Viewing Guide

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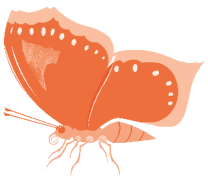
Doing activities outdoors with kids and their families can be very rewarding. You're helping them **learn about and appreciate nature, explore local ecosystems, and change their attitudes about the natural biodiversity** right around them, all while contributing to their overall health. However, you or your staff might encounter some challenges working outdoors, such as managing large groups, keeping kids and families active and engaged, dealing with disruptive and distracted kids, and seamlessly integrating science concepts and promoting science skills.

We've created **seven sets of video-based best practices for promoting kids' and families' outdoor explorations.** This Viewing Guide summarizes the strategies shown in each video and provides additional tips. Use this guide to **ground yourself in best practices for outdoor science exploration** and to **train the educators** working in your program. Watch the video(s) to enhance your facilitation skills, then use the resources below to cement your learning.



How to Prepare for an Outdoor Science Activity

1. Decide on two to three key science concepts you want kids or families to learn.

- **PLUM LANDING's hands-on activities highlight the key science concepts** they are intended to address, but consider whether there are other concepts specific to your local environment that might engage kids and families.
- **Repeat and reinforce science concepts throughout the activity.** For example, if you do a Warm-Up activity that introduces the different ways plants spread seeds (through wind, water, animals, and explosive force), come back to those science concepts over and over in the main activity and extension activity. You might have the group take a walk to observe and compare different plants and seeds and how the seeds got where they are. Then have them pretend they are the water, wind, or animal carrying the seeds, or seeds exploding with force.

2. Make the science local.

- **Connect the activity to your local environment.** The group will be more engaged if they see plants, animals, and ecosystems they are familiar with. Carefully review the hands-on activities you plan to use before implementing them. What opportunities are there to insert local species or environmental features? For example, you might explore the monarch butterfly in the Midwest, or sagebrush in the Southwest.
- Some hands-on activities include **regional plant and animal fact cards** to help you localize your nature explorations. Choose the cards for your region, or review all the cards and select those that are appropriate for your location.

Think about how you might use the cards to identify and explore local plants and animals in the activities. You might also want to integrate details about your local weather or water systems.

- You might also want to **do a little extra research on other plants and animals that live in your city or town.** Contact community environmental organizations (and local chapters of national groups) to get more information and learn about local issues, projects, and events.

3. Review the activity beforehand.

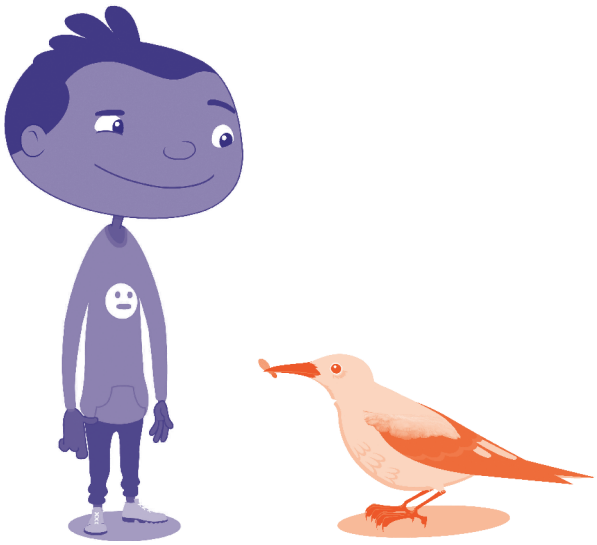
- **Do a careful read of the activity.** Consider how the key science concepts can be reinforced throughout the activity. Consider what adaptations you might make to simplify or further reinforce the learning.
- **Do the activity at least once yourself, or with a co-leader,** so you can better anticipate the kinds of questions the group might ask.
- **Scout out a good location for the activity** ahead of time and think through how the activity will play out in this setting, noting ways the activity might play out in that particular environment (see #2 above), or adapt it to better suit the environmental conditions. For example, you might approach an activity looking at leaves differently in the fall, when leaves are on the ground, than in spring or summer, when leaves are on the trees.
- If the activity involves a nature walk, **preview the route before leading the walk,** noting unique or special science features (like birds' nests or tree roots sticking up above the pavement), and practice what you want to say.

4. Gather and pack your materials ahead of time.

- Be sure there are **enough materials for all kids and families, and bring extras.** It can be frustrating to share materials or not get to do the activity at all.

