



BEAUTIFUL FEET BOOKS SCIENCE

Seasons Afield

A Literature Approach to Natural Science *for* Primary Grades

TEACHER GUIDE

BY TAMI KRUSE & TAYLOR BAEHR

SAMPLE



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SAMPLE



To Charlie, Katerina, William, and Lila.

"Since the creation of the world, God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made."

Romans 1:20

This curriculum has been designed to meet nationally recognized Next Generation Science Standards for primary grades.

Seasons Afield:

A Literature Approach to Natural Science for Primary Grades

by Tami Kruse and Taylor Baehr ©2022

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SEASONS AFIELD

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SEASONS AFIELD

AN INTRODUCTION

Seasons Afield is intended to provide a full year of natural science lessons for primary students (kindergarten through 3rd grade). We have designed six, seasonally based Field Guides to take you on a journey through the natural world. Each Field Guide is made up of three nature studies. Each nature study includes four lessons, using literature, field science, notebooking, and outdoor exploration to awaken a love of natural science in you and your children.

Pace: You will want to enjoy two lessons per week to complete the curriculum in one school year.

Lessons you will encounter:

STORY LESSONS

The Story Lesson allows you to engage with a scientific principle through story. This course uses Jill Barkem's *Brambly Hedge* series to frame our study of the seasons and is enhanced by a variety of topic related stories. When children learn, they need a place to hang their hats. Using literature to introduce children to science is like providing a small coat rack that gives the child a spot to place their knowledge, then retrieve and revisit it.

In the Story Lesson, you and your children will also discover the language of nature and science through "Wonder Words." You will often be directed to add these words to your logbook; there is no need for the child to laboriously write the definitions, just add the word and review from time to time.

FIELDWORK LESSONS

Your Fieldwork Lesson will be an activity such as an experiment or handcraft. In this lesson, you experientially engage with science and nature. You will use a set of Seasons Afield Fieldnote Cards to document your findings in your logbook. Fieldnotes are quantitative notes taken by scientists as they observe a certain phenomenon.

NOTEBOOKING LESSONS

We use *Watercolor with Me in the Forest* to guide you through a variety of watercolor techniques as you document the world around you in the logbook. *Watercolor with Me in the Forest* is particularly valuable for you as the teacher and the Seasons Afield Watercolor Cards have been designed to assist your students.

SLOW DOWN AND WANDER LESSONS

This is your day to get outside—whether it be your own backyard, a nature preserve, a beach, or a pond. We refer to this as your "wild place." The weekly lesson will include opportunities to:

Learn: The book *Slow Down, 50 Mindful Moments in Nature* will anchor concepts you have explored in other lessons.

Explore: Venture out to your wild place to enjoy directed discovery and discussion.

Play: Here you will find whimsical outdoor play suggestions that encourage you to have fun in nature.



Further explanation:

PICTURE STUDY, HANDCRAFTS, AND FIELD TO TABLE

In these Special Lessons, you will enjoy art, poetry, handcrafts, and recipes related to your nature studies. These lessons are intended as enrichment; do what adds enjoyment!

THE LOGBOOK

Throughout this study, you will be encouraged to document your lessons in your logbook. The Beautiful Feet Books notebook that is included in the pack, or available for purchase separately, is provided for this purpose. The notebook is your logbook and is where you record the things you observe in nature and catalog your work.

Additional resources:

Library Connection

The books we have chosen for our Story Lessons are just that, stories. To further the child's interests, we include a few extra titles in our Library Connection. Some of these titles are topic specific, and others might engage the older student.

Art Supplies

You will notice that one of our commonly listed materials throughout this study is your *Art Bindle*. This is just a bandana of art supplies that can be easily carried from place to place, especially to your outdoor office, which you will set up in one of your early lessons. As for supplies, we recommend a lovely set of watercolors, such as Winsor and Newton Watercolors for the mature artist or Crayola/Prang for the novice. We also suggest a watercolor brush pen. This is an inexpensive brush pen that holds water and is particularly nice for doing your watercolor work in the field. It is definitely not necessary, but you may find it a convenient tool.

