

Starved Rock Saplings



Fall Edition

Thank you for your interest in Starved Rock State Park. The following Starved Rock Sapling seasonal program is to help engage children and families in nature; at home, in their neighborhood, or at Starved Rock and Matthiessen State Parks.

Each packet will be posted to the Starved Rock and Matthiessen State Park Facebook page every October, January, April, and July. Packets can also be downloaded from the IDNR website at www2.illinois.gov/dnr/parks/pages/StarvedRock.aspx under the Interpretive tab.

Packets will include the following:

DISCOVER:

fun facts and information about the natural world.

CONNECT:

nature activities, storybook suggestions, games, and crafts .

EXPLORE:

ideas for getting outdoors and exploring the natural world in your backyard, neighborhood, or community parks.

Starved Rock and Matthiessen State Parks

www2.illinois.gov/dnr



Starved Rock and Matthiessen State Parks

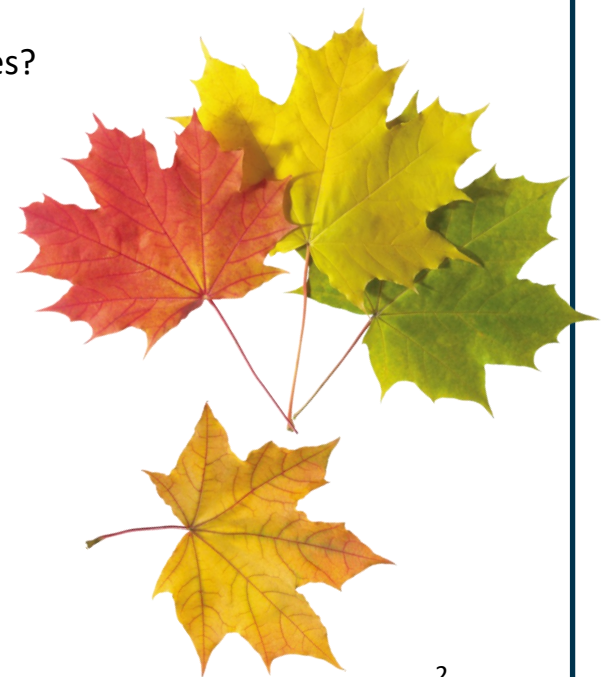
By Lisa Sons, Natural Resource Coordinator



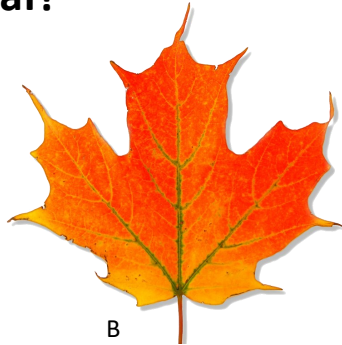
DISCOVER

Why do Leaves Change Color in the Fall?

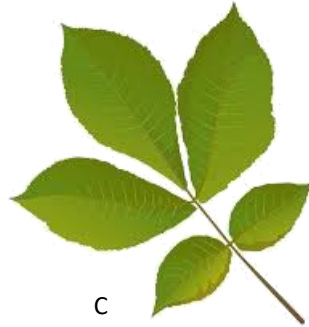
- Leaves change color in fall because they can sense the daylight hours becoming shorter and the temperature dropping due to the sun moving further away from the Northern Hemisphere of our planet.
- Tree leaves contain green pigments called **CHLOROPHYLL**. **CHLOROPHYLL** absorb sunlight's energy and use it to transform carbon dioxide and water into carbohydrates, such as sugar and starch, which are the tree's source of nourishment.
- During the autumn season **CHLOROPHYLL** begin to fade away as the sun moves further away, temperatures drop, and daylight hours become less and less as winter approaches. When the chlorophyll fade so does the color green from the leaf's surface.
- Fall colors such as yellows and oranges are created by pigments called **CAROTENOIDS** which are always present in leaves but hidden by the more powerful **CHLOROPHYLL**.
- **CAROTENOIDS** are the same pigments that make carrots orange and corn and sunflowers yellow.
- So what makes the red and purple colors in the leaves? **ANTHOCYANINS** are pigments that harvest as much sugar (food) and other nutrients from the leaf before the leaf closes off from the tree and falls to the ground for the winter. Those sugars and minerals such as phosphates left behind in the leaf create the vibrant reds and purples amongst the tree tops.
- Not all trees will produce red and purple leaves.



