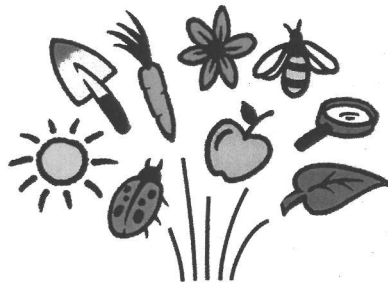


Life Lab Science Preview Sampler



LIFE
LAB
Science
Program 

First Grade Edition

An Introduction
to the
Life Lab Science Curriculum

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Investigating Weather



River Song

Written by Steve Van Zandt

VERSE: D G D A7 D G

It happened one day on the mountain so high A ri-ver was born from

D A7 D D G D A7

out of the sky. The rain and the snow came fal-ling down And they

D G D A7 D **CHORUS:** D G

star-ted to run as they hit the ground. Blurp ah pa - shosh

D A7 D G D A7 D D

rum-bl - ly pound, A white ra - pid ri-ver makes a won-der - ful sound. Blurp ah pa -

G D A7 D G D A7 D

shosh rum-bl - ly pound, A white ra - pid ri-ver makes a won-der - ful sound

Over beds made of granite it swept and it rolled,
It was narrow and steep and so icy cold.
It carved out a valley and gouged out the land,
It carried small rocks and ground them to sand.

CHORUS

It filled up a lake and was still for a day,
But soon the wide river went along on its way.
It rolled past rocks and banks lined with trees.
It carried small boats of fall colored leaves.

CHORUS

It wound and it wound until it wound past me,
And I knew it was happy, it was wild and free.
I knew it was happy it was wild and free
But I waved it goodbye as it entered the sea.

CHORUS

The water in the sea soon rose to the sky
And the wind blew a cloud to the mountain so high.
The rain and the snow came falling down
And flowed to the river as they hit the ground.

CHORUS

Arranged and ©1989 Banana Slug String Band
Slug Music
Music can be found on BSSB tape accompanying this curriculum

Investigating Weather

The sky goes dark. A clap of thunder rattles the window panes. Even young children know that something is about to happen. What they may not know is how the darkened sky and the thunder are connected to the rainstorm that follows. As they explore the activities in this unit, students begin to make such connections.

In this unit, students develop the skills needed to recognize the elements that make up the weather, and to identify changes in weather. They observe a flag fluttering in the breeze, cloud formations, and the way the sky changes through the course of a thunderstorm. The children are introduced to simple measurements so that they can not only tell that things change, but also determine the extent of those changes.

As children observe changes over time, they make connections. They become aware of the patterns that underlie the changes in the weather from day to day. They may watch temperatures drop as winter approaches. Or they may discover that hot, humid days breed thunderstorms.

Just as farmers watch the sky and listen to weather reports in order to plan their activities, so students begin to discover how weather affects the garden. They discover that rainfall, wind, frost, dry spells, and everything in between affects what grows and how well it grows. The better they understand weather, the more skilled they will become as gardeners—knowing when to plant and when to harvest, when to protect seedlings from cold, and when to water.



Student Goals

Theme: Students develop their understanding of various weather phenomena and the effects of these phenomena on living and nonliving things.

Science Explorations: Students observe both changes in weather and changes caused by various weather phenomena.

Process Skills: Students practice observing weather over time and record their observations.

Science Concepts

The activities in this unit develop a variety of concepts related to weather.

Life Science: Living things respond to changes in the weather.

Earth Science: Wind, precipitation, and temperature are weather conditions.

Physical Science: Changes in direction, temperature, and volume can be measured.

Science, Technology, and Society: Weather is an important part of our daily lives. It affects what we wear and what we do.