SEASONS AFIELD FIELDNOTES

Fieldnotes are a scientist's way of recording their observations. The Seasons Afield Fieldnotes will help you document your scientific observations during your fieldwork throughout this course.

SEASONS AFIELD WATERCOLOR CARDS

The Seasons Afield Watercolor Cards are your tool to learning beautiful watercolor techniques. The artistic talents you cultivate here will enhance your ability to appreciate things you observe in nature.

**The consumable logbook (notebook), Fieldnotes, and Watercolor Cards are included in the curriculum pack and additional sets are available for purchase separately. We recommend each student has a set to add depth to their studies.*

Nature Identification Resources

There will be many times this year where you will be struck by something you observe in nature and want to learn more. We recommend using the app *Seek* by iNaturalist, which features live image recognition to identify living things, and is a perfect way to have plant and animal identification right at your fingertips. We also suggest the Golden Guides field guides by St. Martin's Press and include a few specific recommendations in our Library Connection. These guides are small enough to fit easily into a child's hands, lovely to look at, and are chock full of information.



A Note on Methodology: What is the *Schullandheim* approach?

While living in Bavaria, our family discovered that the Germans have a way of aptly speaking a specific word for all occasions. *Schullandheim*, pronounced "shool land hīm," is one such word that beautifully combines the elements of school, nature, and home. *Schullandheim* methodology is an interdisciplinary and holistic approach to learning, both caught and taught. *Schullandheim* is place-based in that the student is surrounded by the glory of his natural world, a spot where science is easily absorbed. It is both directed and play-based, tapping into the way that a child naturally works and learns; here he is comfortable and right at home. The *Schullandheim* student engages with beautiful stories, art, and poetry. He experiments and handcrafts. He learns through exploration and discovery, where he lays a foundation and simultaneously develops curiosity. Once the concepts have been introduced and explored, the student can then explain and elaborate on what he has placed in his toolbox. In contrast to many pedagogical approaches, the textbook often comes last in this curriculum, as a useful tool that directs further observation. The evaluation of what the child has learned is beautifully Socratic and internal. You talk by the wayside with your students as they grow in understanding. Once the concepts are made one's own, they will be brought up again and again. The *Schullandheim* approach leaves the child dreaming about what he will work on tomorrow.

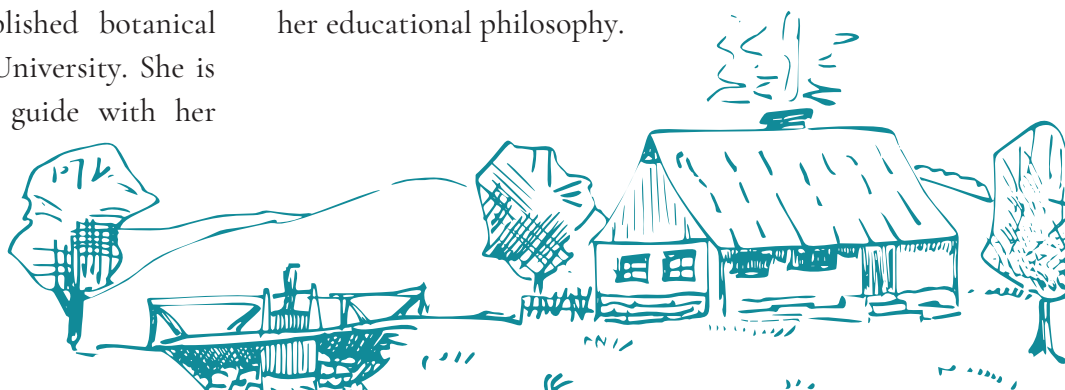
Meet the Authors:

Tami Kruse

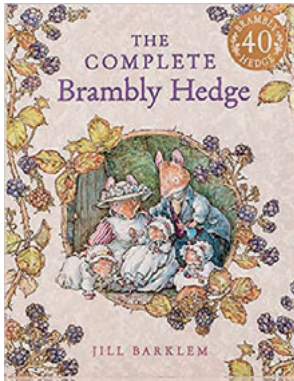
While living in Bavaria, Tami and her husband Gary embraced the German concept of *Schullandheim*, meaning "School-Nature-Home." She utilized this concept as she taught their nine children and developed nature-based biology classes for high school students. This method of learning sparked curiosity, developed a scientific thought process, and laid a solid foundation. Her children have received research honors from ISEF and JSHS as well as from the Fulbright Foundation and National Geographic. Their interests range from science to design to psychology and philosophy. As an advocate of lifelong learning, Tami hosts a variety of *Schullandheim* classes for students of all ages in Colorado Springs. She received her Bachelor of Science in biology from Pepperdine University and published botanical research conducted at Stanford University. She is proud to be co-authoring this guide with her daughter, Taylor Baehr.