Guess the Tree Leaf!



A



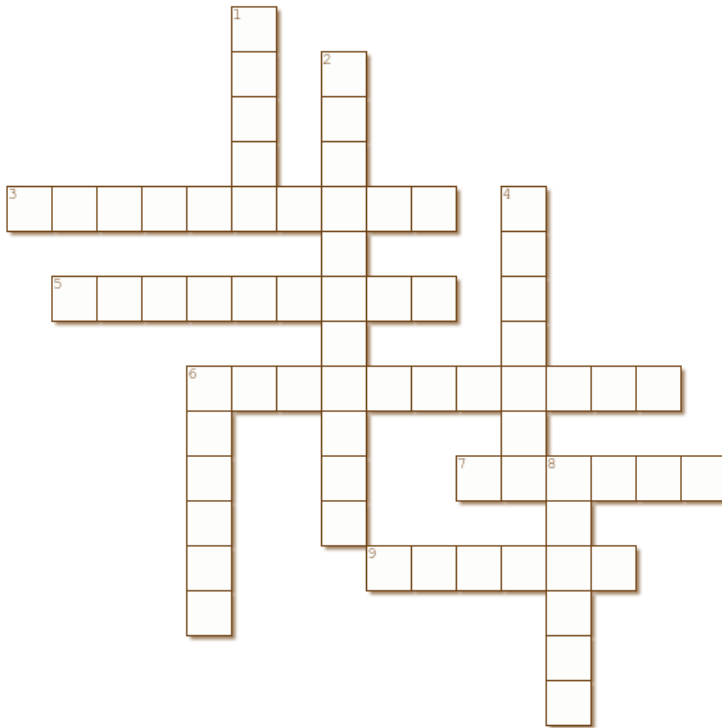
C



D

_____ 1. Sugar Maple _____ 2. Cottonwood _____ 3. White Oak _____ 4. Shagbark Hickory

Fall Colors at Starved Rock State Park!



Created using the Crossword Maker on TheTeachersCorner.net

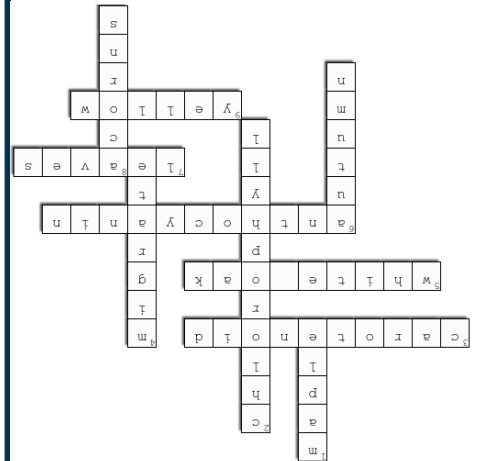
Across

- 3. A pigment that creates the colors yellow and orange in leaves.
- 5. State tree of Illinois. Leaves turn brownish red in the fall.
- 6. Creates bright reds and purples in tree leaves in the fall.
- 7. Trees use these to absorb sunlight for food.
- 9. One of the colors leaves turn in the fall.

Down

- 1. Leaf is the symbol of the Canadian flag and leaves turn yellow, orange, and red in the fall.
- 2. Makes food from sunlight for plants and trees and gives them their green color.
- 4. birds and even monarch butterflies do this every fall to head south for warmer weather and food.
- 6. what is another name for Fall?
- 8. Squirrels and chipmunks gather these in the fall for food.

