



1.

Bosque Field Journals

Description: Students participate in ongoing, active discovery and exploration experiences guided by search cards or prompts that help them engage with their natural surroundings, and they record observations of what they find. Ideally, Field Journals are used during repeated outings to the bosque or other natural areas.

Objectives: Bosque Field Journals will:

- introduce students to the bosque environment, best if over many, repeated visits;
- enhance observational skills, sensory awareness, feelings and connections with the bosque through writing, drawing and thinking about the bosque; and
- encourage an excitement for learning more about the bosque through active, guided explorations.

Phenomena: The bosque (or other natural area) contains a variety of interesting things that may be discovered by careful observation. Recording my observations helps deepen my understanding.

Lesson Questions:

- *What interesting things can I discover in the bosque (or school yard) today?*
- *What changes in the plants and animals can I observe with repeated visits to the bosque or other natural area?*

1. Bosque Field Journals



Grades: K–5 (and older)

Time: Pre-outing prep with students: 15 minutes. Class activity: flexible. This can be done as a field trip, requiring time to plan your destination, plan transportation, etc., but also can be done in the school yard. Allow 15 – 60 minutes (or more) for the activity itself when in the bosque or other natural area.

Subject: science, English, math, art, social studies

Terms: bosque, journal, observation, phenology.
Additional terms vary depending on prompts chosen or opportunities that arise in the field.



New Mexico STEM Ready! / Next Generation Science Standards

NOTE: The exact standards addressed will vary depending on prompts, discoveries, or additional follow-up discussions selected. See **NGSS Connections to *Going Out: Field Activities*** at the end of this chapter for more possible field trip NGSS connections and for suggestions using each standard.

NGSS DCIs

K-2.ETS1.B Developing Possible Solutions
 K.ESS2.D Weather & Climate
 K.ESS3.C Human Impacts on Earth
 1.LS1.A Structure & Function
 1.LS1.B Growth & Development of Organisms
 1.LS1.D Information Processing
 1.LS3.A Inheritance of Traits
 1.LS3.B Variation of Traits
 2.LS4.D Biodiversity & Humans
 3-5.ETS1.B Developing Possible Solutions
 3.LS1.B Growth & Development of Organisms
 3.LS2.D Social Interactions & Group Behavior
 3.LS3.B Variation of Traits
 3.LS4.C Adaptation*
 3.LS4.D Biodiversity & Humans
 4.LS1.A Structure & Function
 4.LS1.D Information Processing
 5.LS2.A Interdependent Relationships in Ecosystems
 5.ESS3.C Human Impacts on Earth Systems

NGSS CCCs

Patterns; Structure & Function

NGSS SEPs

Analyzing & Interpreting Data; Constructing Explanations & Designing Solutions; Engaging in Argument from Evidence*; Obtaining, Evaluating & Communicating Information

Common Core Connections

English Language Arts:

Text Types & Purposes
 Production & Distribution of Writing
 Research to Build and Present Knowledge
 Reading Informational Texts*
 Vocabulary Acquisition and Use*

Mathematics:

Measurements
 Represent/Interpret Data

Geography:

Geographic Representations & Reasoning

*indicates extension activity

**Materials:**

- Field Journal for each student, which may be used for multiple outings to the bosque or other natural areas, including the school yard. A good option is spiral-bound Crayola sketchbooks with blank pages. These may be journals used in the classroom for science, writing, etc.
- Journal tools, such as pencil, colored pencils, charcoal or crayons for bark rubbings, etc.
- Optional materials for use in the field:
 - Thermometer
 - Compass
 - Small mats or “sit-upons” to give students a spot to listen, observe and draw/write
 - GPS device (for older students)
- Optional pages to glue into journals as the year goes on (see below for suggestions and masters)
 - Bosque Search Cards
 - Beaufort Wind Scale
 - Compass Rose to record wind direction
 - Cloud types
 - Tracks guide
- Materials for use back in the classroom:
 - Field guides for local plants, animals, tracks, rocks, weather, etc.
 - Computer access to online versions of identification guides.