Taylor Baehr

Taylor is a proud wife to Robby Baehr and mother to four children. She is currently a Ph.D. candidate in Education, Curriculum and Instruction. Taylor holds a bachelor's degree from Pepperdine University in international relations as well as a master's degree in education. She was homeschooled and is consistently blessed by the strong educational foundation she received from her parents. One of Taylor's favorite memories of her early education was living on a dairy farm in the heart of Bavaria. During her family's time in Germany, they would learn about a European country for four days before visiting that country to experience what they had learned first-hand. The real-world classroom education she received throughout her upbringing continues to influence her educational philosophy.



LITERATURE USED IN THIS STUDY

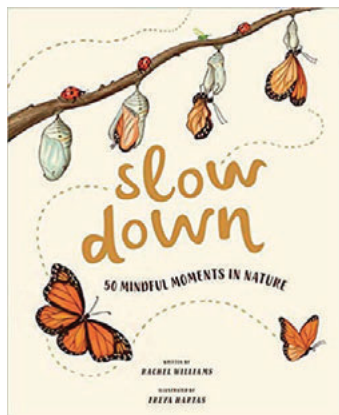


The Complete Brambly Hedge by Jill Barklem

Explore the natural world with the mice of Brambly Hedge. All through the year, they mark the seasons with feasts and festivities and, of course, the mice never miss an opportunity to meet and celebrate. In autumn, Primrose makes friends with the foraging mice before losing her way in the chestnut woods. In winter, a heavy snowfall means the mice can hold a Snow Ball for the first time in years. You will discover the loveliest blooms when Wilfred's friends surprise him with a picnic in spring. Whether they are in the hills, in the field, or simply at home by the fire, the Brambly mice will bring delight to your studies.

Watercolor With Me in the Forest by Dana Fox

From a classic dogwood rose, to a sly fox, to feathers that take on a dreamy quality, you can create polished artwork in just a few easy steps—no sketching required. Dana Fox is known for her unique and whimsical sense of style. The author provides light outlines of each project so you can focus on the watercolor techniques—wet-on-dry, wet-on-wet, painting fur, and ink and wash. Even if you've never picked up a paintbrush before, the author's creative tricks will ensure that every piece of art is frame-worthy.



Slow Down: 50 Mindful Moments in Nature by Rachel Williams

All around us, nature is working wonders. Every day, hour by hour, magical transformations happen right in front of us. But it's not always easy to see them. In this beautiful illustrated collection, 50 moments in nature are paused for you to watch them in detail. Then you should go outside, and explore, and see what you find when you take the time to slow down. Gorgeously illustrated, this charming collection celebrates the small wonders happening all around us every day.

Home in the Woods by Eliza Wheeler

Eliza Wheeler's gorgeously illustrated book tells the story of what happens when six-year-old Marvel, her seven siblings, and their mom must start all over again after their father has died. Deep in the woods of Wisconsin they find a tar-paper shack. It doesn't seem like much of a home, but they soon start seeing what it could be. Most importantly, the family finds immense joy in being together, surrounded by nature.

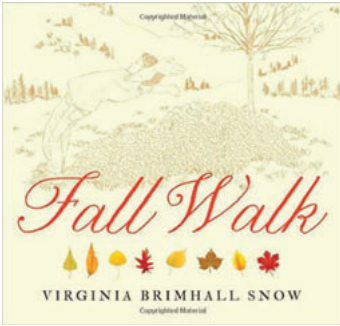


Tales of the Mushroom Folk



Tales of the Mushroom Folk by Signe Aspelin

It's early spring and the mushroom folk are emerging into the bright sunshine. Meet the mischievous Fly Agaric Toadstools, the sleepy Slippery Jacks, the playful Porcini Mushrooms and the regal Button Mushrooms in this delightful picture book full of whimsy and vintage charm. As the seasons turn, readers are introduced to the different mushroom families and learn what makes them special through a series of charming tales.

