

INTERNATIONAL SCHOOL GROUNDS MONTH ACTIVITY GUIDE



INTERNATIONAL SCHOOL GROUNDS ALLIANCE
internationalschoolgrounds.org



In May each year, the International School Grounds Alliance calls on schools around the globe to take their students outside to celebrate their grounds during International School Grounds Month. We believe school grounds are increasingly critical public spaces for the healthy development of children and youth.

School grounds should be places where young children can experiment with gravity by playing with water in their sandbox, use acorns to explore math concepts, build forts with friends, and engage all of their senses to explore their physical and natural surroundings. Older youth can use the school grounds to calculate sun angles, raise and prepare healthy foods in their school gardens, and analyze stormwater flows across their school ground landscapes. The possibilities for engaging children and youth with hands-on outdoor activities on school grounds are bounded only by imagination.

This *International School Grounds Month Activity Guide* contains over 100 activities written by 73 organizations around the globe for children and youth between the ages of 3-18 years old. More than 130 additional school ground activities can be found in the second book in our set, the *Living Schoolyard Activity Guide: United States Edition*, produced by our colleagues at Green Schoolyards America. These two books follow the same format, but include different activities. We encourage you to download both and use them together.

The activities in this set demonstrate the wide range of potential uses for school grounds—from providing a space for place-based science and artistic expression to fostering imaginative play and community engagement. School ground activities can be implemented before, during, and after school, during class time or during free time. The *Activity Guides* also provide compelling arguments for including outdoor time in the school day, and shaping school grounds to facilitate the well-being of children and the environment.

We hope this *Activity Guide* set will encourage schools around the world to take their students outdoors in May and use their school grounds to their fullest year-round.

Visit internationalschoolgrounds.org for free digital copies of both *Activity Guides*.

The **INTERNATIONAL SCHOOL GROUNDS ALLIANCE** is a global network of organizations and professionals working to enrich children's learning and play by improving the way school grounds are designed, used, and managed.



INTERNATIONAL SCHOOL GROUNDS MONTH

Activity Guide



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The ISGA greatly appreciates the collaboration of 73 author-organizations from 27 countries and extends our sincere and heartfelt thanks! Please see page 170 for a directory of contributing organizations and a global map of their locations.

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Education Outside, United States (2013-2014)
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Citations included throughout this book refer to the reference numbers listed below. Introductory article and chapter heading text © 2010-2018 Sharon Gamson Danks, adapted from materials previously published by this author.

- ¹ Danks, Sharon Gamson. *Asphalt to Ecosystems: Design Ideas for Schoolyard Transformation*. Oakland, California, United States: New Village Press (November 2010).
- ² ---. "The Green Schoolyard Movement." *The New Nature Movement: Guest Columns, Children & Nature Network* (February 6, 2014). Reprinted in this publication as "The School Grounds Movement," with author's permission.
- ³ ---. "The Power and Potential of Green Schoolyards." *The New Nature Movement: Guest Columns, Children & Nature Network* (February 7, 2014).
- ⁴ International School Grounds Alliance: "Risk in Play & Learning: Ubud-Höör Declaration." International School Grounds Alliance (September 2017). internationalschoolgrounds.org/risk/
- ⁵ This section about "Self, Belonging, and Purpose" on page 63 was inspired by the Children's Wellbeing Initiative, a collaborative effort driven by a diverse network of change leaders, incubated by Ashoka, and supported by the Robert Wood Johnson Foundation. childrenswellbeing.com

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International School Grounds Month — Celebrate in May!

In May each year, the International School Grounds Alliance calls on schools around the globe to take their students outside to celebrate their grounds during International School Grounds Month. We believe school grounds are increasingly critical public spaces for the healthy development of children and youth, and shape their experience of the world around them.

There is no right or wrong way to take part in International School Grounds Month. You could take academic lessons into your grounds, promote play outside, camp out in your schoolyard or invite parents to the school to watch a play outdoors.

Time spent outdoors could be an hour, a day, or even a week! It could be during class time, during free time, or before or after school. Consider involving parents, community members, and other school staff who do not typically interact with students. Use the ideas in this *Activity Guide* or create your own!

Be sure to visit our website during and after the month of May to read the stories written by other schools, near and far:

internationalschoolgrounds.org

We look forward to hearing about your work and hope you enjoy your school ground celebrations in May—and throughout the year!

Share your celebration

Please tell us about your school ground adventures by sending us the following information:

- Name of your school
- School's location: city, state or province, country
- A brief description of how you celebrated International School Grounds Month (100-400 words)
- Photo(s) showing your activity in progress
Please confirm you have permission to use the images and to share them with the public in print and online.
- Contact name and email address
- Age range and number of participating students
- School or project website
- Please submit this information by email to: info@internationalschoolgrounds.org

We will share many of the activity reports we receive by posting them on our website and social networks. Thank you!







About this Guide

The *International School Grounds Month Activity Guide* is the result of a fruitful collaboration between the International School Grounds Alliance and our colleagues at 73 organizations in 27 countries around the world. We hope this collection will inspire you to dream up outdoor activities for your own school, wherever you live.

This *Activity Guide* is divided into chapters that focus on a variety of themes that illustrate the ways that school grounds can be used before, during, or after school hours. Each chapter's introduction provides a broad overview and rationale for the theme, and describes the types of activities included in that chapter. Since many activities provide multiple benefits or have multiple uses, many chapters also reference activities found in other parts of this book.

