

Tundra Plant Adaptations Lesson for Kids

When weather is tough in the tundra, the plants must adapt to survive. In this lesson, learn about all the changes plants make to grow despite the tundra's harsh conditions.

Temperatures in the Tundra

The tundra's a beautiful place, if you can see it! For ten months, the tundra experiences winter, during which darkness covers the land and temperatures are below freezing. Because it's so cold, precipitation often comes in the form of snow or ice and there is very little rainfall.

The tundra does experience summer for a couple of months, but it still only gets average temperatures around forty degrees Fahrenheit. Brrr! Also, it's overcast most days, so there is little sunshine.

If you know anything about plants, you know they need water and sunlight to grow. Both of these are in short supply in the tundra, so plants have made adaptations to survive. An **adaptation** is a change that enables a living organism to survive in an environment. Let's look at some tundra plant adaptations.

Tundra Plant Adaptations

To survive the harsh conditions, tundra plants have developed one or more of these traits:

1. Shallow root system
2. Guarded growing
3. Specialized leaves
4. Going dormant

Shallow Root System

Due to the rock-hard ice layer in the tundra's soil, known as **permafrost**, tundra plants have developed tiny rootlets. These rootlets are shallow, not penetrating as deeply as a regular root, but they still allow the plant to absorb nutrients and anchor itself into the ground.

For this reason, you will find mosses, lichen, shrubs and flowers in the tundra, but you won't see a tree standing tall. Why? Because trees need deep roots, and the permafrost prevents such roots.

Guarded Growing

In the tundra, winds can reach speeds over one hundred miles per hour! By growing close to the ground, plants have less of a chance of being uprooted by the wind. In fact, tundra plants grow so low, they are often referred to as the tundra's carpet.

Tundra plants also tend to grow in clumps. By sticking close together, the plants provide protection for one another from the wind and the cold.

Specialized Leaves

Other adaptations are found in tundra plants' leaves. Some tundra plants have lots of tiny leaves that develop quickly. By making leaves quickly, the plant can start turning the limited amount of summer sunshine it gets into food to survive the long winter. Also, plants lose water through their leaves, so smaller leaves means less water loss. This is important in an area with limited rainfall.



These tundra plants are growing close together.

Other tundra plants have developed hairy leaves! You read that correctly: hair on leaves. These hairs help the plant to stay warm in the tundra's plummeting temperatures.



The tiny, white hairs on this plant help it to stay warm.

Going Dormant

Imagine if you could just fall asleep whenever life got too tough, and when you woke up everything would be more pleasant. Well, plants can do just this. When the environment becomes too harsh, certain plants have the ability to go **dormant**. Plants are still alive when they're dormant, but not growing; they're waiting for conditions to become better to start growing again.

Lesson Summary

In summary, the tundra is cold, with little sunlight and rainfall; therefore, plants must make **adaptations** to survive:

1. Shallow root systems: Tiny rootlets anchor plants, but avoid reaching the **permafrost**, or frozen subsoil layer.
2. Guarded growing: By being low to the ground and clumped together, plants are shielded from wind and cold.
3. Specialized leaves: Tiny, quickly sprouting and, sometimes, hairy leaves help increase food production, limit water loss and give warmth.
4. Going **dormant**: This trait allows plants to stay alive, but not grow until conditions are good.

So the next time you're feeling overwhelmed, just think of adapting to the situation, like a tundra plant!