Unit Activity	Description	Process Skills	Instructional Model			Science Concepts				Related Subjects
			PREASSES.	EXPLORATION & CHALLENGE	APPLICATION & REFLECTION	LIFE	EARTH	PHYSICAL	STS	
Weather Stories	In this preassessment activity, students listen to a story about the weather and then share their own stories about weather phenomena.	Observing, Communicating	✓			✓	✓		✓	Language Arts
Weather Wizards	The class begins to keep a daily record of weather phenomena.	Observing, Recording Data		✓			✓	✓	✓	Math
Hot to Cold	Students compare the temperatures of various substances and record daily temperatures.	Observing, Recording Data		✓			✓	✓	✓	Math
Drop in the Bucket	Students learn how to use a home-made rain gauge to measure rainfall.	Observing, Recording Data		✓			✓	✓	✓	Math
The Waving Wind	Students learn about wind through observation of objects blowing in the wind.	Observing, Communicating		✓		✓	✓	✓		
Storm Watch	Students watch and draw a storm, then check the garden to see how it has been affected by wind and rain.	Observing, Communicating		✓		✓	✓	✓	✓	Art
Weather Roundup	Students examine the data they have collected to measure and compare changes in the weather.	Applying, Communicating			✓		✓	✓		Math
My Weather Report	In this postassessment activity, students record the weather and, in personal weather reports, tell how it affects them.	Applying, Communicating			✓	✓	✓	✓	✓	Social Studies, Language Arts

Unit Planner

Activity	Time	Special Arrangements	Literature Links
Weather Stories	30 min	Send home Parent Letter.	Barrett, <i>Cloudy With a Chance of Meatballs</i>
Weather Wizards	30 min, plus 10 min a day for the duration of the unit	Make Weather Chart.	Rogers, <i>What Will the Weather Be Like Today?</i>
Hot to Cold	Part 1: 45 min Part 2: 15 min, then 5-10 min a day for the duration of the unit	Set up temperature-taking station; make Temperature Chart; hang outdoor thermometer; arrange for aide or volunteer.	
Drop in the Bucket	Part 1: 30 min Part 2: 30 min	Make Rain Chart; assemble rain-measuring materials; Part 2 is done after a rainfall.	Spier, <i>Peter Spier's Rain</i>
The Waving Wind	Part 1: 45 min Part 2: 30 min	Requires a windy day.	McKissack, <i>Mirandy and Brother Wind</i>
Storm Watch	Part 1: 50 min Part 2: 30 min	Requires a stormy day.	Shulevitz, <i>Rain Rain Rivers</i> or Branley, <i>Snow is Falling</i>
Weather Roundup	35 min		Jennings, <i>Weather</i>
My Weather Report	40 min		Gibbons, <i>Weather Forecasting</i>

Life Lab Videodisc

Find out ways to incorporate the Life Lab Videodisc into this unit by turning to Section 1.5- Investigating Weather in the *Videodisc Guide*.

Life Lab Center

The Life Lab Center is the ideal place to display records of ongoing weather observations. In addition, it can hold your library of weather-related books and posters as well as the activities and displays described below.

- Post pictures from newspapers and sports magazines that show the weather in which an event occurred.
- Post pictures from nature magazines that show animals in different kinds of weather.
- Using manipulatives, make displays of various weather records in your area or elsewhere in the United States. For example, fill one jar with a marble for each inch of rain in the rainiest place in the country (Mount Waialeale, Hawaii, with 460 inches a year), and another jar with a marble for each inch of rain in the driest place (Death Valley, California, with 2 inches of rain a year).

Garden Activities

- Look at the surface of the soil for grass and weed seeds that have germinated after a rain.
- Collect rainwater from drainpipes for watering indoor plants.
- Visit the garden after a frost. Examine plants and soil.

