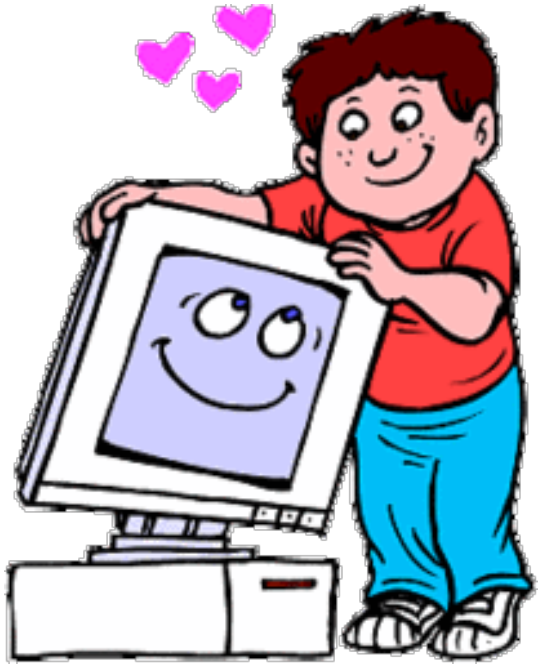
Training and Learning Materials

How to use Starting Out/Family Nature Guides!

Ready, Set, Start Out Naturalist! Using Starting Out Wild/Family Nature Guides to get young children engaged in nature

The Problem-– Nature Deficit Disorder

Children today are on screens and experiencing life virtually from the earliest months.



Yes, young children can enjoy nature!

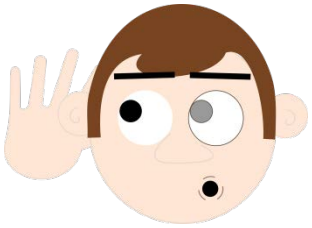
Starting Out Wild was developed to extend Growing Up WILD to our youngest naturalists.

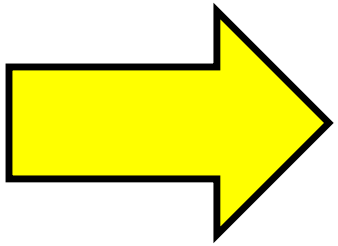
- Adapting GUW
- Trying it out with one team of teachers in one location
- Developing a framework
- Writing original materials
- Multiple teams teaching multiple populations
- Incorporating materials from many sources
- Multiple revisions
- A work in progress
- The original materials
- Transition to Family Nature Guides

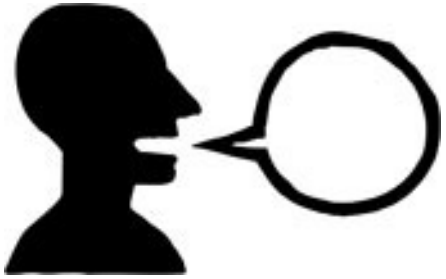
Core values

- The love of nature needs to accompany growing up from the beginning.
- Teaching must engage both children and parents.
- Learning will spiral, moving from tolerating and participating, to acquiring increasingly more complex concepts and vocabulary.
- We will learn with play and having fun using movement and all our senses.
- Familiar analogs of unfamiliar concepts and vocabulary will be provided to make new concepts and vocabulary meaningful.
- All activities will be process oriented and developmentally appropriate.
- The sole focus is nature learning.
- Our lessons will be about things we can see and feel outdoors.
- We are about real science.

From tolerating and enjoying with our senses and bodies, to participating with concepts and vocabulary with our minds and hearts. We will adventure into nature and invest in nature.







First things first--

how toddlers experience the world!

How will we engage very young children in nature?

Children are developing representation=memory, language, cognition, motor and social skills, so **we, ideally want to engage parents as well as teaching children**—why? So that the parents invest in the enterprise of nature learning and will continue to facilitate their children's adventures in the natural world.

Our goal is that the children **will experience the natural world in the ways young children learn—through movement, touch and acting on and in nature**, and that children will **enjoy, and therefore return to**, learning about nature

We do this, knowing that repeated experience will be required as children develop more representation, language and reasoning skills, to acquire the vocabulary and concepts we introduce.

Understanding language and thinking

Between the ages of 1 and 3 children change from babies, acting on the world with simple physical schemas, to preschoolers with language, social, motor and cognitive skills, so we are teaching to a range of abilities.

Language ranges from some simple receptive understanding, to having symbolic behavior (indexes) to communicate, to combining words, to a variety of speech acts, and speech events. In general, the youngest children will respond by choosing , participating in the activity physically, or imitating actions.

Imitating language does not teach vocabulary; **rich experience paired with simple language makes words meaningful**.

Cognitively, children are in the sensory motor to concrete operations, stages, that is, they learn by using their senses and acting on real things. **The youngest children need to be allowed to approach new experiences as they feel comfortable, generally through successive approximations or gradual phasing.**

Moving

At one children are just getting their ambulation skills. **They love to move, but tire easily on long walks**, so hikes need to be planned with these considerations in mind--young children also like to stop and examine what interests them. What they discover takes precedence over our agenda—go with the teachable moment.

What does this mean for our walk? Getting the children out into the environment is a core value, so we need to do this young child-wise. It is more important to **proceed leisurely so the children can discover their own interests**—we want them to develop curiosity about the natural world, and that value trumps imposing our learning agenda.

We also want to be **sensitive to the motoric attention span.** In general, around 15 minutes will be optimal for a walk, but leaders can adjust for the specific children and weather conditions of any given session. When possible, have a motoric transition that reinforces the learning, e.g., make an ant line to go back to class

Manipulating

Motor skills will also range in this age group. By one, children will probably have a pincer grasp and be able to remove and replace objects in containers. Between one and two they will be scribbling, in most cases using a palmer grasp. Nonetheless they enjoy scribbling as well as using clay-like materials, with adult supervision, since some will still be mouthing. Between two and three scribbling becomes more systematic with some delineation of form and line.

