



# Phenology Picture Essay



## Overview

In this long-term multidisciplinary project, students analyze photographs in the *Minnesota Weatherguide Environment™ Calendar*, noting phenological events, and then choose natural areas on the school grounds to photograph or sketch and write about on a monthly basis. Pictures are posted chronologically to create a phenological time line.

## Standards/Benchmarks \*

- Analyze how and why individuals, events, and ideas develop and interact over the course of a text. (3.2.3.3.)
- Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. ELA (3.2.7.7)
- Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. ELA (3.6.1.1)
- Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. ELA (3.6.2.2)
- Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation. ELA (3.6.7.7)
- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. ELA (3.10.1.1)
- Use time, money and temperature to solve real-world and mathematical problems. Math (3.3.3.2)
- Collect, organize, display, and interpret data. Use labels and a variety of scales and units in displays. Math (3.4.1.1)
- Scientists work as individuals and in groups, emphasizing evidence, open communication and skepticism. Science (3.1.1.1.1)
- Scientific inquiry is a set of interrelated processes incorporating multiple approaches that are used to pose questions about the natural world and investigate phenomena. Science (3.1.1.2.3)
- Understand that everybody can use evidence to learn about the natural world, identify patterns in nature, and develop tools. Science (3.1.3.2.1)

## Background

Phenology is the branch of science dealing with the relationship between climate and periodic seasonal occurrences in nature, such as the migration of birds or the flowering of plants.

Photographs in the calendar are natural scenes chosen for visual appeal as well as the weather conditions and phenological events that are representative of each of the months in Minnesota. Documenting the

## Time:

- Day 1-2: 30-45 min.
- Each month: 20 minute discussion of phenology & picture taking
- Spring wrap up: 30 min. for writing

## Skills:

Critical Thinking  
Writing  
Observing  
Team building

## Vocabulary:

phenology  
time line  
chronological  
descriptive

## Materials Needed:

- *Minnesota Weatherguide Environment™ Calendar*
- Digital camera and printer
- Wall space for photos
- Journal and/or other writing tools

succession of phenological changes through the seasons will help children develop a sense of place for our Minnesota landscape as well as enhance their observational and writing skills.

Using digital cameras adds a technology element to the lessons, but detailed student drawings are very effective for increasing observational skills. In addition to pictures, you may keep a posted list of seasonal phenological observations. (Examples: first day the temperature is below freezing in fall, the first leaf color, first migrating ducks, the first flower blooming in spring, etc.)

### Warm Up

1. Students look through the *Minnesota Weatherguide Environment™ Calendar*, taking note of the types of photos that are published as part of the *calendar*.
2. Discuss places the students are familiar with that they believe would offer good nature picture opportunities. Do the students think there are any appropriate spots on the school property? Take a walk through the school property looking with a photographer's eye. Encourage students to think of their images as story-telling elements. Note any places of interest or spots where the seasonal change would be readily apparent.

### The Activity

1. Ask the class to choose a natural scene containing a tree, bush, pond or other feature that could be documented over time with repeated images. In addition to the picture have students use other senses and make notes about the sounds they hear, what they feel (temperature, wind, etc.), what they smell (flowers blooming, leaves decomposing). These comments, along with the date, can provide captions for the photographs or drawings.
2. Send students in pairs on a regular basis to document the chosen subject. The students then choose their favorite image or images to print, date and post in the classroom. Post the photos side by side chronologically creating a visual linear timeline of changes. As another option, drawings can also provide chronological documentation in the student's journals.
3. At the beginning of each month, read the phenology section of the *Minnesota Weatherguide Environment™ Calendar* for that month. Discuss the phenology listed on the *calendar* as well as any other natural phenomenon that the students might expect to find or may have observed during that month. Encourage students to make an additional picture of a different scene or object to represent the phenology of the month or season to add variety to the photos or drawings. These pictures would also be dated, captioned and posted underneath the landmark timeline.
4. Periodically have students choose a picture to write about. Have students share writing with one another. Emphasize using descriptive language. Discuss how subtle changes in the scenes signal seasonal change. In their writing, students should not only describe the scene, but also explain why it represents a particular month or season.

### Wrap Up & Assessment

1. As a final writing activity, in the spring, students choose their favorite picture and write a persuasive essay telling why their photo best represents a particular month or season and why it would be appropriate for use in a nature calendar.

### Questions for Discussion

- Choose a photo in the *calendar* and tell why you think it was chosen to be in the *calendar*. How does the photo represent a certain month or season?
- What criteria should we use to choose a class photo or drawing site?
- What are different ways we could photograph or draw to make our scene different or more interesting? Why do you feel your photo should be chosen for use in a calendar?
- Create a class calendar based on student images.

## Resources

Minnesota Weatherguide Environment™ Calendar

## Minnesota State Academic Standards

### Standards Met

Subject	Code	Standard	Benchmark
ELA	3.2.3.3	Analyze how and why individuals, events, and ideas develop and interact over the course of a text	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text using language that pertains to time, sequence, and cause/effect.
	3.2.7.7.	Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.	Use information gained from illustrations and the words in a text to demonstrate understanding of the text.
	3.6.1.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.	Write opinion pieces on topics or texts, supporting a point of view with reasons. a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons. b. Provide reasons to support the opinion.
	3.6.2.2	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. b. Develop the topic with facts, definitions, and details.
	3.6.7.7	Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	Conduct short research projects that build knowledge about a topic.
	3.10.1.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. b. Use abstract nouns. Produce simple, compound, and complex sentences.
	3.10.2.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize appropriate words in titles. e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., <i>sitting</i> , <i>smiled</i> , <i>cries</i> , <i>happiness</i> ). f. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words. g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
Math	3.3.3.1	Use time, money and temperature to solve real-world and mathematical problems.	Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute.