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1. Copywork: Anatomy Page (Science/Language Arts/Art)
 - a. copy parts and draw a diagram from a model
 - b. parts of a flower/tree/horse/eye
2. Copywork: Theme Page (Science/Language Arts/Art)
 - a. copy classification types/sizes/shapes etc (i.e. leaf shape, various angles of subject, bird feet types, tree shapes, caterpillar/chrysalis/larvae/eggs/plant it eats etc)
3. Draw Specimen: Label with common name, label with Latin name (Art, Language Arts)
 - a. find an interesting fact about a subject
 - b. Draw parts - i.e bud, flower, leaf, bark pattern, whole shape
4. Narration: (mother record's into Nature Journal if child is too young to write well) (Language Arts)

From a recent nature outing, record the date and location then:

 - a. What did you see and where?
 - b. What were the weather conditions?
 - c. What did you like?
 - d. What did you not like?
5. Narration: Observe a habitat - draw or write about what else lives in/on/around/under/with your subject (Science/Language Arts)
6. Rubbings, tracings and pressings (Art)
7. Phenology wheel month-by-month/day-by-day (Science)
 - a. Select something with a cycle to observe
 - b. Caterpillars, trees, phases of the moon, weather patterns etc
8. Phenology wheel to track one subject throughout the year (Science)
9. Find a poem about the subject and copy it into your Nature Journal (Language Arts)
10. Track growth or patterns with a bar graph (Math)
11. Learn the history of the tree you are observing, use an encyclopedia, reference book or search the Internet with you parents. Record your findings on your page.
12. Draw a map
 - a. Your home, favorite hiking spot, layout of a garden, neighborhood walking route and notable plants/animals/birds you encounter

How to Use This Book

Nature Study Hacking is designed to help you guide your student through the art of studying nature and keeping a Nature Journal. These principles are old, but this application is new. The ideas from Anna Comstock's classic book *Handbook of Nature Study* are combined with the ideas of modern naturalists and educators such as Clare Walker Leslie, Charles E. Roth, Cindy Rollins and Jeannette Tulis.

The lessons are designed to be short. They begin with observation. In observing nature first-hand, we begin to develop a relationship with it that can't be duplicated. This is because we are able to engage the totality of our five senses and get to know a thing in its home. I know that when I have friends over to my home they are able to know and understand me more fully. This is the same with nature.

Reading must accompany any nature lesson. A book about nature lore or a book that describes the way these animals behave and live is essential to the study of nature. I've included the selection from *Handbook of Nature Study* with each animal. I've shortened them slightly and updated some of the language so that you can just jump straight to the reading while you present your lesson or perhaps you read about the animal during your Morning Time or bedtime or other family learning. (That is up to you!) Please don't skip the readings though, you will miss so much knowledge.

Diagrams are used to show or label to help teach us to call nature by name. When we know the name of something we, once again, develop a closer relationship with it. *We know* it. The lessons use copywork in order to help us remember and to know. This should be a delight and a means to the greater end of learning about nature.

With care, I've woven in a variety of types of Nature Journal entries into this series. Copywork, vocabulary, writing, math, map-making, research, reading and more are incorporated so that as you study your chosen topic, you can also explore it on a variety of levels. In addition, keeping a Nature Journal is not just about painting beautiful watercolor paintings. You will enjoy learning about many different types of entries as you go through our study together! I've designed the lessons with the aim of two lessons each week over a twelve week term. However, you can do as many or as few as you'd like. My goal is to help you establish the habit of using a Nature Journal. This book is the support to help you achieve this. It's designed to serve families first and foremost.

Lastly, throughout the study you will enjoy a few "breathing lessons." I've titled them "Review, Improve & Delight." These help us and our students to take the time and care to go back over our work and add to it, clean it up and make it better. The habit of taking the time to carefully improve our work can help us not only review what we have done, but also help us enjoy what we've done and find ways to improve it.