There are 104 activities in this *Guide*. Each has its own page that contains all of the information needed to successfully complete the project, including directions and a list of any necessary materials. Each activity has a proposed age range, although activities can often be adapted to serve a broader range of students. Many of the projects can also be adapted for other age groups. A directory of the author-organizations that contributed their ideas to this book is included on page 170.

The *International School Grounds Month Activity Guide* is intended to be used with its companion, the *Living Schoolyard Activity Guide*, produced by our colleagues at Green Schoolyards America. For more information about how to download the second book with additional school ground activities, please see page 181.

Both of the school ground *Activity Guides* in this set are updated regularly with new activity ideas. Please visit our website to download a free copy of the most recent version: internationalschoolgrounds.org

International School Grounds Alliance

The International School Grounds Alliance (ISGA) is a global network of organizations and professionals working to enrich children's learning and play by improving the way school grounds are designed, used, and managed. The ISGA:

- Promotes children's participation in school ground design, construction, and stewardship
- Advocates for inclusive, universally accessible, and sustainable school grounds
- Facilitates a dialogue about innovative research, design, education, and local and international policy
- Fosters partnerships between professionals and organizations across the globe
- Organizes international conferences and programs
- Promotes enriched school grounds as uniquely positioned, engaging environments for children
- Supports the United Nations' Sustainable Development Goals (2015-2030)







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The School Grounds Movement

When you think about typical school grounds, what image first comes to mind? For many people, school grounds are places covered by paved surfaces and manicured sports fields, adorned with a few, simple shrubs and trees, and one or two ordinary climbing structures. Most school grounds look the same, with very little variation to reflect unique aspects of each school community, the neighborhood’s ecological or geographic context, or teachers’ preferred curricula.

Children are masters at reading what Wendy Titman calls the “hidden curriculum” of school grounds, and understand the value adults place on them through the level of care given to their surroundings. The messages most traditional schoolyards send children about their place in the world is not reassuring—particularly in our cities where many school sites are paved and are home to very few living things.

Outside of school, spaces children can explore on their own have been shrinking over the last few generations, reducing children’s domain from miles of free ranging territory to the limited zone between home and the end of the block. School grounds are now one of the only places many children are allowed to play outdoors on a daily basis, and they are increasingly important for fostering children’s health and development. With this in mind, schools have a special responsibility to provide the next generation with outdoor experiences that help them develop their curiosity, their sense of adventure, a healthy lifestyle and a love of nature.

A green or “living” school ground movement is gaining momentum around the globe and has the potential to improve the lives of every child, every day. Schools are reshaping their

traditional grounds, designed for 1940s educational methods, and creating beautiful, ecologically diverse landscapes with an eye toward the future. School ground greening creates rich environments that connect nature and environmental sustainability with place-based learning, hands-on curricula, and imaginative play, while also building community.

The movement is growing around the world, and we invite you to join us in this vitally important work.

What are living school grounds?

“Living school grounds are richly layered outdoor environments that strengthen local ecological systems while providing place-based, hands-on learning resources for children and youth of all ages. They are child-centered places that foster empathy, exploration, adventure and a wide range of play and social opportunities, while enhancing health and well-being and engaging the community.”

—Sharon Danks, Green Schoolyards America



WHY ENRICH SCHOOL GROUNDS?

Teach place-based understanding. Living school grounds provide opportunities for students to tune in to their surroundings and get hands-on experience with nature while gaining a better understanding of their own neighborhoods. They help children mark the seasons with changes in wildlife migrations, colorful leaves in autumn, and the length of shadows on the ground. They bring watershed education to life, as classes step outside when it rains to watch the water flow off their school building, through a downspout, and out into the school's rain garden or cistern. Many excellent, low-cost educational resources sit right outside the classroom doors, waiting to be tapped.

Practice stewardship. Ecologically-rich schoolyards address important environmental issues in ways that even young children can participate in and understand. Students can identify place-based environmental concerns themselves and become empowered to repair them, enriching their own corner of the world with their ingenuity. While these individual actions may be small, together these projects can fundamentally improve the local environment and profoundly change the way that students understand their place in the world. This is an inspiring and optimistic way to approach the field of environmental education.

Foster adventure, wonder, and health. Green school grounds foster children's social, physical and intellectual growth by providing settings for imagination, exploration, adventure and wonder, and serve as dynamic environments in which to run, hop, skip, jump, twirl, eat and play in active, challenging and creative ways. Enriched school grounds provide child-driven, play-based solutions to obesity problems and can promote healthier lifestyles through increased physical activity and nutrition-oriented gardening and cooking programs.

Engage the community. Living school grounds teach ecological literacy, invigorate children's bodies, open and inspire young minds, and knit our communities more closely together in the process. Successful green schoolyards are the product of many hands that harness the collaborative potential of their school communities. Cooperation among community members reinforces interdependence, local self-reliance and a sense of community creating useful, beautiful places at low cost. When parents, teachers and students work together to improve their school and grounds, they foster closer relationships that in turn support student achievement and well-being. This movement shifts the way society views these important, shared public spaces, and supports school district land management efforts with the energy of community partners.



The transition from a traditional, paved schoolyard to a living schoolyard can be dramatic and opens up a variety of opportunities for children to learn, play and explore.