In general, the youngest children enjoy media such as dot markers or stamps—banging motion, and ones using their fingers such as finger-painting or patting but are not ready for structured pasting. So adhesive materials like stickers, two-sided tape or contact paper, work best.

In craft and snack projects **we balance 4 considerations**: ability for the child to be **independent** in the activity, **natural materials** if appropriate, reinforcement of the earlier **learning component**, and **safety**. Activities for the youngest children should have **one simple step** the child completes so the child experiences satisfaction in creation. Experiencing and exploring the material, is more important than product.

One approach to a lesson

- First 15 minutes—**Gathering**—Experiencing real and model specimens (this allows for a better flow than trying to pass them in a circle), looking at books, read* a book, or have music with actions, on the mat to start collecting the children in one place. **Focus**—Singing the *Hello Friends* song to create a consistent clear start and the name song to engage children individually; jump right into the songs and fingerplays to get engagement Learning—Teacher gives the content (concepts and vocabulary) with things the children can feel, manipulate or act out; transition> something active; note> young children learn concepts and language through **move-touch-do**—repeating just teaches echoing.
- Second 15 minutes—**Walk**, to connect the content with nature in the outdoors; note> always have back-up activities for inclement weather.*
- Third 15 minutes—**make and take**—craft projects or experiments—make sure they can do the action themselves, for the youngest have only a single step to complete, incorporate natural material when possible.
- Fourth 15 minutes—**snack**, a group project, good-bye songs to provide a clear ending—you want the "brackets" of a beginning and ending to provide a "safe harbor" for such young children.
- *Reading hints for **youngest children—plunge right into the text with fast pace, drama=vary pace, loudness, frequency, emphasize rhythm and rhyme**—rather than having them find things in pictures, pair each set of pages with an action for them to do and in general "ham" it up!
- **Remember—keep things simple for the youngest—e.g., crafts and snacks with one step, everything pre-packed!**

General Teaching Suggestions

Pacing is key— **go active, dramatic and rapid**.

Don't feel that every child has to do each part of the learning—so long as each child gets to do some parts, the children will remain engaged, and you will lose them if you try to let each child do every experience.

Have **real objects** to teach any concepts, e.g. to teach "gizzard" a box of stones and sand and a (taped up) food processor—you want to relate to things the children may see at home.

It's important to relate the session both forward to nature learning, and to familiar materials they will meet at library story hours and in school. Use classic children's books such as Brown Bear, Brown Bear and The Very Hungry Caterpillar, as well as nature books, with props to make the books more concrete—use fingerplays and songs and movement games to teach and reinforce concepts. We want the children **to acquire rich relationships not only to the world of nature, but also to their future world of learning in school**.

And remember, we have two **audiences**—our young children and their parents—so have some materials for parents to reinforce their learning as well!

Starting Out Wild and Family Nature Guides

- The original format of Starting Out Wild was developed for programs in parks and preschools. Each lesson included: Gathering and Focus, Learning, Walk Outside, Learning Snack, Learning Craft and Closing. There were templates, objectives and outcomes, and 4 links to large files of stories, slideshows, and songs.
- Family Nature Guides were designed to take the best of Starting Out Wild and develop materials that could be used in a variety of settings with a broader age range and by families. Each lesson includes, learning materials appropriate from birth through elementary school, fingerplays, a simple story, suggestions for learning walks, snacks and crafts, and a mini-book.

Examples of analogs

Hide and Seek—you don’t need fancy materials.

We collect nature.

Seed collections

Materials don’t need to be perfect!

Starting Out Wild Lessons with Materials/ Family Nature Guides

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- Little Ladies
- Leapin' Lizards
- More and Less
- Mighty Ants
- Pokies and Pricklies
- Rockn' and Rollin'
- Seeds Sprouting
- Seeds We Need
- Tree Houses
- Turkeys are Terrific
- Water Water Everywhere
- We Love Leaves
- Where's the Energy
- Wild Things
- Who Eats What?
- Who Lives in the Neighborhood?
- Worm Tracks

Here are samples of some of the materials:

- Learning materials
- Fingerplays
- Simple stories
- Learning walks
- Learning snacks
- Learning crafts
- Mini-books

Learning Materials

Materials are provided both as background for parents and teachers, as well as materials for a range of ages.

Water comes in 3 states.

Water is made of molecules--think of them as little bits of water. When water molecules are in a rigid crystal, they form ice which is hard and cold.

You can sit very still like an ice cube.

Sometimes we call these the phases of water as they move from one to another.

When water molecules start sliding around the water is liquid.

You can make your arms wave and flow like liquid water.

When water molecules are moving very fast the water becomes water vapor. Steam is hot water vapor and clouds are made from water vapor.

You can run around fast like water vapor molecules.

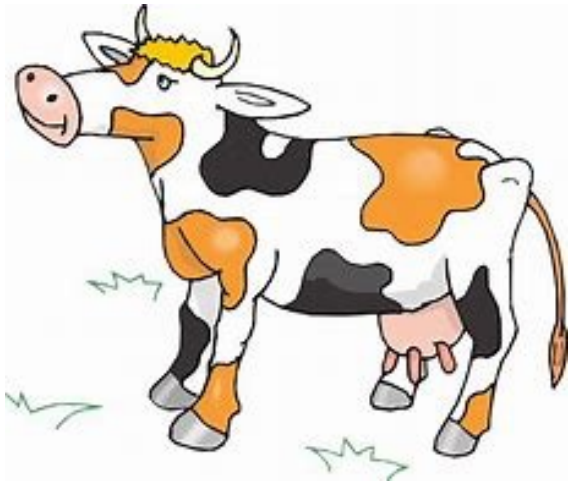
We have feelings about different animals.

