nature's notebook
A project of the USA-NPN

Observation Station

Grade Levels
K-12

Overview
The following activity can be used as an introduction to the concept of observation. Observations skills are critical to the field of science, among other things! Knowing how to pay attention to what's is going on around you is an important life skill. Taking the time to make observations is beneficial to health and wellness too.

The activity increases science literacy by teaching about observation skills, encourages people to pay attention to their surroundings, to spend more time outdoors and observe things they may not yet have experienced.

Background
Phenology, or the study of the timing of life cycle events and their relationship to the environment, can be used to teach a number of scientific concepts in many grades from K through adult.

Real-world Connection
This activity teaches the basic scientific skill of observation. Observation lays the ground work for many aspects of scientific study, including biology, ecology, chemistry, physical science, etc. It is often included as a critical Standard of Learning in many state science curricula.

Observation is also a critical skill to other fields such as English, Social Studies, Arts, etc. Knowing how to pay attention to your surroundings can make you a better writer, understand more about society, and make you more aware of your senses.

Citizen Science Connection
Nature's Notebook is not critical to completing the activity, rather can be used as a supplement to the activity.

Time Required/Location
15 mins

A space large enough for students to mingle and arrange themselves into a circle.

Learning Objectives
Participants will be able to:
- Define phenology
- Understand the importance of paying attention to your surroundings
- Make observations

Next Generation Science Standards

LS: Life Science			
Grades 6-8		*Grades 9-12*	
MS-LS1-4	Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.[1]	*HS-LS2-6*	Evaluate the claims, evidence, and reasoning that interactions in ecosystems are consistent in stable conditions, but changing conditions may result in a new ecosystem.[1]
MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.[1]		
ESS: Earth and Space Systems			
MS-ESS3-5	Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.		

[1] Can be elicited through the Explaining and Elaborating portion of the activity.

Conducting the Activity

Materials
Resources needed - depending upon the way you choose to present the activity
- Individual observation cards OR
- One large sheet for making observations

Experience
ENGAGE
1. Discuss the skill, or art, of paying attention and using your senses. What do our senses do for us?
2. Discuss things that you might notice in each of the seasons in your area, using your senses. What are the seasons? Is it wet or dry? Is it hot or cold? What does it feel like? What do you hear? Note, some places, like Tucson, AZ may have fewer than four seasons.
3. Why do things occur in each of the seasons as they do? How do seasons affect habitats and their inhabitants
4. Introduce the concept of phenology
   - All of the seasonal changes you talked about above are phenological events
   - Pheno-to show or appear
   - ology-to study
   - Phenology- the science of recurring plant and animal life cycle stages
   - What are some more examples you can think of? (migration, breeding, green-up, senescence)

NOTES ON ACTIVITY

Conducting the Activity

EXPLORE

1. Present the observation worksheet to the participants. Ask them to record what they see, hear, smell, feel.
2. Discuss with the participants why, when we are in nature, we don't use the sense of taste (never taste anything unless you know exactly what you are tasting and are able to identify it! If you are on a farm with vegetables, you can use the sense of taste, but in the woods it is not recommended unless you are with an expert!).
3. This activity can be done in a few different ways. I like to ask participants to sit silently for 1 minute (at least!) and have them record all of the things they can using one or more of those senses. Discuss what they observed.
4. Another way to present this activity is have the observation sheet available for a long period of time – all day, at lunch, over a week, etc. Have them record their observations on the sheet.
5. What other ways could you present this activity?

Share

EXPLAIN

1. Participants review the experience and reflect. Review questions can include:
   - What observations did you make?
   - Which is your most easily accessible sense? Why?
   - How do observation skills help you to be a scientist?
   - What questions do you have after you hear, see, smell, or feel something?
2. Include a variety of sharing methods: verbal, illustrative, etc.

Process and Generalize

ELABORATE

1. How might we keep track of events like this? (e.g. nature journal, *Nature's Notebook*, photography, sketches, etc.).

Apply

EXTEND

1. Ask participants if they would like to join *Nature's Notebook* to collect observations
2. Host a *Nature's Notebook* workshop
3. Implement a long-term *Nature's Notebook* activity in your program

REFLECTION

1. Ask students to draw connections between this experience and other similar ones they have had.
2. Ask students about what they liked and disliked about this assignment. If they had to share the experience with someone else, what would they say?

Evaluate the Activity

The use of reflective practice is critical to understanding. Examples of reflection questions include:

1. Share one new thing you learned from this experience.
2. Share one thing you still have a question about.
3. Share something that you learned which will be useful in the future.
4. Share something that I (the instructor) could have done differently, or will do differently in the future.
5. Share something that I (the instructor) learned from the participants.