Background:

“Field” or “nature” journals (either term may be used) provide ample opportunities for learning in a variety of subjects. Whether used for recording specific scientific data or general observations for later reflection, for writing prose or poetry while being inspired by nature, or for drawing or painting those observations directly, field journals offer endless possibilities. Field journals need not be an additional book; you might add to science journals or writing journals already used by your class. Field journals can be used to address many Common Core/ELA standards as well as science standards! Field journals are used by professionals as well as students, by scientists as well as authors and poets. An avian behavioral ecologist may record observations of bird feeding behavior observed in the field, while a hydrologist might record water table measurements taken from a groundwater well. Learning to make careful observations, and to record the information effectively, are good skills to develop not only for future scientists, but also for journalists, poets and artists.

Bosque Field Journals is more than a one-off activity; rather, it is intended to be an ongoing, semester- or year-long exploration. We encourage you to use nature



journals with your class on a regular basis, whether in the bosque or other natural area away from your campus, or simply in green spaces on your school grounds. Repeated, positive experiences with nature are shown to help students in numerous ways, from improving mental and physical health to increasing academic competency. Providing a prompt for exploration helps guide young students toward a meaningful interaction with the natural world. Recording their thoughts, observations and questions helps students to slow down and really notice the world around them. Revisiting those thoughts and observations back in the classroom, whether written in words or drawn in pictures, also provides students with an opportunity to delve deeper into topics of interest and to notice patterns in their data over time. Discovery and exploration of the natural world provide the first steps toward developing more specific, scientific observation skills.

Field Journals support the exploration of the phenology of a natural area. Phenology is the study of cyclic or periodic natural phenomena occurring in biological life cycles, and how these are influenced by climate and other components of the environment. Examples that your students may observe include the dates cottonwood (and other plants) flowers and leaves first emerge from buds, the date pollen and cotton are released, the date their leaves first turn yellow, and when the leaves begin to fall from trees. Others include the first butterfly sightings or the first sound of the cicada's buzz, the appearance of migratory birds or the timing of various stages of nesting activity. Any seasonal or periodic event is worth recording. Current data might be compared to similar records found online (such as through citizen science phenology projects, Budburst or Nature's Notebook), or your classes might begin a long-term data set that could be used by students for comparisons after several years. Such data sets are particularly important to monitor the effects of climate change.

Preparation:

- Field journals can be used in two ways; both are beneficial and complement each other so we encourage you to integrate both approaches into your schedule.
 - Schedule weekly, short outings (30 minutes) to a natural area on the school grounds for journal time. This might mean sitting around a single tree, or in a more vegetated area if available. This is a time for sustained silent writing, but with a simple prompt to direct attention such as Senses or Look Up / Look In-between / Look Down (see below, *Discovery Prompts*).
 - Schedule longer visits to an off-campus natural area monthly (or at least seasonally). Allow time for discovery and exploration, following prompts from the list below, and time to find a special spot to sit and write or draw about the prompt.
- Begin your outings early in the school year and continue on a regular basis throughout the year to study phenology (see *Background*). Regular outings will provide data for comparisons over time to detect patterns in weather conditions, observations of animal activity, the status of leaves on the trees, and so on. Comparisons may also be made between observations in the school yard and on field trips to natural areas.
- See *Planning a Bosque Field Trip* for specific field trip suggestions, including rules and expectations.



- **Practice the 5 S's of Nature Journaling:**
 - **Safety, Silence, Solo, Spread Out and Stay Put.**
 - Students should sit at least an arm's length apart but preferably farther; never sit directly next to someone else. Teachers must provide a good example and also spend the time journaling. Enjoy the opportunity!

Procedure: Part A – Going Out

♣ For each outing, whether to the bosque or other field trip, or simply to a natural area in your school yard, have students prepare their journals in the classroom, before going outside, by entering the following information:

- DATE
- TIME
- LOCATION (older students may include GPS coordinates)
- Space to enter TEMP (°F)
- Space to enter SKY conditions (clear, partly cloudy, overcast, type of clouds)
- COMPASS ROSE for showing WIND direction (glue in a copy)
- Space to enter WIND description
- Space to enter ANIMALS observed
- Space to enter PLANTS observed (This can be general, to compare what grows in the bosque vs in the school yard, or more detailed as students gain knowledge of local flora.)

