



# **Nature Explorers**

For Families and  
Friends!

## **Contents**

### **What?**

- Family Nature Explorers

### **Why?**

- Families that explore together do more together!

### **How?**

- Helpful tips
- Respectful explorers
- Becoming a Nature Explorer

### **Activity sheets**

- Leaves in the lawn
- Leaf rubbings
- Leaf smells
- Measuring plants
- My special plant
- Flower visitors
- Animals in the neighborhood
- Animal homes in the neighborhood
- Animal observation

Materials produced by the Youth Education Program,  
San Francisco Botanical Garden

## **FAMILY NATURE EXPLORERS**

When you visit San Francisco Botanical Garden you can see over 8,500 kinds of plants from around the world, as well as many animals that make their homes among the plants. But you'll be surprised to see how many living things make their homes among the yards, parks, sidewalk plantings and tree basins of your neighborhood.

The materials provided here will help your family put together a "Nature Explorers" field notebook to use whether exploring your neighborhood or the Garden. You can tailor the notebook to your family members' interests, needs, and abilities. Children can then work on the activities individually, with siblings and friends, or with parents and caregivers.

Each activity sheet has two parts, one with advice and instructions for an adult or older child to read first, and the other to record children's observations. A simple observation activity asks children to pay close attention to some part of the natural world and to record their discoveries. The other side contains information for the parent or caregiver, including suggestions for where to conduct the activity, a brief explanation of what children will learn, and a bit of background information.

Look through the activity sheets and decide which ones are interesting to your family. Print copies which can then be bound together to make a booklet (many possibilities here – punch holes and bind with string, staple pages together, use recycled manila folders as covers, etc.) Each child or group of children can then have their own workbook.

Please remember that these activities are primarily designed to foster observation – there is seldom a right or wrong answer. Some children may begin to closely observe something other than what is described in the workbook. This is wonderful! The world is full of unpredictable surprises, opportunities for observation which can never be anticipated but only appreciated. Be sure to include a blank sheet in your child's notebook where they can record their observations of the unexpected.

Before you go exploring, review the "Nature Explorer" activity in this packet. It will help you and your children discover the tools you carry with you every day to help you explore the world around you.

## Families that Explore Together, Do More Together!

Spending time outside as a family exploring the natural world is a great way to strengthen connections between children and adults. Don't worry about not being an expert in plants or wildlife; what matters most is that kids and adults are able to share enthusiasm and curiosity about the things around them. If your explorations lead to questions you really want answered, you can work together to figure things out. Maybe you just need to come back and spend more time watching things unfold, taking pictures or making drawings of what you see. You can look for an expert who can help answer your questions, or you can try searching on-line for trustworthy resources. Maybe your question doesn't have an answer yet – there are many things in nature that have yet to be discovered and explained!

Getting outside and exploring the natural world provides a range of benefits to both children and adults, ranging from stress reduction and increased cooperation to enhanced creativity and improved physical coordination. If you'd like to learn more about how to make the most of family time spent outdoors, visit the Children and Nature Network ([childrenandnature.org](http://childrenandnature.org)) and check out their family resources.

### Some Helpful Tips

Whether you are visiting the Garden or exploring your neighborhood, you'll want to keep these guidelines in mind:

- Whenever possible, let children's curiosity lead the way. As the adult, you may feel you need to take charge, but you'll all get more out of the experience by letting children share their discoveries with you.
- Ensure that everyone is comfortable, with suitable clothing plus snacks and drinks if you'll be out for a while. Remember, there's no such thing as bad weather, only bad clothing!
- Don't be afraid to say "I don't know!" – just follow it up with "I wonder..." Modeling curiosity lets children know you value their curiosity as well, and helps them understand that we are all still learners.
- Talk about your experience after you get home and share it with other family and friends. Help your children form happy memories of your time together!

## Respectful Explorers

Here are some basic guidelines to keep in mind on your nature explorations:

Be respectful of all living things and do your best not to disturb them.

