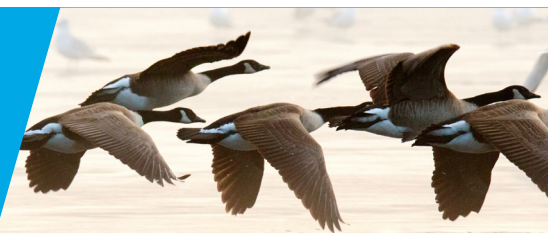


CURIOSITY AT HOME

WHAT SEASON IS IT?



How do flowers know when to bloom? How do dogs know when to start shedding their winter coats? Phenology, the study of timings in nature, helps us understand how plant and animal life cycle events are influenced by seasonal variations and changing climate. Learn more about phenology and record the timings of nature near you!

MATERIALS

- Phenology bingo sheet (included below)
- Science notebook or paper
- Something to write with

PROCEDURE

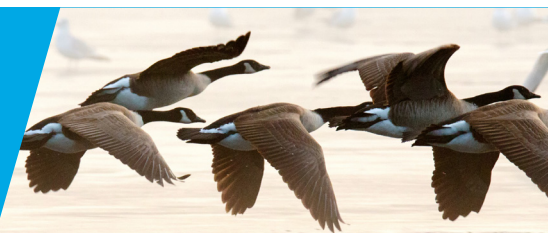
Observe natural phenomena

- What season is it right now? In your science notebook, write down 3 or 4 natural things you can observe that tell you what season it is.
- Print out or write out a copy of the phenology bingo sheet (included on the next page). Go for a walk in your neighborhood and cross off as many of the items you are able to complete.
- Could you get a bingo by finding 4 items in a row, column, or diagonal line on your sheet? Were you able to find everything on your bingo sheet? Why or why not? Did you notice a pattern with the items that you were able to find and the items you weren't able to find? What time of the year would it be easiest to find each item on the bingo sheet?
- Keep your bingo sheet and continue playing throughout the following months. How long did it take before you were able to complete the bingo sheet?



CURIOSITY AT HOME

WHAT SEASON IS IT?



Phenology Bingo

| | | | |
|---|-----------------------------------|------------------------------------|--|
| Smell fresh cut grass | Find a red leaf on a tree | Smell a blooming flower | Find snow on the ground |
| Find a butterfly or moth | Find footprints in the mud | Scratch a mosquito bite | Jump in a rain puddle |
| Collect ripe berries | See a flock of birds fly overhead | Play with maple "helicopter" seeds | Find a pinecone on the ground |
| Find a flower or tree with buds that have not bloomed | Listen to a rainstorm | Spot a bird nest | See a hummingbird near flowers or a feeder |



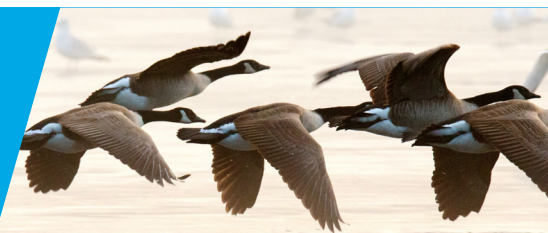
Show us how you're being curious! Share your results with us.

PACIFIC
SCIENCE
CENTER



CURIOSITY AT HOME

WHAT SEASON IS IT?



EXPLORE MORE

Make your own phenology calendar

- Make a booklet with twelve pages, one for each month. Or dedicate 12 pages in your science journal to make your phenology calendar for the year.
 - Find an outdoor space that you visit regularly where you would like to make your observations.
 - Brainstorm 3 natural things in the outdoor space that you want to record over the year. Consider some of the items from the bingo sheet, or come up with your own things to observe.
 - There are many types of observations. Consider ideas such as noting the color of leaves on a tree, counting the number of bird calls you hear, drawing the shape of a flower, measuring the height of some grass or the inches of snow on the ground, or recording what kinds of animals you see.
 - You could also measure things like temperature, moon cycles or tides by using a tool like a thermometer or tide book.
 - Decide how often you will record your observations. Once a day? Once a week? Once a month?
 - Make your observations! Every time you visit your outdoor space make your observations of the 3 natural things you picked to observe and record your observations in your calendar. You can also note any other observations from that visit.
- Good observations are key! Some observations, like temperature, should be measured and written clearly. Other observations, like plants that are blooming, require thinking like a naturalist. Here are some questions you can ask yourself while making observations:
 - What do you notice with your senses?
 - Did you observe anything surprising or interesting in your study area?
 - Does anything you observed remind you of something you've seen before?
 - What are you wondering about your study area? Write down any questions you have about the things you observe.
 - What patterns do you notice throughout the year? If you did this for a second year, do you think there would be changes from year to year?

DID YOU KNOW?

Phenology is the study of biological events that change in response to their environment. For example, bird migration is a phenomenon associated with climate and season. Likewise, the appearance of flowers is a response to the local weather and climate.

These patterns affect our everyday life. Phenology affects the growing season of all the plants we eat. Understanding the seasons is important for farmers and gardeners; it helps them know when to plant and when to harvest. Phenology also helps us understand the effects of climate change. As the climate changes, the timing of plant blooms, bird migrations and animal life cycles will also change in response.



Show us how you're being curious! Share your results with us.

PACIFIC
SCIENCE
CENTER



CURIOSITY AT HOME

WHAT SEASON IS IT?



6–8 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- What changes did you observe over the course of a month?
- How would this data have been different 10 years ago? How will the data be different next year or 5 years from now?
- How might climate change affect your observations?
- Include temperature in your calendar. Locate the closest weather station to your observation site(s). Weather stations can be found [here](#).¹ If you would like to include some predictions for next year, consult the [Old Farmer's Almanac](#).²
- Find the temperature collected at this weather station for today and this date for the last 10 years. Create a graph of the data. What did you notice? Is this enough data to see any trends?
- Hours of sunlight and temperature are some important factors plants and animals use to determine migrations, blooming dates, and more. How would the trends you observed at your site affect local flora and fauna?
- Do you want to share your observations with other scientists? Get your grownup's permission to create a free membership to [USA NPN's Nature's Notebook](#)³, where you can share your observations with the community, including researchers!

¹ <https://www.ncdc.noaa.gov/cdo-web/datatools/findstation>

² <https://www.almanac.com/weather/>

³ https://www.usanpn.org/natures_notebook

