生物类文章背景知识

Biology is the natural science that involves the study of life and living organisms, including their physical structure, chemical composition, function, development and evolution.

Biology recognizes the cell as the basic unit of life, genes as the basic unit of heredity, and evolution as the engine that propels the creation of new species.

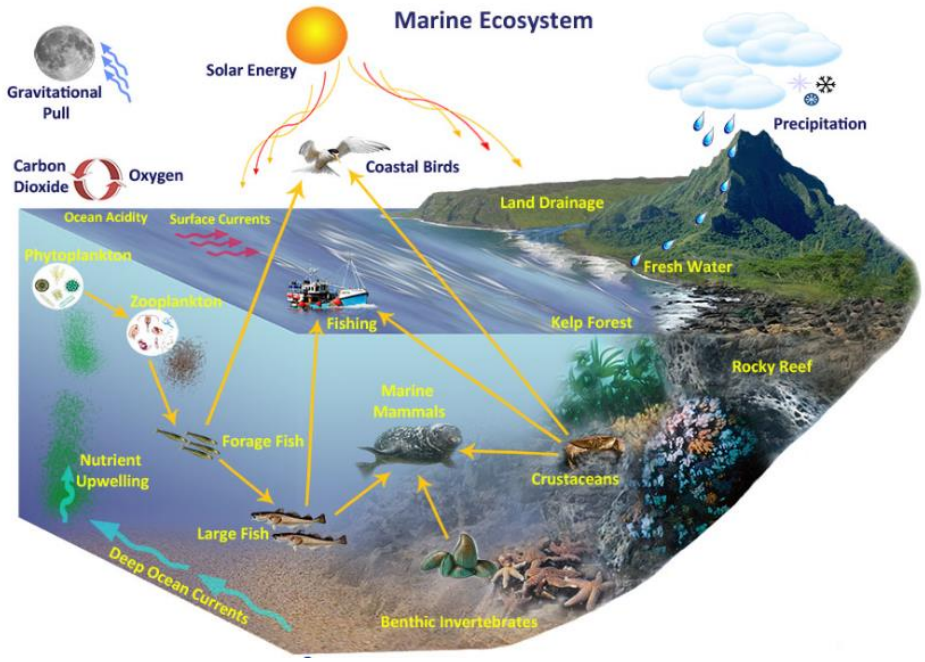
Biology deals with the study of life and organisms.

- top: *Escherichia coli* bacteria and gazelle
- bottom: Goliath beetle and tree fern

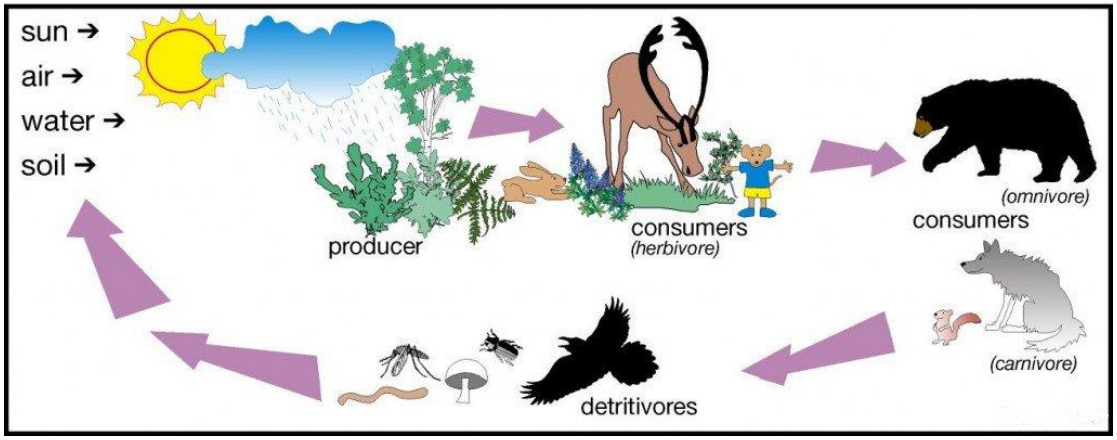
背景知识

Marine biology

The ocean is a complex three-dimensional world covering approximately 71% of the Earth‘s surface. A large proportion of all life on Earth lives in the ocean. The habitats studied in marine biology include coral reefs, kelp forests, seagrass meadows, the surrounds of seamounts and thermal vents, tidepools, muddy, sandy and rocky bottoms, and the open ocean (pelagic) zone, where solid objects are rare and the surface of the water is the only visible boundary. The organisms studied range from microscopic phytoplankton and zooplankton to huge cetaceans (whales) 30 meters (98 feet) in length. Marine ecology is the study of how marine organisms interact with each other and the environment.