- Observe larger animals quietly and don't approach too closely. Let them go about their business.
- In general, do not feed wild animals, it's healthier for both them and for you. However, a back yard bird feeder with appropriate food can provide wonderful observation opportunities.
- If you pick up small animals such as ants, worms or roly-polies, handle them gently and return them to their homes after observing.
- Remember that plants are alive too. Pick a leaf or flower only if they are abundant on the plant and do so carefully so as not to damage the rest of the plant.

Be respectful of the landscape and the work that has gone into it.

- Don't disturb plantings in neighbor's yards or parks without permission.
- Follow any local rules about staying on paths or walking on lawns and stay in areas that are open to the public.
- If you encounter someone who takes care of the area you're exploring, whether a gardener, a volunteer, or a neighbor, thank them for their work.

## **Becoming a nature explorer**

Wherever you go with your family, you can be nature explorers, investigating and discovering the wonders of the natural world around them. Help your family get ready to make the most of your explorations with the following activity.

Introduce the concept of a "nature explorer" to your children – a nature explorer is someone who explores the natural world by observing closely, thinking about what they observe, coming up with ideas about what they discover, and sharing their discoveries. Every one of us can be a nature explorer – we all have special tools that can help us investigate the natural world.

As a family, think about what tools we have *in or on our bodies* that we can use to explore the world around us. If you'd like, make of a list of the tools you can think of, or draw pictures illustrating your ideas.

**Here are some suggestions – you and your family may think of others!**

**eyes - counters, cameras**

**noses – scent detectors**

**fingers – tweezers, feelers**

**hands- rulers, cups**

**hair – wind detector**

**memories – notebooks and pencils**

**ears – tape recorders**

**feet – transportation, rulers**

**skin – thermometer**

## **GOOD TO KNOW**

### Leaves in the Lawn

**WHERE?** This activity can be done anywhere there is a patch of lawn, whether in a yard, park, or ball field. At the Garden, any of the lawn areas work well, especially the Great Meadow.

**WHAT?** Children closely observe the variety of plants found in the lawn, then record their observations.

**WHY?** This activity helps children focus, make careful observations, and recognize that the plant world is full of variety – even in a plain green lawn!

**MORE** Most lawns are made up primarily of grass, but there are many other plants, as well as different types of grass, that can be found in most lawns. Clover, plantain, dandelions, and English daisies are just some of the plants that can be found in many lawns.

If you are very lucky, you may spot a gopher in the lawn. Be sure to take the time to watch this little creature at work.

What grows in the lawn? Just grass? Look again!

Take a close look at the lawn and see how many different shapes of leaves you can find growing here.

Draw a picture of the leaves on this page.

I found \_\_\_\_\_ kinds of leaves!

## GOOD TO KNOW

### Leaf Rubbings

WHERE? Anywhere you can find leaves that have fallen from trees. You may also be able to pick a few leaves from trees on your property.

WHAT? Children make a leaf rubbing picture using a crayon and a leaf that they like. **BRING CRAYONS!** Help children find a flat, tough leaf on the ground - leaves that are too soft don't work so well. Children should carefully look at the leaves and notice the veins, which carry water and nutrients through the leaf. Put the workbook on the ground or on a bench, then place the leaf under the activity sheet with the veiny side up. They should be able to feel the leaf through the paper. Finally, have them take a crayon and rub it sideways over that area of the paper. Watch the leaf picture appear! Try using different color crayons too.

WHY? Making a leaf rubbing will focus children's attention on the wide variety of shapes and textures of leaves. They will also notice the veins of a leaf, the system of "pipes" which carry water and nutrients through the plant.

MORE The leaves that make the best images are tough with prominent veins. Younger children may need help to find suitable leaves. Older children can be given the challenge of finding the leaves that work the best.