MODEL THE FUTURE YOU WOULD LIKE TO SEE

Well-designed green schoolyards model the ecologically-rich cities we would like to inhabit, at a smaller scale, and teach the next generation how to live more lightly on the Earth—shaping places where urbanization and nature coexist and natural systems are prominent and visible, for all to enjoy.

They inspire students and their communities with organic food production, wildlife habitat, energy conservation and production, rainwater collection and management, sustainable design practices, and creative artwork. By teaching students to explore their environment with their hands, hearts, and minds—whether they are climbing into a tree house or tackling the challenges of the surrounding world—living schoolyards help us to plant seeds that will blossom as children grow up and help to shape an ecologically literate society.

We are all important participants in the green school ground movement. You can help it reach its potential to touch children in every neighborhood—by starting with your own. Get a conversation going with your neighbors, the principal at your local school, and your school district administrators. Dream of the school environment you would like to see for our children, and then help to shape this reality at your local school. The schoolyards of tomorrow will be what you and your community make them.



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Reference: This introduction by Sharon Danks was first published as an article entitled, “The Green Schoolyard Movement,” in the Children & Nature Network’s *The New Nature Movement: Guest Columns* blog, Feb 6, 2014. Photos and text © Sharon Gamson Danks, 2005-2018.

Environmental city planner Sharon Danks, MLA-MCP, is CEO of Green Schoolyards America, based in Berkeley, California, United States. She is a co-founder of the International School Grounds Alliance and the author of the book, *Asphalt to Ecosystems: Design Ideas for Schoolyard Transformation*. Her work transforms school grounds into vibrant public spaces that reflect and enhance local ecology, engage the community, and nurture children as they learn and play.







Art

Living school grounds provide settings and inspiration for creative projects ranging from writing assignments to drawing, painting, mosaic, nature art, sculpture, music, dance, and theater.

Creative Expression. Schools can diversify the recreational offerings they provide to students of all ages during their outdoor free time by including an array of inexpensive or natural visual arts materials among their supplies. Unstructured “art time” allows students to get their hands dirty and express themselves creatively in ways that are not always possible during the rest of the school day. Schools can also provide supplies and encourage students to use their free time for their own writing, music, dance, and theater projects.

Outdoor Studio. Students of all ages benefit from art studio spaces that allow creativity to blossom—and that are easy to clean, comfortable, inviting, and spacious. Enriched school grounds can include formal or informal outdoor art studios that increase teaching space and accommodate messier art forms that are more difficult to practice inside. Almost any outdoor space can be a “studio” for art-related projects. The environment that surrounds the chosen work space often inspires creative reflection that echoes in the artwork created there. Outdoor studios also sometimes provide natural materials that become components of the finished pieces.

Outdoor Exhibits. Outdoor art installations turn ordinary school grounds into beautiful, memorable places that delight the eye and speak to the heart, while also showing students the school community cares about their environment. Temporary and permanent schoolyard artwork can reflect local culture, highlight regional ecosystems, and instill school spirit.¹

Chapter Notes. The art activities that follow are organized according to the types of materials they use and their mode of creation. All of the art activities in this collection foster creative expression and many can be adapted to become outdoor exhibits.



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MAKE YOUR OWN VINE CHARCOAL (GÖRA RITKOL)

AGES

6–18+ years old

CONTRIBUTED BY

Naturskolan i Lund
Lund, Sweden
lund.se/naturskolan



© PLAY LEARNING LIFE

Vine charcoal is a lovely, expressive art material that is very useful for sketching and drawing—and can be created from supplies you find on your own school ground. Below are two different methods for creating your own vine charcoal.

METHOD #1: FOR MANY PIECES AT ONCE

MATERIALS

- Sticks from hazel or lime trees, straight and as thick as your finger. It's often easy to find sticks during springtime when the trees near schools are pruned back. If you want, you can keep them for use later on. You can probably use sticks of other wood as well. Try what you find near your school!
- Tin can (e.g. bean or tomato tin)
- Tinfoil to cover the tin
- Dry sand (you can use sand from the sand pit in your school ground.)
- Saw, knife or a pair of pruning shears to cut the sticks into the lengths you'd like to use.
- Firewood and a good place to make the fire

DIRECTIONS

Cut the sticks to the same length as the height of the tin. Pour the sand into the tin, nearly all the way up to the brim. Drive the sticks firmly into the sand. Make sure that the sticks are evenly spaced.

Cover the tin with a few layers of tinfoil, so the covering gets nice and thick.

Put the tin into the fire and let it stay there for 30–45 minutes. Allow the tin to cool down a little before emptying. And now you have your vine charcoal!

METHOD #2: FASTER METHOD

MATERIALS

- Sticks from hazel or lime trees, straight and as thick as your finger.
- Tinfoil
- Awl
- Tools to cut the sticks into the lengths you'd like to use.
- Firewood and a good place to make the fire

DIRECTIONS

Wrap a stick, approximately 5 cm (2 in) long, entirely in the tinfoil. Make sure the tinfoil covers the stick completely. Use the awl to make a hole through the tin foil and into the stick. This will become the chimney for the stick.