Recommended Literature

Story Books

- Barrett, Judith. *Cloudy With a Chance of Meatballs*. New York: Atheneum, 1978. Life is delicious in the town of Chewandswallow where it rains soup and juice, snows mashed potatoes, and blows storms of hamburgers—until the weather takes a turn for the worse.
- Calhoun, Mary. *Jack and the Whoopee Wind*. New York: Morrow, 1987. Mad at the wind for blowing everything away, Cowboy Jack tries a variety of entertaining ways to stop the wind. The story has a tall tale feeling to it.
- Clifton, Lucille. *The Boy Who Didn't Believe in Spring*. New York: Dutton, 1973. In the middle of a city, two young friends set out to find spring.
- Craft, Ruth. *The Day of the Rainbow*. New York: Viking, 1989. A story of how the hot (then rainy) summer weather affects the moods of people in a big city.
- Gray, Nigel. *A Balloon for Grandad*. New York: Orchard, 1988. A young boy from an interracial family is sad when he loses his helium balloon, until his dad makes up a story of the balloon's travels to the boy's grandad in Egypt.
- McKissack, Patricia C. *Mirandy and Brother Wind*. New York: Knopf, 1988. In order to win first prize in the Junior Cakewalk Dance Contest, Mirandy tries to capture Brother Wind so that he can be her partner.
- Peters, Lisa. *The Sun, the Wind and the Rain*. New York: H. Holt, 1988. This book tells two stories in a side-by-side narration: in one, the earth forms a mountain which is shaped by the sun, wind, and rain; in the other, a child, in a parallel effort at the beach, makes a tall sand mountain which is also affected by the elements.
- Rogers, Paul. *What Will the Weather Be Like Today?* New York: Greenwillow, 1990. Animals and humans discuss in rhyming verses the day's weather.
- Shulevitz, Uri. *Rain Rain Rivers*. New York: Farrar, 1969. A child sits cozily indoors, observing the rain and thinking about where it goes.

- Skofield, James. *All Wet! All Wet!* New York: Charlotte Zolotow, 1984. A small boy and the animals in the meadow experience the sights, sounds, and smells of a rainy summer day.
- Spier, Peter. *Peter Spier's Rain*. Somerville, MA: Zephyr, 1987. A wordless book with delightful pictures of two children enjoying the rain.
- Stevenson, James. *We Hate Rain!* New York: Greenwillow, 1988. A grandfather humorously re-counts a story about a flood during his youth.
- Tresselt, Alvin. *Hide and Seek Fog*. New York: Lothrop, 1988. Fog takes over a small coastal village for three days.

Reference Books

- Branley, Franklyn M. *Air Is All Around You*. New York: Harper, 1986. A group of children demonstrate the properties of air.
- _____. *Flash, Crash, Rumble and Roll*. New York: Harper, 1985. Here is everything you wanted to know about thunderstorms. See also *Rain and Hail* by the same author.
- _____. *Snow Is Falling*. New York: Crowell, 1986. This book illustrates both the benefits snow brings and the hardships it creates.
- dePaola, Tomie. *The Cloud Book*. New York: Holiday, 1975. Read about the ten most common types of clouds, the myths that have been inspired by their shapes, and what clouds tell about coming weather changes.
- Gibbons, Gail. *Weather Forecasting*. New York: Four Winds, 1987. Find out how forecasters at work in a weather station use sophisticated equipment to track and gauge the changes in the weather.
- Jennings, Terry. *Weather*. New York: Gloucester, 1990. Here is a collection of weather experiments for the lower-elementary student.

Some of these books may be available in Spanish-language editions. Check with your local bookstore for Spanish titles currently in print and available by special order.

Date: _____

Dear Parent or Guardian:



For the next few weeks we will be studying weather. We will be keeping a daily weather chart as well as doing a number of activities concerning wind, temperature, and storms. We would also like to have you join us for a lesson. Your help is very valuable in making our hands-on science activities a success. If you can join us for a lesson this month, please fill out the form below, and send it to school with your child.

There are many ways that you can encourage your child's interest in weather at home. Try some of the following:

- Watch a storm together and talk about what's happening and why. Or, go out after the storm, and look for changes.
- Tell stories about various weather phenomena you've experienced.
- Read books about weather together.
- Post a thermometer outside a window, where you can read it with your child.

For our study of weather, we will be needing clean, empty 16-ounce cans or similar containers. Please send them to school by the following date: _____.

Thanks again for your help.

