

# Medicinal Plants

## Pre-Trip Activities



We look forward to learning with you at the State Botanical Garden of Georgia. To enhance your learner's experience during their field study, we hope you will be able to complete some of the pre and post trip activities enclosed.

The Researching Medicinal Plants activity can be considered an ongoing activity. Some research of medicinal plants should happen before the field trip to familiarize students with the subject and to therefore maximize their understanding of the information given during the field trip.

The Origami Box can be constructed to hold the Medicinal Plant First Aid Kit that will be made during their field trip. The box can then be decorated with dried plant material or with prints made from leaves or other natural materials. If the students do not have origami boxes, their first aid kits can be put into zip-lock bags.

### **Introductory Activities:**

- Introduction to Medicinal Plants
- Researching Medicinal Plants
- Medicinal Plants First Aid Kit Origami DIY

# Introduction to Medicinal Plants

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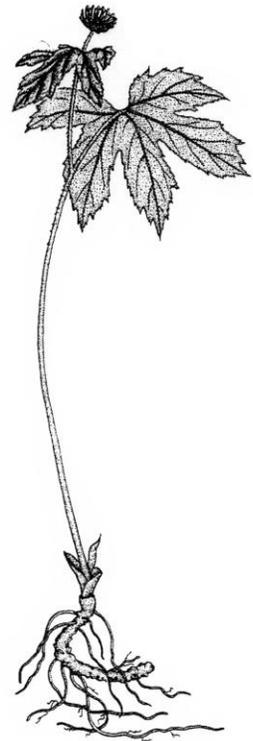
From very early times a variety of herbs were used as healing agents. Herbalists abounded in many ancient cultures, although not always held in good repute – the Greek satirist Lucian has Hercules address Aesculapius as a "root digger and a wandering quack." Herb gatherers often fenced their craft in superstitions handed down by word of mouth, the implication being that herb collecting was too complicated and dangerous a pursuit for the uninitiated. Directions were sometimes quoted with ridicule – to obtain peony root, it was advised to dig only at night, because if done during the day and observed by a woodpecker, one risked the loss of their eyesight.

Despite the lurid tales and mystery surrounding many herbs, herbs then as now were an important source of medicine. Stimulated by the reliance on herbal medicines in the 16th and 17th centuries, European medical schools founded botanical gardens devoted mainly to medicinal species. The gardens were used for training medical students, to grow plants from which to extract medicines and conduct research.

Modern pharmaceuticals are often meant to work like "bullets," relying on highly purified and potent chemicals to achieve specific effects. Herbal remedies are more like food supplements or vitamins. Many have been used for centuries to fight infection, boost immunity, and restore lost vigor. The effectiveness of many of these natural tonics is suspect and unproven; few have been as rigorously tested as modern drugs.

Some currently popular natural remedies include Cat's Claw, a rainforest herb used to treat asthma, ulcers and cancer; Echinacea, a North American species used as an antiviral agent to lessen severity of colds and flu (claims that it fights cancer and AIDS are unconfirmed); Garlic, said to fight bacterial infections, help lower cholesterol and blood pressure, and reduce risk of cancer; *Ginkgo*, used for conditions associated with aging such as memory loss, poor circulation and impotence; Ginseng, said to boost the immune system, increase stamina, resist stress, and enhance virility; *Ma huang*, used for weight control and as an energy booster; and Saw Palmetto, said to improve urinary flow and ease pain from enlarged prostates.

Today approximately 80% of the population in developing countries remains totally dependent on medicines derived from plants and other living organisms. Chinese medicine remains deeply rooted in herbal healing. Forty to fifty of all medicinal drugs



originate in wild plants. Approximately 25% of all prescriptions written annually in the United States contain chemicals from plants, yet only a very small percentage of the world's plant species have been analyzed for even a single chemical or group of chemicals.

Our dependence and fascination with medicinal plants continues unabated. Natural remedies and herbal medicines, real or imagined, are enjoying a resurgence of interest. Old wives' tales continue to intertwine with proven medicinal benefit. Plants remain the basis of our modern pharmacopoeia – and the source of myth, legend and folklore.

# Researching Medicinal Plants

## Essential Questions:

*What are some medicinal plants found in Georgia?  
How can we find out more information about medicinal plants?*

## Background Information:

As the primary producers in every food chain, plants are the foundation for life on Earth. Plants provide food, shelter, and oxygen. They also clean the air, provide a variety of useful products to humans, heal our bodies, and make the world more beautiful.

