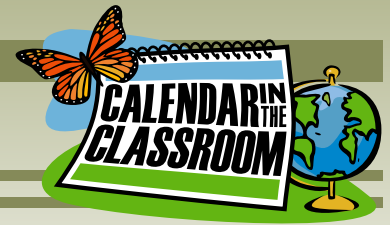




# Recording Seasonal Change



## Overview

The class works together to record seasonal changes over the course of the school year. In addition, each child selects a tree, other plant or section of the school grounds to observe and document changes over time in the student journal. At the conclusion of a season student writes a narrative summary.

## Standards/Benchmarks \*

■ Raise questions about the natural world and seek answers by making careful observations, noting what happens when you interact with an object, and sharing answers with others. Science (2.1.1.2.1)

■ Describe objects in terms of physical properties such as color, size, weight, texture, flexibility, strength and types of material in the object. Science (2.2.1.1.1)

■ Observe, record and recognize that water can be solid or liquid and can change from one state to another. Science (2.2.1.2.1)

■ Describe the characteristics of plants at different stages of their life cycles. Science (2.4.3.1.1)

■ Write narratives and other creative texts in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure. ELA (2.6.3.3)

## Background

If possible, begin this activity in September and continue collecting data throughout the school year.

Phenology is the branch of science involving the study of the relationship between climate and seasonal events in nature such as the migration of birds, the blooming of flowers, ripening of fruit, changing of leaf color. Data is recorded as scientists make note of the first or last date that an event occurs. For example: the first crocus blooms, the arrival of the first bluebird in spring, the first snowfall, the date the lake freezes, the date of ice out.

Students become phenologists as they observe and record natural events occurring in the community and the on the school grounds.

The *Minnesota Weatherguide Environment™ Calendar* offers a beautiful monthly photograph. In addition, on the back of each monthly calendar page there is a wealth of information including a week-by-week description of common phenological events you and the students may be able to observe.

Seasonal Phenology charts have been provided as a suggested series of observations, but you may want to have the students develop a very personalized list specific to your school grounds. For example: Your list might include the date that the last leaf falls from the maple tree on the

## Time:

Day 1: 1 hr.  
Other Days: 5-10 min.

## Skills:

Observing  
Recording  
Comparing  
Questioning  
Sequencing  
Narrative writing  
Critical thinking

## Vocabulary:

phenology  
phenologist  
seasons

## Materials Needed:

- *Minnesota Weatherguide Environment™ Calendar*
- Student journals
- Phenology charts

schoolyard, or the day the first crocus bloom in your garden, the date the leaf buds open on the schoolyard tree, when the seeds form. This not only enhances the excitement of the observations but it also makes students aware of the life cycle changes occurring in the tree.

## The Activity

### Day 1

#### Warm Up

Introduce the term phenology and tell students they will be starting a year-long project as phenologists to notice changes in the environment that are related to the seasons. Ask students to think back and recall: How have things changed on the school grounds since the last day of school when you were here as first graders? (Discuss natural changes versus human made changes.)

1. Today the class will go outdoors to make some baseline observations. The conditions students notice today will be a good comparison as they notice seasonal changes in upcoming weeks. For the appropriate week, read aloud the phenology information contained on the flip side of the September page in the calendar.

Date \_\_\_\_\_ Time \_\_\_\_\_ Temp. \_\_\_\_\_  
Location \_\_\_\_\_  
Weather:  
Observations:

I Wonder:

2. Have students prepare a journal page. At the top of the page they should note the date, time, temperature, location and weather conditions. (They should record this information each time they make journal entries.) Now they are ready to make detailed observations using sight, sound, smell, and sense of touch. Encourage the use of drawings and labels to enhance observations.

3. Point out the phenology chart that will be used by the class to record group observations. (Perhaps display the chart on the wall next to the *Minnesota Weatherguide Environment™ Calendar* or give a chart to each student.) Make some specific listings and perhaps have the children add other significant events for listing. Challenge students to be careful observers and check items off the list.

4. At the “end” of a season, ask the students to reflect back on the changes they have observed over September, October, November and write a narrative to recount the sequence of events and their personal feelings about the seasonal changes.