Sincerely,

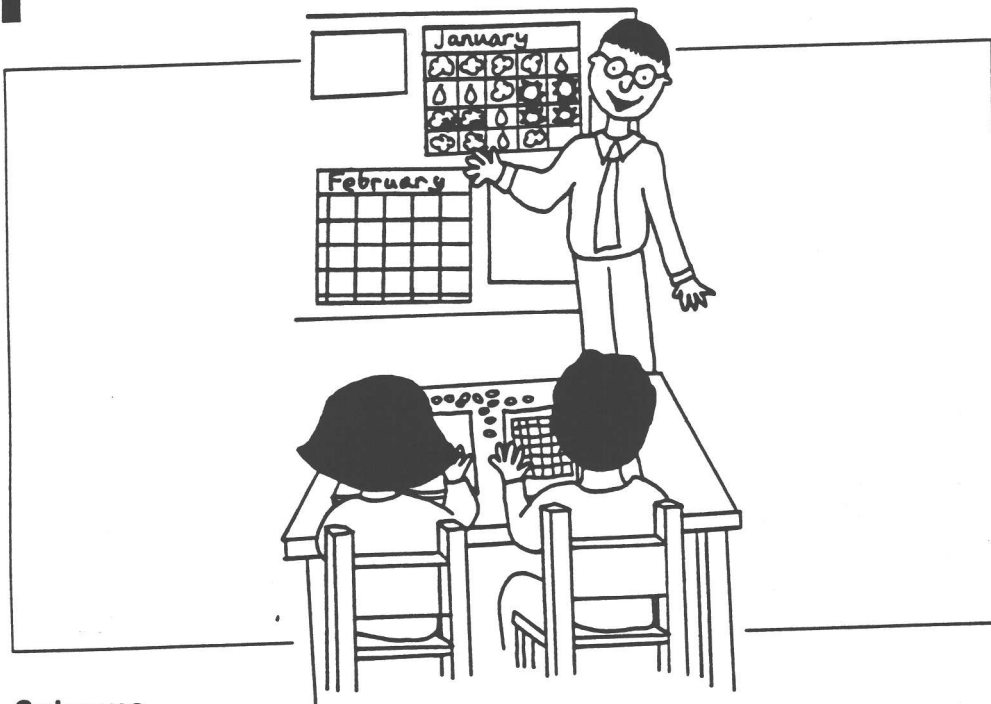
Name _____ Phone _____

— Yes, I'd like to help in the classroom. Please call me.

— No, I can't help at this time, but please keep me informed.

Weather Roundup

Students examine the data they have collected to measure and compare changes in the weather.



Outcome

Students synthesize and present the information they recorded on their charts.

For the Teacher

Math again! There is no getting around it—studying the weather calls for lots of math skills. This activity provides many opportunities to develop those skills. Students use graphs to make comparisons and look for patterns. They also do a three-part counting exercise, moving step-by-step to higher levels of abstraction. First, they count with manipulatives placed on squares in their Lab Books. Next, they color in the squares. And finally, they write the number of the colored squares. Now they are ready to compare and contrast the data to find differences among the various quantities. Depending on the level of your students' math skills, you may wish to use only numbers, colored squares, or manipulatives. You may also find it helpful to work with one method and check with another.

In this activity, students use the information they have collected to back up their ideas about weather. They are able to check their impressions—that it seems to be getting colder or that there has been lots of rain in recent weeks—with their recorded measurements. This ability to make and use objective records will give them a big boost in developing their ideas about how the world around them works.



Indoor and Outdoor



Time
35 minutes

Related Subject
Math

Process Skills
Applying
Communicating



Materials

For the Class:

- Weather Chart
- Temperature Chart
- Rain Chart
- butcher paper

For Each Pair:

- $\frac{1}{4}$ cup of navy beans
- Lab Book, p. 56
- pencil
- set of crayons

Teacher to Teacher

Weather recording is a good reinforcement of cooperative learning, math, and language arts skills. We are going to continue to track the weather for the rest of the year. We are also making a Weather Book to present to our local radio station.

—Linda Vinson, Oakmont Elementary School, Columbus, OH



Getting Started

Begin with a review of other activities in this unit.