Answers: 1b, 2d, 3a, 4c



CONNECT

NATURE SCIENCE! LEAF CHROMATOGRAPHY

- **Photosynthesis** is a plant or leaf's ability to convert energy from sunlight into food energy such as sugars and starches. The green chlorophyll in a plant or leaf absorbs sunlight, carbon dioxide, water, and minerals from the air and ground. The chlorophyll then produce food for energy needed to grow. The Planet Earth benefits from photosynthesis through oxygen which is released from plants and trees.
- Chromatography is the process of separating a mixture by passing it through another medium such as a filter. In this experiment you will be making a mixture of leaves and rubbing alcohol. Fall color pigments will then be separated through the coffee filter. Different pigments from your mixture will travel up the strip at different rates.

SUPPLIES NEEDED:

- Rubbing alcohol Coffee filters Mason jars Craft sticks Baking Sheet
- Tape Scissors Leaves Spoon Oven

INSTRUCTIONS:

- 1: Collect 3 sets of 3 leaves: 1 set of orange, 1 set of green, and 1 set of red or yellow.
- 2: Tear your leaves into tiny pieces (keep each set separate).
- 3: Put one color of a leaf into each jar.
- 4: Use your spoon to mash the leaves in the jar to help release the pigments.
- 5: Cover your leaves with rubbing alcohol. Do not fill the jar, just lightly cover the mashed leaves, where there is just enough liquid rising over them.
- 6: Place on a baking sheet and bake in the oven at 250 degrees for one hour.
- 7: While the jars are cooling, cut 2 inch wide strips of coffee filter and secure one end around a craft stick with tape. Place a strip of coffee filter into each jar. The craft stick will rest across the top of the jar while the paper dangles inside and the bottom of the paper just barely touches the alcohol solution.
- 8: Wait a couple of hours or overnight, until the alcohol climbs to the top of the filter paper. Set your alarm to check the changes every 30 minutes to an hour.
- 9: After two hours or if you left them overnight you can remove the filters from each jar and set out on a clean paper towel to observe the pigment transfer of chromatography.



Ask yourself the following questions:

- What colors do you see on the filter from the yellow leaf? Red leaf? Green leaf? Orange leaf?
- Did you notice if any of the leaves had similar pigments transferred to the filter paper? What colors were similar?
- What conclusions can you draw from this experiment? Do most leaves share the same pigments such as chlorophyll, carotenoids, and anthocyanins?

CREATIVE CORNER

SUPPLIES NEEDED:

- Paper plate
- Scissors
- Glue
- Leaves (real or fake)

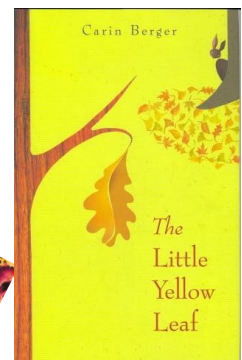
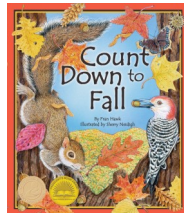
1 INSTRUCTIONS:

1. Cut out the inside of the paper plate leaving an outer circle for your wreath. You can use a bowl that is smaller than your plate to trace the circle in the center of the plate.
2. Gather fall leaves outside on the ground. Ask permission first if you are gathering outside of your own yard (state parks, national parks, private property, etc). You can purchase fake fall leaves at local hobby stores as well.
3. Take glue, gluestick, or glue gun (with adult supervision) and glue each leaf around the paper plate ring. Cover the entire surface with leaves. You can glue leaves on top of leaves.
4. Hang from a window or front door!



NATURE READS!

- Count Down to Fall, by Fran Hawk
- Fletcher and the Fall Leaves, by Julia Rawlinson
- Why do Leaves Change Color, by Betsy Maestro
- Summer Green to Autumn Gold, by Mia Posada
- The Little Yellow Leaf, by Carin Berger



WEBSITES FOR PARENTS AND YOUNG NATURALISTS

- <https://dnr.illinois.gov/education.html>
- www.sciencebob.com
- www.earthsky.org

Don't forget you can rent the TREE Trunk for FREE from the IDNR EDUCATIONAL TRUNKS on hand at the park. Just ask by emailing DNR.StarvedRock@illinois.gov <https://dnr.illinois.gov/education.html>



EXPLORE

NATURE HIKE

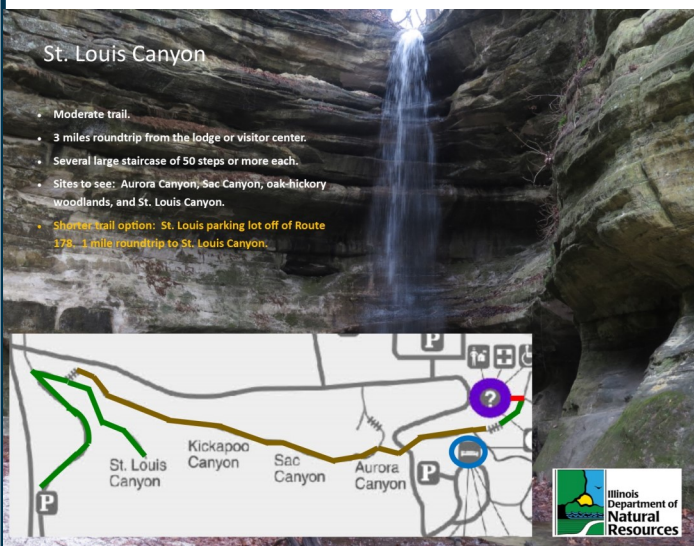
- Explore your backyard, neighborhood, community parks, or Starved Rock and Matthiessen State Parks with a fun scavenger hunt this fall. Don't forget to "LEAVE NO TRACE" by leaving only footprints and taking only memories when visiting a park.

Fall Scavenger Hunt

- | | |
|--|--|
| <input type="checkbox"/> A Red Leaf  | <input type="checkbox"/> Holly  |
| <input type="checkbox"/> A Yellow Leaf  | <input type="checkbox"/> Snail  |
| <input type="checkbox"/> A Green Leaf  | <input type="checkbox"/> Flower  |
| <input type="checkbox"/> A Twig  | <input type="checkbox"/> Mushroom |
| <input type="checkbox"/> A Pinecone  | <input type="checkbox"/> Grasshopper  |
| <input type="checkbox"/> An Acorn | <input type="checkbox"/> Bee  |
| <input type="checkbox"/> A Rock | <input type="checkbox"/> Bird  |
| <input type="checkbox"/> A Piece of Bark | <input type="checkbox"/> Bird's Nest |
| <input type="checkbox"/> A Spider  | <input type="checkbox"/> Butterfly  |
| <input type="checkbox"/> A Pumpkin  | <input type="checkbox"/> Pile of Leaves |

EXPLORE YOUR STATE PARKS!

Visit www2.illinois.gov/dnr to view state parks by region under the Parks and Recreation tab. What state parks are close to your home? Help your family plan a visit by exploring the parks webpage. What does your local state park have to offer; hiking, biking, horseback riding, camping, fishing, skiing, or boating? Read over the trail maps, trail suggestions, rules and regulations (stay on marked trails), and head out to explore. Here are some recommended trails for families at Starved Rock State Park. Happy Hikers=Happy Trails!



Great trek for families with little ones if you park off of route 178 at the St. Louis parking lot just south of the park's west entrance and hike into St. Louis Canyon.

The most convenient hike at the park starting from the main parking lot by the river and visitor center leading to the park's namesake Starved Rock and French Canyon. French Canyon is not recommended for children under age 5 or anyone in winter when the ground is snow and ice covered.



The eastern canyons of Illinois, Ottawa, and Kaskaskia are great for families due to their length and proximity to parking lots. Just one mile roundtrip hikes into the canyons. Be aware the trails are not paved and you will have a few small creek crossings in spring and early summer.