♣ In addition to the above data, have students write at least one Discovery Prompt (see suggestions below) in journals while still in the classroom. For more complicated prompts, photocopy and have students glue them into their journals.

- For your first outing to the bosque, we suggest gluing photocopies of the “Bosque Search Cards” into journals (included below), so they will be available for reference all year. These cards are excellent for younger students, or other non-readers, but provide a helpful introduction to the bosque for older students as well.
- For subsequent outings, and for school yard outings, choose one discovery prompt from the list below; students should write the prompt into their journals.

DATE: _____ TIME: _____

LOCATION: _____

TEMP: _____

SKY: _____

WIND DIRECTION and DESCRIPTION: _____

ANIMALS: _____

PLANTS: _____

See Hear

Smell Touch

Example of field journal page prepared in classroom by student and ready for field trip.



- ♣ For longer outings, once at the natural area, set boundaries for exploration. Then, allow students to follow their prompts. Keep in mind, however, that you never know what you will discover on any given outing. The students may find a porcupine, see a bird feeding its young, or encounter a giant web with a spider wrapping its prey. Allow flexibility to follow the students' interest when making new discoveries.
- ♣ After giving time for exploration, find an area where students can spread out and each can select a comfortable spot to sit and work in their journals, whether writing or drawing. Have students take out their journals and supplies when they settled. Be sure to fill in all of the data at the top of the page, as well as information about their prompt, and anything else of interest.
- ♣ Encourage students to write questions in their journals as well while in the field. The more time they spend outside really observing, the more questions they will have. Encourage their curiosity, and help them look for answers back in the classroom. This provides abundant material for research.
- ♣ Allow time to debrief. While still at the site, stand in a circle and have each person say one word about the place or habitat. Record if possible!

DATE: October 12, 2022		TIME: 10:15 am	
LOCATION: Rio Grande Nature Center			
TEMP: 73°F			
SKY: Clear, no clouds			
WIND DIRECTION and DESCRIPTION: Beaufort scale 3			
ANIMALS: Mountain Chickadee, Canada Goose, Ring-necked Duck (pond), Lizard, Butterfly			
PLANTS: Cottonwood, willow, Russian-olive, saltcedar			
See Cottonwoods Blue Sky Yellow and green leaves Lizard Butterfly - yellow and black		Hear Bird - a chickadee? Wind blowing leaves Dog barking My classmate talking A car horn	
Smell Wet cottonwood leaves A skunk!		Touch Cottonwood bark is rough Saltcedar leaves - soft A smooth rock Damp soil	

Example of field journal page filled in during field trip.

Procedures: Part B – Back in the Classroom

- ♣ Back in the classroom, summarize observations from each outing on the board.
- ♣ Encourage students to ask questions and help them do research to find the answers.
- ♣ There are endless ways to use information from field journals to address ELA and Math as well as NGSS standards. Following are some examples. Be creative! You will find endless connections and opportunities.
 - Temperature: graph temperature data across the school year; convert between Fahrenheit and Celsius (**K.ESS2.D; Math Standards: Measurement**)
 - Make bar graphs / picture graphs of any of the information students are collecting (**Math Standards: Represent/Interpret Data**)
 - Look for patterns in observations. *Which plants or animals do we see all year? What things do we see only in some months? Why might we see some things during part of the year but not at other times? How does plant growth change across the year?* Record changes in a single species, such as cottonwoods (when leaf buds develop, when do the trees flower or release seeds, when do leaves grow, turn yellow/brown, fall to the ground). Use this as a way to notice seasons or temperature changes. For older students, discuss the concept of phenology (see *Background*). (**3.LS1.B; Patterns; Analyzing & Interpreting Data; Constructing Explanations**)



- Compare plants in the school yard vs in the bosque. *What grows at each location? Why might there be differences? Does this affect the species of animals living at each location?* (**Patterns; Constructing Explanations**)
- Use information in nature journals to write poems, stories, books, or research papers. (**ELA Standards: Text Types and Purposes; Production and Distribution of Writing; Research to Build and Present Knowledge**)

See *Extensions* for more suggestions.