Put the stick into the fire and wait for 10–15 minutes. The time the stick needs to be in the fire depends on the stick's thickness, if the stick is fresh or dry, and the fire's temperature. Watch for smoke from the "chimney". In most cases, some smoke (steam) can be observed. When it stops, pull the stick out of the fire and carefully open the tinfoil to check if the vine charcoal is ready. If it's not, just wrap it up again and put it back into the fire.

Don't let the stick stay too long in the glow as it will become very brittle and may break into small useless pieces. A perfect piece of vine charcoal will be uniformly black, but holds together well enough to be a sturdy drawing tool.

THE FINE ART OF FLOWER POUNDING

AGES

7–17 years old

CONTRIBUTED BY

Life Lab

Santa Cruz, California, United States
lifelab.org



© LIFE LAB

In this activity you will harvest flowers with students and then pound their colors on to paper, leaving a beautiful flower print behind. What kid doesn't love hitting things with a hammer?

MATERIALS

- Cutting board
- Dishtowel
- Fresh flowers and leaves
- Hammers
- Wide painter's tape
- Watercolor paper cut into bookmarks or note cards

DIRECTIONS

Place a cutting board on top of a dishtowel. Place a piece of watercolor paper on top of the cutting board.

Harvest a handful of fresh flowers and leaves. Note that some flowers work better for flower pounding than others, so harvest a variety to test them.

Cut the stems and as much of the green back off of the flowers as possible. If the flower has a large center, remove it and use only the petals.

Place the flowers and leaves face down on the watercolor paper. For large flowers, only place the petals on the paper.

To remove some of the tack from the painter's tape, stick it to your pant leg once or twice.

Now cover the flowers and leaves completely with a single layer of painter's tape.

Pound on the tape with a hammer, making sure to hit each section multiple times. You can place a phone book below the paper to dampen the noise.

Carefully peel off some of the tape and peek at the paper to see if any area needs more pounding.

When you're satisfied with the print, peel off all of the tape. The colors should have left a print on your paper.

Remove any flower or leaf pieces that are still stuck to the paper.

Allow the paper to dry and use it as a note card, bookmark, or anything else you can think of. Laminating the bookmarks makes for a nice finishing touch.



© SHARON DANKS



MOUNTAINS, NOTHING BUT MOUNTAINS

AGES

6–12 years old

CONTRIBUTED BY

Karel Komárek Proměny Foundation

Prague, Czech Republic
nadace-promeny.cz



© KAREL KOMÁREK PROMĚNY FOUNDATION

Look around your schoolyard. Are there any mountains there? No? What if you were as small as a tiny beetle—then would the landscape seem mountainous? In this activity, students imagine what it would be like to be very small on their schoolyard. Use this as a way to bring awareness to every last piece of the garden—its sections, its details, its materials, and its shape. It is also a fun way to introduce the concept of perspective in art.

MATERIALS

- Things from nature—sticks, shells, moss, straw, etc.
- String
- Wire
- Scissors
- Hot glue gun (optional—for older children)
- Textiles
- Paper and pencil, pens, or markers
- Cameras (optional)

DIRECTIONS

Ask students to imagine that your schoolyard is a small landscape in the countryside, and that they are as small as your thumb. At this scale, they would be running among pine cones and flowers as if they were mountains and tall trees!

Go outside and allow students time to explore the unevenness of the terrain in the schoolyard. They may have to get on their bellies and slither or crawl around to get an up-close view! (This is a great time to explain what valleys, lowlands, hills, cliffs, and mountains are to students, and why rivers flow faster and slower in places with different topography.)

Further this imaginative exercise by creating small figures and placing them in the landscape. Try using things from nature like sticks, moss, grass, dried flowers, nuts, and fabric. Connect materials with string or fibers they find on the yard. Older children can use wire and a hot glue gun.



After the figures are made, students can choose a small spot to place their figure. They can even build a home for it there, using blocks or other natural and found materials.

Once the figures are placed, students can observe the optical illusion that happens if you get down close to your figure and look out at the school grounds from down low. The world beyond the figures appears enormous! (For inspiration, see Fratišek Skála's works, especially the children's book *Cecil's Quest*.) Students can create drawings from this perspective, or, if you have access to cameras, take photos from this perspective.

Conclude by sharing the photographs or pictures of their fictional landscapes. Discuss their creations and how this activity has affected their perspectives on the schoolyard or students' attitudes towards specific elements in nature like pebbles, grass, or insects. The class can even debate the pros and cons of your school's terrain features—would you like to have a large hill in the garden? What would you do on it?

WEAVING WITH PLANT MATERIALS

AGES

4–12 years old

CONTRIBUTED BY

Ayesha Ercelawn, La Scuola

San Francisco, California, United States
lascuolasf.org



© AYESHA ERCELAWN

A beautiful variety of plant materials can be used for weaving outdoors. This activity can range from simple to complex depending on the children's age and prior experience with weaving. You can create a simple cardboard loom for individual projects, construct a large wooden loom for group projects, or weave a beautiful fence using sticks pushed into the dirt. For plant weaving materials, the primary criteria is flexibility.

MATERIALS

- Loom(s) made from wood or cardboard
- Yarn, scissors, and small plant clippers
- Strong twigs and a variety of flexible plant materials



DIRECTIONS

To create a simple cardboard loom for small, individual weavings, use any strong piece of cardboard. To create a weaving project that can be finished in one sitting, use pieces approximately 8 in x 11 in (20 cm x 28 cm) each.