We'd love to hear about how you are nature study hacking! Please use #naturestudyhacking on social media if you are enjoying your booklet! Please contact us at www.naturestudyhacking.com with questions, hive fives and any ideas for improving this valuable resource for families beginning their own Nature Study Hacking journey!

Setting up Your Nature Journal

Nature Study Hacking means that there are tricks and tips to share with you to make your life simpler!

Before you begin studying and journaling you will first need to set up your journal. Be sure to use a pencil and have your eraser handy when you first start laying out your pages so that you can erase markings easily. This is YOUR journal, you are going to be working little by little to add to it just how you'd like. If you'd rather draw or paint something on a separate sheet of paper, cut it out and paste it into your notebook, you are welcome to do that. If you'd like to write directly into your notebook, that works as well! Just remember we are all learning a NEW way to use our Nature Journals, so mistakes are part of the learning process!

Here's your supply list:

1. Nature
2. [Minimalism Art sketchbook or Dot grid notebook](#) (This my favorite brand)
3. [Ticonderoga pencils and an eraser](#)
4. [Prisma colored pencils](#) (preferred for younger children)
5. Field Guide
6. Book about weather (see recommended resources)

Step 1: Now that you have your supplies, open your Nature Journal. The first page on the right of most books is called the "Title Page". This is where you will write your name, your age and "Nature Journal" - that's the Title of your book! Make sure your writing is neat and clean so that others can read it.

Step 2: Pages 1 and 2 come after the Title Page. This is called a "spread" because there are two pages "spread" together. This first page will be easiest to track and write observations you make of the one mammal you will observe over this term. Please keep this page tidy (no doodling) so that your observations can be clearly notated.

Step 3: Perpetual Journal set up: Flip to the back of your book. Starting with the last spread and working backwards (toward the front of your book), write the months of the year. I like to start with December, November etc and working my way into the center of the book until I come to January. This creates a "Perpetual Journal" where you can make entries about what you encounter during that month. You will be able to add a little bit to these pages over time. These entries can be about anything you find in nature and want to record into your Nature Journal (even if you aren't studying that topic!)

Introduction to Weather| Lesson 1

Reading: To begin your weather study, read 10-15 minutes from one of the following recommended books (or choose your own book to introduce weather.):

Option 1: Read aloud Chapter 1 of *Eric Sloane's Weather Book*. (Best for upper elementary and middle school.)

Option 2: Read aloud *Weather Words* by Gail Gibbons (Best for Kindergarten and lower elementary.)

Supply list:

1. Nature Journal
2. Pencil and eraser
3. Mobile device with weather app OR barometer, thermometer and wind gauge

Step 1: On the next blank page of your Nature Journal, using a ruler set up one page chart to track the weather for the next week*. For an example of the chart, see the following page.

*Parents/Teachers may prefer to set up a sheet of paper to be on display during this week of observation as a visual reminder to check the weather. Then tape or glue into Nature Journal at the end of the week. This same chart is provided on the following page for easy copying/cutting.

Step 2: Using the tools you've selected, fill out the chart for today.

Step 3: Fill out the chart each day this week so that you begin to pay attention to how the weather feels, looks like and how the wind and barometric pressure affects your body and environment.

Note: You may use a homemade, purchased or device-based barometer, wind-tracking or temperature gauging device.

Younger Students: read aloud just two pages in each sitting and then ask for an oral narration.

Older Students: will be able to provide either a written or oral narration.