See **NGSS Connections to Going Out: Field Activities** at the end of this chapter for more Disciplinary Core Ideas (DCI) connections.

Assessment:

- Have students share one of their observations with the class. Chart observations and look for patterns. *Why do such patterns occur?* (**Patterns**)
- Have students hand in journals; review them, but do not grade the content. This activity should encourage participation but not focus on right or wrong answers.

Extensions:

- *Bosque Field Journals* is intended as an introduction to the “River of Change” model activities in the *Guide*. Explore the model activities once students have discovered the bosque first hand. After repeated trips to the bosque, and as journal information increases, you may incorporate the *Who Grows Where?* and *Who Lives Where?* activity cards in your outings.
- Use field guides for plants, insects, reptiles, birds, tracks, etc., or *A Field Guide to the Plants and Animals of the Middle Rio Grande Bosque*, as informational texts during sustained silent reading time in the classroom. (**ELA Standards: Reading Informational Text**)
- The Bosque Search cards are great for building vocabulary, since they have pictures to help. (**ELA Standards: Vocabulary Acquisition and Use**)
- Older students might take a photo in the same spot each month (such as from their journaling spot, in the school yard or in a field location). Post these pictures in the classroom; observe, and reflect upon, changes over time.
- Older students can submit observations, including photos, to citizen science sites online, such as iNaturalist (plants, animals, fungi), eBird (birds), Budburst (plant phenology), Nature’s Notebook (plant and animal phenology).
- Construct an argument with evidence about a species that lives well in the bosque and why. Explain why another species from a different habitat would not survive well in the bosque. (**3.LS4.C; Engaging in Argument from Evidence**)
- Many families have multi-generational experiences with the bosque and river. See *River Stories* activity for an oral history activity.

NOTE: some discovery prompts include codes for NGSS Standards, but many are intended simply to encourage discovery and exploration and so are not linked directly to standards. These are some of the most effective prompts so we encourage their use!



Discovery Prompts



Bosque Search Cards – Paste copies of the Bosque Search Cards (included below) into journals before you head to the field for your first visit. Search Cards provide an excellent introductory prompt and may be referred to during subsequent visits as well.



Senses - Divide your journal page into 4 equal sections, with each section labeled with a sense to record: **hear, see, feel/touch, smell**. Non-readers may draw pictures (ear, eye, hand, nose). When in your journaling spot, sit quietly and observe your surroundings, recording what you hear, see, feel and smell.



Levels - *What do you see when you look up, look down, or look in between?* Divide journal page into three horizontal sections, label as **up, eye level, down**. Record what you see.



Find a friend - Find a natural, non-living object that can fit in your hand, such as a rock, leaf, piece of bark, feather - anything that catches your interest. Get to know it. *How does it feel? How does it smell? What colors do you see? Where did your friend come from? Is it part of something, such as a plant or animal? Can you find where it came from? How does it fit into the ecosystem?* Carry your friend with you for a while, but **be sure to return it to its bosque home before you leave**. Draw a picture of your friend, or use words to describe it.



I saw something special in the bosque (or school yard) today. – Pick something special that catches your eye. Spend some time observing your special discovery, then write or draw about it.



I notice... I wonder... It reminds me of... Make a chart with 3 columns. Write down something you notice. *What do you wonder about it? What does it remind you of?* Try to include more than one observation.



Study a stump. – Draw or use words to describe the stump. *Do you find any other organisms living there? How do you think the tree came down?*



How many shapes of leaves can you find? – Students may draw leaves or do leaf rubbings. Record the description, color, shape, how it looks, how it feels. Use field guides to identify (either in the field or back in the classroom). This can be extended to include native and non-native (exotic) categories by having students divide their pages into two sides, one for leaves from each category.



Pillbugs – *Where are they? How many can you find? How many legs do they have?* Draw and describe what you see.



Natural / Man-made – *Is there something that doesn't belong in the bosque?* Make a chart with 2 columns and record natural and man-made items.