If you look on the ground under magnolia or eucalyptus trees, you may find some "ghost leaves" or "leaf skeletons." These magical leaves have almost completely decomposed, leaving behind only their tough veins. In the Garden, magnolia trees can be found in the Mesoamerican Cloud Forest, around and behind the Moon-Viewing Garden, as well as in a few other locations. Eucalyptus are here and there throughout the garden as well as in the Australian section.

Find a leaf you like lying on the ground. Now you can make a leaf picture with a crayon! Put the leaf under this piece of paper. Can you feel the leaf through the paper? If you can't, turn the leaf over. Now rub a crayon sideways over the paper and the leaf. Do another leaf if you want!

## GOOD TO KNOW

### Leaf Smells

WHERE? You can try this with plants anywhere, but it will be especially fun when you find herbs like rosemary or bay. In the Botanical Garden, the Garden of Fragrance is ideal. There are also concentrations of aromatic plants in the Mesoamerican Cloud Forest (look for the plant name "Salvia"), and aromatic plants in the sensory garden in the Children's Garden.

WHAT? Children rub the leaves of different plants, then smell their fingers to discover the scents of the different leaves. They describe their favorite scent and draw a picture of the plant.

WHY? While most people are aware of flowers having scents, we often don't notice that leaves can be scented as well. Children will be encouraged to use more of their senses when exploring plants.

MORE Flowers usually have scents designed to attract a pollinator, especially insects. Leaves often have scents designed to repel insects and other animals. Even the scents that we humans find appealing can be unpleasant for animals which want to eat a plant.

Herbs are plants whose strongly scented and flavored leaves are used in small amounts to flavor our food. Various teas are also made from leaves with strong scents and flavors.

We know that a flower can have a smell, but leaves can have a smell too! To smell a leaf, gently rub the leaf with your fingers, then smell your fingers.

Go to five different plants and smell the leaves.

What does your favorite plant smell like? \_\_\_\_\_

---

---

---

---

---

What does your favorite plant look like? You can draw it here.

## **GOOD TO KNOW**

### Measuring Plants

**WHERE?** This activity can be done anywhere there are plants. This is also a good introductory activity so children discover one way to make observations about the plants they will see.

**WHAT?** Children use their bodies to measure different plants and plant parts.

**WHY?** Children will discover the wide variety of sizes of plants and will relate them to their own bodies.

**MORE** For younger children, the focus is primarily on relating plants to their own bodies. Older children can work on thinking about measurement in a more general way and can extend the activity by making the conversion between their body part and inches or centimeters.

Plants come in all different sizes. Use your body to measure some of the plants you find.

Find a flower you like. The flower is as big as your \_\_\_\_\_

Can you find a flower as big as your ear? What color is it?

\_\_\_\_\_

Can you find a leaf as small as your fingernail? Draw it here.

Find the biggest leaf you can. It is as big as \_\_\_\_\_

Can you find a plant as tall as your knee? Draw a leaf from the plant here.

## **GOOD TO KNOW**

### My Special Plant

WHERE? This activity can be done anywhere you can find a plant, even a single street tree or potted plant in your home.

WHAT? Children select one special plant to observe and describe.

WHY? This allows children to focus in on the characteristics of a single plant which they like.

MORE Be sure children realize that not every plant will have a fruit, or a flower, or a name tag. They should fill in as much of the work sheet as is relevant. If the name is a mystery, why not make up a name?

Find a plant you like. Describe your plant here so you will always remember it!

How big is your plant? \_\_\_\_\_  
\_\_\_\_\_

What colors do you see on your plant? \_\_\_\_\_  
\_\_\_\_\_

Draw one leaf of your plant here.

If your plant has any flowers, draw one here.

\_\_\_\_\_

Does your plant have any fruit? Draw it here.

Write one thing that is special about your plant. \_\_\_\_\_  
\_\_\_\_\_

If you know your plant's name, write it here. \_\_\_\_\_  
\_\_\_\_\_

## **GOOD TO KNOW**

### Flower Visitors

**WHERE?** This activity can be done anywhere you find flowers growing. In the Botanical Garden, the Mesoamerican Cloud Forest is blooming December through March, and the Mediterranean and Rhododendron Gardens are in bloom throughout the spring.