All animals need food, water, shelter and space. Wild animals must meet these needs themselves. They find their own place with space for moving around, shelter, food and water. Most wild animals live in the wild in forests, desserts, and grasslands.

Some wild animals live in zoos. The zoos provide food, water, shelter and some space.

Tame animals have people who provide food, water, space, and shelter. Some tame animals are pets and live with people in their houses.

Some animals are domestic animals, like pigs or chickens on a farm. People provide them with food, water, space and shelter.



Examples of supporting materials

Birds are warm blooded animals that have wings, feathers, beaks and flight.

Feathers serve several purposes: flight, insulation, defense, display, camouflage, and waterproofing. Feathers are composed of several parts: quill (calamus hollow part that connects to the skin or bone), shaft (rachis or part that holds the vane), vane or plumed part composed of barbs which in turn are composed of barbules, and the downy afterfeather used for warmth. Each barb is like a tiny feather made up of barbules with a smooth side and a hooked—barbicels—side. The barbicels are tiny hooks that hook up with nearby barbules to create a smooth vane.

Feather terms

The calamus is the quill, the hollow lower part of a feather, without barbs, that attaches to the skin or bone.

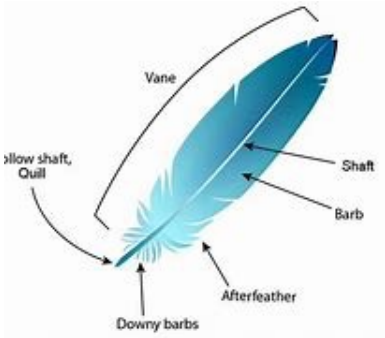
The rachis is the central part of the feather from which the barbs extend.

Barbs are parallel fibers coming off the rachis at a 45-degree angle. All the together form the vane of the feather. Barbs branch into barbules, which in turn branch into barbicels. These hook together to form the surface.

A plumulaceous microstructure has flexible barbs and relatively long barbules that trap air close to the bird's warm body.

Pennaceous feathers are stiff and flat, with microscopic hooks on the barbules interlocking to form a wind and waterproof barrier that allows birds to fly and stay dry.

Contour feathers on the wing, are called coverts. They shape it into an efficient airfoil by smoothing over the region where the flight feathers attach to the bone.



Kinds of feathers:

Wing feathers or remiges are specialized for flight and are characterized by uniform windproof surfaces, or vanes, on either side of the central shaft that are created by an interlocking microstructure.

Tail feathers or rectrices feature an interlocking microstructure like wing feathers. These feathers support precision steering in flight.

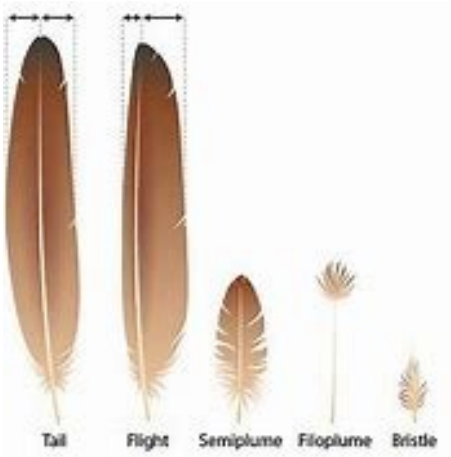
Contour feathers are what you see covering the bird's body and streamlining its shape. They are ranged in an overlapping pattern like shingles with the waterproof tips exposed to the elements and the fluffy bases are tucked close to the body. They may provide camouflage or display functions.

Semiplumes are hidden beneath other feathers on the body, with a developed central rachis but no hooks on the barbules, creating a fluffy insulating structure.

Down feathers have an even looser branching structure with little or no central rachis; they are relatively short and positioned closest to the body where they trap body heat.

Filoplumes are short simple feathers with few barbs, and function like mammal whiskers to sense the position of the contour feathers

Bristles are the simplest feathers, with a stiff rachis that usually lacks barb branches, commonly found on the head, protecting the bird's eyes and face.



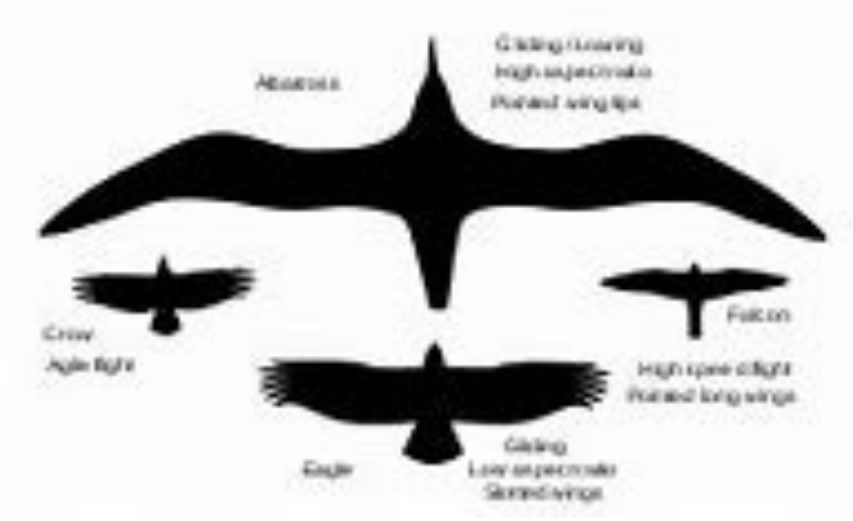
Wing forms

Passive soaring wings have long spread-out primary feathers, creating areas that allow the bird to catch vertical columns of hot air—thermals--and rise higher in the air.