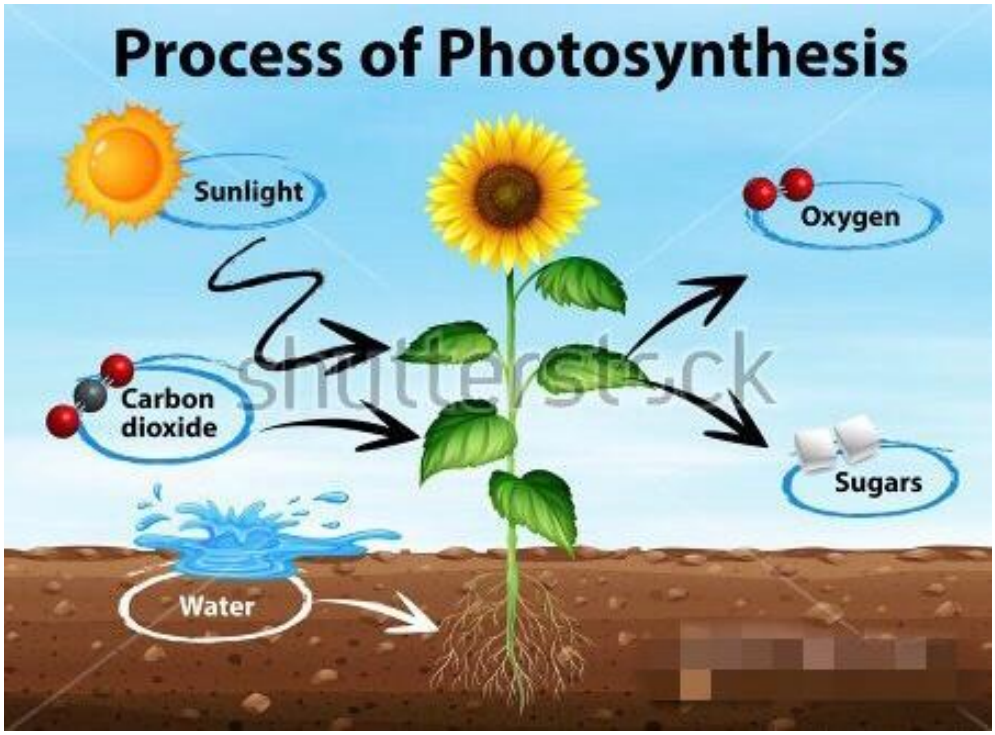
A food chain is a linear network of links in a food web starting from producer organisms (such as grass or trees which use radiation from the Sun to make their food) and ending at apex predator species (like grizzly bears or killer whales), detritivores (like earthworms or woodlice), or decomposer species (such as fungi or bacteria).



Botany

Botany, also called plant science(s), plant biology or phytology, is the science of plant life and a branch of biology. Traditionally, botany has also included the study of fungi and algae by mycologists and phycologists respectively.

The study of plants is vital because they underpin almost all animal life on Earth by generating a large proportion of the oxygen and food that provide humans and other organisms with aerobic respiration with the chemical energy they need to exist. Plants, algae and cyanobacteria are the major groups of organisms that carry out photosynthesis, a process that uses the energy of sunlight to convert water and carbon dioxide into sugars that can be used both as a source of chemical energy and of organic molecules that are used in the structural components of cells. As a by-product of photosynthesis, plants release oxygen into the atmosphere, a gas that is required by nearly all living things to carry out cellular respiration. In addition, they are influential in the global carbon and water cycles and plant roots bind and stabilise soils, preventing soil erosion. Plants are crucial to the future of human society as they provide food, oxygen, medicine, and products for people, as well as creating and preserving soil.



Niche

Definition: the set of biotic and abiotic conditions in which a species is able to persist and maintain stable population sizes. The ecological niche is a central concept in the ecology of organisms. Biogeographical patterns and range distributions are explained or predicted through knowledge of a species' traits and niche requirements. Species have functional traits that are uniquely adapted to the ecological niche. Genes play an important role in the interplay of development and environmental expression of traits. Resident species evolve traits that are fitted to the selection pressures of their local environment. This tends to afford them a competitive advantage and discourages similarly adapted species from having an overlapping geographic range.

The competitive exclusion principle states that two species cannot coexist indefinitely by living off the same limiting resource; one will always out-compete the other. When similarly adapted species overlap geographically, closer inspection reveals subtle ecological differences in their habitat or dietary requirements.

The flightless dung beetle occupies an ecological niche exploiting animal droppings as a food source.