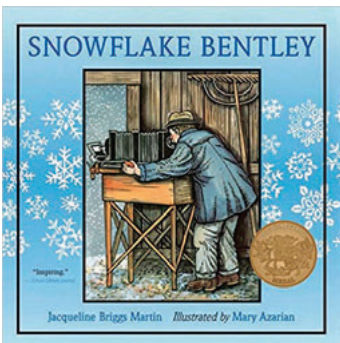


Fall Walk by Virginia Brimhall Snow

With beautiful illustrations and a lyrical narrative, Virginia Snow takes children on a fun and educational adventure. Take a stroll through the woods and learn to identify 24 different kinds of leaves by their shapes and autumn colors. At the end of the day, learn how to press the gathered leaves and how to make a leaf rubbing.

The Golden Glow by Benjamin Flou

Fox loves nature. There's nothing he enjoys more than reading about and picking flowers. One evening, he comes across a rare specimen in his old botany book -- the golden glow, a plant from the Wellhidden family, found only in the mountains . . . a plant that has yet to be described. Fascinated, Fox decides to set off on a quest in search of the mysterious golden glow. But when Fox eventually stumbles upon the object of his quest, he makes a surprising decision.

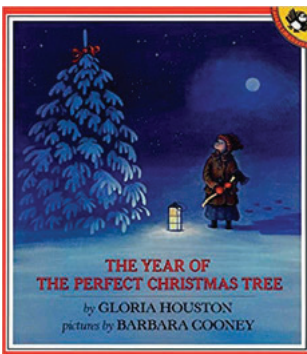


Snowflake Bentley by Jacqueline Briggs Martin

Wilson Bentley was always fascinated by snow. In childhood and adulthood, he saw each tiny crystal of a snowflake as a little miracle and wanted to understand them. His parents supported his curiosity and saved until they could give him his own camera and microscope. With patience and determination, Wilson cataloged hundreds of snowflake photographs, gave slideshows of his findings, and published a book of his photos. His work became the basis for all we know about beautiful, unique snowflakes today.

Winter Sleep: A Hibernation Story by Sean Taylor & Alex Morss

In the frosty, quiet forest, the snow blankets the ground and the trees have shed their leaves. Where have all the animals gone? Are they asleep too? In each winter scene, you will see what is underground, below your feet. There are dens with sleeping creatures, and within the hollow trunks of trees, animals are nesting. After the story, annotated illustrations explain the hibernation facts for each animal and what they will do when they wake up for spring.



The Year of the Perfect Christmas Tree: An Appalachian Story by Gloria Houston

This fictional Appalachian Christmas tale is passed down from the author's own grandmother and mother. It is many months before Christmas and it is Ruthie's family's turn to provide a Christmas tree for Pine Grove Church. Discover the crags and steepes where Ruthie and her father tag the perfect balsam tree to cut down when Christmas arrives. However, that summer, Ruthie's father is called away to war, and the job is left to Ruthie and her mother.

Owl Moon by Jane Yolen

Late one winter night a little girl and her father go owling. The trees stand still as statues and the world is silent as a dream. Whoo-who-who, the father calls to the mysterious nighttime bird. But there is no answer. Wordlessly the two companions walk along, for when you go owling you don't need words. You don't need anything but hope. Sometimes there isn't an owl, but sometimes there is.

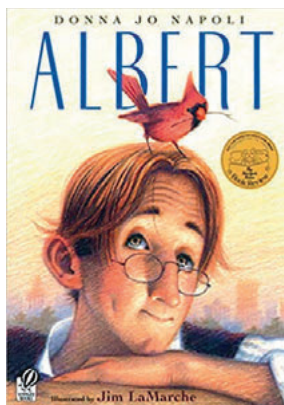


Miss Maple's Seeds by Eliza Wheeler

What happens to seeds that don't sprout? Fortunately, they have Miss Maple to look after them. Every year, she rescues orphan seeds, taking them to her cozy maple tree house. All winter long, she nurtures them and teaches them the ways of seeds and the paths by which they might find their new homes. And come spring, she sends them off to take root out in the wide world and to sprout into the wonderful plants she knows they'll become.

Alice Waters Cooks Up a Food Revolution by Diane Stanley

Whenever young Alice Waters tasted something delicious, like the sun-warmed berries from her family's garden or a crisp, ripe apple picked straight from the tree, she would remember it for the rest of her life. Later, as she tasted many more wonderful foods, she realized what made them so good—they were fresh and ripe, grown or made the old-fashioned way. The restaurant Alice opened made her famous, but it did much more than that—it started a food revolution that kickstarted America's interest in buying local, organic food.

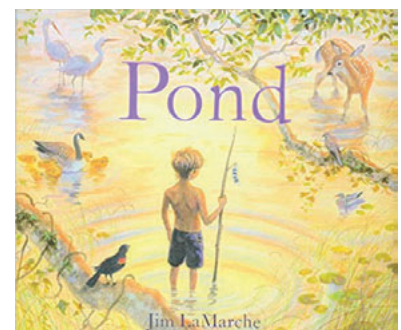


Albert by Donna Jo Napoli

The morning begins like any other. Albert reaches out the window to check the weather and invariably decides it's "too cold," "too damp" or "too breezy" to venture out. But on this day something special happens, a twig lands in the palm of his hand and life is never the same. A pair of cardinals build a nest in it. Reluctant to destroy the nest, Albert sleeps standing up and guards the eggs while the parents are foraging. He thus discovers that the world is not so forbidding, and decides it's time to test his own wings.

Pond by Jim LaMarche

When Matt is out for a late winter hike, he sees a trickle of water in the old, deserted, and junk-filled dirt pit at the edge of his neighborhood. Matt can imagine the pond that must once have been there, shining in the early spring light, freezing in the winter for skating, and the perfect place for swimming in the summer. Matt rallies his sister and his best friend, and together they work through the spring, clearing debris, moving rocks to hold the water, and looking for leaks. But can they bring the pond back?



SAMPLE



Autumn Story

Autumn's adventure begins with those first brisk days of falling leaves. In this field guide you will find your sense of place as a naturalist, both at home and afield. Fill your foraging basket to overflowing with seedpods, mushrooms, nuts, and berries! Grab a magnifying glass and become a nature detective, categorizing trees and collecting leaves. Your walks will lead you through the *aging season* and the secret to the beautiful colors that befall us. You will learn a bit about senescence, chromatography, and make your own jam. Enjoy!

Ease your whiskers, rest your paws,
Pies and puddings fill the stores
Sweetly dream the night away,
Till sunshine brings another day
Jill Barklem, *Autumn Story - Brambly Hedge*

Forage:

To search for provisions that nourish

LIBRARY CONNECTION:

Berries, Nuts, and Seeds by Diane L. Burns

Foraging with Kids by Adele Nozedar

Miss Hickory by Caroline Sherwin Bailey (for older children)

Golden Guide to Wildflowers by Alexander C. Martin

MATERIALS:

Autumn Story - Brambly Hedge by Jill Barklem

Watercolor with Me in the Forest by Dana Fox

Slow Down by Rachel Williams

Something to carry your art supplies

(a drawstring bag or anything else that strikes your fancy)

Watercolors

Logbook

Washi tape

Glue stick

Pencil

Crayons (including White)