5. Repeat the narrative writing activity at the conclusion of winter and spring seasons.

## Questions for Discussion

- Why do certain events happen during specific seasons?
- Why is the study of phenology important? Who needs to know? (farmers, resort owners, construction workers, anyone who works or plays in the outdoors!)
- Would different climates have different phenological events? For example: Do trees in Florida lose all their leaves and become barren in the winter? Why or why not?
- What other phenology might be different in comparing Minnesota to other regions of the country?

## Extensions

See attached charts.

## Resources

*Caps, Hats, Socks and Mittens* A book about the 4 seasons by Louise Borden  
*Nature's Notebook* by Jim Gilbert  
*Minnesota Weatherguide Environment™ Calendar*

**\* Minnesota Academic Standards**

**Standards Met**

Subject	Code	Standard	Benchmark
Science	2.1.1.2.1	Scientific inquiry is a set of interrelated processes incorporating multiple approaches that are used to pose questions about the natural world and investigate phenomena.	Raise questions about the natural world and seek answers by making careful observations, noting what happens when you interact with an object, and sharing the answers with others.
	2.2.1.1.1	Objects can be described in terms of the materials they are made of and their physical properties.	Describe objects in terms of color, size, shape, weight, texture, flexibility, strength and the types of materials in the object.
	2.2.1.2.1	The physical properties of materials can be changed, but not all materials respond the same way to what is done to them.	Observe, record and recognize that water can be a solid or a liquid and can change from one state to another.
	2.4.3.1.1	Plants and animals undergo a series of orderly changes during their life cycles.	Describe the characteristics of plants at different stages of their life cycles. <i>For example:</i> Use live organisms or pictures to observe the changes that occur during the life cycles of bean plants or marigolds.
ELA	2.6.3.3		Write narratives and other creative texts in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.



Below is a list of things to watch for this fall. Check off things as you first see them and record the dates below.

Enjoy Fall

Minnesota Phenology	Date Seen
<input type="checkbox"/> Trees starting to turn color	
<input type="checkbox"/> Leaves on trees no longer have green	
<input type="checkbox"/> All leaves off trees	
<input type="checkbox"/> First frost	
<input type="checkbox"/> Everyone wearing coats at recess	
<input type="checkbox"/> First snowfall	
<input type="checkbox"/> Farmers harvesting crops	
<input type="checkbox"/> Flocks of birds heading south	
<input type="checkbox"/> Ice forms on nearby lake	
<input type="checkbox"/> First ice house on lake	
<input type="checkbox"/> Air temperature below 0° F.	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	



Below is a list of things to watch for this winter. Check off things as you first see them and record the dates below.

Enjoy Winter!

Minnesota Phenology	Date Seen
<input type="checkbox"/> First major winter storm	
<input type="checkbox"/> Cardinals whistling on tops of trees and poles	
<input type="checkbox"/> Date of first air temperature below -10°F	
<input type="checkbox"/> Date of a January thaw	
<input type="checkbox"/> Date of a February snow storm	
<input type="checkbox"/> Oak trees finally letting go of their leaves	
<input type="checkbox"/> Woodpeckers drumming on hollow trees	
<input type="checkbox"/> Sugar maple trees tapped to make syrup	
<input type="checkbox"/> Ice houses off the lakes	
<input type="checkbox"/> Sundogs around the sun	
<input type="checkbox"/> Great horned owls hooting	
<input type="checkbox"/> Buds start swelling on the trees	
<input type="checkbox"/> Chickadees singing their 'tee-bee' song	



Spring is on the way. Watch for the signs and record them on the chart.  
Enjoy spring!

Minnesota Phenology	Date Seen
<input type="checkbox"/> The first robin on the schoolyard	
<input type="checkbox"/> Ice gone from lakes	
<input type="checkbox"/> Frogs singing	
<input type="checkbox"/> First dandelions bloom	
<input type="checkbox"/> Dandelions go to seed	
<input type="checkbox"/> Maple trees have small red flowers	
<input type="checkbox"/> Maple trees have tiny leaves	
<input type="checkbox"/> First no-coat day at recess	
<input type="checkbox"/> First mosquito bite	
<input type="checkbox"/> First maple seed	
<input type="checkbox"/> First thunderstorm	
<input type="checkbox"/> Green grass	
<input type="checkbox"/> First butterfly (What kind is it?)	
<input type="checkbox"/>	
<input type="checkbox"/>	