INSTRUCTIONAL OBJECTIVE: To provide students with the opportunity to develop their plant awareness through outdoor garden discovery.
Dear Teacher,

The Idaho Botanical Garden is pleased to welcome you and your students to the wonderful world of plants! This multidisciplinary instructional material was developed by educators for children from preschool through second grade. To facilitate a richer learning experience, please read the key concepts and complete the pre-tour activities with your students before your visit.

Idaho Botanical Garden is an outdoor learning environment. We want to make your visit comfortable and enjoyable, and ask that your students are dressed appropriately for the weather and have water, especially in the warm weather months.

KEY CONCEPTS

Students will be introduced to several concepts by participating in a variety of outdoor activities provided by trained garden teacher.

Throughout the experience students will exercise their senses by touching, looking at, listening to, tasting, and smelling plants. Observation and classification skills will be developed. Emphasis will be placed on plant parts and their function. We will discuss the differences between the living and nonliving components of the Garden and their interrelationships.

We need plants! Students will observe some of the plant parts which are eaten by animals. Plants grow and so do we, so get...

READY, SET, GROW!

DO THE FOLLOWING ACTIVITIES BEFORE YOUR VISIT TO THE GARDEN

UNCLE ROLLIE’S LETTER

Teachers please read the following letter from Uncle Rollie to your students before you visit the Garden. This story, written by second grade teacher Anne Vestal and updated by Megan McCarthy, will give your students an idea of what to expect, and it will get them excited about their visit to the Idaho Botanical Garden.
Dear Boys, Girls, Teachers and other classroom critters,

Hello, my name is Uncle Rollie. I am a pillbug, but some people call me a rollie pollie. I got these names because I roll into a ball or a pill shape when I get scared. And sometimes even roll away! I make my home beneath rocks and in the earth, soil, dirt or whatever you want to call it. There is a lot to do where I live. Dirt is a very busy and important place!

I do have a beautiful home and a special one too. I live in the Idaho Botanical Garden here in Boise, Idaho. A botanical garden is a specially planted garden where people can come to learn about the plants, gardening or just enjoy all the beautiful flowers! I don't want to brag or anything, but I am VERY important here at the Botanical Garden. I also have a cousin that lives in someone's vegetable garden and another that lives in a garden that grows flowers near here. Maybe you have a garden at home that grows flowers or vegetables. What kind of garden do you have? (Give response time.)

The botanical garden is such a special place that school children and their teachers come over just to look and learn about all the things here that are alive and some things that are not alive. Children come to look, touch, smell and feel things in the Garden.

I love it when the children come because they can always see so many different things. Once, Steven found an insect, a shiny rock, five seeds and some leaves with a magnifying glass. Boy, could they ever look carefully! I call people who can find many different things with their eyes very good detectives.

Sometimes, when children are very quiet and still, they get to hear lots of different things. Mary heard five different sounds. They heard two birds singing, grass and trees rustling in the breeze and Katie giggling quietly. Those kids really knew how to use their ears!

Oh boy, my Garden smells wonderful too. The dirt smells rich, the flowers smell sweet, and the breezes carry lots of different wonderful smells from all around. My favorite smell is of the ground when it rains and the dirt gets damp. What is your favorite smell from outdoors? (Give response time.)

We are proud of all the colors and patterns that are found around the Garden too. You can see them everywhere here. You can see different colors and patterns that are found around the Garden too. YOU can see them everywhere here. You can see different colors and patterns on the tree trunks, leaves, grass, stems, blossoms, sky, clouds, dirt, and there are more designs on fish, insects, and of course on the pillbugs! My friend has cool yellow spots down his back.

You can feel different patterns too. One class that visited the Garden used 8 different words to describe the designs they felt on some of the things they looked at. They felt things that were bumpy, rough, sticky, smooth, cool, fuzzy, hard and slimy. They were very careful not to hurt any of the things they felt, which I really appreciated, since I work so hard here.