Wet on Dry Watercolor Card

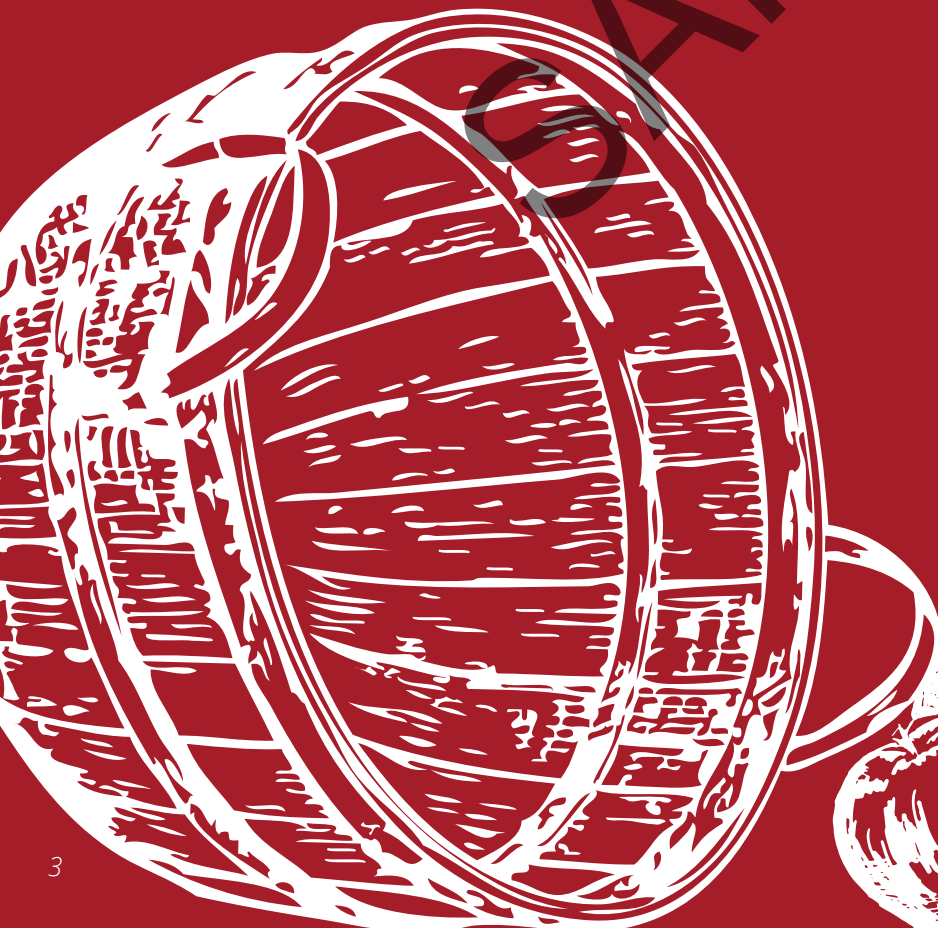
Foraging basket

OPTIONAL:

Magnifying glass

Seed envelopes

Seek app



STORY

FORAGE LESSON ONE



READ *Autumn Story - Brambly Hedge* by Jill Barklem

As you read, take note of the following:

Foraging:

The little mice of Brambly Hedge forage in preparation for cold weather. Foraging is a way of searching for food in the wild. What types of foods do the mice forage? Would you like to have a little dinner with them, feasting on seeds, nuts, and blackberries?

Weather:

Notice how the Autumn weather changes. Was Mrs. Eyebright right? How do you think she felt the storm in her bones? Scientists have found that right before it rains or snows, the pressure in the atmosphere goes down. (This is called a change in barometric pressure.) They have discovered that the fluid surrounding your bones is affected by this pressure, and our bodies can actually feel it. It is as if you are a human barometer! Older people seem to be more sensitive to changes in barometric pressure.

Autumn Flora and Fauna in Brambly Hedge:

The flora and fauna of a place consists of the plants and animals that live there. Are you familiar with any of the plants in the story? What colors are the mushrooms, nuts, and berries? Look carefully at the leaves. What colors are they turning? Do they look dry? Can you find the sharp the brambles? What animals did you notice? Describe the flora and fauna of your own wild place.

Wonder Words

Talk about new words as you go through this week's story. Make a list in your logbook. Words might include:

Hedgerow
Brambles & Briars
Thistledown

FIELDWORK

FORAGE LESSON TWO

OBJECTIVE: Set Up Your Outdoor Office and Prepare Your Art Bindle

MATERIALS:

Bring your nature studies to the wild of your own backyard, front porch, or sunny window, depending upon the weather. You will be amazed at how aware of nature you will become.

Our family established its study place at a long picnic table set up on the front porch overlooking the yard. The time spent here left us subtly educated by nature itself. The children who spent their warm days at this sanctuary have since found their lives in other parts of the world, but upon returning home, they gravitate to the very same spot, both for work and leisure.

