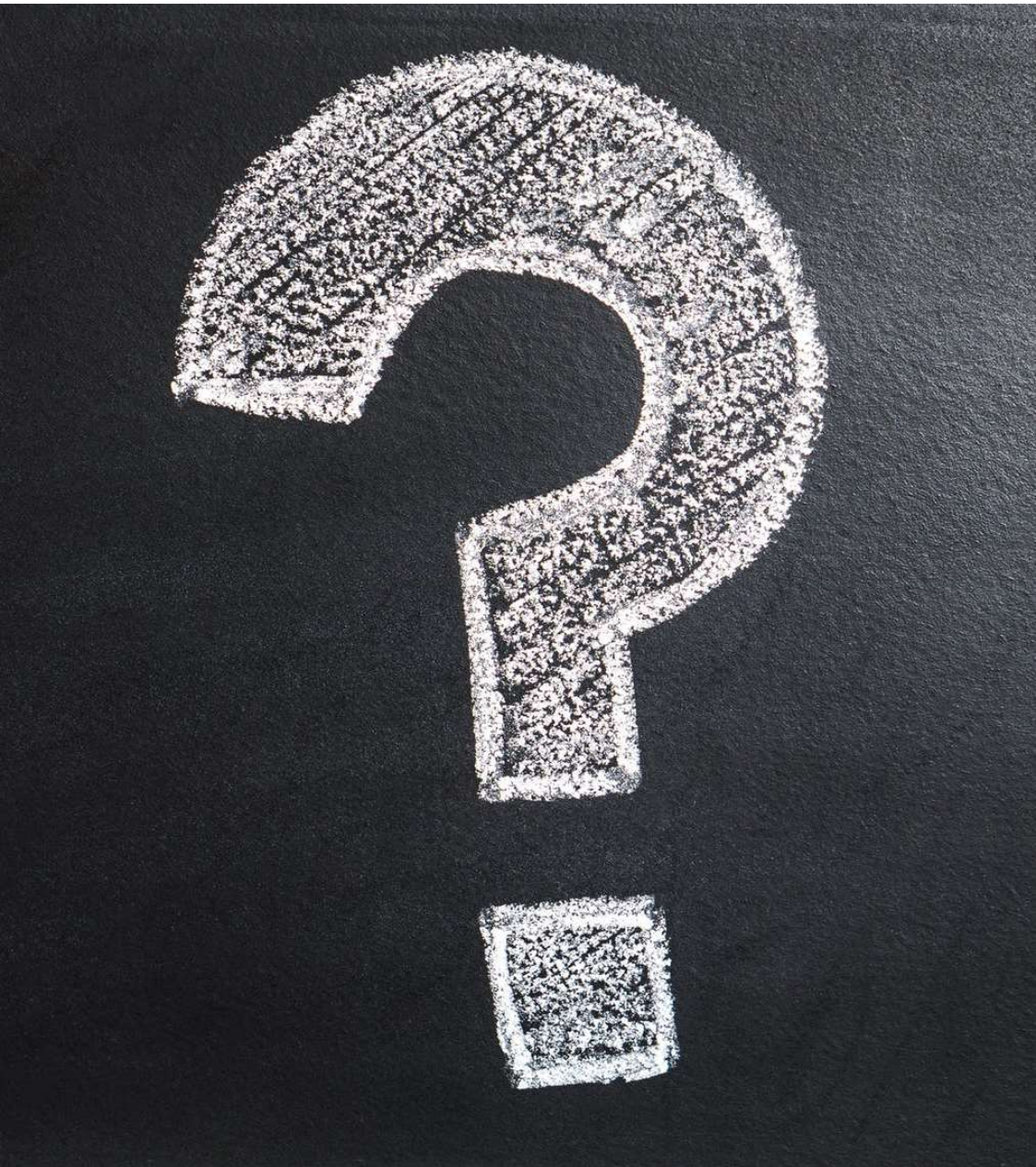
<https://www.youtube.com/watch?v=hgFpvDNfXOk>



Rachel Carson

- Wrote "*Silent Spring*"
- Biologist, ecologist, Writer
- Protested the use of chemicals, Pesticides in the environment for farming, etc.
- Resulted in the Water Quality Act
- Triggered the Modern Environmental Movement





Questions

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