

Nature Education Materials

for Child Day Care Centres and Nature Education Organisations
Ages 3–7

Sally the Stinging Nettle



A project by the Erzgebirge/Vogtland Nature Park
sponsored by:

STAATSMINISTERIUM
FÜR UMWELT UND
LANDWIRTSCHAFT



Introduction

The Sally the Stinging Nettle nature education programme is designed for children from the ages of 3 to 7 and fits into the overall Happy Hedgerows project. Stinging nettles start growing in early spring. As the stinging hairs on the leaves are still flexible at this point, children can pick the plants without being stung or irritated. We are all familiar with stinging nettles, though we mostly associate them with the red, burning welts that appear on our skin when we have accidentally touched the plants. However, stinging nettles have a lot more to offer us than pain! They are healthy and can be added to our diet. On top of this, they provide nutrition for a large variety of butterfly caterpillars. Sally the Stinging Nettle's stories will teach children exciting things about these plants, which grow almost everywhere around us. This helps the children to learn to conquer their fear of stinging nettles and to appreciate the role these plants play in the ecosystem.

Stinging nettles can not only be cooked to make stinging nettle "spinach" or stinging nettle soup; fresh or dried stinging nettle leaves can also be used to make tea and to dye fabrics. We can use a spray made of stinging nettles to naturally ward off aphids on garden plants, and we can make stinging nettle bath salts as well. As you can see, there are countless ways of including these plants in a nursery curriculum and helping children to overcome their fear of stinging nettles.

Notes

The materials are indicated in italics. We recommend that you laminate the pictures and photographs. Necessary background information on stinging nettles can be found in the final appendix, "Stinging nettle facts". We have avoided the use of pronouns for the teacher throughout the text. This handout does of course apply equally to instructors of all genders, and we aim to include everyone by using this format.

Welcome/Introduction

Potato crisps and stinging nettle crisps

The teacher asks the children how many of them like to eat crisps. "What are crisps actually made of?" – potatoes. "I've brought some different tasty crisps with me today! Try tasting them and guess what they're made of." The teacher passes round a bowl of stinging nettle crisps and, once all the children have tasted them, asks the children what they think the crisps are made of. After the children have had some guesses, the teacher will tell them that there is someone here who can solve the mystery. Shall we call in the young lady to ask her? Her name is Sally. She's sure to come out quickly. "Sally!" "Sally!"

Sally appears

A fresh stinging nettle with two googly eyes stuck to one of the leaves

Sally: "Well, well, well! Who's that calling for me? Where have I ended up? This looks like a nursery! Am I right? And who might you all be?" "Aha, I see – well, let me introduce myself! My name is Sally, and I'm a stinging nettle. We stinging nettles are wild herbs, and I'll have you know that we are very good for you!" Herbs are plants that consist of roots, stems and leaves (this can be demonstrated using Sally). Most

herbaceous plants die in winter and only sprout new stems and leaves in spring, when it gets warmer and the sun starts shining again.

Why are wild herbs called wild herbs?

Sally: "Why are wild herbs called wild herbs actually? Are they wild and dangerous? Or do they only grow in the wild? I'm sure some of you have chives, parsley, marjoram or rosemary on your

kitchen windowsill or in your garden. Plants like these are bred or cultivated. They are also known as kitchen garden herbs. As for me, Sally the Stinging Nettle, I grow in hedgerows, on roadsides, on riverbanks or in quiet corners of your garden. Humans like you don't grow me on purpose, and I am rarely if ever cultivated. I grow in the wild. But despite that, wild herbs like me and my friends the dandelion and ribwort plantain are often healthier for you than cultivated plants. For example, my leaves contain lots of vitamin C, which strengthens the human immune system. Your immune system fights off illnesses. And on top of that, my leaves and stems contain a lot of iron, which is good for your blood."

The structure of a stinging nettle Plant

Around here, we mostly find common nettles (*Urtica dioica*) and dwarf nettles (*Urtica urens*). Being stung by a dwarf nettle hurts even more than being stung by the bigger common nettle, which we sometimes just call stinging nettles.

Sally: "Take a good look at me. What does my stem look like? It's square – my little sister and I both have square stems, which die off in winter when it gets cold. Our new stems only grow out of the ground in spring. Look at my leaves – how are they arranged around the stem?" The teacher holds the stinging nettle so that the children can easily see the stem and leaves. "They are arranged directly opposite each other. And what shape are they? Exactly – they look like a heart. So we say that they are heart-shaped. Now, take a look at the edges of my leaves. They look like a tool someone might use to cut wood. What would you use to cut wood? A saw – exactly. A saw has a serrated edge, which means that the edge is rough instead of straight. My leaves also have serrated edges."