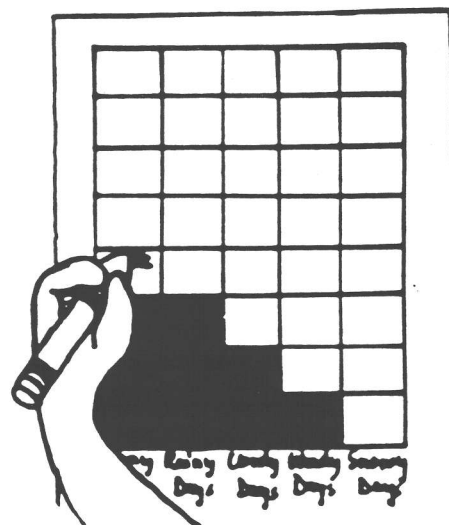
What is the hottest day shown on our Temperature Chart? What is the coldest day? From the chart does it appear to be getting colder or hotter, or can you not tell? Let students discuss in pairs before answering.



Action

1. Distribute beans to pairs of students and ask them to turn to p. 56 in their Lab Books.
2. With students, count out loud the number of sunny days shown on the Weather Chart. Have students work in pairs to place one bean for each sunny day in each square on the "Sunny" line in one of the Lab Books. (One student might put down the beans, while the other checks.)
3. Ask one student in each pair to remove the beans one at a time while the other student colors the squares.
4. Count and record the number of rainy days in the same way.

5. Count and record the number of cloudy days in the same way.
6. Count and record the number of snowy days in the same way.
7. Count and record the number of windy days in the same way.
8. Have students write the number of days of each type of phenomena in the space provided.
9. Ask students which there were the most of: sunny, rainy, cloudy, snowy, or windy days.
10. Ask students which there were the least of: sunny, rainy, cloudy, snowy, or windy days.
11. Encourage students to find the difference between the number of sunny and rainy days.
12. Ask students to find the difference between the other numbers.





Assessment

Discuss what students have learned as a result of their investigations.

What have you learned about weather? Let pairs discuss before listing their ideas on butcher paper. Do you think the weather will be about the same next month? Why do you think that?

Digging Deeper

- Post weather summaries at the end of each week.
- Continue recording weather phenomena, and compare Weather Charts from different months.
- Invite a weather forecaster to visit the class.

Teacher Reflections

- Are students still interested in weather?
- What about weather is most interesting to them?
- Do they understand that sometimes the weather is not right for growing plants?
- Has their ability to measure and interpret data improved?

The Life Lab Scope and Sequence— A Full Program of Life, Earth, and Physical Sciences

The Life Lab Science Scope and Sequence demonstrates that Life, Earth, and Physical science concepts are integrated in a systems approach to science. As the garden grows and changes throughout the seasons, it provides a natural laboratory for studying how the science disciplines are interrelated. You will also discover numerous opportunities for integrating science with math, language arts, and social studies.

Life Lab Science		Grade 1		Earth Is Home		Scope and Sequence	
	Theme Connections	Life Science	Earth Science	Physical Science	Process Skills		
Overview	<p>Diversity: The natural world contains a rich variety of living and nonliving things. They have observable similarities and differences.</p> <p>Cycles: Both living and nonliving things have patterns of change. When patterns of change repeat themselves, they are cycles. Home is a place where the needs of living things are met.</p>	<p>There are many different kinds of living and nonliving things on Earth.</p> <p>Living things have characteristics that distinguish them from nonliving things.</p> <p>Living things go through a life cycle.</p>	<p>The Earth provides resources living things need to survive.</p> <p>There are many cycles on Earth, including the seasons and day and night.</p>	<p>Living and nonliving things can be described by their properties. We can use our senses to describe the many different properties of things in our physical world.</p>	<p>Observing—Students gain experience in the natural world by observing it with their senses.</p> <p>Comparing—Students compare similarities and differences among the things they observe.</p> <p>Communicating—Students develop descriptive language to communicate what they observe.</p>		
Sensing Our World	<p>Diversity: Senses can be used to explore the different kinds of plants and animals that live in a garden.</p>	<p>Humans, like other animals, use their senses to learn about the world around them.</p>	<p>The garden is a place where plants and animals live.</p>	<p>Objects in the garden have properties that we can observe.</p>	<p>Observe objects closely and describe them in detail.</p> <p>Cooperate with one another by sharing ideas and listening.</p>		