5. Take necessary safety precautions.

- **Walk through the area ahead of time.** Look for issues such as poison ivy, broken glass, beehives, etc. Take your time—you'll need to go slowly and carefully in order to spot any potential hazards.
- **Alert parents and caregivers in advance** about any **precautions they may need to take** for the outdoor activity, such as wearing appropriate shoes for a walk in the woods, applying sunscreen on sunny day, or bringing a jacket on a cool day.
- **Bring a first aid kit and carry a cell phone.** Be sure your cell phone gets reception and is fully charged.
- **Make sure you are aware of and in compliance with your program's specific safety policies.**



How to Promote Science Skills While Exploring the Outdoors

1. Encourage kids and families to do what scientists do: Wonder, question, explore, and reflect on what they see.

- **Think about the activity location.** What topics or questions might pique your kids' and families' interest? How could you adjust the activity for further exploration?
- **You don't need to answer all kids' and families' questions. There is value in just wondering.** Noticing what the group is interested in, and showing that you'r interested as well, can lead to further exploration.
- **Keep a list of the group's unanswered questions** and consider pursuing them later.
- **Follow kids' and families' interests** as far as you can, especially if they are related to the science theme or concept. Give them a few minutes for open exploration even if it's a little off-topic. Promote observing and describing rather than naming. You might reinforce observations by having kids and families write them down or draw them. Have them share their observations with the group.

2. Ask questions that encourage investigation.

- For example: Do you see or know of any places that might make good stopover sites for migrating birds? How far do the seeds from this plant need to travel to reach soil?
- **PLUM LANDING's hands-on activities provide you with talking points and questions** to ask to increase kids' and families' science learning. But think about your local plants, animals, weather, and water systems. What might kids and families be particularly interested in? How could you promote their active investigation of these topics? What would you ask them or have them do?
- **Try not to quiz the group about facts.** Instead, ask questions that require them to observe, predict, or measure. For example: What will happen if you pour the water on soil? On pavement? Can you jump 20 times your height, like a grasshopper? What different types of plants did you find? How far were you from the squirrel when it ran away?

How to Keep Kids and Families Engaged in Outdoor Science Activities

1. Make it local.

- **Connect your science exploration to your local environment** to make it more relevant for kids and families.
- **Some PLUM LANDING activities suggest using resources like the *Audubon Guide to North American Birds*** to help you integrate details about local plants and animals. You might want to contact a community environmental group or research local weather or water systems to customize the activity to your environment.

2. Make it social.

- **Start an activity with an icebreaker** to get everyone talking and moving. Many families sign up for outdoor activities to meet others, and setting the stage for them to enjoy positive social interactions will keep them coming back to your program. Some PLUM LANDING activities provide Warm-Up suggestions for this purpose.
- **Got a good icebreaker** or warm-up activity of your own that is related to the activity topics? **Use it!**
- **Mix it up! Have kids and families work together in different groups.** This promotes social engagement and collaboration that often enhances the group dynamic. Match kids with kids, kids with adults, and adults with adults. Have groups count off and group themselves by odd or even numbers. To enhance this social bonding, you might want to keep the whole group together instead of breaking into small groups or pairs.
- **Many PLUM LANDING activities include suggestions for grouping kids** and families as well as talking points to help them share their ideas and what they already know about the science topic. You can adapt these features to your group's needs.
- Set up a friendly competition to get the conversation flowing.

3. Make it active.

- **Keep the group active** and try to minimize the amount of time they are sitting and listening. Some things you could do:
- **Ask a lot of questions.**
- **Get physical! Get them up and moving,** whether it's acting like a bee communicating with other bees or moving like a tornado. Keeping families actively involved will hold their interest and enthusiasm.
- **Keep things varied.** For instance, if you are moving from one location to the next, try skipping or moving like an animal rather than walking. Or try adding a task, such as counting the number of birds or trees you see along the way.
- **Use natural props.** For instance, have the group stand near a plant to show them its leaves instead of talking abstractly about leaves.

4. Go with the flow.

- **Connect distractions to your activity.** If kids and families are distracted by interesting plants and animals in the environment, see if you can incorporate them into your activity. For example, if you're exploring biodiversity and the kids see tadpoles, have a discussion about what they are and what they will become (frogs). Ask kids to count or estimate how many tadpoles there are and why there are so many/so few.

