

PLUM LANDING

Explore Outdoors Toolkit



pbskids.org/plumlanding

Welcome!

Welcome to the **PLUM LANDING Explore Outdoors Toolkit**. This Toolkit provides everything you need to set up a program that helps kids ages 6 to 9 and their families get outdoors, get moving, and have fun learning science—*right in their own neighborhoods!* Whether it's in your program's yard; on the sidewalk; or in a local park, state forest, or their own backyards, **getting kids and families outside and excited about the environment will make important contributions to their health and well-being.** It will also **help them learn about the natural world around them and encourage them to become caretakers of the planet.**

The **PLUM LANDING Explore Outdoors Toolkit** was inspired by "outdoor prescription" programs, in which medical professionals write prescriptions that encourage kids to get active outdoors. These programs have found that some families do not take full advantage of the natural spaces (parks and other green spaces) in their community because, among other reasons, they have safety concerns or lack knowledge about how to get their kids up and moving. The **PLUM LANDING Explore Outdoors Toolkit** can help remove the barriers families may experience and help you **support both kids and their families in getting physically active while having fun learning science.**

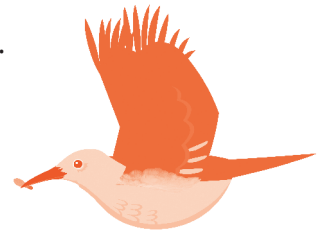
Toolkit resources include:

- Hands-on environmental science activities in English and Spanish
- Animated PLUM LANDING videos that highlight nature in urban spaces
- A new game that highlights nature in the city
- Training videos and a Viewing Guide with tips for educators who work with kids and families
- A digital badging system that rewards outdoor exploration
- Parent videos that support families' outdoor explorations
- An outdoor app for families

All **PLUM LANDING Explore Outdoors** resources are **grounded in best practices for outdoor science learning.** The resources are **correlated to the Next Generation Science Standards (NGSS),** are **evidence-based** and **advisor-reviewed,** and are **fully tested with educators and families across the country.** Materials for parents are available in **English and Spanish.**



This Toolkit is part of PLUM LANDING, a PBS KIDS all-digital environmental-science project that features Plum, an adorable purple alien from the desolate planet Blorb. Plum longs to experience nature, so she commandeers a spaceship, zooms down to Earth, befriends five eager kids—Clem, Oliver, Gabi, Brad, and Cooper—and launches them on missions to learn more about planet Earth. Along the way, Plum and her friends discover many fascinating, puzzling, and profound things about Earth.

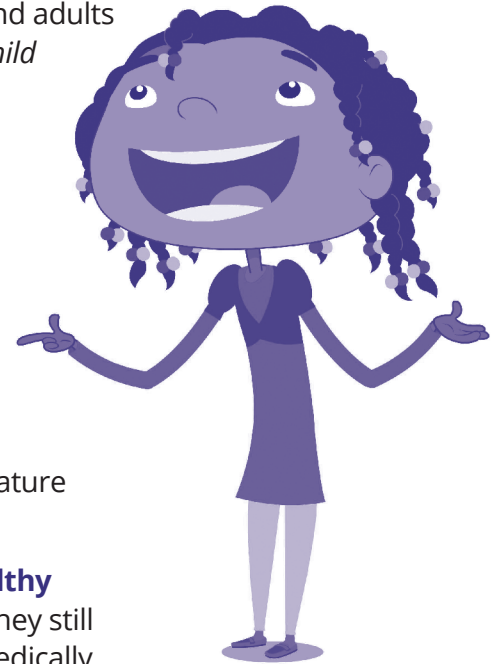


Get Outside, Reap the Benefits!

It's become increasingly clear that making time to go outdoors, for kids and adults alike, has many benefits (and it's fun!). **Richard Louv's 2005 book, *Last Child in the Woods*, explored the ties between the physical, mental, and emotional problems that children in the U.S. face and a lack of time outdoors.** Louv coined the term "nature-deficit disorder" to describe the downside of spending too much time indoors.