Life Lab Science		Grade 1	Earth Is Home	Scope and Sequence	
	Theme Connections	Life Science	Earth Science	Physical Science	Process Skills
Investigating Seeds	<p>Diversity: There are many different kinds of seeds.</p> <p>Cycles: Seeds are part of a plant's life cycle.</p>	<p>Seeds are living things. They have characteristics that can be described and that distinguish them from nonliving things. There are many kinds of seeds and they all share the characteristics of living things.</p>	<p>Seeds require water to germinate.</p>	<p>Seeds have physical properties, such as size, shape, and color, that we can observe and describe.</p>	<p>Continue using the senses to observe characteristics.</p> <p>Compare objects and categorize them according to similarities and differences.</p>
Exploring Soil	<p>Diversity: There are many different kinds of plants and animals. There is a diversity of living and nonliving things in the soil.</p>	<p>We use our senses to compare the characteristics of living and nonliving things in the soil.</p> <p>Animals depend in part on soil for food and shelter.</p>	<p>Soil is made up of many things.</p> <p>Soil is an example of a nonliving thing.</p> <p>Soil is home to many living things.</p>	<p>Soil has properties that we can observe and describe.</p> <p>Change occurs in living and nonliving things in the soil.</p>	<p>Observe and compare characteristics of objects.</p> <p>Communicate observations to others.</p>
Observing Earth's Cycles	<p>Diversity: Change occurs in different patterns.</p> <p>Cycles: Different patterns of change, or cycles, take place daily and seasonally on Earth.</p>	<p>Living things respond to changes in the Earth's cycles.</p>	<p>The Earth has observable patterns of change. There is a day and night cycle, a seasonal cycle, and also a moon cycle. Patterns of change affect our activities.</p>	<p>We can measure change over time.</p>	<p>Observe changes in an object over time.</p> <p>Draw and compare changes over time based on observations.</p>
Investigating Weather	<p>Diversity: There are different kinds of weather.</p> <p>Cycles: There are weather patterns.</p>	<p>Living and nonliving things respond to changes in the weather.</p>	<p>Weather changes all the time.</p> <p>There are different conditions that contribute to weather. They include wind, precipitation, and temperature.</p>	<p>We can measure changes in wind direction, temperature, and rainfall volume.</p>	<p>Observe and record information at different times during the day, the week, and the school year.</p> <p>Compare similarities and differences in the information gathered.</p> <p>Observe and communicate patterns of change.</p>