Long and narrow active soaring wings allow birds to soar, without flapping their wings, for a long time. These birds are more dependent on wind currents than passive soaring birds.

Long and thin high-speed wings are not as long as active soaring wings. Birds with this wing type are incredibly fast and can maintain their speed for a while.

Hovering wings are small and quick with nerves and muscles are specially adapted for incredibly fast movement.



Bird beaks are adapted for different foods and conditions: long and hollow for nectar, long and pointed to find food in mud, cone shaped to crack seeds and shells, pouch to scoop fish, strainer to filter tiny plants and animals, gaping to trap insects, sharp pointed to pick insects from bark, long thick to pick fruit, strong sharp and pointed to chisel bark, and long to hunt for fish in water.

Bird Beak Functions—bird beaks are adapted for gathering and eating different kinds of foods. What things can you find around the house that are like different kinds of beaks? Try out the things you find with beans, rice, seeds, pieces of cotton or paper and discover which “beak” works with which food,

- Long and hollow for nectar
- Long and pointed to find food in mud
- Cone shaped to crack seeds and shells
- Pouch to scoop fish
- Strainer to filter tiny plants and animals
- Gaping to trap insects
- Sharp pointed to pick insects from bark
- Long thick to pick fruit
- Strong sharp and pointed to chisel bark
- Long to hunt for fish in water

Bird Architects

- Bald eagles make long lasting nests adding to them each year.
- Hummingbirds make small nests which stretch as the babies grow.
- Orioles make long elaborate nests dangling from trees.
- Birds that nest on beaches make a shallow depression to use as a nest.
- Birds that nest on rocky cliffside ledges on a coast lay pointy eggs that won’t roll off the edge.
- Water birds like ducks build nests floating on the water, or in grassy areas in or near the water.
- Burrowing owls build nests underground.
- Other owls are cavity nesters building nests in holes in trees and snags (dead trees).

Fingerplays

Very simple fingerplays reinforce key concepts.

More and Less

Use it again or make it something new (hands mix)
That’s what good recyclers do! (clap)

You can be finger rocks!

Some rocks come from seas (waving hands)

And some rocks come from heat (volcano up)

And some rocks become soil (tilling)

But every rock is neat! (clapping).

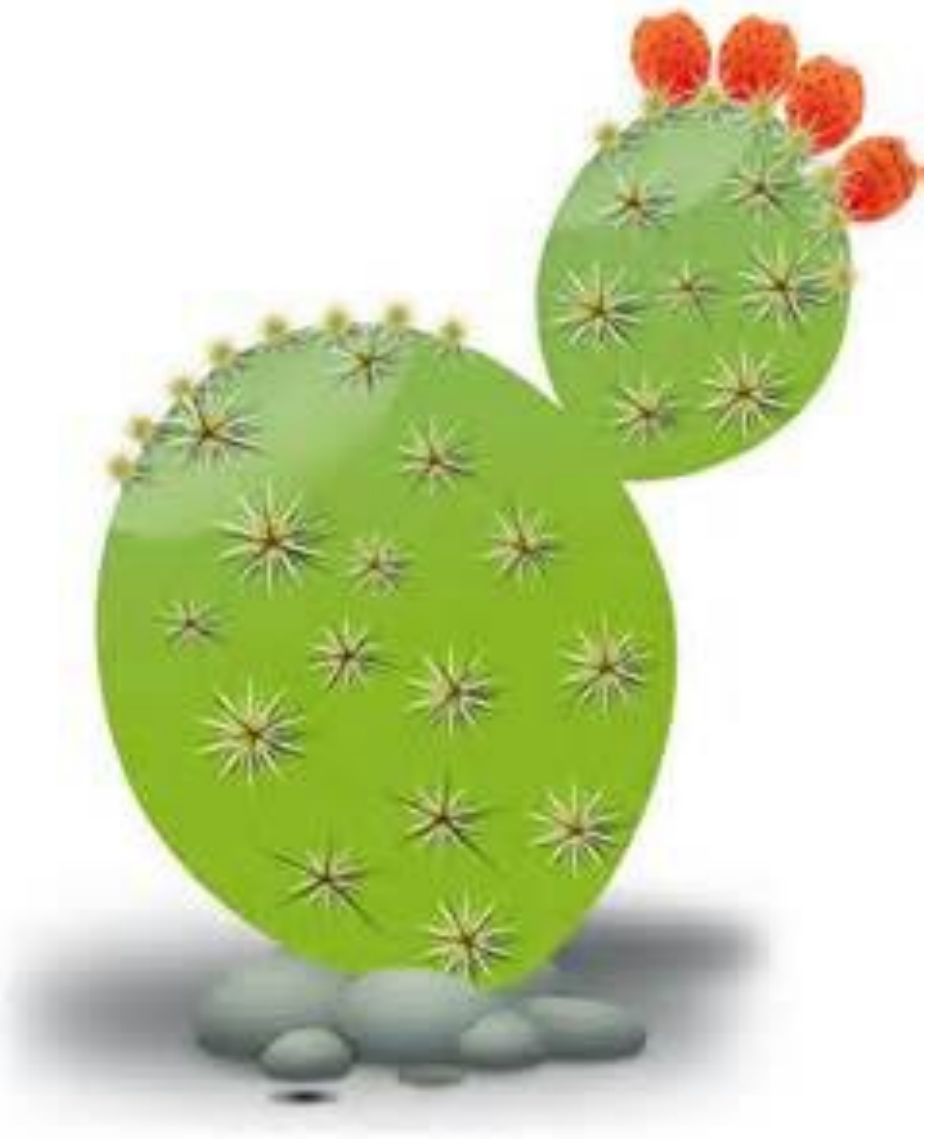
You can be finger birds!