Find a large tree with heart-shaped leaves. – This is a cottonwood. Students may draw or do leaf rubbings. *Why do trees have leaves?* Pretend you are a tree and reach your branches into the sky. *How does it feel to be a tree?* Dig your roots down deep and sway with the wind. *Could you stand strong against winter storms? Do you see any flowers in the tree? What do the different parts of the tree do?* Lie down under the tree to see branches against the sky. *How many students does it take to circle the tree, embracing the trunk?* Alternately, have each student be a different part of the tree; *what is the purpose of each part?* (1.LS1.A; 4.LS1.A; **Structure and Function**)



Focus on leaves. – Have students gather cottonwood leaves from the ground. Look at them closely. *Are they all the same?* Play the game where everyone gets one leaf; spend time paying close attention to your leaf. *Are there any individual markings or patterns in the leaf?* Put all leaves in a pile. Students sit in a circle while the teacher pulls out one leaf at a time and sends it around the circle. *Can each student find "their" leaf?* Discuss how seemingly identical leaves are actually different. *How are the students able to tell them apart?* In some cases, it is the variation in the inherited information as the leaf grew; in others it might be an insect that chewed it, or the tree received more or less water, thus affecting its growth. (1.LS3.B; 3.LS3.B)



Parents & young – Make a chart for data collection with 2 columns, one for adult and one for young. Record examples of parent and young plants and animals (big cottonwoods/seedlings, adult bird/nest or egg or fledgling, adult insect/young insect. (1.LS1.B; 1.LS3.A)



Look for baby cottonwoods. – Make a chart for data collection with 2 columns, one for baby and one for old cottonwoods. Count trees at a spot close to the river, and at another spot farther away. *Where do you see more young trees? How are the young trees similar or different from adults?* (1.LS3.A)



Ants – Look at the different kinds of ants in the bosque. *Can you find where they are?* Look on the ground, in trees, in bushes – anywhere! List some differences you see among the ants (shape, size, color, location). *How do ants use their antennae? Do you ever see just one ant? Why do ants live in groups?* (1.LS1.D; 3.LS2.D; 4.LS1.D)



Make a map of the area (school yard or bosque). (**Geography: Geographic Representations & Reasoning**)



What looks different in the bosque (or school yard) today? – This works best after several visits to the natural area.



Additional Data Collection Prompts for Older Students:

Older students can divide journal pages into charts to collect data for later analysis. This method may be used for many types of descriptive investigations, depending on your goal, and allow for analyses back in the classroom. Some suggestions include:

 **Vertebrates/Invertebrates** – make a chart with 2 columns labeled **Vertebrates, Invertebrates**.

 **Is that alive?** – Make a chart with 2 sections labeled: **Biotic, Abiotic**

 **Decomposition** – Make a chart with 2 columns labeled: **Signs of Decomposition and Decomposers**

 **What birds do we see in different areas?** – Make a chart with 4 columns labeled: **Habitat, Species observed, Number #, Comments**. *Why might you see different species in different places? What would happen if certain habitats were lost?* (2.LS4.D; 3.LS4.D)

 **Interdependent relationships** – Make a chart with 4 columns labeled: **Producers, Consumers, Decomposers, Nonliving**. (5.LS2.A)

 **Habitats** – Food, Water, Shelter, & Space. Make a chart with 4 sections labeled: **Food, Water, Shelter**. “Space” is hard to document so put **Animal Signs** in the fourth section (2.LS4.D; 3.LS4.D)

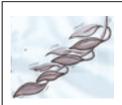
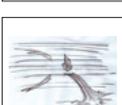
As a culminating activity, consider this prompt on a final trip to the bosque.

 **Compare today and the future.** Look at the area around you. *How do you think it will look in 20 years? Draw pictures to compare with now. How can you help the plants and the animals that live in the bosque? Challenge students to think about what they would do to help the bosque of the future. What would be the outcome of their efforts in 20 years?* Back in the classroom, allow for creative ways to show their ideas—build models, draw, video, etc. This prompt works best near the end of the school year, after students have taken multiple trips to their natural place and done some of the classroom activities from the *Guide*. You might also show students photos of the past. *How has the bosque changed already?* (K-2.ETS1.B; K.ESS3.C; 3-5. ETS1.B; 5.ESS3.C; Obtaining, Evaluating, & Communicating Information)

The Beaufort Wind Scale

The Beaufort Wind Scale is a system of recording wind velocity (speed) devised in 1806 by Francis Beaufort. It is a numerical scale ranging from 0 for calm to 12 for a hurricane. Sailors and forecasters use the Beaufort Wind Scale as a standardized way to rate wind speed.