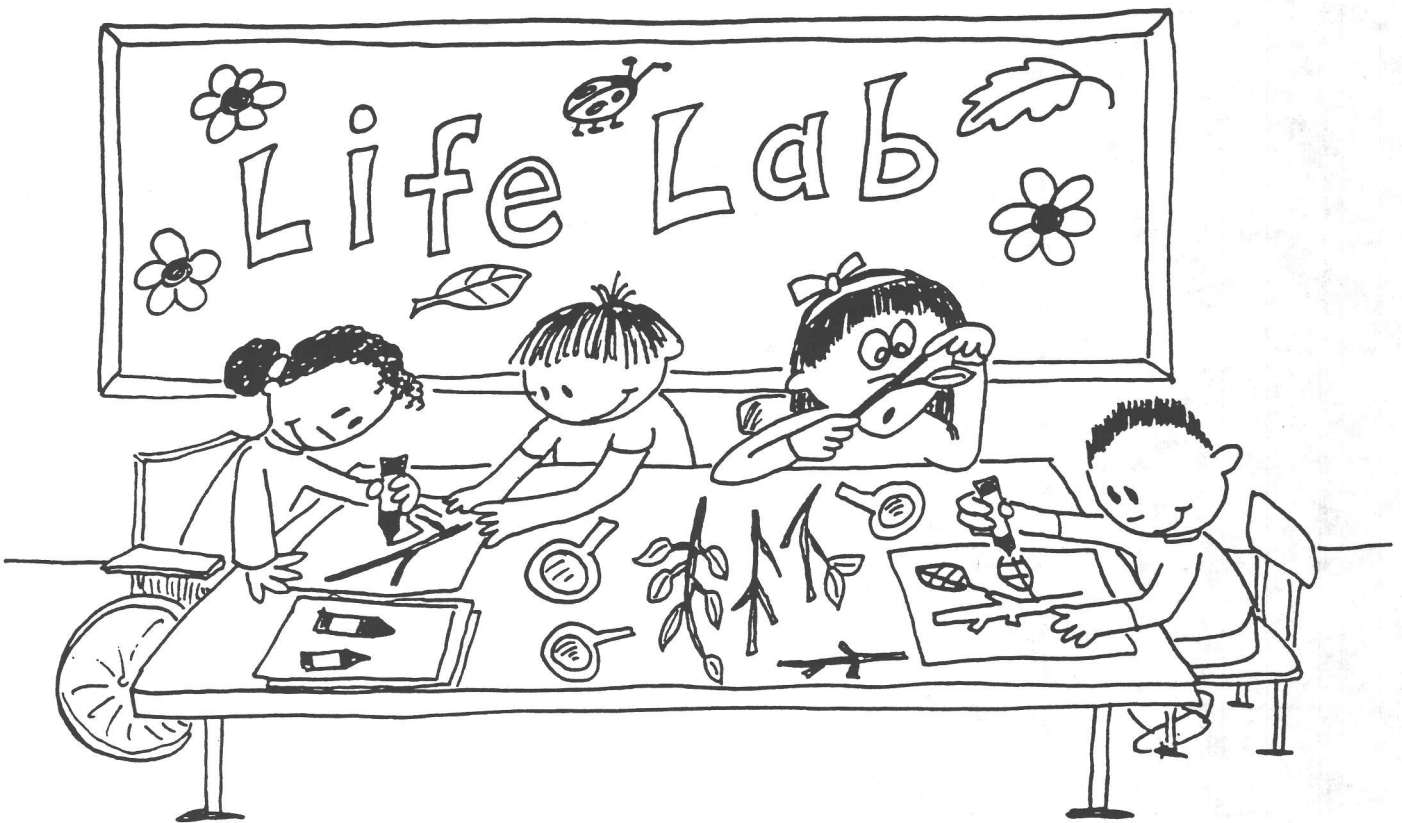
Life Lab Science		Grade 1		Earth Is Home		Scope and Sequence	
	Theme Connections	Life Science	Earth Science	Physical Science	Process Skills		
Exploring Plant Life	<p>Diversity: There are many different kinds of living things on Earth.</p> <p>Plants are living things.</p> <p>Cycles: Plants have a life cycle that includes growing, reproducing, and dying.</p>	<p>Plants are living things. They are made up of different structures such as roots, stems, leaves.</p> <p>All seed-bearing plants have a similar life cycle.</p>	<p>The Earth, its atmosphere, and the sun provide resources for plants to grow and change.</p>	<p>We can measure change in plants as they grow.</p>	<p>Observe patterns of change.</p> <p>Compare objects over time.</p> <p>Communicate observations to others.</p>		
Exploring Animal Life	<p>Diversity: There are many different kinds of living things on Earth. Animals are living things.</p> <p>Cycles: Animals have a life cycle that includes growing, reproducing, and dying.</p>	<p>Animals are living things.</p> <p>Animals have different body parts.</p> <p>Animals have a life cycle that includes growing, reproducing, and dying.</p>	<p>Animals depend on resources to live.</p>	<p>Animals have properties that we can describe.</p>	<p>Observe patterns of change.</p> <p>Compare and sort objects by similarities and differences.</p> <p>Work with peers to observe, record, and communicate observations.</p>		
Investigating Garden Homes	<p>Diversity: There are many kinds of living things. They make their homes in many different places.</p> <p>Cycles: Animals and plants have life cycles. Daily and seasonal changes affect plants and animals.</p>	<p>Living things have different kinds of homes. Living things need homes for shelter, food, and safety.</p>	<p>The garden is home to many living things.</p> <p>The garden provides resources living things need to survive.</p>	<p>We use our senses to observe an object's properties.</p>	<p>Apply and demonstrate observing and comparing skills.</p>		

Life Lab Science

Earth Is Home



Developed by Life Lab Science Program



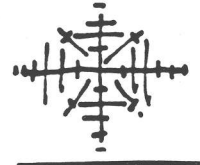
VIDEORECORDING



Weather Roundup



Names _____ Date _____



Sunny Days

Rainy Days

Cloudy Days

Windy Days

Snowy Days

This is how many days we had of each type of weather.