The book helped to launch a new movement to get children and adults outdoors and interacting with nature. Spending less time passively staring at screens and **more time connecting with nature can help kids and families become more fit, better able to cope with stress, and more focused.**

Here are just a few highlights from research on the benefits of outdoor nature exploration:



Spending more time outdoors can help children maintain a healthy weight. While rates of childhood obesity are beginning to level off, they still are alarmingly high: The number of children ages 6 to 11 who are medically obese has more than doubled since 1980. This epidemic puts children at risk for type 2 diabetes and other chronic diseases, setting them up for a lifetime of health problems. Research has shown that children who spend more time outdoors are less likely to be overweight.¹

Spending time in nature is good for mental health. Studies suggest that time spent outdoors may lower anxiety and stress,² and decrease ADHD symptoms³.

Children who play outside are more likely to grow up to be caretakers of the environment.⁴ When children are given opportunities to experience and love nature, they develop a personal investment in protecting nature as adults.

Mindful learning experiences outdoors, in both informal and formal education settings, are crucial in nurturing this connection.

1 Cleland, V., et al. (2008). *International Journal of Obesity*, 32: 1685-93.

2 Park, B. J., Tsunetsugu, Y., Kasetani, T., Kagawa, T., & Miyazaki, Y. (2010). The physiological effects of *Shinrin-yoku* (taking in the forest atmosphere or forest bathing): Evidence from field experiments in 24 forests across Japan. *Environmental Health and Preventive Medicine*, 15(1): 18-26.

3 Taylor, A. F., & Kuo, F. E. (2011). Could exposure to everyday green spaces help treat ADHD?: Evidence from children's play settings. *Applied Psychology: Health and Well-Being*, 3(3): 281-303.

4 Broom, Catherine. (2017). Exploring the relations between childhood experiences in nature and young adults' environmental attitudes and behaviours. *Australian Journal of Environmental Education*, 33(1): 33-34.

Outdoor learning can promote science learning.⁵ The outdoors is a great place to explore science. There is a wide variety of natural phenomena to capture kids' interest, spark their curiosity, provide moments of awe, and enhance their science learning and practices. Using simple materials and encouraging children to ask questions and solve problems on their own are powerful ways to help kids develop science skills. Rather than learning indoors in controlled environments, giving kids opportunities to explore in real time and outdoors in the real world can help them develop a deeper knowledge and understanding of scientific concepts.

Using the **PLUM LANDING Explore Outdoors Toolkit** resources, you can provide a unique blend of science learning and physical activity to maximize the health and educational benefits of outdoor science exploration.

About This Toolkit

Who should use this Toolkit?

This **PLUM LANDING Explore Outdoors Toolkit** can be used by any organization that offers programs for kids ages 6 to 9 and their families. The Toolkit is flexibly designed for use in range of program types, including but not limited to:

- **Afterschool programs**, including clubs and camps in which educators facilitate activities with kids
- **Educator-led family programs** in which educators facilitate activities with kids and their families
- **Self-guided family programs** in which families are provided with activities to do on their own

What will kids and their families learn?

The Toolkit resources explore nature in cities and towns through **four themes: Water, Weather, Plants, and Animals**. Hands-on activities, animated videos, games, an online badging system, and an app help kids and their families investigate related science concepts in their own communities.

Does this Toolkit work with my existing programs?

Yes! The Toolkit includes **environmental science and physical activity components that you can readily integrate into your existing family- and youth-serving programs**. You can also use it to start a *new* afterschool or family-based program (see options below under "What's in the Toolkit?"). If your program already teaches science, these materials can help you get kids physically active and exploring science outdoors. If your program already does outdoor physical activity, these materials can help you add an environmental science component.



⁵ Dewar, Gwen. (2016, October). Learning by doing: How outdoor play prepares kids for achievement in STEM. Natural Start Alliance.