Beaufort Scale	Wind Speed		Effects on Land	
	mph	kph		
0 (calm)	below 1	below 1		
1 (light air)	1–3	1–6	Smoke rises straight up; tree leaves still	
2 (light breeze)	4–7	7–12	Rising smoke drifts; wind felt on face	
3 (gentle breeze)	8–12	13–19	Leaves rustle; paper and dust raised	
4 (moderate breeze)	13–18	20–30	Small branches move; paper blows	
5 (fresh breeze)	19–24	31–39	Small trees sway, big branches move	
6 (strong breeze)	25–31	40–50	Big branches move; wind whistles	
7 (near gale)	32–38	51–62	Trees in motion; walking difficult	
8 (gale)	39–46	63–74	Twigs break; walking slow	
9 (strong gale)	47–54	75–87	Slight structural damage	
10 (storm)	55–63	88–102	Trees uprooted; structural damage	
11 (heavy storm)	64–72	103–117	Widespread damage	
12 (severe storm)	above 73	above 118	Severe damage and destruction	



Clouds

Identify the types of clouds you see today using the list below.
Draw the clouds you see in your journal.

High Level Clouds

Above 20,000 feet (6 km)

Cirrus (SEAR-us) feathery clouds, often a sign of approaching warm front.

Cirrocumulus (SEAR-oh-Q-mule-lus) puffy individual clouds closely scattered across the sky

Cumulonimbus (Q-mule-oh-NIM-bus) tall layered clouds that may produce thunderstorms with heavy rain, have anvil shaped tops and will extend to low levels as storms develop.

Mid-level Clouds

Between 6500 ft (~ 2km) and 20,000 feet (6 km)

Altostratus (ALL-toe-Q-mule-us) may be in lines; if seen in the morning, they may indicate storms later in the day.

Nimbostratus (NIM-bow-STRAT-us) produce steady rain or snow; it will lower with precipitation.