Learning more about individual plants deepens our understanding of the interconnections between people, plants, and all members of our biodiverse environment. Researching the healing properties of plants provides learners with an opportunity to view plants from a different perspective. What makes them medicinal?

Have some reference materials available for student research. At the end of this activity there is a list of several books that are great sources of information regarding uses of plants medicinally and otherwise. They include additional facts about their growth requirements, native habitats, and history. Students can also easily access research information from the internet. A helpful website is [www.botanical.com](http://www.botanical.com).

Instructors should emphasize that all medicines, including plant medicines, should only be taken when prescribed by a doctor.

## Procedure:

1. Each learner, or group of learners, will pick a medicinal plant. Provide each with a card to fill out about their chosen plant. (Template for Medicinal Plant Cards included.)
2. Learners should use resources in the classroom, at the library, or on the internet to complete the cards. Often there is interesting historical information to be discovered about a particular plant – its country of origin, its uses through time, the meaning of its name, etc. They should also be prepared to provide interesting facts or other mnemonic devices that can be used to help remember specific plant names and their healing properties.
3. Learners can share their research with the class so that eventually each learner or group will have a completed set of Medicinal Plant Cards of all plants that were researched.

**Time:** 2 hours (can be broken up into 30 minute or hour intervals)

### Objectives: Learners will...

- research medicinal plants commonly grown in Georgia
- learn more about the uses of these medicinal plants
- share what they have learned with the class

### Supplies:

- blank Medicinal Plant Card templates
- pencil or pen
- books on medicinal plants or internet access

**Discussion/Assessment:**

*When researching your plant, did you discover some interesting scientific information regarding the life cycle or structure of the plant?*

*Did you find interesting historical information regarding the use of the plant?*

*Where did the plant you researched originally come from?*

*Are there animals that depend on this plant for food or other basic resources?*

*Are there animals involved in its life cycle?*

*Who do you think is its pollinator?*

*What kind of soil does the plant that you researched prefer?*

*How do you think your plant will change with the seasons?*

**Useful Sources of Medicinal Plant Information:**

Chevallier, A. 1996. *The Encyclopedia of Medicinal Plants*. Dorling Kindersley Limited, London.

Midgley, Jan. 1999. *Southeastern Wildflowers*. Crane Hill Publishers, Hong Kong.

Ody, Penelope. 1997. *Medicinal Herbs*. Dorling Kindersley Limited, London.

*Rodale's Encyclopedia of Herbs*. 1987. Claire Kowalchick and William H. Hylton, editors. Rodale Press, Emmaus, Pennsylvania.

# Medicinal Plant Card Template

Common Name: \_\_\_\_\_

Scientific Name: \_\_\_\_\_

Plant Family: \_\_\_\_\_

Description: \_\_\_\_\_

Place of Origin: \_\_\_\_\_

Medicinal Uses: \_\_\_\_\_

Part of the Plant Used: \_\_\_\_\_

Preparation: \_\_\_\_\_

Interesting Facts: \_\_\_\_\_

\_\_\_\_\_

Common Name: \_\_\_\_\_

Scientific Name: \_\_\_\_\_

Plant Family: \_\_\_\_\_

Description: \_\_\_\_\_

Place of Origin: \_\_\_\_\_

Medicinal Uses: \_\_\_\_\_

Part of the Plant Used: \_\_\_\_\_

Preparation: \_\_\_\_\_

Interesting Facts: \_\_\_\_\_

\_\_\_\_\_

# Medicinal Plant Card Examples

## American Ginseng

**Scientific Name:** *Panax quinquefolius*

**Plant Family:** Araliaceae

**Description:** deciduous perennial growing to about 1 ft. tall, smooth stem, leaves with oblong, oval leaflets, small greenish-white flowers, kidney-shaped scarlet berries.