How do I get started?

Follow these 7 easy steps to start your Explore Outdoors program.

1. Start by **choosing the program type(s)** you run and select the resources that fit your needs.
 - **If you work with kids in an Afterschool Program, you have three options:**
 - 8 individual afterschool activities
 - 2 weeklong afterschool clubs
 - 1 weeklong camp
 - **If you run an Educator-Led Family Program,** in which educators facilitate activities for families, pick and choose from among eight individual one-hour activity sessions.
 - **If you offer a Self-Guided Family Program,** in which families do activities independently, check out the 10 individual activity sessions, as well as the Outdoor Adventures badging feature and the app Outdoor Family Fun with Plum.

All the activities are stand-alone resources, so you can pick and choose those that meet the needs of your audience, the time available, and factors such as the weather or the type of outdoor space available. Additional information about these and supporting resources is provided under each resource in the “What’s in the Toolkit?” section below.

2. After you’ve checked out the resources, **think about which resources you might use and how.** Will you integrate them into an existing program you are already running, or start a new program or class based on the resources?
3. **Scout out your neighborhood to determine which outdoor space(s)** your program can use to lead activities with kids and/or families. Does your program have access to a yard, a park, or another space? Some activities require green places with plants, soil or grass, trees, or bushes. Others can be done on sidewalks and paved surfaces in yards, parks, and playgrounds. In any case, you’ll want enough space to accommodate your group’s size and the needs of the activity—for instance, if the group plays tag, or the activity calls for 10 yards of space for a race. Review the “How Do You Get Ready?” section of each activity to determine the space or other specific needs of the activity.
4. **Take a look at the Tips for Families.** Think about how you might use these materials with families in your program to support their outdoor science exploration.
5. **Check out the seven video-based Tips for Educators,** or hold training sessions with the educators who will lead the program to get grounded in best practices for outdoor exploration. These videos and the supporting Viewing Guide provide tips to help you prepare for the outdoor exploration, manage the exploration, and maximize the science learning and health benefits to your group.
6. **Advertise your program** using the **promotional materials.**
7. **Get started!**



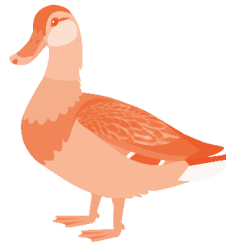
What's in the Toolkit?

All resources focus on four environmental themes:
Animals, Plants, Water, and Weather.

For Afterschool Programs

Eight activities are provided. Each activity begins with an optional animated video that introduces a science concept. Then children participate in hands-on activities that blend physical activity and fun with science learning. Everything you need to facilitate the activities with kids is provided, including:

- Activity descriptions
- Learning goals and big science ideas
- Materials lists
- Preparation instructions
- Activity directions
- Talking points and conversation starters
- Extension ideas



Activity components range from 10 to 40 minutes, giving you optimal flexibility.

You may choose to offer all of these activities or a selection that works best for your group. The activities can be offered in stand-alone afterschool sessions, or as a daily club or camp program.

Take-Home Activities: **Four accompanying take-home handouts give families suggestions for continuing the learning** by actively exploring science in their own neighborhoods. You may want to send the handouts home individually as you cover each specific theme (animals, plants, water, weather), or send them all at once at the start of the program. If you use email or texts with parents and caregivers, consider sending the handouts—or links to the handouts—to them digitally. All handouts are available in English and Spanish.

For Educator-Led Family Programs

Eight activities are provided. Each activity begins with an optional animated video that introduces a science concept. Then families participate in hands-on activities that blend physical activity and fun with science learning. Everything you need to facilitate these activities is provided, including:

- Activity description
- Learning goals and big science ideas
- Materials lists
- Preparation instructions
- Activity directions
- Talking points and conversation starters
- Extension ideas

PLUM LANDING
activities offer
maximum flexibility
to match the time
and outdoor space
available, and the
weather!



