Nature’s Notebook, a project of the USA National Phenology Network (NPN), invites participants to help scientists “take the pulse of our planet.” With Nature’s Notebook, your students will have the opportunity to observe, document, and share seasonal changes in your geographic area. The project involves options to observe seasonal change and cycles in diverse plant and animal species. During participation in Nature’s Notebook, students immerse in the process of discovery and concurrently cultivate observation skills and nurture their curiosity about the natural world. Nature’s Notebook serves as an exemplary citizen science project that promotes science learning as well as engagement in authentic science research.

Nature’s Notebook and the USA NPN offer extensive online educator resources including lesson plans, templates, data sheets, videos, professional development opportunities, and more (see “Helpful Project Links”). Additionally, a number of public television series have featured Nature’s Notebook and the USA NPN including American Spring LIVE (2019), The Crowd and the Cloud (2017), and the SciGirls “Flower Power” episode (2015) (see Additional Links). The television programs are now available online and serve as complementary resources to use in the classroom to supplement Nature’s Notebook hands-on outdoor activities.

**Project goal:** To help scientists take the pulse of our planet

**Your task:** Observe and share seasonal changes in plants and animals
**Science discipline:** Life and Environmental Science

*Phenology* refers to the study of seasonal change, and Nature’s Notebook engages students in making observations of biological phenomena, such as animal migration and the flowering of plants. Nature’s Notebook provides an opportunity to document seasonal phenomena across the planet’s dynamic yearly calendar. Studying seasonal change informs us about the health of our planet and can highlight emerging trends over time.

After joining Nature’s Notebook online and signing up to participate, you can start making observations and submitting data right away. You’ll choose one (or more) species to observe at a site of your choice (such as a backyard, schoolyard, or park). Participants can use the project’s mobile app to submit data or choose to use paper data sheets and submit the resultant data online.

**Materials you will need:**
- Internet access
- Smartphone, tablet, or computer
- Access to an outdoor site for observations

Nature’s Notebook also features regional campaigns that you can join (see Figure 1; see also Nature’s Notebook Campaign Page). The campaigns involve participants in research designed to address a specific study question. Below are a few of the recent campaigns:
- Pollen Trackers—submit pollen observations of mountain cedar
- Mayfly Watch—help track the emergence of mayflies
- Flowers for Bats—help document the flowering of agave and saguaro cactus plants

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**Nature’s Notebook at a glance**

- **When:** Anytime
- **How:** Sign up online and start observing plant and animal species at a local observation site.
- **Where:** North America
- **Time needed:** Variable; for observations, ideally once per week
- **Special equipment needed:** None
- **Cost:** No cost to participate

**Contact for more information:** https://www.usanpn.org/contact

**Safety:** As with any science lab, classroom, or field activity, always ensure that you are following recommended safety practices; for more information on safety in the science classroom, visit www.nsta.org/safety.

**HELPFUL PROJECT LINKS**
- Nature’s Notebook home—https://usanpn.org/natures_notebook
- Nature’s Notebook campaign page—https://usanpn.org/nn/campaigns
- Professional development—https://www.usanpn.org/nn/LPLCertification
- Project link on SciStarter—https://scistarter.org/natures-notebook
- Project link on SciStarter education page—https://scistarter.org/education/natures-notebook-education
- Resources: webinars, podcasts, and videos—https://usanpn.org/nn/webinars
- Search plants and animals to observe—https://mynpn.usanpn.org/npnapps/species
- USA National Phenology Network—https://www.usanpn.org/home
- Video collection—https://www.youtube.com/USANPN1
- Visualization tool—https://www.usanpn.org/nn/connect/visualizations

**ADDITIONAL LINKS**

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This column is the result of a partnership between SciStarter and the National Science Teaching Association. For more information about SciStarter and other citizen science projects, please visit www.scistarter.org.
• Nectar Connections—study nectar sources of pollinators such as monarch butterflies
• Green Wave—send in observations of leaf color in maples, oaks, and poplars
• And many additional campaigns are available via the Nature’s Notebook website

When you join a campaign, you can sign up to receive study-specific emails, local results, updates, and an end-of-season campaign summary. Students enjoy being a part of the regional campaigns as they feel like they are part of a research team and can clearly see how their contributions connect to findings and how research generates additional questions to investigate in future studies.

Numerous options exist for citizen science participation in Nature’s Notebook and the USA NPN. For example, you can monitor plant and animal species throughout the year, join a campaign, and create your own local community phenology program; you can also access research reports, visualize data, and explore how the data are being used in meaningful ways to improve the health of our environment. Educators are able to engage in professional development through the USA NPN’s online Local Phenology Leader Certification Course, which guides participants in the planning and establishing of a Nature’s Notebook citizen science program. In any way that you choose to engage in and share Nature’s Notebook with your students, you will be contributing to meaningful science as you help to take the pulse of our changing world.

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