- **Some birds flap wings (flap arms to sides)**
- **And some dive down-- (dive)**

- **Some back and forth, (move back and forth)**
- **Some turn around! (turn around)**

Songs

Songs and movement are fun ways of learning new things!



To the tune of *Darling Clementine*

Deer need food (point to tummy)

and deer need water, (pretend to drink)

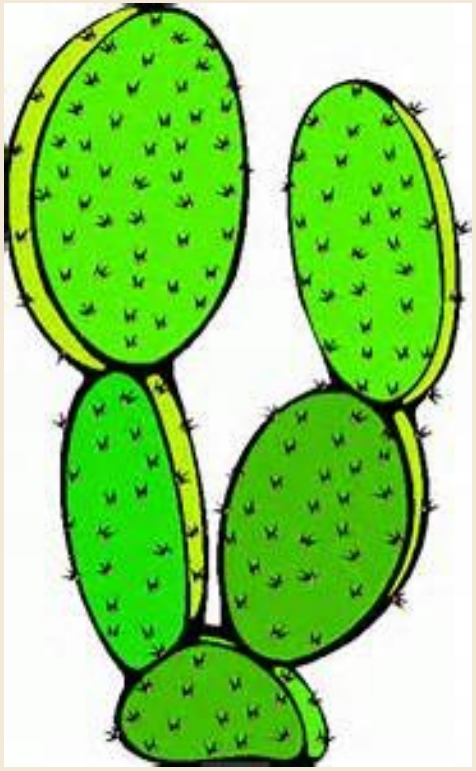
deer need shelter (make roof over head)

and space too. (arms sweep sides)

They need all these things together (hands together)

so they live like me and you! (point out and in)

You can sing the song to *I'm a Little Teapot*.



I'm a little cactus—pads green and flat. (hands together horizontally)

My pads are my stems, just think of that! (hands together vertically)

My spines are my leaves, I think they're cute. (pointer fingers touching)

My flowers are yellow, and my tunas are the fruit! (hand rounded)

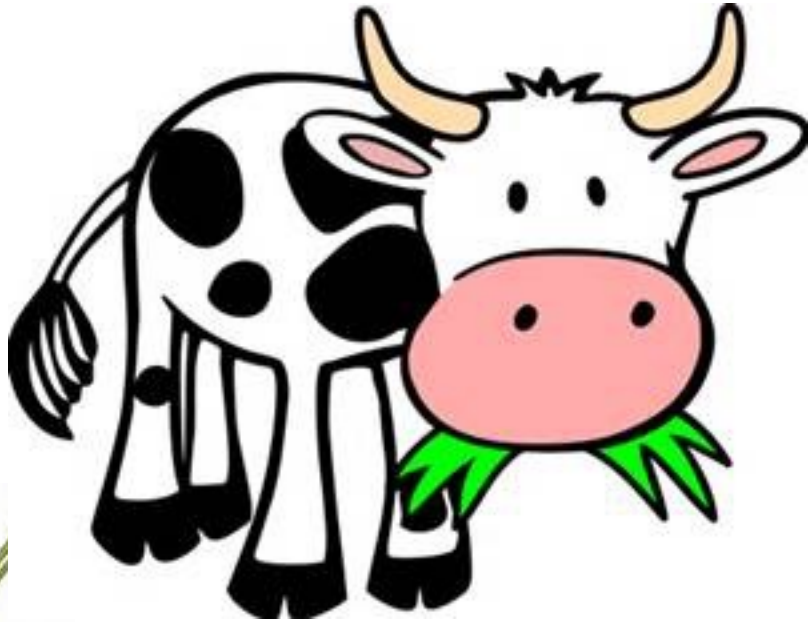
Stories

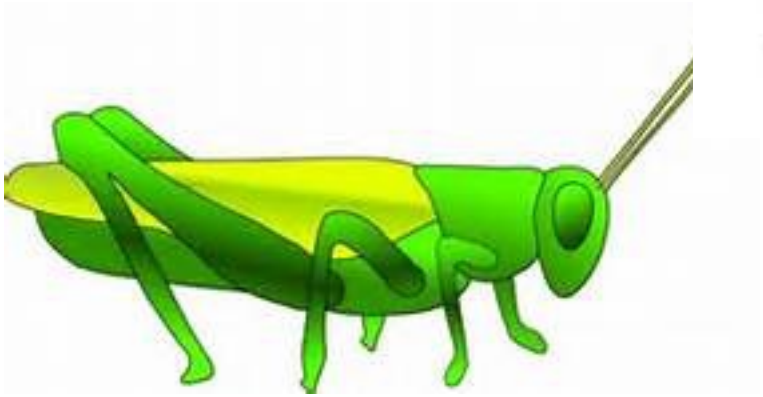
Very simple stories reinforce the key concepts and vocabulary.

What are all the things the grass can do?