The Waving Wind

Name _____ Date _____

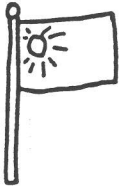
Visit 1

I can color the picture that looks the way our flag looks now.



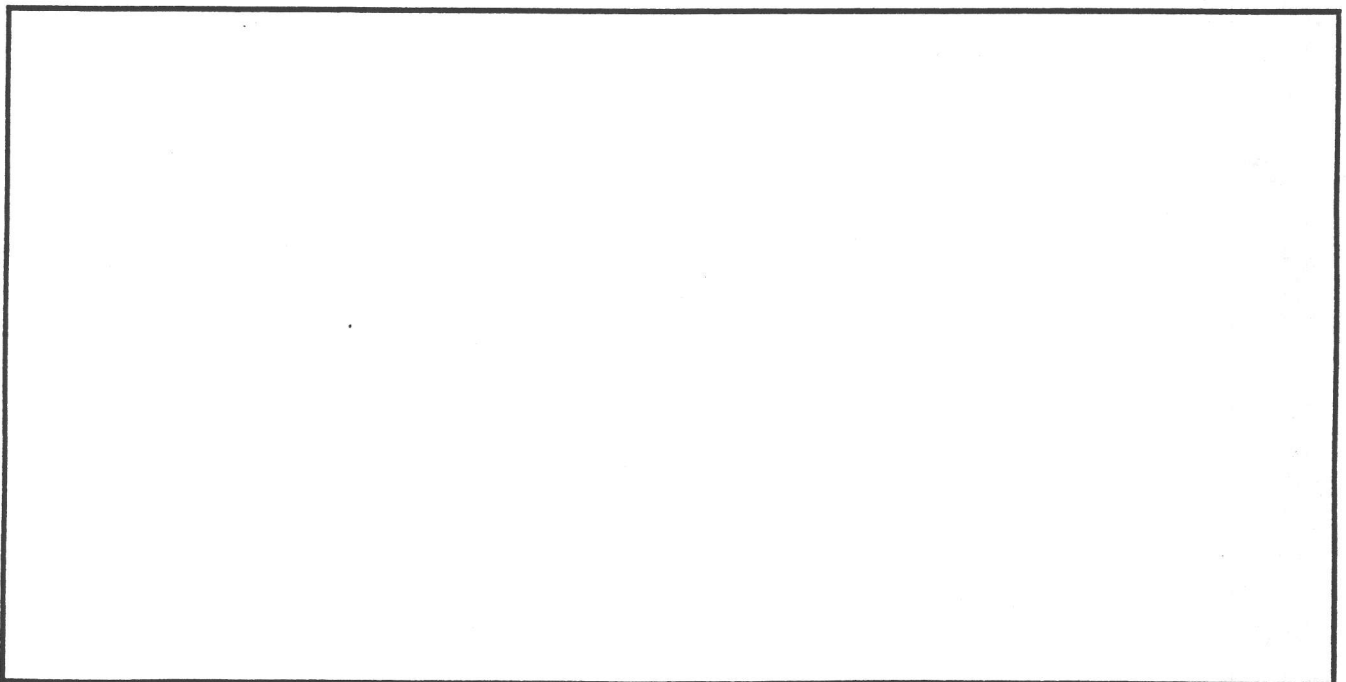
Visit 2

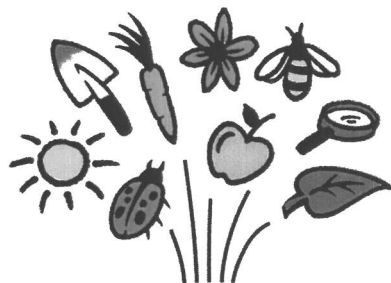
I can color the picture that looks the way our flag looks now.




Which visit had the most wind? _____

Here is my picture of the outdoors when it is windy.





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