

## Forgotten Flowers: Spring Ephemerals

Each week, we will highlight a spring ephemeral by posting an information sheet, photos, guiding questions, and enrichment activities designed for formal and informal educators, as well as lifelong learners.

### Week 7: Cutleaf Toothwort

Wort is derived from an old English word, *wyrt*, which means herb or plant. In this case toothwort means, you guessed it, tooth herb. The narrow leaves of this spring ephemeral are sharply serrated or toothed. However, the common name has more to do with the shape of its roots than its leaves.

The roots of cutleaf toothwort (*Cardamine concatenata*) are long, white, and pointy. They have a tangy, peppery flavor and Native Americans ate them like potatoes. They also cooked the spicy leaves as



vegetables and boiled them to make stomach soothers, expectorants, and general spring tonics. The roots were mashed and used to treat colds, headaches, and sore throats. The European settlers followed the lead of the Native Americans, but it was the sharp, tooth-like characteristics of the roots that gave rise to this plant's most common English name and medicinal use.

In 1621, a German philosopher named Jacob Boehme published a botanical apothecary (a guide to pharmaceuticals derived from plants) called *Signatura*

*Rerum* or "The Signature of All Things". It was famously known as the Doctrine of Signatures. In it, he detailed the age-old belief that the medicinal uses of plants should be based on the part of the body the plant resembled. For example, walnuts look like brains, so they should be used to treat diseases of the brain. Many early European settlers still followed this old world medical advice; hence they used toothwort to heal toothaches. Modern medicine has not found efficacy for treating teeth, but early settlers swore by it.

As for the plant itself, this early spring bloomer has white flowers arranged in loose nodding clusters. Each flower has 4 separate white petals in the shape of a cross, a general characteristic of the cabbage or Cruciferae family. The flowers are mostly pollinated by insects. There is a spot located at the base of each petal that reflects ultraviolet light and is visible only to the pollinators of the flowers. The spots act like neon signs guiding the insects to the nectar at the base of the petals. Bumblebees and early spring butterflies like mourning cloaks and spring azures, a lovely tiny blue butterfly, are important pollinators. In the event of cold, wet springs, toothwort can self-pollinate.

Toothwort has other wonderful folk names; crinkle root, crow's foot, milkmaids, and pepperwort, to name a few. Whatever you call it, the flower is fleeting and is only found in moist undisturbed woodlands. They are one of the few cabbage family species that do better on the forest floor than in open areas.





### Duke Farms Connection

At Duke Farms, we still find them growing along the trails in the woodlands behind the Hay Barn, but as their flowering is so brief, it's easy to miss the bloom of this lovely ephemeral.

**Want to grow cutleaf toothwort in your garden?** Buy them from native nurseries and **never collect them from the wild!** The Native Plant Society of New Jersey is a great resource to help you find where to buy them or to get more information.

### Guiding Questions and Enrichment

1. What part of the cutleaf toothwort plant is the source of its common name?

*Answer: The roots are white and pointy like teeth, but the leaves are toothed as well.*

2. What is the origin of wort? What does it mean?

*Answer: Its origins come from an old English word, wirt, which means herb.*

3. How did Native Americans use toothwort?

*Answer: They ate the roots like potatoes, the greens as vegetables, and used the plant to make medicines.*

4. In 1621, a philosopher named Jacob Boehme published an herbal medicine book called "The Signature of All Things" that promoted an ancient theory that plants that resemble parts of the human body should be used to treat ailments of that body part. What is the philosophy of this doctrine called?

*Answer: The Doctrine of Signatures.*

5. European settlers that followed the Doctrine believed cutleaf toothwort should be used to treat ailments of the \_\_\_\_\_. (Fill in the blank)

*Answer: Teeth or toothaches.*

6 How is cutleaf toothwort pollinated?

*Answer: It is pollinated by insects, unless it is too cold when it blooms, then it can self-pollinate.*

7. Name 3 pollinators of toothwort.

*Answer: Bumblebees, mourning cloak butterflies, and spring azure butterflies*

8. What plant family does toothwort belong to?

*Answer: Cabbage family.*

9. How many petals do flowers in the cabbage family have?

*Answer: 4 petals, in the shape of a cross.*



## Bonus and Enrichment

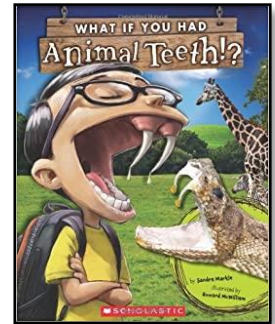
### Literature Connection

Looking a literature connection for young learners to sink their teeth into?

What If You Had Animal Teeth by Sandra Markle

The teeth of different animals are explored, including beavers, naked mole rats, rattlesnakes, and elephants. The discovery includes the functionality of teeth and how they are suited to the organism's needs in the wild. Human teeth are also featured.

To hear the book read aloud, [click here](#).



## Oh my, what big teeth you have!

Can you match each skull to the animal? Pay attention to the type of teeth and the size of the skull! Check out the answer sheet for more information.



A. Grey Squirrel



B. Beaver



C. White-tailed Deer



D. Opossum



E. Red Fox



## Oh my, what big teeth you have!

Answer Key. How did you do?



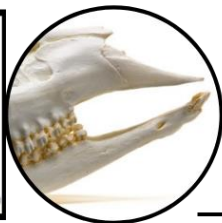
**E**

Grey squirrels are *herbivores*, which means they eat mainly plant materials such as nuts, seeds, and wild fruits. Scientists theorize that most of our forests were planted by accident when squirrels buried their acorns and then forgot where they were!



**A**

Beavers are famous for chopping down trees by chewing through them with their chisel-like teeth. Did you know they also EAT wood? They're herbivores that munch on the soft, nutritious inner layer of bark of young trees.



**C**

White-tailed deer are notorious herbivores that can destroy a home garden and strip the forest of its young plants. They use their front bottom teeth like scissors and then grind up their food with their back teeth. What similarities do all the herbivores in this sheet have?



**B**

Was this one tricky? Opossums may have lots of sharp teeth, but they're *omnivores*: they eat plants and meat, but prefer easy meals like insects and roadkill. They may look tough, but they're slow and gentle animals that only show their teeth to try and scare away predators! You can thank them for controlling the amount of ticks in your yard!



**D**

Red foxes may have teeth that belong to the *carnivore* group (eating strictly meat), but they're in fact *omnivores*! They are skilled predators and most of their food consists of other animals, but they are known to chow down on berries and fruit if given the opportunity.





There are many trees that have toothed leaves. Can you see why this type of leaf is considered “toothed”? Can you find these trees around where you live? What about other types that may not be in this picture? (See below)



Source: Rogers Trees and Leaves

**Photo sources:**

Cutleaf toothwort root image courtesy of the Native Plant Trust, Framingham MA

Cutleaf toothwort flowers image courtesy of google free to use images

### **Additional Resources**

Historic medicinal info on cutleaf toothwort

Johnson Wildflower Center

USDA Plants Database

More about the Doctrine of Signatures

### **Sample Next Generation Learning Standards**

- 3-LS4-3: Construct an argument with evidence that in a particular habitat, some organisms can survive well, some survive less well, some cannot survive at all.
  - This standard can be applied in the case that cutleaf toothwort flourishes under certain growing conditions but, it can also be used when studying toothed animals and their own habitats. Food chains may also be introduced.

There are many interdisciplinary connections to this lesson. For more ideas, contact Kate Reilly, Manager of Education, Duke Farms at [kreilly@dukefarms.org](mailto:kreilly@dukefarms.org).