What do you think I might feel like? Cold? Hard? Smooth? Some people say I tickle them with all my little legs. You better watch out though, or I'll run, or roll, right away! After all, I have lots of work to do to make the soil better for the plants. As I said earlier, I am a Very Important Person, a V.I.P., out here in the Garden, because my work is so helpful. Things grow better because of me.

Well, I've bragged on long enough now. I've got work to do. If you ever get a chance, come to the Idaho Botanical Garden and look for me. Don't forget to take a close look at the other living things you can find here too, like plants that eat insects, and fish. Oh, I forgot to tell you, we have real live fish swimming in a real pond and carnivorous plants that eat insects. I've only looked the carnivorous plants from a distance because I don't want to be dinner, but maybe you can take a closer look.

I hope to see you soon!

Much love,
Uncle Rollie
Please create a name tag to wear on your tour of the Idaho Botanical Garden. Your tour guide will need to know who you are!

Cut a piece of index paper (file card stock) measuring approximately four inches by three inches. Cut out one of the pictures below, and color. Paste the colored picture to your name tag, leaving room for your first name. Write your first name on the name tag. Use a safety pin to pin on your name tag just before you leave school to go to the Garden.
“GUESS AND CHECK”: GARDEN EXPERIENCES

**Purpose:**
To allow students to predict, using the experiences and knowledge they already have, and contrast their prediction with the knowledge they gain after their trip to the Garden.

- Ask your students what they predict they will see, hear, smell, and touch at the Idaho Botanical Garden.
- Make a list of their responses and save it.
- After the tour, ask your students what they did see, hear, smell, and touch. Record their answers.
- Compare the prediction list with the post-garden tour list. Discuss the differences and similarities of the lists.

POPCORN EXPERIMENT

**Purpose:**
To discover that seeds are plentiful and useful. To find out if household seeds, popcorn kernels, will grow.

**Materials:**
Unpopped corn still in the store package, planting container, potting soil and water.

**Procedure:**
- Ask your students to look at a package of unpopped corn. Let them each hold and look closely at a seed. Discuss seeds we eat and the abundance of seeds.
- Tell your students you are going to plant some unpopped corn. While you plant 5 to 6 seeds in a pot of soil ask your students to predict what will happen. (Plant seeds about \( \frac{1}{2} \) in deep.)
- Keep the soil damp.
- After several days your popcorn will sprout.

SOIL COLLECTION ACTIVITY

**Purpose:**
To demonstrate the variability of soil makeup in your area, and stress the importance of soil to plants.

- Cut the top off of a two liter plastic soda bottle.
- Ask your students to bring one-cup soil samples in plastic zip-lock bags from their yards or gardens at home. (You may need to use two or more bottles depending upon the number of students in your class.)
- Attach a wide strip of masking tape to the bottle vertically, and as each child’s soil sample is poured in, label the tape correspondingly with his/her name.

**Discussion:**
Mention the importance of soil to plants. Plants do not get their food from soil. They make their own food through the process of photosynthesis. Soil provides plants with water, important minerals, and a place to anchor.
FOLLOW UP ACTIVITY: CREATE A WORM FARM

**Purpose:**
To study the differences between living and nonliving components of the garden, and their interrelationships. To see how worms help the garden.

- Create a worm farm for your classroom by first adding water to moisten the classroom soil collection. Take a picture of your soil collection before adding the worms. (Soil from home may contain seeds. You might have some seeds sprout in your worm farm.)
- Ask students to bring earthworms from their yards, or you can purchase night crawlers from a sporting goods store. You will need about two dozen worms for each bottle of soil.
- Put the worms in the moistened soil collection. Wrap the soil collection bottle with dark construction paper, since the worms prefer darkness.
- To view the worm farm, remove the construction paper.
- Try feeding the worms by placing grass cuttings, corn meal or bits of bread or fruit on the top of the soil every few days and covering it with a fresh layer of soil.
- Keep your worm farm damp. Keep farms in the refrigerator when not viewing them.
- Take a picture of your worm farm after the worms have mixed in the organic matter. You can plant alfalfa, bean, radish or other quick-sprouting seeds in your worm farm, after removing the worms.

**Discussion:**
Compare before and after pictures of your worm farm and discuss how it changed and what role the worms played in the change. Earthworms are valuable soil conditioners. They take plant materials down into the earth where they help break it down and improve the soil by adding organic material.

DO THE FOLLOWING ACTIVITIES AFTER YOUR VISIT TO THE GARDEN

VERTICAL POETRY ACTIVITY

Have your students form a wide circle, standing quietly with their eyes closed, and ask them to try to imagine that they are trees and that it is a breezy summer day. Have some soft music playing. Set the scene by describing the location and talking about the weather conditions. Tell the children to imagine their arms are leafy tree branches, that their legs are tree trunks, and that their feet are roots going deep into the ground. Encourage them to sway gently in the breeze. Have them imagine that sunshine is warming their leaves and branches and they are reaching toward the sunlight above. Tell them to wiggle their toes and imagine they are pulling water from the soil beneath them. Now have them open their eyes and sit on the ground, and remember how it...
felt to be a tree. Ask them to describe their feelings and actions. List their ideas on the board. Encourage verbs such as growing, blooming, rustling, reaching, shading and sheltering, adjectives such as tall, green, bushy, branchy, strong.

**SAMPLE VERTICAL POEM:**

Tall  
Reaching  
Shading  
Sheltering  
I’m a tree!

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**PLANT RUBBINGS**

**PURPOSE:**
To familiarize students with various shapes, sizes, designs and textures of plant materials.

**MATERIALS:**
Several teacher-collected, textured plant materials, such as bark, seeds, leaves, pine needles, stems, roots; several pieces of paper; crayons with the paper removed. (Save the plant materials to use again for the plant imprint activity.)

**PROCEDURE:**
Ask your students to select an item of plant material they find interesting, place a piece of paper over it, then rub a crayon firmly over the paper using the side of the crayon. You may need to tape the selected items or the paper to the table so a good rubbing can be achieved by the children. Allow the students to make several rubbings, using different items.

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**PLANT RUBBINGS**

**PURPOSE:**
To familiarize students with various shapes, sizes, and volumes of plant materials.

**MATERIALS:**
Play dough (see recipe below), several teacher-collected, textured plant materials such as cones, bark, leaves, stems, roots, and seeds. (Save the plant materials to use again for the plant rubbing activity.)

**PROCEDURE:**
• Give each student a small portion of play dough or set an activity center with enough play dough for four to five children.
• Ask students to flatten their play dough then press a plant part into the dough.
• When the plant part is pulled up it will leave an interesting imprint.
• Ask students to smooth out their play dough and make several more imprints.
• Ask students to make an imprint of their hand, thumb or finger. Have them compare sizes and shapes. Pick out the smallest, largest, shortest, tallest, fattest, and thinnest objects. Which objects take up the most space? Which object takes up the least amount of space? Volume is the amount of space an object takes up.
MEASURE:
3 cups of flour
1/2 cup of salt
1/4 cup of vegetable oil

In a 2 cup glass measuring cup put (in this order):
1 Tbsp of alum
Food coloring of desired intensity
Boiling water to equal 2 cups liquid.

Add liquid to flour mixture. Stir well with a wooden spoon until entire batch is thoroughly blended. Dough will be quite moist, but do not add more flour. As it sets overnight the moisture is absorbed by the flour and the next day the play dough is just right. Knead well just before it is first used.

Double recipe for two to four children.

IDAHO COMMON CORE STANDARDS

KINDERGARTEN:

LS: Life Sciences

LS1-K-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. Examples of patterns could include that animals need to take in food but plants produce their own; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.

LS1-K-2. Use classification supported by evidence to differentiate between living and non-living items.

1ST GRADE:

LS: Life Sciences

LS1.A: Structure and Function
All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (LS1-1-1)