How to Manage Group Exploration of the Outdoors

1. **Set the stage.**
   - **Begin with a warm-up activity** to get the group moving and listening to your directions. Adapt the suggested warm-up to work better with your group size and interests.

2. **Redirect disruptive or distracted kids.**
   - **Assign them a task** like handing out materials, writing down observations and measurements, or keeping track of the group's progress.
   - When you scout out your activity location, **see if you can find another location if there are lots of unrelated distractions.**
   - **Have ideas of your own for minimizing kid disruptions** or distractions? Use them! Try to make sure they are related to the science theme or topic

3. **Keep things interesting.**
   - **Keep things varied** to hold kids' and families' interest. For instance, try adding a task to your walk, like counting the number of birds you see along the way or hop in patterns (two rabbit hops, one wing flap, repeat). Older kids can track the number of repeating patterns to a destination.

4. **Know where everyone is.**
   - **Set physical boundaries** for the activity and make sure everyone knows how far they are supposed to go.
   - **Do a periodic head count.**
   - **Set up a signal and a home base** for when and where everyone should return

How to Adapt Outdoor Science Activities on the Fly

1. **You have extra time.**
   - **Have a backup plan,** like an extra related activity. Use the Explore Some More extension ideas, or use your own.

2. **You run out of time.**
   - **As soon as you know you are running late:**
     - Decide which components of the activity you will shorten or cut. For instance, you might decide to do the main activity but not the video watching, or you might skip the Warm-Up. All activities are stand-alone resources, although the parts build on and cement kids' and families' grasp of the science concepts.
     - Make the exploration into two sessions instead of one. You can add the Explore Some More activities to fill in the extra time in the second session, if needed.

3. More people show up than planned.

- **Always bring extra materials** to accommodate a bigger crowd.
- **If you have an assistant,** split into two groups to make things more manageable.
- If you're working with families, **recruit a parent, an adult caregiver, or an older sibling** to distribute materials and record observations.
- **Expect that the activity may be louder** and **take more time** if there is a large group doing it.

4. Kids are too young or old.

- **Advertise the target age** ahead of time.
- PLUM LANDING activities are designed for kids 6 to 9 years old and their families. However, **kids are at various developmental levels,** and **families may show up with younger and older siblings. Check the Toolkit for strategies and tips,** such as having older kids document the exploration via photographs, do more challenging tasks, and assist younger siblings.
- If you work with mixed-age kids, **review your activity** ahead of time **for possible additional adaptations by age.** What would your modifications look like?
- **If you end up with a wide range of ages,** separate older and younger kids and ask them to do modified versions of the same activity. Alternately, older and younger kids can work in teams, with the older child taking on a leadership role.
- **Think about ways you could involve the kids' parents and caregivers.** Could they do a modified version of the activity with the older or younger kids? Give them some quick tips and materials, and see what happens.

5. The weather is not ideal.

- **The PLUM LANDING activities cover a range of weather conditions,** including rain, snow, and hot or cold temperatures. Nevertheless, check the weather forecast so you can plan accordingly.
- **Let kids and families know you will be outside** no matter the weather and request that they dress appropriately.
- **If the weather turns cool,** increase the physical activity to keep people warm.
- **If it's warmer,** decrease the physical activity and try to stay in the shade.
- **If you expect hot weather,** either bring bottled water or make sure you know where the nearest working water fountain is.
- **The weather can spark some spontaneous science explorations,** such as following the flow of rain to a storm drain or making a flying "snow bird" (like a snow angel). Be flexible, look for opportunities, and try to take advantage of them.
- **If all else fails:**
  - Consider that sometimes you just have to get wet.

- Substitute an Explore Some More extension activity that is more suitable to the day's weather conditions.
- Have an alternative activity on hand, just in case.
- Try to adapt the activity so that it will still work. For instance, could you use images of plants or animals to explore the science concepts indoors, then maybe do it again outdoors when the weather improves?

How to Use Digital Tools to Enhance Outdoor Science Exploration

1. **Think about how and where you want to access the technology.**
   - **If you are planning on having the group watch a video, use an app, play a game, or take photos, there are many ways you can integrate the technology needed. Consider the following ideas:**
     - Start or return to your center to show the videos, use the apps, or play games.
     - Download the apps and videos to your programs' tablet(s) or other mobile device(s) to share with the group anywhere.
     - Ask families to bring their mobile devices and lead them in downloading the PLUM LANDING digital tools that you want to use. Make sure to have extra devices on hand.
     - Provide quick introductions to the digital apps and games, as needed. Some families may not be tech-savvy. Figure out what instructions you will provide and how long it will take. Perhaps an assistant can give a quick tutorial. Consider if the whole group or a portion of it will need help.
     - Encourage families to download and use PLUM LANDING's digital tools at home. You might do this during program sessions or via email or text messages.
     - Create a shared mobile-device lending library, with the apps and videos already downloaded for families to use at home.

