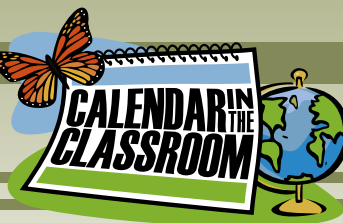




# Phenology Picture Essay



## 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.

## 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 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 or tablets 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.)

## The Activity

### 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.

### 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

## 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/tablet and printer
- Wall space for photos
- Journal and/or other writing tools

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*

online: <https://jeffersfoundation.org/programs/calendar-in-the-classroom/>

### Minnesota State Academic Standards

#### ELA Standards and Benchmarks

| Grade | Benchmark with Anchor Standard/Code   |
|-------|---|
| K     | Write routinely (may include a combination of drawing, dictating and writing), with support and guidance. (W2: 0.2.2.1)<br><br>Make a statement about a topic and offer one or two details about the topic, verbally, visually or in written form, with support and guidance. (W5: 0.2.5.1)<br><br>Create written, oral and digital content that communicates knowledge and ideas in a variety of presentation styles, with prompting and support. (LSVEI 3: 0.3.3.1) |
| 1     | Write routinely, through a combination of writing, drawing and speaking. (W2: 1.2.2.1)<br><br>Create written, oral and digital content that communicates knowledge and ideas in a variety of presentation styles. (LSVEI 3: 1.3.3.1)  |

**ELA Standards and Benchmarks - contd.**

|   |  |
|---|--|
| 2 | <p>Write routinely, including illustration, for a range of tasks, purposes and audiences. (W2: 2.2.2.1)</p> <p>Write to inform or explain, using details to show understanding of the topic and including an introductory and concluding statement. (W5: 2.2.5.1)</p> <p>Create written, oral and digital content that communicates knowledge and ideas, including relevant facts and descriptive details, in a variety of presentation styles. (LSVEI 3: 2.3.3.1)</p>               |
| 3 | <p>Write routinely for a range of tasks, purposes and audiences. (W2: 3.2.2.1)</p> <p>Write to persuade, blending opinion and facts that support the opinion. (W4: 3.2.4.2)</p> <p>Create written, oral and digital content that communicates knowledge and ideas, including relevant facts and descriptive details, in a variety of presentation styles. (LSVEI 3: 3.3.3.1)</p>   |
| 4 | <p>Write routinely for a range of tasks, purposes and audiences. (W2: 4.2.2.1)</p> <p>Write to persuade, including an introduction and conclusion, building on skills from previous years. (W4: 4.2.4.2)</p> <p>Create written, oral and digital content that communicates knowledge and ideas in an organized manner, including relevant and credible facts and descriptive details to support central ideas or themes, in a variety of presentation styles. (LSVEI 3: 4.3.3.1)</p> |
| 5 | <p>Write routinely for a range of tasks, purposes and audiences. (W2: 5.2.2.1)</p> <p>Write to persuade, employing emotional strategies (e.g., manipulation, motivation, inspiration), building on skills from previous years. (W4: 5.2.4.2)</p>   |

## Math Standards

| Grade | Strand        | Anchor Standard   | Code               | Benchmark  |
|-------|---------------|---|--------------------|--|
| K     | Data Analysis | Data Sciences: Identify, formulate and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data and communicating the results. | 0.1.1.2            | Organize objects, draw pictures, or use tally marks to represent data and communicate observations. (MP3, MP6)   |
| 1     | Data Analysis | Data Sciences: Identify, formulate and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data and communicating the results. | 1.1.1.2            | Collect and use data to consider and decide what data will answer a question. Represent the data as a drawing, tally marks, frequency bar graph and digitally communicate observations. (MP1, MP3)   |
| 2     | Data Analysis | Data Sciences: Identify, formulate and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data and communicating the results. | 2.1.1.3            | Collect and use data to consider and decide what data will answer a question. Represent the data as drawings, picture graphs, dot plots and with technology. Communicate observations. (MP3, MP5)  |
| 3     | Data Analysis | Data Sciences: Identify, formulate and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data and communicating the results. | 3.1.1.4            | Make predictions and recognize that the amount and source of the data impacts the accuracy of predictions. (MP4, MP8)  |
| 4     | Data Analysis | Data Sciences: Identify, formulate and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data and communicating the results. | 4.1.1.3<br>4.1.1.4 | Make predictions and recognize that how the data was collected impacts the reliability of predictions. (MP1, MP8)<br>Critically analyze data visualizations, including tables, double bar graphs, timelines, line plots or spreadsheets to support a claim and solve contextual situations. (MP3, MP7) |
| 5     | Data Analysis | Data Sciences: Identify, formulate and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data and communicating the results. | 5.1.1.5            | Compare and contrast different data displays to determine how the visualizations impact analysis and interpretation. (MP3, MP8)  |

### **3-D Science Standards**

#### **Science Practices:**

1. Asking Questions
2. Developing and Using Models
3. Planning and Carrying Out Investigations (investigating through observation)
4. Analyze and Interpreting Data
8. Obtaining, Evaluating and Communicating Information

#### **Crosscutting Concepts:**

1. Patterns
2. Cause and Effect: mechanism and explanation
7. Stability and Change

#### **Disciplinary Core Ideas:**

LS1: From molecules to organisms: Structures and processes

3rd Grade: Predictions, patterns, life cycles

5th Grade: Requirements for plant growth

LS2: Ecosystems: Interactions, energy, and dynamics

3rd Grade: Animal adaptations

LS3: Heredity: Inheritance and variation of traits

3rd Grade: Many characteristics involve both inheritance and environment

ESS2: Earth's systems

K: Make seasonal observations of local weather conditions to describe patterns over time

K: Record and use observations to describe patterns of what plants and animals need to survive

2nd Grade: Describe typical weather conditions expected during a particular season