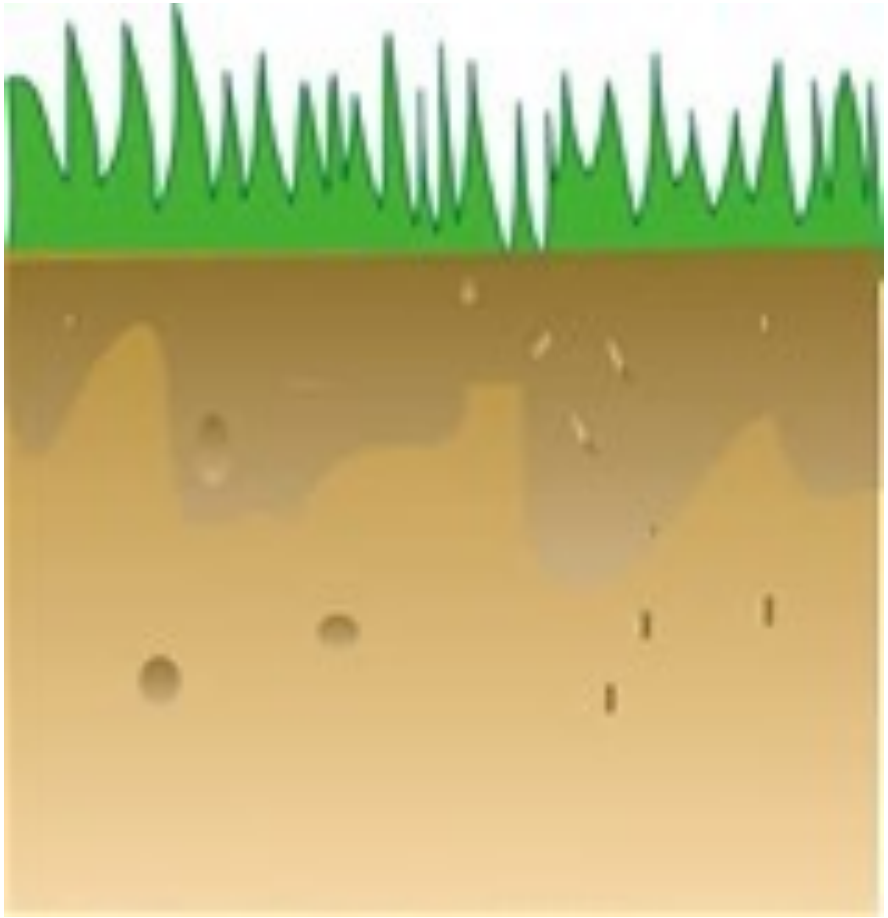
It makes food for me and you!

It gives animals shelter and things to eat.



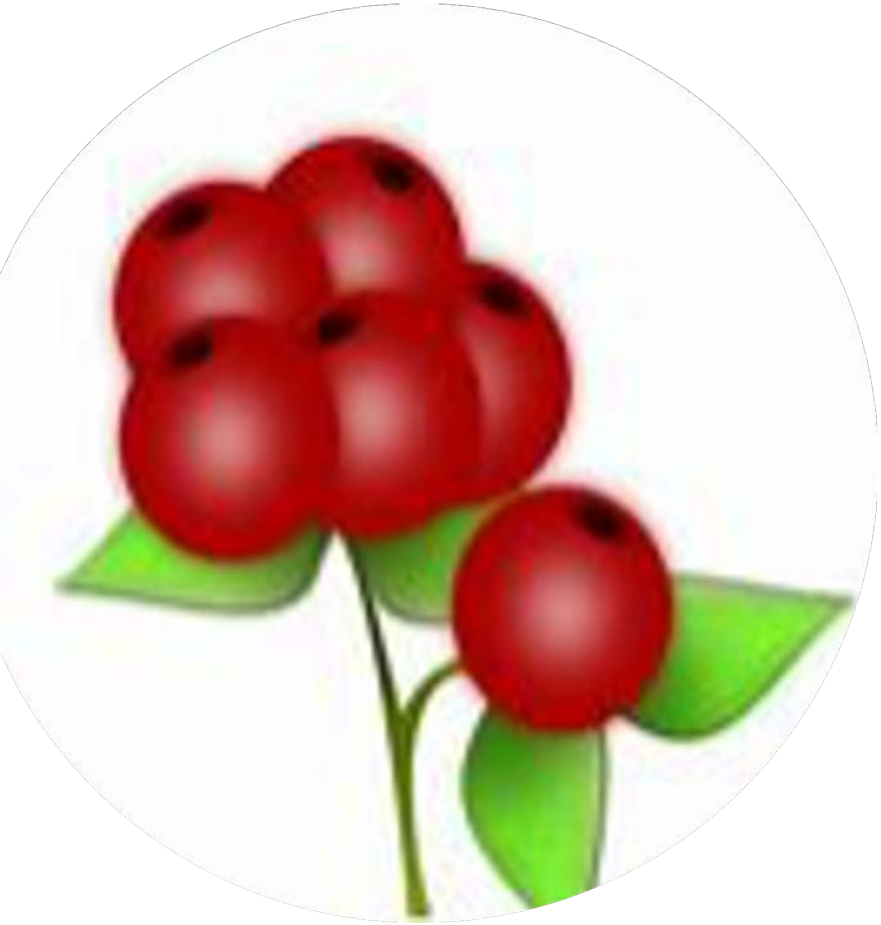


It holds the soil and water—I think that’s neat!



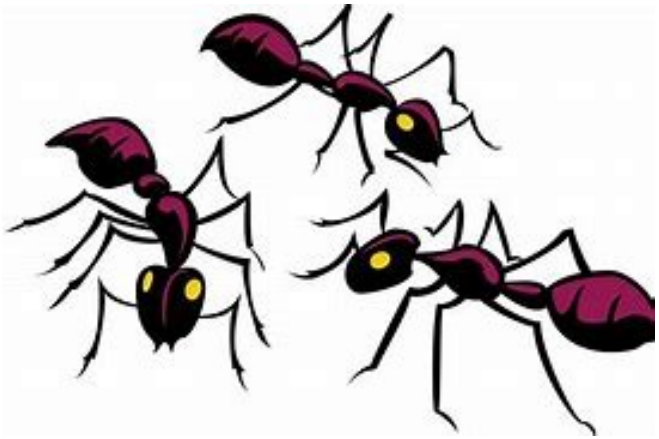
Bears Are Omnivores!