Each activity also contains an optional handout for families so they can complete all or part of the activity on their own. Activity components range from 10 to 40 minutes, giving you optimal flexibility. All handouts are **available in English and Spanish**.

You may choose to offer these activities at family events once a week on a Saturday or Sunday, or bundle several together for a day-long event. Some programs require families to sign up in advance, while others welcome drop-in attendance.

Take-home Activities: **Four take-home handouts give families suggestions for continuing the learning** by actively explore science in their own neighborhoods. Send them home with the families who participate in your programs.

For Self-Guided Family Programs

Ten activities are provided. Each activity offers a fun, easy-to-do, physically active environmental science exploration that families can do entirely on their own. The activities use simple, everyday materials so families don't have to make special purchases. The activities can be done at local parks or playgrounds, on the street outside their homes, or in their backyards. Each activity contains:

- Background science information
- Activity directions
- Discussion questions
- Handouts, as needed, for collecting data

There are many ways to use these activities in your self-guided family programs: Post them on your website, email or text links to them in your communications with families, or print them out for visitors to your program, park, or nature center. Some programs also hand out copies of activities for families who come to community events or orientation programs. All handouts are **available in English and Spanish**.

Animations

These 12 animated videos feature the PLUM LANDING characters (the nature-loving alien Plum and her five earthling friends) exploring nature in the city. The videos address environmental science concepts, promote connections to nature, and feature examples of wildlife and natural phenomena that are common to cities and towns across the United States (like bees, dandelions, rain, and wind).

Videos are often **used to introduce hands-on activities** for afterschool and family programs. You may also want to **watch the videos on your own to ground yourself** in the science concepts presented, and **email or text links to them** in your communications with families to encourage them to watch them together at home.

Tips for Educators

These **seven short videos provide concrete strategies you can use when working outdoors with kids and families.** Hosted by Jessie Scott, a veteran outdoor educator with the U.S. Forest Service's Urban Connections program, the videos address topics such as managing groups outdoors, adapting science activities on the fly, and



Use the 12 animated videos to capture kids' and families' imaginations and attention.

promoting science skills. An accompanying Viewing Guide highlights the suggestions in the video and provides additional ideas.

These tips can be used in different ways. You may ask new outdoor educators to watch the videos as part of an orientation session, or you may ask more seasoned educators to watch on their own for a refresher on best-practice strategies. Be sure to supplement the videos with information about your own program's policies regarding safety in the outdoors, leading activities with kids and families, and the use of technology.

Tips for Families

These **eight short videos offer parents and caregivers practical advice** on everything from how to get kids to do science outside, to how to stay safe doing science outdoors, to where to find nature in your neighborhood. The videos are hosted by Rue Mapp of Outdoor Afro and José González and Melissa Avery of Latino Outdoors. They are **available in English and Spanish.**

Printable Tips: These **three handouts describe the benefits of exploring nature outdoors, offer tips on how to do so, and suggest citizen science projects** that families can explore together. **They are available in English and Spanish.**

There are **numerous ways you can integrate these resources into your program.** Host an event for families who participate in your program to watch and discuss the videos. You might even want to follow up the discussion by having families do one of the outdoor hands-on activities. Watch them yourself to better understand the concerns parents have and how to address them, or email or text links to the videos and handouts in your communications with families to encourage them to explore together at home.