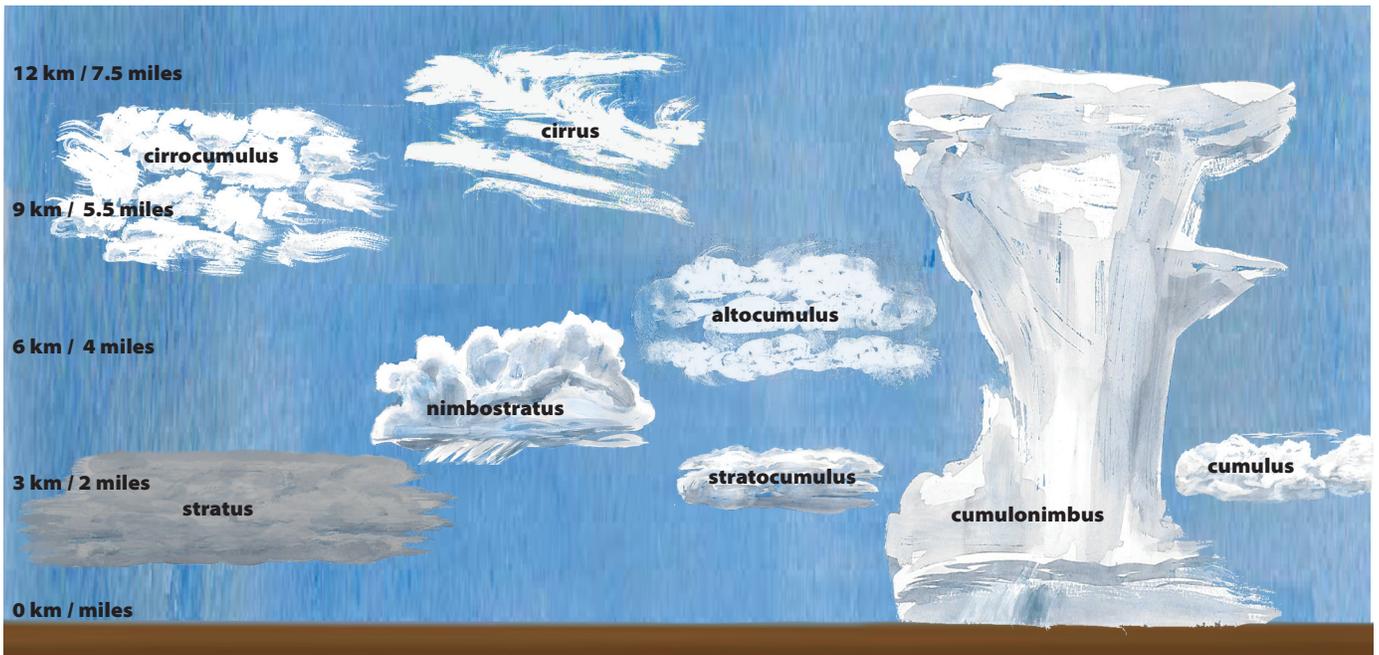
Low Level Clouds

Below 6500 ft (~ 2 km)

Cumulus (Q-mule-us) a vertically expanding cloud that may develop into a thunderstorm

Stratocumulus (STRAT-oh-Q-mule-us) layers of cloud clumps with thick and thin areas; appear either ahead or behind a frontal system.

Stratus (STRAT-us) flat clouds that may cover the sky with gray; may have light rain or no rain.

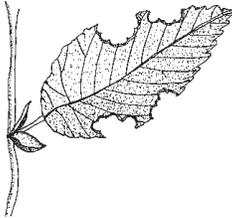
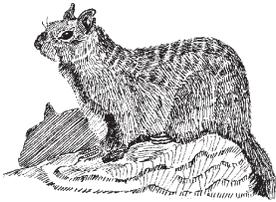
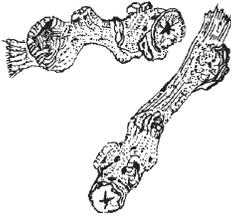
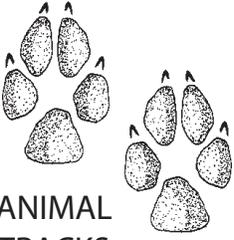
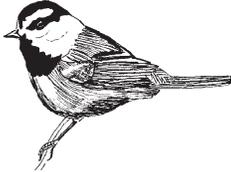
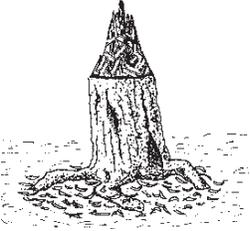
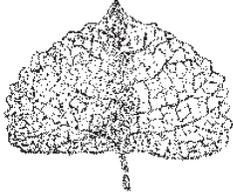
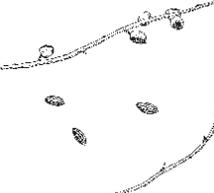
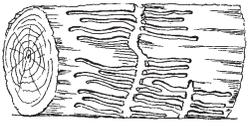
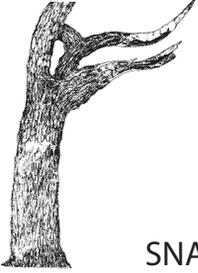
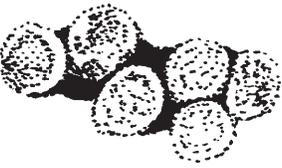
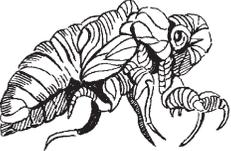