How and why do stinging nettles sting?

Enlarged photograph of the urticating (stinging) hairs on a nettle and of small tortoiseshell and peacock butterfly caterpillars

Sally: "Why do people call us **stinging** nettles?" The children talk about the pain they felt and the red dots that appeared on their skin after touching the plants in the past. The teacher shows Sally the Stinging Nettle to the children again and points out the small stinging hairs on the leaves and stem. Sally: "Can you see the little hairs on my leaves and stem? They work a bit like injection needles. They're hollow, like a tube, and they're filled with a stinging liquid called formic acid. If you attack me or touch me, the tops of the tubes break off and prick your skin. Then acid comes out and stings your skin. That's what makes it hurt. Why do we stinging nettles do this? Is it because we *want* to annoy people?" The teacher shows the children the pictures of the two butterfly caterpillars and asks them if they know what kind of animal they are. Sally: "These are the caterpillars of the small tortoiseshell and peacock butterflies!" (Hold the pictures up). "They love to eat our leaves – some caterpillars don't eat anything else at all. Imagine that! But we need our leaves to collect light – that's how we stay big and strong. So, why do you think we need our stinging hairs? We use them to protect ourselves from these greedy little creatures!"

First aid for stinging nettle rashes

Photos of ribwort plantains and broadleaf plantains (or fresh leaves from these plants)

Sally: "Now I've explained to you that I don't mean to hurt people with my stinging hairs at all! I'm just protecting myself against greedy caterpillars. And so I'll tell you about a secret medicine you can find in nature that helps a lot if you've been hurt by my stinging hairs." The teacher shows the children the pictures of both plantain species and asks them whether they have ever seen the plants before. Sally: "These two plants grow along the edges of paths and are called ribwort plantains and broadleaf plantains. If you squeeze the leaves of these plants and dab their juice onto the rash from a stinging nettle, it will stop hurting very quickly."

Medicinal and other uses for stinging nettles

Teabag, picture of nettle soup and “spinach”

Sally: “I’ve already told you that my leaves are very healthy. Can you think of any ways of getting that health from me to humans?” The teacher holds up a teabag; the children guess that it contains stinging nettle tea. Sally: “You guessed correctly! You can pour boiling water on my fresh or dried leaves to make a cleansing tea. Shall I tell you a secret? But you have to promise not to tell anyone!” Sally gets very close to the children. “My leaves are so good for you that people used to make salads out of them during hard times; this helped them to stay strong and healthy. My leaves have vitamins, minerals and lots of iron in them. That’s why farmers feed stinging nettle leaves to their chickens and their little chicks – it makes them strong and healthy, and they grow faster.”

The teacher holds up the photos of the soup and the “spinach” – the children guess again. Sally: “My young leaves in particular taste delicious as a soup or cooked like spinach – and, of course, you can fry my leaves in hot oil to make crisps!” “Do you want to come with me to gather some stinging nettle leaves? I can show you how to pick the leaves so that you don’t get hurt at all.” (If you pick the leaves from the top of the stem, and make sure that when you touch the leaves you pull from the bottom of the leaf towards its tip, the stinging hairs won’t get stuck in your skin.)

Where do stinging nettles grow?

Take a walk to the hedge or somewhere nearby to look at and gather stinging nettles

Gloves, magnifying glasses, baskets

Together with the children, we can go for a walk to see where the stinging nettles grow. Stinging nettles show us where the ground contains certain nutrients. They like nitrogen-rich soil, so they grow near human activity – on wasteland, at the roadside, in hedges and in river meadows. The teacher can make a note of where the nettles were found on a map or a piece of paper.

Sally: “We’ve found lots of my stinging nettle friends! Where do you think we like it best – in meadows, in the forests or in gardens? Can you figure it out?” The children tally up the places where nettles were found. Sally: “I grow best where there are lots of nutrients in the soil. I particularly like places where there are humans like you! There are nutrients in things like cow manure and horse droppings. To help the plants in your fields and gardens grow, they are fertilised with manure. When that happens, nutrients enter the soil. Nutrients also collect on the edges of roads. Sometimes you’ll see a big gathering of my friends. That tells you that there are lots of nutrients in ground in that area. That’s why people call me an ‘indicator plant’.”

Sally says goodbye

Sally: “Now then, my little munchkins, you know almost as much about me as I do! Can you remember what you need to pay attention to when you’re gathering my leaves?” The children should

pick the young leaves or the topmost shoots because they are less bitter. The plants should also be growing far away from busy streets or places where it’s dirty – so hedgerows are an ideal spot for gathering leaves. The teacher draws attention to these issues. Sally: “I hope you have lots of fun gathering, cooking and nibbling! And remember not to pick more leaves or plants than you need. Bye-bye for now!” The children say goodbye to the stinging nettle.

Activity ideas

The stinging nettle can accompany the children for a longer period of time throughout the year. As they grow, bloom and bear fruit between early spring and autumn, nettles can be incorporated throughout the entire hedgerow project.

Recipes to try

1. *Stinging nettle crisps (suitable for children)*

Ingredients: Young stinging nettle leaves
 Rapeseed oil
 Herbal salt

Gather young stinging nettle leaves (preferably the upper, younger leaves) from plants that grow away from busy streets – ideally from a hedgerow. Cover the bottom of a wide pan (e.g. a deep wok) with about 3 centimetres of rapeseed oil (which can be heated to a high temperature). Heat up the rapeseed oil and fry the stinging nettle leaves. Sprinkle a little herbal salt on the leaves and enjoy!

2. *Nettle tea*

Both fresh and dried stinging nettle leaves can be used to make nettle tea. Gather young leaves if possible as the older ones taste bitter. Brew the leaves in hot water and allow the tea to steep for a couple of minutes. The number of leaves used and how long the tea is steeped depends on how strong you want it to be. We recommend using a small number of leaves (about a handful) and a short steeping time (about 5 minutes) when making the tea for nursery children. The somewhat bitter flavour of the tea can be lightened with a squeeze of lemon.

3. *Stinging nettle seeds*

Dried stinging nettle seeds can be used to make a herbal salt for seasoning. To make the salt, combine 100 grams of dried stinging nettle seeds with 80 grams of sea salt. Then grind them in a coffee grinder or using a pestle and mortar.

If you roast the seeds in the oven on a medium temperature for about 15 minutes, their nutty flavour makes an excellent addition to salads.

Colouring activity

Colouring page in the appendix

The appendix contains a page for the children to colour in during a spare moment. Drawings of caterpillars, butterflies, saucepans or anything else related to the theme can be added to the image – whatever takes the children’s fancy. If the children are keeping a hedge diary, they can add the picture to it.

A story to read aloud

The association NAJU e.V. (the youth branch of the German nature protection association NABU) explores four topics with themed activities related to

Experiencing Spring (“Erlebter Frühling”, www.erlebter-fruehling.de). Their activity book on stinging nettles, published in 2013, contains a lot of suggested activities and factual information for children. The story “The Stinging Nettle” by Doris Eggermann is included in the appendix. It is suitable for older preschool-aged children.

Dyeing fabrics with stinging nettles

In the olden days, there were no chemical dyes to make fabrics brightly coloured. People lived more closely in harmony with nature than we do now, and they paid close attention to the world around them. They used the sap from plants – from their flowers, fruit or other parts – to dye wool and fabric. For example, the flowers of lady's mantle (*Alchemilla vulgaris*) make a yellow dye, black elderberry fruits (*Sambucus nigra*) can dye fabric anything from violet to dark blue, and you can use stinging nettle leaves to give silk a light green colour.

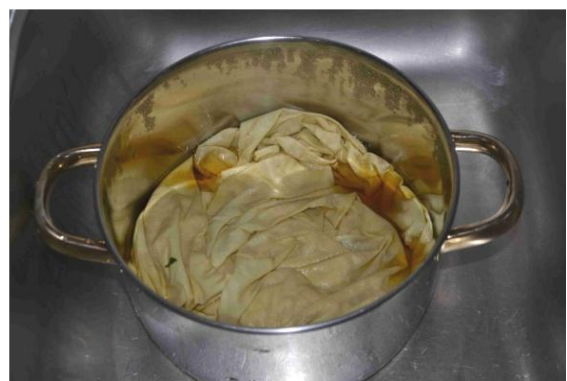
Be sure to use real silk for this activity as the colour will not be very intense if a cotton cloth is used instead.

Preparing the fabric:

In a litre of water, bring 20 grams of alum (this salt can be found in a pharmacy) per 100 grams of fabric to the boil. Then soak the silk cloth in the water mixture at 70°C for 1 hour. Rinse and dry it afterwards.