**Place of Origin:** eastern North America

**Uses:** panacea, adaptogen, calming sedative, tonic for stamina and energy and for treatment of poor sleep, nervous exhaustion and short-term stress

**Part Used:** root

**Preparation:** raw root is chewed, capsules, tea, tincture

## Bloodroot

**Scientific Name:** *Sanguinaria canadensis*

**Plant Family:** Papaveraceae, Poppy Family

**Description:** perennial plant growing to 6 inches in height, leaf stalks and flower stalks grow from underground stem, leaves irregularly lobed (puzzle piece like), flower with 8-12 petals

**Place of Origin:** eastern North America

**Uses:** antiviral, antibacterial, used as an ingredient in toothpaste to fight plaque, traditional Native American remedy for fevers, rheumatism and as an expectorant

**Part Used:** rhizome

**Preparation:** fresh root, ointment, gargle, powder

## Blue False Indigo

**Scientific Name:** *Baptisia australis*

**Plant Family:** Fabaceae

**Description:** tall perennial, growing 4-6 feet with grey-green foliage, leaves are divided into clover-like leaflets that are obovate, flower spikes (upright racemes) of deep blue to violet flowers appear in June, fruit is bluish-black, oblong, ending in a sharp tip, about 1 1/2-2 inches long and rattles when shaken.

**Place of Origin:** Eastern and Central North America, Pennsylvania to Georgia, west to Texas, Nebraska and Indiana

**Uses:** Antibilious, cathartic, hydragogue, purgative, stimulates immune responses to infection, is used for ear nose and throat problems, laryngitis, tonsillitis, toothache, as a wash for mouth ulcers and as a dye  
\*considered toxic

**Part Used:** bark, leaves, root

**Preparation:** tea, decoction

## Butterfly Weed

**Scientific Name:** *Asclepias tuberosa*

**Plant Family:** Asclepidaceae

**Description:** handsome, fleshy rooted, perennial plant, growing 1 to 1 1/2 foot high and bearing corymbs of deep yellow and orange flowers in September

**Place of Origin:** North America, S. Ontario and New York to Minnesota, south to Florida and Colorado, most abundantly southward and southwestward

**Uses:** common name of pleurisy root comes from its use by native Americans and settlers to treat pleurisy, which is inflammation of the membranes that line the chest and cover the lungs, may reduce the thickness of mucus and encourage coughing, therefore helped to relieve pleurisy and other respiratory conditions such as bronchitis, contains chemicals that may increase sweating, so it also may have helped to lower fever associated with infective diseases, antispasmodic, carminative, cathartic, diaphoretic, diuretic, expectorant, tonic, vasodilator, poultice

\*causes diarrhea and vomiting in large doses

**Part Used:** root, flowers, seed pods, shoots

**Preparation:** poultice of dried roots used in the treatment of swellings, bruises, wounds, ulcers, lameness, tea

### **Eastern Red Cedar**

**Scientific Name:** *Juniperus virginiana*

**Plant Family:** Cupressaceae

**Description:** Woody evergreen perennial with slow growth rate and potential of reaching 60 feet by 25 feet or more

**Place of Origin:** Central and Eastern N. America from Canada south to Georgia and Texas

**Uses:** abortifacient, anthelmintic, antiseptic, aromatherapy, cancer, diaphoretic, diuretic, emmenagogue, rubefacient, stimulant, coughs, colds, general weakness, skin disorders and chest complaints

\*potentially toxic

**Part Used:** fruit, leaves, young twigs, essential oil

**Preparation:** fruit can be eaten raw or cooked, can be crushed and used as a flavoring in soups and stews, a tea is made from the fruit

### **Foam flower**

**Scientific Name:** *Tiarella cordifolia*

**Plant Family:** Saxifragaceae

**Description:** evergreen perennial growing to 6 inches by 1.5 feet, can grow in full shade (deep woodland) or semi-shade (light woodland) and requires moist soil

**Place of Origin:** Eastern North America, Nova Scotia to Ontario and Minnesota, south to Michigan, Georgia and Virginia

**Uses:** whole plant is diuretic, hepatic, lithontriptic and tonic, used in the treatment of bladder and liver problems and also indigestion and dyspepsia. Leaf tea used as mouthwash (removes white coating from tongue) and as a wash for sore eyes, root tea treats diarrhea in children and crushed roots can be used as a poultice

**Part Used:** whole plant

**Preparation:** tea, infusion

### **Goldenseal**

**Scientific Name:** *Hydrastis canadensis*

**Plant Family:** Ranunculaceae, Buttercup Family

**Description:** small herbaceous perennial with thick yellow root and erect stem growing to 1 foot tall

**Place of Origin:** eastern North America

**Uses:** used by Native Americans as a woman's herb, has sedative properties, soothes inflammatory and rheumatoid arthritis, high blood pressure, tinnitus, whooping cough and asthma

**Part Used:** rhizome

**Preparation:** capsules, tincture, decoction, infusion

### **Maidenhair fern**

**Scientific Name:** *Adiantum pedatum*

**Plant Family:** Polypodiaceae

**Description:** perennial fern with fronds about 1 foot long, leaves are not typically elongated but are rounded, toothed, and fan-shaped and covered with hairs at the base, produces brown, hairy rhizomes, slender roots, and erect stems that can grow to a height of ten inches, requires moist, well-drained soil, can grow in semi-shade.

