

Garden Science Teacher's Packet



State Standards Included!



Minnetrista

NATURE • HISTORY
GARDENS • ART

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About Minnetrista

Minnetrista is located along the banks of the White River on a campus of more than 40 acres. The Ball family purchased most of the land along the north bank of the White River between Wheeling and Granville pikes in 1893. The name chosen by the family for the property was taken from a Sioux word, “mna” (pronounced mini) which means “water,” and combined with the English word, “tryst,” to form “Minnetrista,” or, “a gathering place by the water.” Eventually the Ball brothers children decided to turn the site of the Minnetrista home into a center to preserve the culture of the area. Ground was broken March 14, 1987 and Minnetrista Cultural Center opened December 10, 1988. George and Frances Ball’s home, Oakhurst, was opened to the public in 1995 to provide additional educational opportunities. Minnetrista’s campus now includes eight major buildings, a historic home, Nature Area, numerous gardens and sculptures and a portion of White River Greenway.

Vision Statement

Minnetrista will be the leader in creating a distinct regional identity for East Central Indiana based on the region’s heritage.

Mission Statement

Minnetrista creates awareness, understanding and appreciation of the natural heritage and cultural heritage of East Central Indiana.

Minnetrista is a non-profit, charitable organization governed by a board of community leaders from seven counties across East Central Indiana.

Our Educational Values

We believe in learning through having fun.

We adapt programs based on the audience needs.

We use teacher responses and feedback to improve our programs.

We encourage active participation.

We strive to deliver accurate, researched information in our programs.

We strive to inspire imagination.

We encourage appreciation for learning.

What to Expect on a Garden Science Tour

The garden science tour is a combination of language arts (stories), social studies (history) and science (plants) woven together. Garden Science is a collection of biographies of the plants and wildflowers that are found in our woods and gardens combined with the uses that made them important to the cultures and generations that have used this land over time.

We will rotate your students through several stations. Students will be outside for portions of this 90 minute tour so please make sure your students dress accordingly.

Minnetrista Lobby Introduction 10 minutes

What's a plant? How does it grow? We're going to botanists today and learn the answers to these questions.

LL Ball Slide Show Dissect a Seed 20 minutes

Students will learn how a seed grows.

LL Ball Classroom Dissect a Flower 20 minutes

Students will look at a flower model to learn about the parts of a flower. Students will dissect a flower to find the flower parts.

Education Center Plant a Seed 20 minutes

Students will plant a seed to take home and learn how it grows.

Oakhurst Gardens Plant Stories 20 minutes

Students will hear stories about how Native Americans and pioneers used these flowers throughout history.

Garden Science Tour

State Standards

Kindergarten

Language Arts	K.7.2
Science	K.1.1, K.1.2, K.4.1, K.4.2, K.6.1
Social Studies	K.1.1

1st Grade

Language Arts	1.7.1, 1.7.2
Science	1.4.2, 1.4.4, 1.6.1, 1.6.2
Social Studies	1.1.1, 1.1.2

2nd Grade

Language Arts	2.7.1, 2.7.2, 2.7.3, 2.7.12
Science	2.1.1, 2.4.3, 2.6.1, 2.6.2

3rd Grade

Language Arts	3.7.1, 3.7.2, 3.7.3
Science	3.1.5, 3.2.7

Background Information

Covering some of the basic ideas and concepts provided in this packet will enhance your students' Minnetrista experience. This will help the tour leader make connections throughout the tour with the students' prior knowledge. This will also provide for a starting point for the tour.

Many of the botanical names of plants are based on quirks and characteristics of areas of origin of the plants. The following is a list of commonly used species names and their meanings:

Africanus: of Africa	Agrarius: of the fields
Agustus: majestic or noble	Albus: white
Allianthus: with beautiful flowers	Alpinus: of the mountains
Amoenus: pleasing	Annuus: annual
Aurantiacus: orange colored	Aureus: golden
Belladonna: beautiful lady	Bellus: beautiful
Biennis: biennial	Biflorus: twinned flower
Caeruleus: dark blue	Campestris: of the fields
Canadensis: of Canada	Coccinea: Scarlet
Contorta: twisted	Edulis: edible
Elata: tall	Elegans: elegant
Fragilis: fragile	Grandiflora: large flowers
Grandifolia: large leaves	Japonica: of Japan
Lutea: yellow	Maculata: spotted
Nobilis: of fine appearance	Occidentalis: from the West
Odorata: scented	Orientalis: from the East
Patens: spreading	Pendula: weeping
Purpurea: purple	Repens: creeping
Rugosa: wrinkled	Sempervirens: evergreen
Scandens: climbing	Splendens: showy
Stricta: upright	Sylvestris: from the woods
Tinctoria: used by dyers	Tomentosa: downey

The Victorian Language of Flowers

The language of flowers was a way that two lovers in Victorian times could communicate with each other without the knowledge of their parents. Messages that normally could not be spoken in public could be conveyed by sending certain types of flowers. How these flowers were delivered sent an important message, too. If a blossom or bouquet was presented upright, it carried a positive thought. However, if it was presented upside down, it meant the opposite. The following is a list of flowers and their meanings:

Alyssum, sweet: worth beyond beauty	Amaranth, globe: immortality
Amaryllis: pride	Anemone, garden: forsaken
Aster: elegance and daintiness	Bellflower (white): gratitude
Carnation (pink): emblem of Mother's Day	Carnation (red): admiration
Carnation (striped): refusal	Carnation (white): pure love
Chrysanthemum (red): I love	Chrysanthemum (white): truth
Chrysanthemum (yellow): slighted love	Columbine: bad luck gift to man
Crocus: abuse not	Daffodil: regard
Dahlia: instability	Daisy: innocence, gentleness
Day lily: coquetry	Fern: fascination
Forget-me-not: true love	Foxglove: insincerity
Fuschia: taste, amiability	Geranium: folly and stupidity
Gladiolus: you pierce my heart	Heliotrope: devotion
Hibiscus: delicate beauty	Hollyhock: ambition
Honesty: honesty	Hyacinth: sport, game, play
Impatiens: refusal and severed ties	Iris: message, faith, wisdom
Jasmine (white): amiability	Jasmine (yellow): timidity
Larkspur: open heart, ardent attachment	Lily (orange): hatred
Lily (white): sincerity, majesty	Marigold: jealousy
Morning glory: farewell, departure	Narcissus: conceit
Nasturtium: conquest, victory	Pansy: thoughtful recollection
Peony: healing	Phlox: sweet dreams, love
Petunia: anger, resentment	Primrose: early youth, young
Poppy: eternal sleep, oblivion	Rose (red): love and desire
Rose (pink): our love is perfect happiness	Rose (white and red): unity
Rose (white): charm and innocence	Rosebud: beauty and youth
Rose (yellow): infidelity, jealousy	St. John's Wort: suspicion
Rose, withered: fading beauty	Snapdragon: desperation
Sedum: lover's wreath	Sunflower: homage, devotion
Snowdrop: hope, consolation	Tiger Lily: wealth and pride
Sweet Pea: departure, adieu	

Tuberose: dangerous pleasures
Verbena: may you get your wish
Wallflower: friendship in adversity
Zinnia: thoughts of absent friends

Tulip: symbol of perfect lover
Violet: modesty, simplicity
Yarrow: disputes, quarrels

Pre-Visit Activities

Discuss Folklores

Investigate the origins of folklore and the reasons behind them, whether they are fact or fiction, what they tell us about various cultures, etc.

State Standards

1 st Grade	Language Arts	1.3.4, 1.7.1, 1.7.5, 1.7.6
2 nd Grade	Language Arts	2.3.3, 2.3.6, 2.3.7

Garden Vocabulary

- *Annual*- Living only one growing season
- *Biennial*- Completing its normal term of life in two years, flowering and fruiting the second year
- *Indigenous*- Originating in and characteristic of a particular region
- *Introduced*- Presented to a space by a person by a formal act
- *Invasive*- Marked by a tendency to spread, intrude or encroach
- *Native*- originating naturally in a particular region
- *Non Native*- not originating naturally in a particular region
- *Perennial*- Lasting for an indefinite period of time

What's a garden flower? Use these vocabulary words to gain a better understanding of the differences of flowers; how they grow, how they got here, and the changes in Indiana's flora makeup.

State Standards

3 rd Grade	Language Arts	3.1.4, 3.1.7, 3.1.8
4 th Grade	Language Arts	4.1.2, 4.1.3, 4.1.5
5 th Grade	Language Arts	5.1.2, 5.1.3

Post-Visit Activities

Doctrine of Logic

Look at different types of flowers and plants. Based on the old medicinal doctrine, determine what the plants could be used for based on how they look. For Example: A plant with heart-shaped leaves is used to cure illnesses of the heart.

Find pictures of various Indiana plants, then discover the scientific name of the plant and discuss its meaning. Discuss the dangers of using plants for medicine based on their appearance. For Example: some plants are poisonous to consume.

State Standards

4th Grade

Language Arts 4.1.4
Science 4.4.10

5th Grade

Language Arts 5.1.4
Science 5.1.2, 5.1.3

Create Your Own Folklore

Give students pictures or photos of a plant. Ask them to create their own stories or uses for plants and flowers.

Find the scientific names and the common names of the plants. Research the meanings of the names and discuss whether either name fits the plant.

State Standards

1 st Grade	Language Arts	1.3.4, 1.4.1, could include Standard 6
2 nd Grade	Language Arts	2.4.3, 2.5.2, 2.5.5, could include Standard 6
3 rd Grade	Language Arts	3.3.2, 3.5.2, could include Standard 6

Grow a Lima Bean

Plant lima beans seeds in a clear container, then place them near a window in the classroom. Observe the changes taking place with the plant. Measure the growth of the plant. Schedule days and times to water the seeds. You could make a class chart, which would add more math standards to the lesson.

State Standards

Kindergarten

Language Arts	K.7.1, K.7.2, K.7.3
Mathematics	K.4.3, K.5.1
Science	K.1.1, K.1.2, 5.2.1, K.2.2, K.4.1, K.5.1

1st Grade

Language Arts	could include all of Standard 6, 1.7.8, 1.7.9
Mathematics	1.4.6, 1.5.3, 1.5.4, 1.5.5,
Science	1.1.1, 1.1.2, 1.1.4, 1.2.4, 1.2.6, 1.6.2

2nd Grade

Language Arts	2.6.1, 2.6.3, 2.7.14
Mathematics	2.5.3
Science	2.1.1, 2.1.2

Resources

A Child's Garden by Molly Dannenmaier. Simon & Schuster Editions. New York, 1998.

Dannenmaier's book is complete with colorful photographs, suggestions, and inspirations for children's gardens.

Botany for All Ages by Jorie Hunken. The Globe Pequot Press. Old Saybrook, Connecticut, 1989.

This book is divided into short chapters. The chapters are broken three sections, "Introduction to Teaching with Plants," "Activities for Learning about Plants," and "Various Parts of Plants: Names and Functions." This book puts botany into general terms that make using the lesson ideas fun and easy.

Roots, Shoots, Buckets, & Boots by Sharon Lovejoy. Workman Publishing. New York, 1999.

Lovejoy's book is a whimsical book full of suggestions for encouraging children to appreciate gardening. She offers her version of the top 20 plants for kids.