

Life Science

Define:
Alleles

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Define:
Chromosome

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In DNA and RNA, molecules called
bases pair up in certain ways.

How do the bases A, C, G, T, and U
match up in DNA? How about RNA?

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Summarize the cell process
called protein synthesis!

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Define:
Carnivore and herbivore

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Define:
Organelle

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What does a cell membrane do?
(Sometimes called "plasma membrane".)

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What do mitochondria do?

A chromosome is a large molecule of DNA.

Humans have 23 pairs of chromosomes, or 46 total.

Alleles are different versions of the same gene.

For example, in humans the genes for blue eyes and for brown eyes are alleles.

1. DNA strands in the nucleus separate.
2. Instructions are read from the DNA and written onto mRNA.
3. mRNA goes to a ribosome.
4. Ribosome reads the mRNA.
5. tRNA brings needed amino acids.
6. Ribosome assembles the amino acids into a protein!

In DNA: Adenine (A) pairs with thymine (T), and guanine (G) pairs with cytosine (C).

In RNA: Adenine (A) pairs with uracil (U), and guanine (G) pairs with cytosine (C). There are no Ts in RNA! Use U instead!

Organelles are parts of a cell with specialized jobs.

Examples: Nucleus, ribosome, mitochondria.

Carnivores are animals that only eat other animals.

Herbivores only eat plants.

(An animal that eats both plants and animals is called an omnivore.)

Mitochondria are organelles that give the cell energy.

Cellular respiration occurs within the mitochondria.

A cell's plasma membrane is like the "skin" of the cell.

It allows some things to enter or leave the cell and blocks other things from entering or leaving.

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What do chloroplasts do?

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What do ribosomes do?

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What does a cell wall do?

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Describe the process of cellular respiration.

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What is the difference between aerobic and anaerobic respiration?

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What are prokaryotes and eukaryotes?

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Describe the process of photosynthesis.

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Define:
Nucleus

Ribosomes are organelles that build proteins.

They get help from RNA molecules, and assemble the proteins from pieces called amino acids.

Chloroplasts are organelles found in plants (and some algae) that make food.

Photosynthesis occurs within the chloroplasts. They contain a green chemical called chlorophyll.

In cellular respiration, food is broken down to produce energy for the cell.

This is done inside the organelles called mitochondria.

Cell walls are found in plants, fungi, and some bacteria. They are a protective shell outside the cell membrane.

Cell walls can make an organism hard and rigid, like the trunk of a tree.

Prokaryotes are organisms whose cells do not have a nucleus. Their DNA just floats around in the cell.

Eukaryotes are organisms whose cells do have a nucleus. Their DNA is kept safe inside the nucleus.

Aerobic respiration requires oxygen, but produces a lot of energy for the cell.

Anaerobic respiration does not require oxygen, but produces less energy.

The nucleus is an organelle which controls the rest of the cell and protects the cell's DNA.

Only eukaryotic cells have a nucleus. Prokaryotic cells do not have one.

In photosynthesis, sunlight is used to make food (sugar) for the cell.

This is done in organelles called chloroplasts, which only plants and some algae have.

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Define:
Consumer, decomposer,
and producer.

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Define:
Genotype and phenotype.

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Starting with "kingdom",
name all of the categories
used to classify living things.

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Define:
Mutation

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Define:
Competition

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Define:
Symbiosis

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The three types of symbiosis are
commensalism, mutualism and parasitism.
Describe them.

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Define:
Natural selection

An organism's genotype is a list of what genes it has, or its "letters". For example, a pea plant might have the genotype "Tt".

An organism's phenotype is a description of the organism's traits. For example, a pea plant might be "tall" or "short".

Mutations are "mistakes" that occur during cell division when DNA is copied.

These mistakes change the DNA of the new cells slightly, and can lead to brand new traits. These traits might be helpful, harmful, or make no difference and are an important part of evolution.

Symbiosis is a relationship between two or more species that live in close association with each other.

Usually one species lives on or even inside the other.

Natural selection is the main way in which species evolve.

Individual members of a species that are better-suited to their environment are more likely to survive and reproduce, making their traits (and genes) more common in the population.

Consumer: Organism that eats other organisms to survive.

Decomposer: Organism that breaks down dead organisms, returning their body's nutrients to the soil.

Producer: Organism that makes its own food without eating others.

Kingdom
Phylum
Class
Order
Family
Genus
Species

Competition is when two or more organisms are trying to get the same resource.

They might be competing for food, water, space, etc..

Commensalism: one species benefits without affecting the other.

Mutualism: both species benefit.

Parasitism: one species benefits and the other is harmed.