**WHAT?** Children observe a plant in flower to see if any pollinators visit the plant. If you wish, you can specify a period of time to observe – 3 to 5 minutes is usually enough.

**WHY?** Children learn to observe patiently, and they recognize that insects and other small animals interact with plants.

**MORE** You can talk about how the animals are doing a job for the plant (moving pollen) in exchange for a reward (nectar or pollen) without having to go into the details of pollination and plant reproduction.

Find a plant that has at least ten flowers. Sit or stand quietly and watch the flowers for a little while.

Did any small animals visit the flowers?  YES  NO

Draw one of the flowers, and then draw any visitors you saw.

## **TEACHER INFORMATION**

Animals live with us!

WHERE? This activity can be done as you move through your neighborhood or the Garden.

Please remind children to treat all animals they see, from insects and spiders to squirrels and birds, with respect. The outdoors is their home.

WHAT? Children try to find an example of four basic types of animals and draw what they see.

WHY? Children recognize that a variety of different kinds of animals live around us.

MORE Many different kinds of birds live all around us, ranging from tiny hummingbirds to pigeons and hawks. In the Garden, squirrels are the most common mammal (except perhaps for humans!) that your children are likely to see. Various insects live around us – be sure your children know to look for a six-legged creature. The best place to find a reptile or amphibian is at one of the ponds, where turtles and tadpoles find a home, though you may find a salamander or frog in your own back yard!

The animals that live in the Garden are all different shapes and sizes. See if you can find all of these – and draw pictures of what you see!

A BIRD

AN INSECT

A MAMMAL

A REPTILE OR AMPHIBIAN

## **GOOD TO KNOW**

### Animals Homes and Animal Food

**WHERE?** This activity can be done as your family explores the neighborhood or the Garden. Alternatively, stop at one of the ponds or in the Mesoamerican Cloud Forest to complete this activity.

**WHAT?** Children look for evidence of places where animals live as well as things that these animals might eat. Children record their observations, either by drawing or writing.

**WHY?** This sharpens children's observational skills and helps them recognize how animals find what they need to survive in different areas.

**MORE** Children may need to be reminded that there are many different kinds of animals of all shapes and sizes – don't forget small animals like insects, slugs, and spiders!

Please do not feed any animals in the Garden. They are wild animals and are healthiest when they find natural food. They may scratch or bite if they are frightened.

Animals live in all kinds of places. They live where they can find places to live and food to eat. Can you find some places animals live, and some food animals eat? Write or draw them here.

SOME PLACES ANIMALS LIVE

SOME FOODS ANIMALS EAT

## **GOOD TO KNOW**

### Animal Observation

WHERE? Animals are surprisingly adaptable and can be found almost anywhere outside, provided you look closely. Remember that animals range from ants and earthworms to pigeons, squirrels or even coyotes. In general, areas with more resources for homes and food will have more animals, so places with plants that provide food and cover are likely to have the most animals. Animals of various types can be found throughout the Garden, but some areas are particularly rich. Turtles and ducks can be found at the Wildfowl Pond, while the other ponds may have herons, tadpoles, insects and other wildlife.

WHAT? Children observe an animal for several minutes and record what they see the animal do.

WHY? Children get a sense of how animals interact with their environment.

MORE Don't forget that small animals such as insects, spiders, roly-polies and worms are often easier and more fun to observe than the bigger and more dramatic mammals and birds.

The animals in the Garden use the plants in many different ways – shelter, food, nesting. After their observation, children can think about ways that the garden provides for the animals' needs.

Animals of all sizes live where they can find food and shelter.  
Find one animal and watch it quietly for a few minutes.

My animal is a\_\_\_\_\_.

I saw my animal do these things: