3rd grade - How plants and animals survive

Appendix 3

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What does a stork need to live?

What do fish need to live?

What does a fox need to live?

Living Environment
What do plants need to live?

What conditions do plants and animals need to survive?

- Food
- Water
- Air
- Appropriate temperature

LIVING ENVIRONMENT

- A living environment or habitat is part of nature surrounding plants and animals, the impact of which affects their most important functions.
- Adaptation is a term that refers to the process of adaptation of organisms to the different conditions of the environment in which they live.

To survive, animals and plants adapt to their environment.

Example: Colour - colour, pattern, colour / of animal fur or the color of leaves in autumn.

ENEMIES PROTECTION in plants

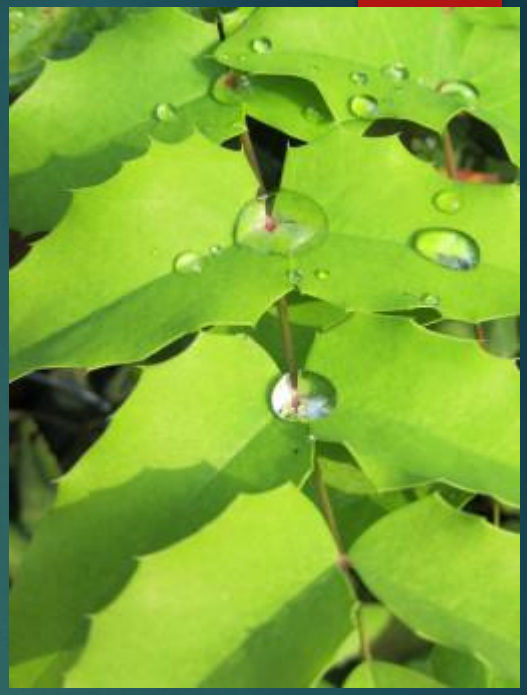
- ✓**Poisonous and prickly leaves;**
- ✓**Leaves that do not retain water;**
- ✓**Stems that retain water.**

The nettle is covered with thin hairs, which emit a fiery juice when touched.
Donkey thistle and cactus have spines.
Thistles and thorns protect these plants from being eaten by animals.

The white rose is the favorite flower of mermaids and nymphs. Rosen has quite interesting properties. Flowering stems and the whole plant can cause an allergic reaction in contact with sensitive skin. On sunny and hot days, a strong citrus aroma floats around it. It is due to the ethereal and volatile substances that are released. Thanks to them, offering a flame, the air around the self-wild flower will also ignite. The phenomenon is impressive, and the most amazing thing is that the fire does not harm the plant itself.

Cacti are much more than prickly plants that withstand drought. Their roots, unlike tree roots, penetrate the ground slightly, making them easy to uproot or pull down. But they grow significantly in width to absorb moisture from the maximum available area during rain. 75 to 90 percent of a cactus mass is water.

In the lotus/water lily, the contact area of the leaves with water is reduced, making them highly water repellent, or hydrophobic.This natural "technology" inspired scientists to develop artificial superhydrophobic materials. And a little-known fact is that lotus water-repellent properties can also be found on the wings of some insects.



When examined under a microscope, it is clear that the lotus leaf is covered with a thick, uneven layer of impermeable wax, which creates a kind of barrier between the plant surface and the environment.

ENEMY PROTECTION in animals

- ✓They run, fly, swim fast;
- ✓Protective colour;
- ✓Strong shell;
- ✓A developed sense of smell;
- ✓Strong eye-vision;
- ✓Poisonous bite;
- ✓They produce sounds;
- ✓Poisonous spines.

The green color and shape helps the praying mantis blend in with the foliage. Thus, she becomes invisible for her enemies.

What color helps animals hide in the snow or in the sands of deserts?

The cobra is known for its menacing posture and hood that "spreads" when it hisses. The cobra is the only snake in the world that spits its venom. They hide under stones, in the ground and have a strong sense of smell, through which they find their victims even at night.

A strong shell protects the turtle from enemies. The spines, sharp teeth and claws protect the hedgehog. He sleeps in winter and hunts at night. He runs, jumps, swims and crawls quickly, has poor eyesight but keen hearing and sense of smell.