Bosque Search Cards

Drawings by Gregory Scheib and George Mauro



Year-round Bosque Search Card

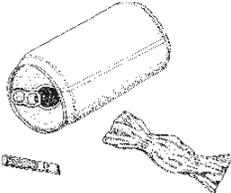
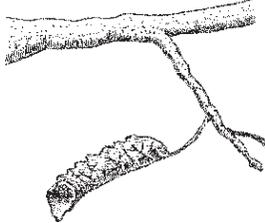
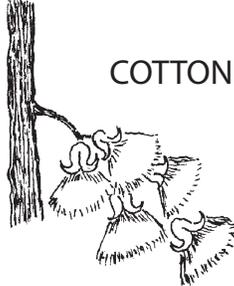
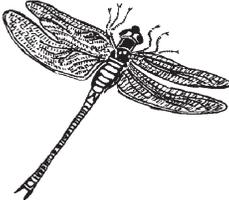
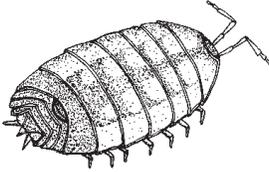
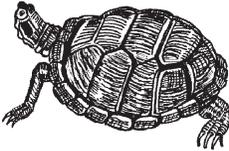
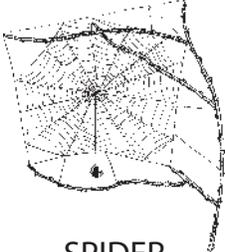
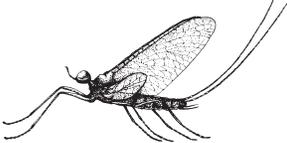
 <p>CHEWED LEAF</p>	 <p>SQUIRREL</p>	 <p>ANIMAL BURROW</p>	 <p>BIRD NEST</p>
 <p>COTTONWOOD STAR TWIGS</p>	 <p>ANIMAL TRACKS</p>	 <p>PERCHING BIRD</p>	 <p>BEAVER TREE</p>
 <p>SANDY SOIL</p>	 <p>COTTONWOOD LEAF</p>	 <p>RUSSIAN OLIVE SEEDS</p>	 <p>BARK BEETLE TRACKS</p>
 <p>SNAG</p>	 <p>ANIMAL PELLETS</p>	 <p>CICADA SHELLS</p>	 <p>CANADA GOOSE</p>



Bosque Search Cards

Drawings by Gregory Scheib and George Mauro

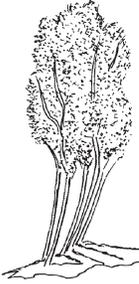
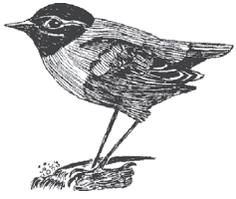
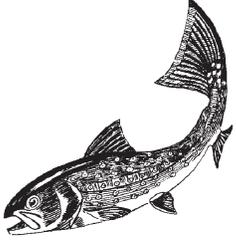
Seasonal Adaptations Card: Spring, Summer Fall

 <p>ANT</p>	 <p>GRASSHOPPER</p>	 <p>HUMMINGBIRD</p>	 <p>YELLOW LEAF</p>
 <p>SALT DEPOSIT</p>	 <p>TRASH</p>	 <p>ROLLED LEAF</p>	 <p>COTTON</p>
 <p>LIZARD</p>	 <p>DRAGONFLY</p>	 <p>PILLBUG</p>	<p>DRAW SOMETHING INTERESTING</p>
 <p>TURTLE</p>	 <p>FEATHER</p>	 <p>SPIDER</p>	 <p>AQUATIC INSECT</p>

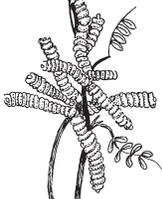
Special Adaptations Squares



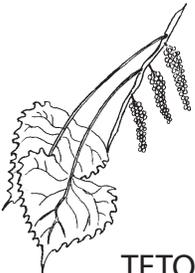
Upper River

 <p>ELK</p>	 <p>ALDER</p>	 <p>DIPPER</p>
 <p>BEAVER LODGE</p>	 <p>TROUT</p>	

Lower River

 <p>SCREWBEAN MESQUITE</p>	 <p>TAMARISK</p>
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Special Seasons

 <p>MALE CATKINS</p>	 <p>TETONES</p>	 <p>SANDHILL CRANE</p>
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