Weather Tracking Chart

Weather Tracking	Monday	Tuesday	Wednesday	Thursday	Friday
Wind Speed					
Temperatures High/Low					
Barometric Pressure					
Clouds/ Precipitation					

Cloud Types Diagram | Lesson 12

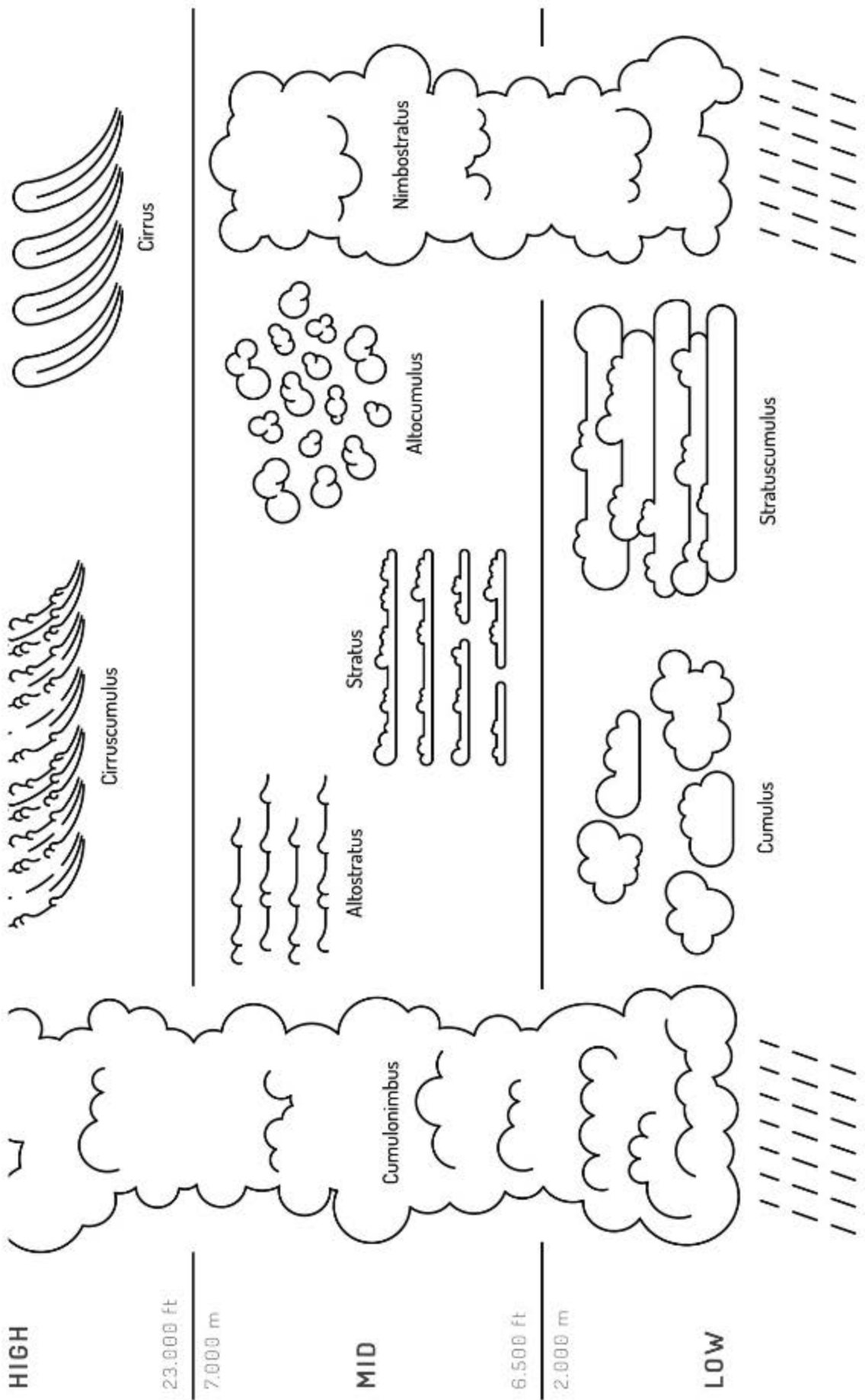
Supply List:

1. Nature Journal
2. Pencil and eraser
3. Diagram of cloud types

Step 1: Look at the diagram of cloud types on the following page.

Step 2: Set a timer for fifteen minutes. Working neatly, use this fifteen minutes to draw the types of clouds diagram into your Nature Journal. If you have time, label the cloud types as well.

