

Teacher **Treesources**

PLANT FOSSILS

The fossil record serves as a basis for our scientific understanding of early life on Earth. From fossils, we can infer how climate and ecosystems have changed, how prehistoric organisms interacted with each other and how life forms have diversified over time. Plant fossils are particularly interesting to study because many prehistoric plants possess characteristics that are similar and easily recognizable when compared to today's living plants. Some of the content statements in Ohio's Revised Science Standards focus on the study of fossils, especially through drawing comparisons between prehistoric and currently living organisms.

- Second grade: Some kinds of individuals that once lived on Earth have completely disappeared, although they were something like others that are alive today.
- Fourth grade: Fossils can be compared to one another and to present-day organisms according to their similarities and differences.
- Eighth grade: Diversity of species occurs through gradual processes over many generations. Fossil records provide evidence that changes have occurred in number and types of species.

Background

Plants played an important part in altering the prehistoric climate by converting carbon dioxide into oxygen through the process of photosynthesis. All of our knowledge of these early plants comes from the study of plant fossils, also known as paleobotany. In order for any life form to become preserved as a fossil, it must be rapidly and permanently buried under accumulating sediments and spend tens of thousands of years in the absence of oxygen and under excessive heat and pressure. During this time, the organic tissues are either chemically altered as in [compression fossils](#) or replaced with minerals as in [permineralized fossils](#) or dissolved, the last of which leaves behind a [mold](#) of the original organism in the

surrounding rock. Even though fossils are no longer made of the same material as the original plants, the plant structures can be preserved in fine detail. Stems, roots, leaves, flowers, seeds, cones, and even pollen have all been discovered as fossils. Fossilized plant remains have allowed paleobotanists to discover species of plants that went extinct long ago, such as [Lepidodendron](#), a tree-like plant related to [club moss](#). Paleobotanists also compare ancient plants to plant species that are living today by looking at shared physical characteristics. Using their knowledge of living plants, paleobotanists use these fossils to reconstruct prehistoric ecosystems and climates.

Activities

The Paleontologists Path (Grades 4-8) – Students identify leaf fossils and use them to infer prehistoric climate conditions in this lesson developed by the National Park Service. <http://tinyurl.com/paleontologists-path>

National Fossil Day: Educational Activities (Grades K-12) – Various lesson plans about fossils developed by the National Park Service. <http://tinyurl.com/fossil-day>

Fossils: SMART Board Lessons (Grades K-12) – SMART board lessons for all age groups. <http://tinyurl.com/smartboard-fossils>

Fun with Fossils (Grades 3-5) – Students make their own fossils using Plaster of Paris: <http://tinyurl.com/fun-fossils>

Resources

Websites:

Stories from the Fossil Record (Grades 3-6) – A series of online educational modules that explore how fossils help us understand prehistoric ecosystems, past life forms, and biodiversity. <http://tinyurl.com/fossil-stories>

Understanding Geologic Time (Grades 5-10) – An online education module that explores geological time and fossil dating. Can be used as a lesson: <http://tinyurl.com/fossil-time>

Plant Fossils of Ohio (Grades 7-12) – Learn about the various plant fossils that have been discovered in Ohio. <http://tinyurl.com/ohplant-fossils>

Online Fossil Games (Grades 3-8) – Online games that explore what conditions are required for fossils to form. <http://tinyurl.com/fossil-games>

Videos:

Plants Are Cool, Too (Grades 4-12) – This video shows an interesting plant fossil dig in Idaho. <http://tinyurl.com/plantsrcool2>

Books:

Fossils Tell of Long Ago by Alike (Grades K-3) – Follow a group of school children as they discover different fossils. <http://tinyurl.com/fossils-alike>

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