A Bear’s Lunch



Bears eat berries.

Bears eat meat.



Bears eat insects.

Bears like to eat!

Learning Walks

Learning walks both apply the concepts and stretch the imagination.

Find the food, water, space and shelter where you live!

Now where can you find food, water, space and shelter for an animal around your home?

Do a tree walk around your house. We can use all our senses to experience the parts, similarities and differences in trees. Look for animals, birds and insects in trees, signs of life in trees, and things that could be homes or food. You can match color chips to bark and leaves.

Hide and Go Seek!

Walk around your house to find good hiding places. Look down low and look up high. How about piles of leaves, or deep grasses, rocks and dirt and clusters of trees? Which animals could hide in each? Do you see signs an animal might have hidden there?

Learning Snacks

Snacks are open ended and require problem solving.

Be a nature chef!

Make a meal for a bird! What kind of bird are you? What kind of beak do you have? What foods do you have for your bird? What utensils will you use to eat those foods?

You can eat like a bear!

What will you put in your lunch bag? Mini pretzel butterflies, goldfish or animal crackers, berries?

Can you find the jalapeno *lizard* in the broccoli *forest* or the butterscotch chip *bug* in the peanut butter *mud*?

Learning Art

Learning art is free-form and open-ended.

Grass imagination!

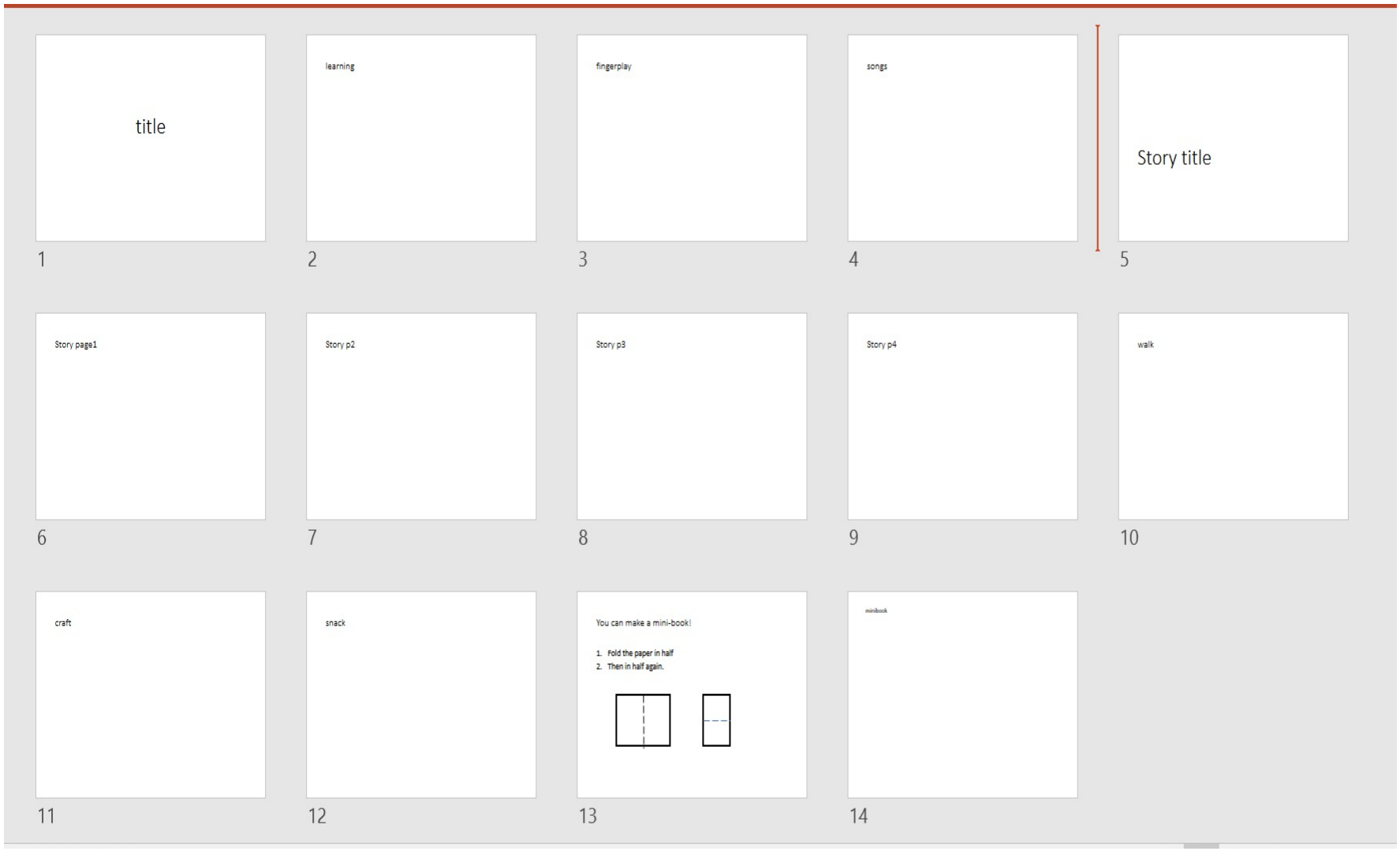
Grass art

Grass hut for a gnome

You can imagine your own wild thing!