Types of Clouds



Review, Improve & Delight| Lesson 13

Supply List:

1. Nature Journal
2. Pencil and eraser
3. Pen (optional)
4. Colored pencils or watercolors
5. *Nature Study Hacking - Weather, Climate and Water* booklet

Step 1: Open your Nature Journal. Look back at the work that you have done so far. Can you add to anything you've made? Can you make anything neater? Do you need to finish your poem or add to it? Erase any extra pencil marks and trace pencil marks with ink that you like. This is your time to add color where you want and to improve the work that you've already done.

Telling the weather| Lesson 14

Supply List:

1. Nature Journal
2. Pencil and eraser
3. Device with weather app OR thermometer, barometer and wind gauge

Step 1: Go outside and observe the weather. (Remember to start high in the sky and work your way down as you observe.) Check the temperature, the wind speed and the barometric pressure. Are there signs of precipitation?

Step 2: Make a note of these observations in your Nature Journal on the same page you wrote your poem.

Younger students: May need help reading these instruments (or using a weather app). Sometimes I will copy the information into my own journal for little ones to copy more easily.

Older students: Draw or write about what else they saw and other observations they made (such as plants or animals observed or cloud formations they noted during their time outside).

Telling the weather continued| Lesson 15

Supply List:

1. Nature Journal
2. Pencil and eraser
3. Device with weather app OR thermometer, barometer and wind gauge

Step 1: Go outside and observe the weather just as you did in the last lesson. (Remember to start high in the sky and work your way down as you observe.) Check the temperature, the wind speed and the barometric pressure. Is there signs of precipitation? Make a note of these in your Nature Journal on the same page you wrote your poem.

Younger Students: Focus on neatness.

Older Students: Focus on neatness and legibility. This lesson can be added to by looking up more information about observations such as wind direction, cloud formations you may see etc.

Weather| Exam Week

Supply List:

1. Nature Journal
2. Pencils and eraser

Step 1: Look through your Nature Journal you created this term. Look at the pages where you recorded information about the weather, clouds, wind and water. Spend about 5-10 minutes.

Step 2: Tell your parent all you know about the weather. You may use your Nature Journal to demonstrate and show examples of what you remember. Be sure to include the most interesting thing that you learned.

(Note to parent: you may choose to write down what your child says or record their narration on video.)

Poems about Weather

A Calendar

by Sara Coleridge

January brings the snow,
Makes our feet and fingers glow.

February brings the rain,
Thaws the frozen lake again.

March brings breezes, loud and shrill,
To stir the dancing daffodil.

April brings the primrose sweet,
Scatters daisies at our feet.

May brings flocks of pretty lambs
Skipping by their fleecy dams.

June brings tulips, lilies, roses,
Fills the children's hands with posies.

Hot July brings cooling showers,
Apricots and gillyflowers.

August brings the sheaves of corn,
Then the harvest home is borne.

Warm September brings the fruit;
Sportsmen then begin to shoot.

Fresh October brings the pheasant;
Then to gather nuts is pleasant.

Dull November brings the blast;
Then the leaves are whirling fast.

Chill December brings the sleet,
Blazing fire, and Christmas treat.

O wind, why do you never rest

by Christina Rossetti

O wind, why do you never rest
Wandering, whistling to and fro,
Bringing rain out of the west,
From the dim north bringing snow?

There's snow on the fields

by Christina Rossetti

There's snow on the fields,
And cold in the cottage,
While I sit in the chimney nook
Supping hot pottage.

My clothes are soft and warm,
Fold upon fold,
But I'm so sorry for the poor
Out in the cold.

I dug and dug amongst the snow

by Christina Rossetti

I dug and dug amongst the snow,
And thought the flowers would never grow;
I dug and dug amongst the sand,
And still no green thing came to hand.

Melt, O snow! the warm winds blow
To thaw the flowers and melt the snow;
But all the winds from every land
Will rear no blossom from the sand.