2. **Try out all tools yourself before using them with a group.**
   - **Think about what issues might arise** when families are using technology. Problem-solve ahead of time.

3. **Ask kids and families to take photos or record video or audio as they explore.**
   - **Ask kids and families to talk about their photos or recordings** with the group.
   - **Publish the kids' photos, recordings, and drawings.** The idea of having their work on display will keep kids engaged and inspire them to work harder. **However you use their photos and recordings, be sure you are complying with your organization's safety and privacy policies.**

- You might publish the materials in your organization's newsletters or on social media.
- Think of some other places in your community where you might publish kids' and families' materials, such as libraries, parks and recreation centers, community centers and businesses, your community newspaper or local cable channel, and so on.

4. **Use mapping tools like GPS or Google Earth to give kids a sense of the larger environment.**

5. **Download apps, like virtual field guides, to enhance kids' and families' exploration of the outdoors.**

How to Help Families Feel Comfortable in the Outdoors

1. **Address families' concerns about crime in city parks and streets.**
   - **Scout out your activity location to assess its safety.** Is it populated with kids and families? Do they seem to be relaxed and enjoying the location? You might want to talk briefly with these families about their experiences in the space before bringing them there.
   - **Encourage families to visit a popular park** during the day when lots of people are there, and suggest they invite another family or two to come along.
   - **Bring a cell phone** and **learn where emergency phones and help** (e.g., park staff, if any) are in the park.
   - After you visit a local park or green space with kids and families, especially those that have concerns about safety, **discuss their experiences.** Point out how good it felt to be in the park and how pleasant the experience was.

2. **Setting rules will help kids and families feel more comfortable outdoors and know what to do in various situations, such as:**
   - **Inform you if anyone is making them feel uncomfortable,** whether it's a child or an adult.
   - **Do not pick up any unfamiliar animals, plants, or objects.**
   - **Don't eat anything** off the ground!
   - **Stay with the group,** your family, or your buddy.

3. **Provide tips to address families' concerns about health-related issues, such as sunburn, insects, and poison ivy.**
   - Encourage families to **apply bug spray** to keep ticks and mosquitoes away and to put on sunscreen before leaving the house.
   - **Show them** what **poison ivy or other poisonous plants** look like so they can avoid them.

- **If you encounter potentially dangerous animals or places** (such as bugs, spiders, bats, or caves), acknowledge the danger and provide reassurance to families. For instance, you could say: "We will be walking by flowers with lots of bees pollinating them. The bees are busy drinking nectar. If we don't disturb them, they are likely to leave us alone."
- **Make sure you are aware of any allergies** the group members have—for instance, to certain plants or bee stings—and take precautions or adapt the activity to eliminate the danger.
- Reassure parents and caregivers that **you always carry a first aid kit**.
- Suggest that kids **take a shower or use a lint roller** on their clothes after they go home, to sweep away any bugs that have hitched a ride.
- Advise parents and caregivers on **how and why to check for ticks** before bath or bedtime.

4. Help build confidence in families who lack experience in spending time outdoors.

- **Ask families** beforehand about their concerns about the outdoors so you can develop strategies to address them.
- **Give** families **clear directions** so they know what to do outdoors.
- Consider **pairing families** to provide support to one another.
- **Ask families to take the lead** whenever possible to help strengthen their ability to do outdoor activities on their own.
- Families, especially those that live in larger cities and towns, may think there is little nature around them. They may equate nature with large open green spaces, like state forests, nature preserves, or "the country." **Point out that nature is everywhere,** even in sidewalk cracks where plants grow and animals like ants thrive. **PLUM LANDING activities can take place in a range of locations,** including parks (paved or not), playgrounds, state and national parks, even families' backyards or the sidewalk outside their homes!
- **Distribute PLUM LANDING activities and tip sheets** to provide families with ideas for exploring nature. These can help families become familiar and comfortable with leading activities on their own and doing activities outdoors.

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