Basic lesson plan templates

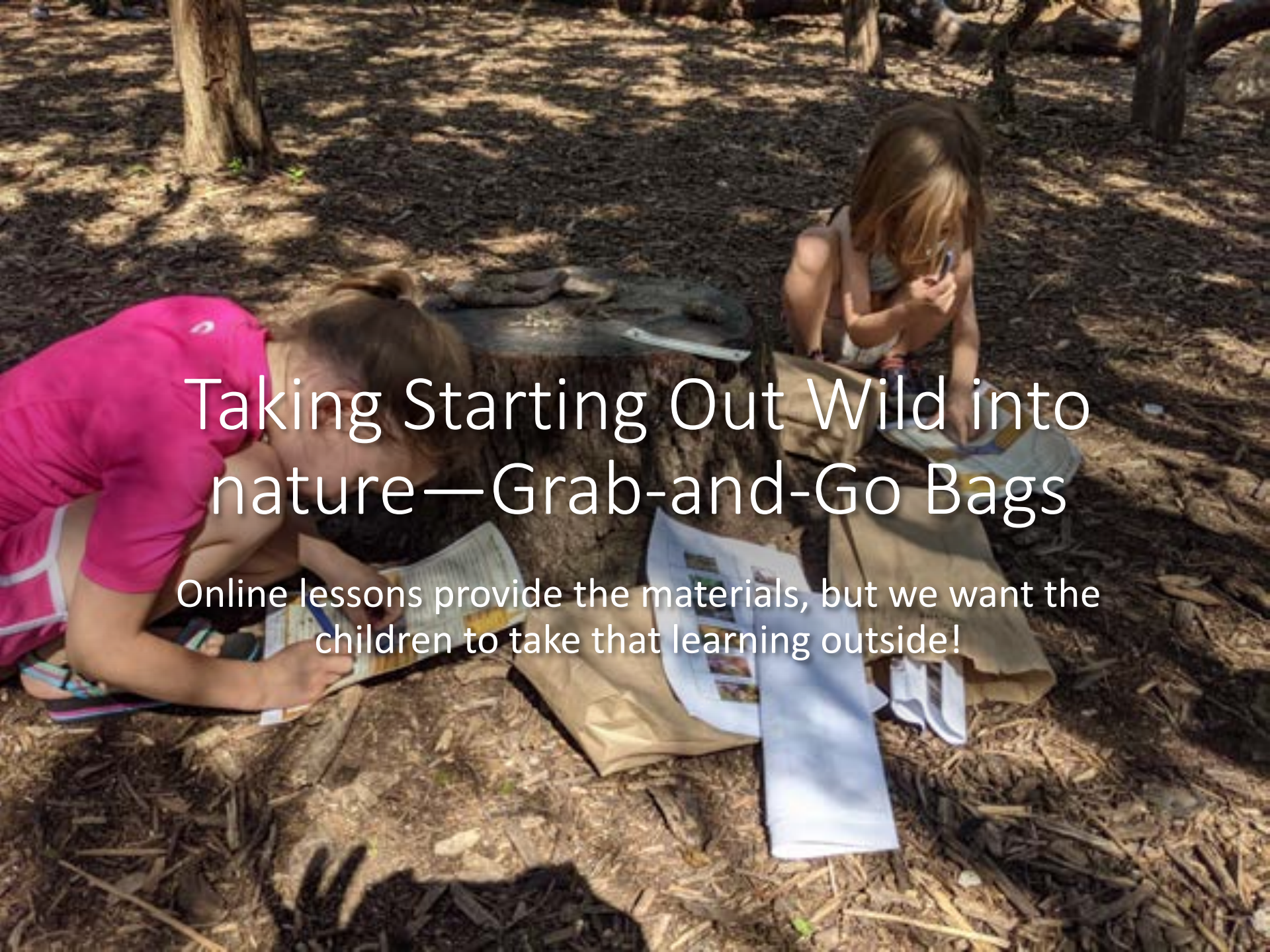
Basic lesson plan template:



We have outcomes in mind both for children and parents.

We want children to learn nature vocabulary and key concepts linked to familiar words and objects, to enact concepts and language with their bodies, to observe and explore the natural world and engage relating familiar activities to nature learning.

We want parents to learn the young child terms and concepts paired with scientific language and explanation, to facilitate participation in observing, exploring and enacting nature learning, so that they will relate the learning to the home environment and continue to bring nature outdoors into their children's lives.



Taking Starting Out Wild into nature—Grab-and-Go Bags

Online lessons provide the materials, but we want the children to take that learning outside!

Grab-and-Go bags paired with Starting Out Wild and Growing Up WILD virtual lessons, encourage families to come to the park and do the activities in nature.

The Grab-and-Go bags include basic materials for snacks and crafts, song sheets, stories and background information, and a simple plan for implementing the lesson in the park.


Share your work
by emailing us
programs@
Grab-N-Go
Phil Hardberger Programs

STREAM

+ ART=STEAM

+ READING=STREAM

What does STREAM look like for young children? Here are some ways of thinking about STREAM for young children.

Science is learning to observe nature, compare, contrast, and learning some of the related concepts and vocabulary.

Children can use simple technology such as magnifying glasses and rules. **T**echnology includes organizing, persistence and curiosity.

Reading connects what we learn about nature with classic children's literature.

Engineering lets children design their own creatures, plants or camouflage.

Art is one way children can express their ideas about what they observed in nature. We can incorporate lots of natural material into art projects.

Math is measuring and counting, arranging things in patterns .

A bird does not sing because it has an answer--

It sings because it has a song.

Chinese Proverb

You can find the Family Nature Guides at:

https://txmn.org/alamo/area-resources/natural-areas-and-linear-creekways-guide/family-nature-guides/

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