**Place of Origin:** North America, Alaska to Quebec and Nova Scotia, south to California and Georgia

**Uses:** antirheumatic, astringent, demulcent, emmenagogue, expectorant, febrifuge, haemostatic, pectoral and tonic, used in treatment of asthma, of nasal congestion, sore throats, ague, fever, rheumatic joints. The North American Indians chewed the fronds and then applied them to wounds to stop bleeding.

**Part Used:** root, fronds

**Preparation:** tea, syrup, decoction, infusion

### **Passion flower**

**Scientific Name:** *Passiflora incarnata*

**Plant Family:** Passifloraceae

**Description:** perennial vine with showy fragrant flowers, white with lavender and flesh-colored crown that blooms in the summer, spreading two to three inches in diameter followed by fleshy, green, oblong fruit with yellow pulp

**Place of Origin:** Eastern North American, Virginia and Kentucky, south to Florida and Texas

**Uses:** pain relief, antispasmodic, astringent, diaphoretic, vasodilator, a non-addictive sedative that does not cause drowsiness used in the treatment of insomnia, nervous tension, irritability, neuralgia, irritable bowel syndrome, premenstrual tension and back pain; useful in treatment of epilepsy and showing promise in fighting Parkinson's Disease, cancer, HIV, leukemia, and more; fruit and flowers can be eaten raw or cooked in jellies, jams, young leaves are used as a cooked vegetable or eaten in salads,.

**Part Used:** aerial parts, leaves, fruits, stems, flowers

**Preparation:** infusion, tea, decoction

### **Purple Coneflower**

**Scientific Name:** *Echinacea* spp.

**Plant Family:** Asteraceae, Sunflower Family

**Description:** Herbaceous perennial with daisy-like purple flowers and leaves covered in coarse hair.

**Place of Origin:** Central U.S.

**Uses:** Capsules for colds, flu and infections

**Parts Used:** Roots, flowers, stems and leaves

**Preparation:** Tincture, decoction, capsules of powdered root

### **Sassafras**

**Scientific Name:** *Sassafras albidum*

**Plant Family:** Lauraceae

**Description:** medium sized, deciduous shrubby tree that may grow 60' to 80' tall, with a cylindrical trunk and twisted branches, common name of Mitten Tree refers to usually 3 lobed leaf shape

**Place of Origin:** eastern and southern United States and into Mexico, ranges as far west as Texas and Iowa

**Uses:** aromatic, stimulant, pain reliever, astringent and treatment for rheumatism, skin eruptions, syphilis and to break tobacco habit, was original root beer, considered blood purifier in moderation

**Part Used:** root, leaves, bark, seeds, stems

**Preparation:** tea, decoction, infusion

### **Slippery Elm**

**Scientific Name:** *Ulmus rubra*

**Plant Family:** Ulmaceae, Elm Family

**Description:** Large Tree

**Place of Origin:** U.S. and Canada

**Uses:** Powder for coughs and digestive upsets, diarrhea

**Part Used:** Inner bark of 10-year old tree

**Preparation:** infusion, poultice, and capsules of powdered bark

## **Wild Geranium**

**Scientific Name:** *Geranium maculatum*

**Plant Family:** Geraniaceae

**Description:** perennial growing to 2 feet, cleft leaves, pink-purple flowers, beak-shaped fruit

**Place of origin:** eastern and central North American woodlands

**Uses:** sore throat, canker sores, infected gums, diarrhea, internal bleeding, irritable bowel syndrome, hemorrhoids, used to staunch wounds

**Part Used:** aerial parts, root

**Preparation:** poultice, tea

## **Wild Yam**

**Scientific Name:** *Dioscorea villosa*

**Plant Family:** Dioscoraceae

**Description:** perennial climbing vine with heart-shaped leaves with prominent veins which run lengthwise from the center top out into a fan pattern

**Place of Origin:** Eastern N. America from New England to Minnesota and Ontario, south to Florida and Texas; found growing in damp woods and swamps, thickets, roadside fences and hedges

**Uses:** medicinal herb used by the Aztec and Mayan peoples to treat female problems and to relieve the pain of child birth, used for symptoms of menopause and PMS such as hot flashes, night sweats, mood changes, also irritable bowel syndrome, gastritis, gall bladder complaints, spasmodic cramps and in small doses is especially helpful in treating the nausea of pregnant women.

**Part Used:** root

**Preparation:** infusion, decoction, tea

## **Witch Hazel**

**Scientific Name:** *Hamamelis virginiana*

**Plant Family:** Hamamelidaceae, Witch hazel Family

**Description:** A small deciduous tree, 15 ft. tall, with oval leaves edged with teeth, small flowers appear before leaves in winter.

**Place of Origin:** Eastern U.S. and Canada

**Uses:** Distilled water for healing cuts and scrapes

**Part Used:** Leaves and bark

**Preparation:** Tincture, distilled, ointment

## **Yaupon Holly**

**Scientific Name:** *Ilex vomitoria*

**Plant Family:** Aquifoliaceae

**Description:** evergreen shrub growing to 18 feet, flowers from April to May (flowers are dioecious - individual flowers are either male or female, only one sex is found on plant), seeds ripen from October to December, grows in sun or semi-shade and requires moist soil.

**Place of Origin:** Southeastern North America, Virginia to Florida, west to Texas and Arkansas

**Uses:** emetic used as a purification rite by several North American Indian tribes; leaves were toasted over fire then boiled for several hours resulting in a thick black liquid which was drunk followed by immediate vomiting. Today, leaves can be roasted and or steeped in first ice cold and then boiling water to make a mildly stimulating and intoxicating tea. The leaves also used to flavor ice cream and soft drinks.

**Part Used:** leaves

**Preparation:** decoction, tea

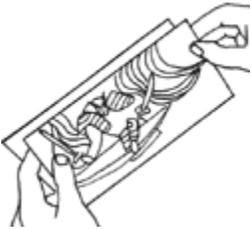
# Medicinal Plants First Aid Kit Origami DIY

## Background:

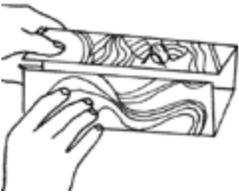
One of the activities students will complete in their upcoming field trip is creating several herbal healing agents to take home. Before arriving to the garden, students can follow the origami instructions below to construct their own first aid kit to hold their materials.

## Procedure:

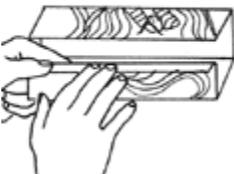
1. Give each student 2 pieces of cardstock and explain that they will use them to create a First Aid Origami Box to contain the medicinal materials they create on their upcoming field trip.
2. Fold one sheet in half long ways. Make all folds as flat as possible for sharper edges.



3. Open the sheet and fold each half into the middle.



4. Make a thin fold back out on each side.



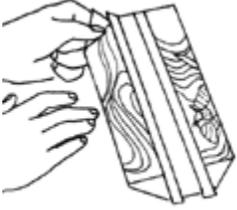
## Objectives: Learners will...

- create and decorate an origami box in preparation for their field trip

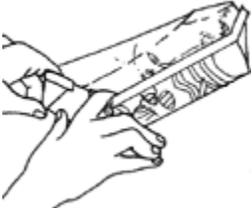
## Supplies:

- 2 sheets of 8 1/2 x 11 cardstock (the heavier the better) for each student
- Materials to personalize the outside of the Herbal First Aid Kit: markers, paint, crayons, glue, leaves, sticks, pressed flowers, stickers, etc.

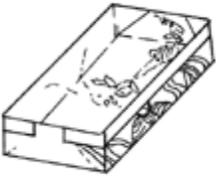
5. Fold in all four corners and tuck them under the thin fold.



6. Put your fingers in the corners and pull the box into shape so the sides stand up.



7. Repeat steps 2-6 with second sheet of cardstock and slip one half over the other. Decorate your completed First Aid Kit Origami Box.



**Remember to bring this box along with you on your upcoming field trip to the garden!**