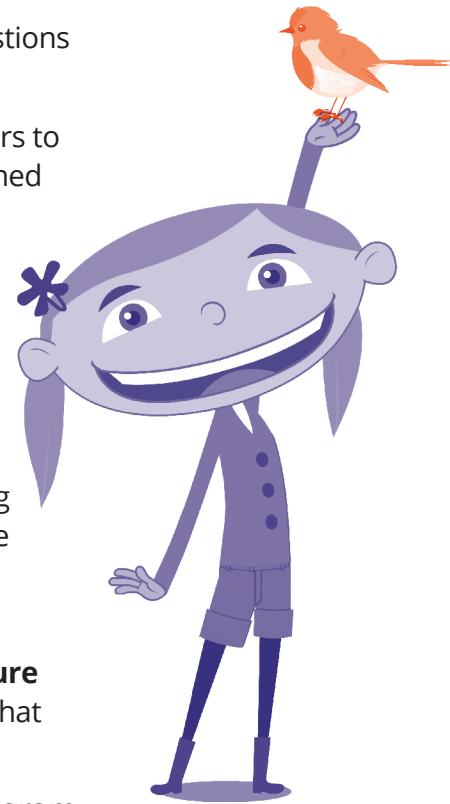
Outdoor Family Fun with Plum App

This **app offers daily activities to get families active, outside, and into nature.** Available for iOS, Android, and Amazon devices, the app helps families build the habit of daily outdoor nature exploration. Whenever they open the app, families receive five new “missions” that ask them to find, count, photograph, and talk about different things in nature—like bugs, plants, shadows, and clouds. Each mission includes a call to action (for example: *Walk around a town center or city block and count the water drains*), a tool for completing the mission (like a counter), and additional tips and information. To encourage families to use the app on a repeated basis, new missions and achievements unlock as families progress.

Outdoor Adventure Badging Program

In this **online feature, kids and families receive an outdoor “mission” from Plum,** then go outside to complete it. Afterwards, they draw and describe what they did using the PLUM LANDING online drawing tool, and submit their drawings for publication on the website. Each time a child or family does so, they earn a digital badge they can save and display on their profile page. There are 24 badges in total, including *Go on a Leaf Hunt*, *Walk in Shady Spots*, *Be an Animal Tracker*, and *Follow the Wandering Water*.

Promote the use of the badging feature with families in your program or **use it with kids in your afterschool program.**



PLUM LANDING's digital tools are a great way to launch a nature exploration!

Games

The city is full of nature—you just have to know where to look! In **Wild City Search**, kids move around a virtual city block, interacting with natural and made elements. Kids can pick up trash, help a rabbit build a nest, create puddles by making it rain—and much more! Each interaction is rewarded with a seed, which kids can plant and tend in a virtual rooftop garden. As time goes by, day changes to night and back to day, plants grow, animals move around, and new interactions become possible. Try it out—what city nature can you find?



Use this game to introduce or extend hands-on activities for afterschool and family programs. You may choose to play the game on your own to ground yourself in the science concepts presented, or email or text a link to it in your communications with families to encourage them to play the games together at home.

The PLUM LANDING website also features other **games about ecosystems**. Try them all!

Promotional Materials

Promoting your PLUM LANDING Explore Outdoors program will help you engage your community. Resources are available to help you recruit kids and families, garner press coverage, and inform potential funders of your work.

Use these promotional materials or create your own.

PLUM LANDING Explore Outdoors promotional video: This video introduces the *PLUM LANDING Explore Outdoors Toolkit* and the PLUM LANDING project.

Watch the video to get a sense of the resources in the Toolkit. You may also want to show the video to current or potential funders, your board, or any time you want to showcase your programming.

PLUM LANDING Explore Outdoors Fact Sheet: This Fact Sheet offers a brief summary of the *PLUM LANDING Explore Outdoors Toolkit* and the PLUM LANDING project.

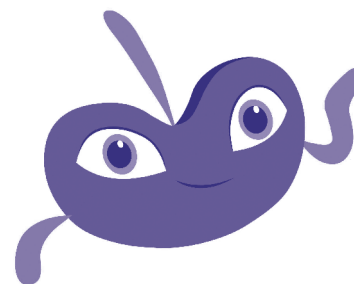
Share the Fact Sheet with educators in your program, current or potential funders, your board, or any time you want to showcase your programming.

PLUM LANDING Explore Outdoors sample flyer: Use the flyer to promote your program to local kids and families and recruit new participants throughout your community.