- Something to carry your art supplies (a drawstring bag or anything else that strikes your fancy)
- Watercolors
- Logbook
- Washi tape
- Glue stick
- Pencil
- Crayons (including white)



METHOD:

1. Find a nice place outdoors or right by a window. Your office could be under a tree or in one, perhaps in a small tent, or under the shadow of an adjustable patio umbrella.
2. Bring an old table or make one with scrap wood. You will also need a chair.
3. Bring your art bindle materials to your special place and have fun assembling your supplies. You will use this art bindle all year.
4. You can set up your desk with other favorite art and school supplies, like cans of colored pencils as well as a basket for wonderful books, field guides, and note-taking supplies.
5. Add a spot for new and special items that you find while foraging this week as a little exhibit.

DISCUSSION: Keeping a Logbook

Your Logbook is a scientific and an artistic record of what you observe in nature. Your entries will be mostly directed by the book *Watercolor with Me*. It teaches you how to paint natural living things. It will require mixing colors to create those found in the outdoors. You may also include findings from walks or adventures, lines from a poem, or from a little assignment. You should include *Wonder Words*, new words and phrases that are fun to know. We include some, but you can also choose your own.

Include your own pictures, thoughts, and other elements like:

- Location
- Date and time of day
- Note on weather
- Firsts (first bird, first spring flower, etc.)
- Common or scientific names
- Notes on sketches
- Measurements

Ideas for very young children:

- Drawings and watercolor pictures (You can paint on unwaxed paper plates first. Cut them out and add them to the logbook with a glue stick or Washi tape.)
- Pressed specimens
- Weather: sun, cloud, raindrop, snowflake
- Time of day

NOTEBOOKING

FORAGE LESSON THREE

Watercolor with Me in the Forest

Open to pages 6 and 7 to learn color variation along with the wet on dry technique. Try to mix natural colors. To do this, simply place a dab of your brighter, less realistic color on a pallet or paper plate, then add a bit of brown. Next work on making dark colors lighter by adding more water. Practice before turning to your Wet on Dry Watercolor Card. Unwaxed paper plates are excellent for such practice work.

Journal

Lightly glue your light and dark watercoloring attempts into your logbook. Add:

- Your *Wonder Words*
- A note or picture to describe the weather
- Do not forget the date



SLOW DOWN & WANDER

FORAGE LESSON FOUR

MATERIALS:

- Small baskets or lunch sacks for foraging
- *Slow Down* by Rachel Williams
- Envelopes for seeds (optional)

READ

Slow Down pages 16 and 17, "The Squirrel Forages for Nuts."

- Note what scientists say about a squirrel burying its acorns over and over to help better remember where it put them. What is something you would like to remember? Is it a poem or maybe a certain fact? Try saying it each day. Perhaps you would like to remember how to tie your shoes. Keep tying; you WILL remember!
- How will you prepare for this new season? (Find your warm sweaters and rain boots?) How do you think you will change? You will grow a bit and learn more. Takes steps towards governing your own work.

EXPLORE

Grab your foraging basket and head out on a nice long walk today.

- "Peer into grasses, looking for feathers, and useful things" (Barklem).
- Do you recognize any foods? What about rose hips left over from the summer's wild roses? Perhaps, you could make some rose hip tea full of vitamin C.
- Do you have any wild onions or garlic in your wild place? Cut some chives or add the flowers to your salad.
- Look for seed pods from wildflowers. Place seeds into envelopes and name them. (Use a field guide or the *Seek* app.)
- What are some of the colors you notice out in nature? (the blue sky, grasses turning brown)

PLAY

- Create a walking stick like Lord Woodmouse uses to reach high places. Can you reach something high with it? Do you notice anything special about your stick's bark?

What is a Brambleberry?

A bramble is any rough, tangled, prickly shrub (usually in the genus *Rubus*) that grows blackberries, raspberries, or dewberries.

Bramble is also used to describe other prickly shrubs such as roses (*rosa* species). Bramble or brambleberry sometimes refers to the blackberry fruit or products of its fruit, such as bramble jelly.