Cut short 1 in (2 cm) slits in the cardboard, about ½ in – 1 in (1 cm – 2 cm) apart. Do this on both ends of the cardboard, making sure the slits line up with each other vertically.

Use your yarn to warp the loom on one side. On the back, you will make a loop from one slit to the next to come back to the front. Leave a long piece of yarn at the start and at the end (start and finish at the top of the loom).

Let children experiment with a variety of materials. Make sure each row/weft they weave is pushed up close to the previous one.

There are several ways to finish the weaving. The easiest is to just leave the weaving on the cardboard loom. But if you want to take it off, gently slide yarn loops off the top and bottom and weave the yarn and leaf ends into the back side. Or you can add a twig on the top and bottom, by weaving them in, to create a hanging.

STONE CARVING

AGES

8–18 years old

CONTRIBUTED BY

Grün macht Schule
Berlin, Germany
gruen-macht-schule.de

Children love challenges and working with stone is perfect for them. They have the physical power they need to use sculpture tools and will find it very satisfying. The stone art-pieces are nearly indestructible so kids of all ages can play or sit on them. Years later, they can find the stone and say, “I made this when I was 10!” Don’t hesitate, they will love it!

MATERIALS

- Blocks of sandstone, limestone, or other soft stone, purchased from quarries, sculptors, or stonemasons. We use blocks that are up to 40 cm x 80 cm x 80 cm (roughly 16 in x 32 in x 32 in). These can be moved on wooden rollers, while larger stones require a machine to lift them.
- Stone carving tools, such as pointed iron chisels and special mallets. The artists we work with often bring chisels in varying sizes, with enough on hand for one or two kids to be working on each block at the same time.
- Safety goggles, 1 per child
- Leather gloves, 1 pair per child
- Chalk or charcoal for drawing the design onto the stones

DIRECTIONS

When we work on stone carving projects with children in Berlin, we do them in collaboration with local sculptors. The visiting artists bring their own expertise and special sets of tools that the children can use. They also train them in proper stone carving techniques and safety protocols for using hand tools such as iron chisels and mallets.

The first step is to think about an idea with the students. You can begin by considering what design might fit the shape of the raw block in front of you, or you can create your idea freely and look for a stone that fits the shape you have imagined.

Caution: Your design should maintain the integrity of the block. If there are large holes or shapes cut out of the middle the stone will break.



© GRÜN MACHT SCHULE

Next, make a model of the selected idea in clay, so that you have a better feeling for the idea in three-dimensions. Discuss the design options with the students and school community. Share the final idea with the collaborating artist and draw it with charcoal or chalk on the stone you will be using. This drawing will guide the children’s carving.

The artist and the children will then collaborate to carve and shape the stone(s). Typically, each of our classes carves three stones over the course of one week, with three to six students working with the artist at one time. When they are tired (usually after an hour), other students come and replace them. After five or six hours, all of the students in the class will have had a turn. After four or five days the stones will be finished and ready for use in the school grounds.

The last step is to find a good place to put the stones and to check the safety of the area around it. If your stone is higher than 60 cm (roughly 24 in), you may need a special ground material to cushion the fall zone around it. Check your local safety requirements to determine the proper fall zone height, since it varies by country.



ARTIST'S VIEW OF THE SCHOOL GROUND

AGES

6–18 years old

CONTRIBUTED BY

Evergreen

Toronto, Ontario, Canada
evergreen.ca

This activity enables students to examine natural materials that are most often overlooked on our sidewalks, pathways and natural landscapes, and view them as artists. The activity works well for creating abstract pieces, where the colour, lines and form become the focus of the artwork.

MATERIALS

- Clear acetate sheets, 1 per student
- Permanent markers, 1 per student
- Acrylic paints in a variety of colours
- Paint brushes
- Old Tupperware or kitchen containers to use for water and mixing paints
- Paper towels for clean-up

DIRECTIONS

Lay an acetate sheet on a patch of the ground. Ask students to observe interesting shapes, lines and colours. Students will then trace the outline of the details visible under their acetate. (e.g. cracks on the pavement, lines on leaves, twigs, etc.)

Once the students have finished tracing, ask them to add colour to their artwork by applying paint with fine brushes. If you don't wish to use paint, oil pastel also works.

Once the paint is dry, flip the acetate over, so that the paint and marker are on the back, and there is nothing that can be smudged on the front.

You can make a black construction paper frame, or mount the artwork on a piece of white paper.

You may wish to display the artworks individually or to attach the sheets together to form an abstract or “stained glass” quilt that represents the collective class perspective of the school grounds.



© MIKE DERBLICH

ENRICHMENT AND EXTENSION ACTIVITIES

To explore colour in more detail, you may wish to assign students to use a monochromatic colour scheme, work with contrasting colours, or explore how to use colour intensity to emphasize something in their artwork.

Another approach is to have students look at their tracing and use their imagination to turn their lines into representations of something concrete (be it an object or an animal). What do they see? The children's book *Beautiful Oops* provides a great introduction to this approach.

To practice writing skills, ask students to write poetry to describe the school grounds. If you mount the acetate artworks on large pieces of paper with a wide border, students can express their view of the school grounds using words around the frame.

References: This activity was adapted from lesson plans by Julie Frost and Dorie Preston and inspired by Hilary Inwood, Instructor, Ontario Institute of Studies in Education, University of Toronto.

