

Teacher **Treesources**

EVERGREEN TREES

Winter is a perfect time to focus on trees that don't lose their leaves. After all the deciduous trees have lost their leaves the evergreens stand out. Evergreen trees and shrubs have some great adaptations for the cold, and many of them reproduce with cones, which is fascinating. Evergreens are not just conifers or pine trees though. Just learning the differences will teach you and your students a great deal about the diversity and variations within the plant world.

- In the lower grades students learn about how living things reproduce. Cones are amazing reproductive structures. Learn how they produce seeds with no flowers.
- In middle school students learn about adaptations. Conserving water and decreasing evaporation are ways that evergreens survive the winter without dropping their leaves.
- In high school students delve deeper into evolution and plant diversity. Flowering plants are relatively recent and learning variations on reproduction gives a more complete picture of the importance of diversity in the plant world.

Background

Leaves are the food-making organ of plants, essential for [photosynthesis](#). For many trees, such as maples and hickories, it is difficult to maintain leaves when temperatures are cold or there is a lack of water. These trees are deciduous and lose their leaves in the fall. Another set of trees are the [evergreens](#), those that keep most of their leaves year-round. Many evergreens have needle-like leaves that can tolerate winter conditions. These leaves are thicker to retain water and have a waxy protective layer called a cuticle. They are also able to start photosynthesizing first thing in the spring and don't have to use up energy to grow leaves. Often times the terms "evergreen" and "conifer"

are used interchangeably, but there is a difference between the two. While the term "evergreen" refers to trees that retain their leaves throughout the year, the term "conifer" refers to plants that keep their seeds in cones instead of some other type of fruiting structure, such as the winged samaras of a maple or the nuts of a hickory. Not all conifers are evergreen and not all evergreens are conifers. There are [deciduous conifers](#) that bear cones yet drop all of their leaves every autumn and [broadleaf evergreens](#) that don't bear cones, yet keep their leaves year-round. However, most conifers are evergreen and vice versa.

Activities

[Fresh Science - Evergreens](#) (Grades K-5)

– A list of activities pertaining to evergreens, including investigating cones, comparing and sorting evergreen leaves, and doing bark rubbings. Also includes useful information.

[Evergreen and Deciduous Leaves](#) (Grades 2-8)

– Compare the [seasons](#) and create [models](#) of evergreen and deciduous leaves.

[Conifers - Seeds, Cones and Needles!](#) (Grades 3-6)

– An easy approach to classifying trees. Includes vocabulary words and a [worksheet](#) for grouping trees.

[The Fibonacci Sequence and Pine Cones](#) (Grades 6-12)

– Collect cones and see how the scales of a pine cone are arranged according to a mathematical sequence.

Resources

Web sites:

[What Tree Is It?](#) – An online dichotomous key that can help you identify Ohio's trees by the leaf or the fruit. You can also use [pictures and descriptions](#) from ODNR.

[Coniferous Forests](#) – Discover what makes a coniferous forest unique from other biomes.

[Winter Adaptations of Evergreens](#) – Answers the question, "Why do evergreens stay green in the winter?" with an easy additional experiment for kids.

[Stuff We Get From Trees](#) – Find out what everyday products are made from trees, many from coniferous trees.

[Pollen and Seed Cones](#) – Explains the differences between male and female cones on a pine tree.

Video:

[How Conifers Produce Seeds](#)

[Overview of Gymnosperms and Conifers](#)

["C is for Conifer" by They Might Be Giants](#)

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