Dyeing:

To colour the fabric, make a mixture of approx. 1 kilogram of stinging nettle leaves and 1 litre of water. After the mixture has simmered for half an hour, pour it into a container and soak the silk cloth in the brownish-green liquid at about 70°C for at least half an hour. Stir the cloth and the mixture occasionally. Once the required amount of time has passed, thoroughly rinse the cloth with lukewarm water and a little vinegar, and hang it up to dry.



Stinging nettles as a fertiliser and pesticide

As we have already discovered, stinging nettles not only contain healthy proteins, vitamins and minerals for humans and adults, but can also act as a natural fertiliser and pesticide for other plants when turned into a liquid compost or spray. To reap these benefits, diluted stinging nettle liquid is poured over the other plants or sprayed on their leaves to combat infestations of aphids or scale insects.

To make the liquid compost, fill a 10-litre container one-quarter full of fresh stinging nettle leaves and top it up with rainwater. This mixture needs to be stirred daily to introduce oxygen and start the fermentation process. Do not cover the container. The mixture will start to foam and smell. Once the fermentation process has finished, the mixture will stop foaming. The liquid can then be diluted with 1 part liquid to 10 parts water, and used to spray or pour on plants. Your plants will thank you!

Stinging nettle facts

The common or stinging nettle is a member of a group of herbaceous plants whose above-ground components die off in winter and do not lignify (become woody). Here in Saxony they grow to between 100 and 150 centimetres in height. Stinging nettles have a square stem on which the leaves are arranged opposite one another. They have heart-shaped leaves with serrated edges. Stinging nettles reproduce both by putting out shoots (common nettles) and by dispersing seeds (common and dwarf nettles). The leaves of dwarf nettles have sharply pointed edges and cause more pain than common nettles if they are touched. What's more, dwarf nettles are monoecious: both male and female flowers grow on each plant. By contrast, the male and female flowers of the common nettle grow on different plants. The female flowers of the nettles are pollinated by the wind.

Plant family: Nettle family
Genus: Stinging nettles
Species: Common or stinging nettle (*Urtica dioica*)
 (most common species in Saxony)
 Dwarf nettle (*Urtica urens*)

The much-feared urticating or stinging hairs of these plants are a defence mechanism against plant-eating insects such as butterfly caterpillars, some of which feed exclusively on nettles (e.g. peacock, small tortoiseshell and red admiral butterflies are known as "nettle butterflies" in German). The glass-like hairs are filled with an irritating liquid and break off when touched. The effects of this liquid are similar to those of the formic acid used by ants (also known as methanoic acid). The liquid penetrates tiny wounds that are created in the skin and causes burning inflammation. The sap from the leaves of ribwort plantains and broadleaf plantains can counteract the stinging sensation on the skin.

Medicinal and other uses for stinging nettles

Stinging nettles contain lots of minerals, such as magnesium, calcium, potassium and iron, as well as protein, vitamins A and C, flavonoids and bitter compounds. Because of the health benefits of their contents, they used to be eaten as soup, cooked like spinach or used in salads. The stinging hairs on the nettles can be neutralised by briefly blanching the leaves, flattening them with a rolling pin or kitchen towel, or chopping them very finely. And these vitamin-rich plants are not just good for humans – even today, they are added to feed for chickens, chicks and pigs to strengthen their immune systems and encourage their growth. Fresh and dried young stinging nettle leaves (which are less bitter than older leaves) are ideal for brewing to make a digestive and diuretic tea. The substances in the stinging nettle leaves have a preservative effect as they inhibit the growth of bacteria. This effect was previously used to preserve meat and cheese by wrapping the food in

stinging nettle leaves. An interesting anecdote: in 1902 a dairywoman in Berlin was accused of adulterating food because of stinging nettle leaves in her milk. However, the seller was acquitted on the grounds that this was a "generally accepted practice" (www.wikipedia.de).

Further reading:

Multiple authors (2003): ***Das große Buch der Hausmittel – Gesundheit aus der Natur***, ADAC-Verlag, Munich, 480 pages.

Meister, Kay (2007): ***Erzgebirgsflora***; Druck- und Verlagsgesellschaft Marienberg, Marienberg, 207 pages.

Förderverein Natura Miriquidica e.V. (2011): ***Kreiter uffn Teller***, 2nd edition, Druck- und Verlagsgesellschaft Marienberg, Marienberg, 95 pages.

In 2013, the NAJU e.V. Association once again created four themed booklets for their Experiencing Spring campaign. One of the themed booklets focused on stinging nettles. Many of the activities in the Sally the Stinging Nettle project are based on suggestions from this themed booklet.
<http://www.erlebter-fruehling.de/index.php?id=371>