EXPRESSING YOUR FEELINGS

AGES

9–18+ years old

CONTRIBUTED BY

Play Learning Life

Winchester, England, United Kingdom
playlearninglife.org.uk

This is an activity that helps children and young people express their feelings by creating poems that describe places and express emotions. This can be used as part of a wider programme that looks at different aspects of developing an awareness of pupils' own mental health.

MATERIALS

- Pens
- Luggage or gift labels
- Paper

DIRECTIONS

Walk around outside and explore different places—either inside or outside the official school grounds. Visit places that are quiet, others where lots takes place, places to walk, places to sit, places to learn. Write names for those places on the first set of labels.

Work with pupils to come up with a list of descriptive words—adjectives that could describe those places. For example: dark, open, bright, dull. Write these on labels and hang them on a tree or fence.

Think about words that describe the different things you might do in those places. For example: sit, play, run, think. Write these on labels and hang them on another tree or item.

Finally discuss how you might feel in the different spaces—come up with words that describe those emotions. For example: peaceful, lonely, happy, chilled. Add these to a final set of labels.



© PLAY LEARNING LIFE

As you do this, ask pupils to think about how the way the spaces were designed or formed made you think that you should behave in certain ways. In some places you know straight away that it is somewhere to be peaceful, whilst another space might be somewhere where you can be noisy. Talk about how these different spaces make you feel, and why that is. Are there some places that you would like to spend more time in than others? Why might that be?

Taking a word from each group, start making phrases, then sentences, then poems. These could then also be hung in another tree—to create a “poet-tree”—so that they can be read by other pupils, staff and visitors walking around the grounds. You may want to make some of these poems permanent features in the grounds, even carving them in stone, like the example to the left.



UNDERGROUND STEMS TELL THEIR STORIES

AGES

12–16 years old

CONTRIBUTED BY

Abruzzi School Garden Program

Siankhore, Baltistan, Pakistan

abruzzischoolgarden.com



© ABRUZZI SCHOOL GARDEN PROGRAM

This lesson was created for tenth graders who were learning about underground stems. Their biology teacher divided them into four groups and had each group plant one underground stem per group and make observations as the plants grew. Instead of writing only about the plants' biological properties, the students also wrote stories with illustrations pertaining to basic scientific data or they wrote entirely fictional stories. Most of the students chose to write stories that in very subtle ways describe the prevalent culture of their region Shigar and young people like themselves elsewhere. Indirectly these stories became a social studies lesson, recording social history via the prism of plant life.

MATERIALS

- Outdoor planting area, such as a raised bed or small planting container with potting soil, that can be placed in any sunny, well-ventilated part of the school
- 1 pod of garlic, ginger, onion and/or potato per group
- Drawing journals or paper for each student, plus colored pencils or any coloring medium you choose

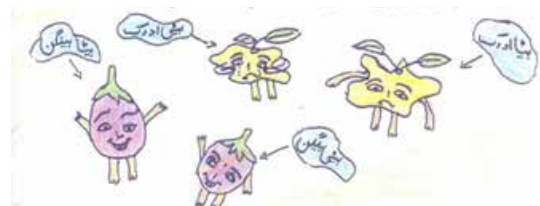
DIRECTIONS

Divide the class into four groups.

Ask each group to choose a stem (garlic, ginger, onion or potato) to plant and observe over time. Ask the students to watch the growth of these underground stems over the course of several weeks or more, and instruct them to spend time researching the biological, physical and cultural properties of their vegetable.

Ask students to use their research about their plant to develop a story about it. Stories can be written in their native tongue or in a foreign language they are studying. This writing activity can be directed toward factual information about their scientific findings or students may be given the option to write a fictional piece, loosely based on their observations.

Encourage students to illustrate their stories, transforming the vegetables into talking, hearing, seeing, feeling characters.



INSPIRING SPEAKING AND WRITING IN YOUR SCHOOL GARDEN

AGES

5–10 years old

CONTRIBUTED BY

CitySprouts

Cambridge, Massachusetts, United States
citysprouts.org



© CITYSPROUTS

A school garden can provide great inspiration for students' writing. When teaching a unit on living things, ask students to make lists of things in the garden that are living, not living or dead. This initial question can lead to interesting conversations which can develop into proper science discussions.

In the next part of the activity, ask each child to choose a plant in the garden to study over time and think about questions of dead versus alive. Discussions can look at how living things respond to the environment such as changes in the weather. Visiting the garden weekly means that students can continue to observe, sketch, and collect data on the changes they see.

Some questions to ask the students include:

- What do plants need to grow?
- Is that the same for other living things such as animals or you and me?

- What happens to the plants if it doesn't rain for a while?
- What happens to the plants when the sun shines?
- What can you do to make a difference to how well things grow?

Other literacy activities in a school garden might include descriptive writing, solving puzzles and word-searches, but the most important thing is for students to engage with the environment and in real-world applications of the skills they are learning in language, in the arts, or in mathematics.



© SHARON DANKS

SCHOOL GROUND CELEBRATION SONG

AGES

5–10 years old

CONTRIBUTED BY

Play Learning Life

Winchester, England, United Kingdom
playlearninglife.org.uk

For this activity pupils can work individually, in small groups or as a class. Different pupils or classes might do different things. For example, one class might come up with the ideas, another write the words and another write the tune. One group might create images to illustrate the song and another group might perform the final song, perhaps with another group accompanying it on instruments made from items found in your grounds.