COLD, HEAT AND DROUGHT PROTECTION

Who is best prepared to survive the cold and the heat? Why?

Dependence of animals on changes in the living environment

Examples:

- Polar fox - https://www.klimadapt.org/video/WWF-1.mp4
- Polar bear - https://www.klimadapt.org/video/WWF-26.mp4

Plants cold protection

In spring and summer, leaves convert sunlight into energy.
During photosynthesis, trees lose a lot of water, which they cannot get in winter.
After the leaves fall down (were pushed down), trees are ready for the winter, and grow new leaves in the spring.

Animals heat and drought protection

The thick camel hair reflects sunlight and protects these animals from the scorching heat. Camels can survive without water for so long because the red blood cells in their blood are unique – thanks to their special shape, camel blood does not lose fluidity even in the absence of moisture in the body. Thanks to the special structure of the soles of the feet, flat and wide, camels do not fall into the loose and hot sand. Camel humps do not store water, but the fat there is used as an energy reserve. Water is stored throughout their body, especially in the bloodstream, which is very useful to avoid dehydration.

A camel can lose 40% of its weight without being adversely affected, and can go seven days without drinking water.

But when they drink, they do it the healthiest way - 225 liters of water at a time.

PLANTS HEAT AND DROUGHT PROTECTION

Cacti roots, unlike tree roots, penetrate the ground slightly, making them easy to uproot or to push them down. But they grow significantly in width to absorb moisture from the maximum available area during rain.

Did you know that:

Whiter than white. Did you know that the fur of polar bears is not white, but transparent? The long, thick protective hairs that cover these animals are hollow and have no color. They refract light so that it appears white to us. And human eyes see this color when an object reflects all visible light instead of absorbing some of its wavelengths. The hollow hairs transmit sunlight directly to the skin below, and so along with the 10-centimeter layer of subcutaneous fat provide warmth for the body in the frigid temperatures of the North Pole. And under this transparent shell, white bears are actually black! At the end of the 70s of the last century, scientists discovered with astonishment that many polar bears from zoos around the world were turning green! The cause turned out to be microscopic algae that got into their fur from the pools in their cages.

Did you know that:

- The most notable external feature of owls is their ability to rotate their heads and necks up to 270 degrees. This ability is thanks to 14 vertebrae in their necks, compared to 7 in humans, which makes their neck 2 times more flexible.

Not only do they hear sounds that would be imperceptible to humans, but they also have the ability to memorize the different sounds that prey makes. This gives them the advantage of knowing exactly what their prey is doing and whether it is stationary, feeding or moving.

Lung Fish

- The Lung fish, also known as the salamander, is a type of freshwater fish popular for its ability to live on land, without water, for months and sometimes even years. As their name suggests, these fish possess a highly evolved respiratory system that draws oxygen directly from the air, just as land animals do.
- In fact, some species of salamander use their respiratory system so often that they slowly lose the function of their gills. While they still live in water, they must regularly come to the surface for air.
- When there is water, the salamander behaves like any other fish - it swims, eats small fish and crustaceans on the bottom of lakes and streams. But when the dry season comes, the fish burrows deep into the mud and digs through it, taking in the mud with its mouth and expelling it through its gills.
- Having reached a comfortable depth, the mucous membrane of its skin secretes and forms a hard protective cocoon around it. Only the mouth is left unprotected to breathe.
- For their long winter sleep, salamanders reduce the work of their metabolism to a minimum. Once back in the water, they crawl out of their hole.
- According to some scientists, the fish can stay underground in dried mud for up to four years..
- Lung fish are found only in Africa, South America and Australia. In Africa, the local population pulls them out of the mud and consumes them. However, not everyone likes their meat because of its specific taste.

Where do people live? How have they adapted to the living conditions? Look at the pictures and answer the questions.

How do we protect ourselves from the cold in winter and from the heat?

Where do animals live? Find the mistakes?

Homework:

What is your favorite animal?
What do you know about it?

What is your favorite plant?
What interesting facts do you know about it?