PLUM LANDING Explore Outdoors sample press release: This sample media announcement helps you get the word out about your PLUM LANDING Explore Outdoors programming to local media.

Additional promotional materials: For additional PLUM LANDING promotional materials, including a customizable press release and flyer, a style guide with fonts and logos, and seasonal social media posts, email: plumlanding@wgbh.org



Why Digital Media and Outdoor Exploration?



Leaders of outdoor activity programs often ask: **Why use digital media when what I really want to do is get kids and families outdoors, moving and actively exploring nature?** Our answer: **Using digital media can actually enhance kids' and families' exploration of nature!** For example, PLUM LANDING videos inspire kids' interest in science topics before they go outside to explore; apps provide ideas, structure, and opportunities for documentation and reflection during families' outdoor explorations; and online games allow kids to interact with science concepts in new ways. Whether it's mapping the number of trees in a local neighborhood, learning how bees communicate, or predicting rainfall, kids' and families' newfound excitement about the subject can get them ready to explore the topic, primed for active outdoor exploration, and eager to engage in deeper learning—and maybe even inspire a trip to a library, museum, or park to make more discoveries. PLUM digital media has the potential to do all this. It's also fun and entertaining.

PLUM LANDING digital resources meet the guidelines of the **American Academy of Pediatrics (AAP)** and the **National Association for the Education of Young Children (NAEYC)** on screen time for young children. The AAP recommends a balanced “media diet.” The NAEYC recommends that media be mediated by adults, giving children the opportunity to talk, use new vocabulary, and actively engage with the media. Accordingly, PLUM LANDING provides short, two- to five-minute animated videos to limit screen time while providing high-quality, developmentally appropriate educational experiences on a variety of environmental science topics. Like books, PLUM LANDING's digital resources can also foster communication and discussion. **Each video, game, or app is accompanied by conversation starters and hands-on explorations** that help you, parents, and other caregivers support kids in delving more deeply into local ecosystems and environmental science topics.

Using digital media can actually enhance kids' and families' explorations of nature!

For example, after viewing a PLUM LANDING video or playing a game, you might use the suggested prompts to help kids and families reflect on the survival strategies and resources used by animals in your community, discuss and model how wind moves objects, learn why plants have exploding seed pods, or share urban myths about nature that they've heard. All the while, kids and families will be fully engaged and participating actively in learning about local ecosystems that exist in and affect life in or near their city or town. **For more tips on how media can be integrated in your outdoor environmental science programs, see “How to Use Digital Tools to Enhance Nature Exploration” in the [Viewing Guide under Tips for Educators](#).**



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Credits



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This guide was created by the Education Department at WGBH Educational Foundation.

Director, Education Department

Mike Mayo

Senior Editors

Sonja Latimore
Jennifer Cutraro

Associate Editor

Christopher Riegler

Outreach Coordinator

Brianne Keith

Writer

Hopping Fun Creations

Project Director

Jessica Andrews

Executive Producer

Marisa Wolsky

Education Development Center (EDC)

Marion Goldstein
Lisa Famularo
Jamie Kynn
Elizabeth Pierson

Advisors

Bo Hoppin
Experiential Education Coordinator
Young Achievers Science and Math Pilot School,
Mattapan, MA

Donna Leong

*Health Program Manager
Institute at the Golden Gate,
San Francisco, CA*

Rue Mapp

*Founder and CEO
Outdoor Afro*

Susan Santone

*Executive Director
Creative Change
Educational Solutions
Ypsilanti, MI*

Jessie Scott

*Program Coordinator
Boston Urban Connections,
U.S. Forest Service*

Tim Vargo

*Manager of Research and
Community Science
Urban Ecology Center,
Milwaukee, WI*

Chris Whitbeck

*Principal
C.T. Douglas School
Acton, MA*

Designer and Illustrator

Elles Gianocostas

Photo Credits

Stephen Burrell
Bill Shribman
Sonja Latimore

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Travis Longcore



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