PREPARATION

Think about where you might perform a song in your grounds and who might listen to it. It could take the form of a procession around your grounds or be performed in one place with an audience listening to your performance. You could create actions or a dance for your song, too. You might even record your song with photographs, drawings or other images used to illustrate it.

DIRECTIONS

Start by thinking about all the things that are great about your school grounds—create a list of these. Here are some things you might include:

- What you see when you arrive in your school, or as you look out of the window
- Features in your grounds, such as a special tree or pond
- Things you do outside, maybe what you do at play times or during lessons
- What you and your friends do outside, what games you play together

Use these ideas to put together phrases, then lines, then verses for your song. You can then create a tune for your song, using instruments to accompany your piece. Decide where you are going to perform your song and you might even record it for your website.



© PLAY LEARNING LIFE



IN A BOX

AGES

6–11 years old

CONTRIBUTED BY

Play Learning Life

Winchester, England, United Kingdom
playlearninglife.org.uk



© PLAY LEARNING LIFE

“In a Box” is a way of getting creative within your school grounds using cardboard boxes. Children choose a box to place somewhere in their school grounds and create a scene inside using things they find around them. These can be stand-alone art works or they can be structured as scenes that tell a story.

MATERIALS

- A selection of boxes of different shapes and sizes, 1 box per group of kids
- Natural materials found on school grounds
- Art supplies like scissors and markers

DIRECTIONS

Each artist or group is to make a picture within their box using materials found in the school grounds. This helps to frame the picture and challenges them to find items that fit within a small space.

You can let pupils create any picture they like, set a theme or make each box a scene within a sequence. For example, this could be specified scenes within a known story or could be the starting point for creative writing. To illustrate a story, each box becomes a scene and the pupils write a narrative that progresses from one box to the next as they walk around the grounds.

Students can also take photographs of the images in the boxes and save the stories written about them, to display in the classroom or on the school’s website.



ART ON THE FENCE

AGES

7–12 years old

CONTRIBUTED BY

Dr. Herb Broda, Ashland University
Ashland, Ohio, United States
movingtheclassroomoutdoors.com

Most schools have a UCLF—“unattractive chain link fence”. Turn the fence into an outdoor art gallery by using the fence as a background. The artwork takes your eyes away from the fence and creates an effective backdrop for student creativity. The beauty of this art gallery is that the displays can be easily changed, allowing for themed exhibits or grade level-specific shows.

MATERIALS

- 1/2 in or 3/4 in (1 cm – 2 cm) thick plywood, enough for a whole class to create their drawings
- Wood primer suitable for painting the outside of a house, to paint on all sides of each piece of wood
- Paints that can be covered with a waterproof sealer, along with a variety of brushes
- Drop cloths and rags to catch and clean up paint drips
- Clear, weatherproof, outdoor sealer to apply over the children’s paintings
- Wire and wire cutters for attaching plywood to the fence
- Drill, for putting holes in plywood, to attach the paintings to the fence

SUGGESTED THEMES

Flower garden. Ask each child to draw a flower.

Wildlife habitat. Ask each child to depict an animal, insect or plant that occurs in your local area.

Local or state history. Ask each child to depict a person, place or event that has historical significance.

Literature focus. Ask each child depict a person, place or event that is related to a piece of literature.



© HERB BRODA

Ford Elementary School near Atlanta, Georgia, USA placed student artwork on the fence to create an outdoor gallery.

DIRECTIONS

Cut the plywood into the sizes to be placed on the fence. Prepare a piece of plywood for each child.

Prime the plywood on all sides.

Ask the class to decide on a theme for the artwork.

Provide paints, brushes, drop cloths and rags as the painting process begins.

Apply the waterproof sealer to the artwork when the children’s paintings are finished and completely dry.

Drill holes and use wire to attach the artwork to the fence.

Tips

- Limit the children’s color palette to a small number of colors to help the group of paintings have greater, collective visual impact.
- Be sure to include all artwork. This should not be a “best work” show.
- Change the display several times during the year and involve a variety of grade levels.



MOSAIC PICTURES WITH NATURAL MATERIALS

AGES

4–10 years old

CONTRIBUTED BY

Green Schoolyards America

Berkeley, California, United States
greenschoolyards.org

Many children enjoy engaging in creative art projects in their free time. In this activity, children create temporary, artful, “mosaic” compositions by assembling natural materials they find on their school grounds or using other materials provided by school staff. Children may create this type of art at recess or during an art class with their teacher.

MATERIALS

Many different types of natural materials may be used for this activity including: sticks, stones, gravel, flowers, leaves, pine cones, and seeds. Some of these materials may be found onsite and others may be acquired from local homes or parks (with permission) or purchased inexpensively at local garden stores.

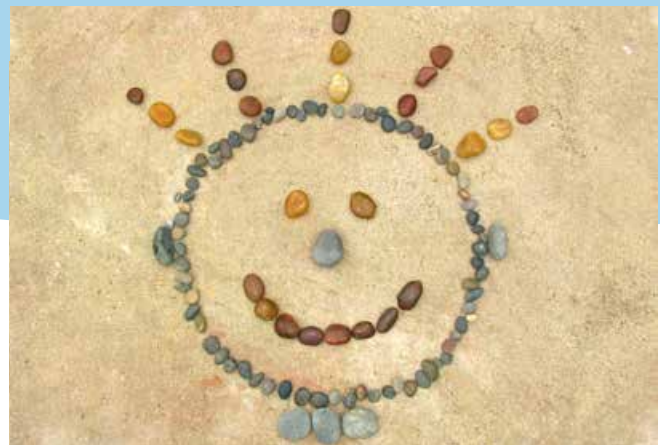
DIRECTIONS

Allow children to gather natural materials from the school grounds, if possible. If the school has a garden or other plantings that are pruned regularly, save the most interesting trimmings for use in this activity. If the school has abundant vegetation, it’s nice to allow children to pick some fresh flowers and leaves just before they begin their work, for added color and variety.

Encourage children to create their own pictures by arranging the materials they have on hand on the ground in abstract or representative forms, as they like.

When recess or class time is over, the compositions may be cleaned up and the materials returned to their prior locations.

For schools without access to natural materials onsite, it’s often helpful to put special natural materials (such as bags of purchased, colored stones), into a basket or cart that may be brought outside at recess on a regular basis.



© SHARON DANKS

VARIATIONS

For younger children studying numbers: Ask each child to create a picture using a fixed number of elements. For example, create a composition using 100 leaves.

Some schools set aside a permanent “art studio” in their schoolyard to facilitate outdoor art activities. Having a dedicated, outdoor art space also allows children to work on larger scale compositions and to leave them in place for a short time. These dedicated art studios can also include permanent storage bins for a wide variety of natural materials. Some teachers like to encourage students to try creating work inspired by artist Andy Goldsworthy and other nature artists.



METAMORPHOSES OF ORGANIC FORMS

AGES

16–18+ years old

CONTRIBUTED BY

Dr. Jan van Boeckel, Treelines Productions

Amsterdam, The Netherlands

janvanboeckel.wordpress.com

wildpainting.org

In this activity, students explore the metamorphoses of organic forms through a collaborative art experience. They consider the passage of time as seen through the birth, growth, death, and decay of organic forms (realistic or imagined) and express that evolution using clay. The activity can be conducted in groups of four to eight people. Each participant should have access to four balls of clay, each the size of a large grapefruit.

To begin, the participants create a big circle of dozens of small clay balls on the ground. Each participant positions him or herself next to one of the clay balls along this circle, with an interval of an equal amount of clay balls between themselves and the next person. Each participant picks up the clay ball in front of him or her and starts to mould it into an organic form, expressive of a stage of growth or decay in nature. The other participants, placed further along the same circle, do the same. After about ten minutes, the participants move along the circle, clockwise, and the person who was at point A moves to where her neighbor was, at point B. Here, she picks up what that person has left at B, and examines it carefully. She then puts it back on the ground and picks up a new and fresh clay ball, which is lying on the edge of the circle as well, next to the moulded organic form that the other person has just left there. She then makes a new organic form, taking the clay work that was left by the neighbor as a starting point but developing it further as part of an unfolding story of growth or decay.



© JAN VAN BOECKEL



This new, second form is then left on the ground again as the group rotates to a third, fresh ball of clay and continues the sequence that two other people have sculpted. This rotation and process of making new metamorphosing forms continues until all the clay balls have been moulded.

A special moment comes when the sequences of organic forms are about to meet, and there is only one clay ball left in between adjacent sequences, which can be quite dissimilar. The challenge at that point is for participants to create the “missing links” that would connect the two sequences on either side of each remaining clay ball.

When the activity is complete, the participants and the facilitator have a conversation about what was experienced during the activity and what they observe when looking at the results.

Reference: Activity created by Jan van Boeckel, inspired by the work of British sculptor Antony Gormley.

FLYING GARDENS

AGES

6–12 years old

CONTRIBUTED BY

Karel Komárek Proměny Foundation

Prague, Czech Republic
nadace-promeny.cz



© KAREL KOMÁREK PROMĚNY FOUNDATION

Imagine that the whole world—all of the continents, all of the countries, and all of the land—is suspended on strings from the sky. The landscape freely levitates in space, each and every part of it swinging back and forth in the wind... One side floats higher, while another dips lower. And on this land floating from the sky there are meadows, parks, and even gardens. One of them is your own garden, suspended on a string. It is a flying garden!

MATERIALS

- A collection of natural things from the school grounds, mostly sticks
- Scissors
- Rope or string



DIRECTIONS

Start by telling the students the story above. Perhaps ask them to close their eyes and imagine this floating world as you describe it. Then go outside with the students and explore your garden. Collect natural things that are most typical for your school grounds. Make sure the students include a good number of sticks, since these will form the structure of each flying garden.

Encourage students to tie the sticks together to create interesting shapes. Start by fastening a rope on a tree branch (or playground fixture), and tie more and more sticks underneath.

Once they have this basic structure, students can add moss, stones, grass and flowers—whatever they find on the schoolyard to help create a floating garden. Young children can use paper adhesive tape instead of string, since that makes it easier for them to participate in attaching the pieces together. For inspiration, see Alexander Calder’s mobiles.

When the class is done creating the flying gardens, talk about the students’ creations! Ask them to describe what the individual parts of their flying gardens mean to them. Does their flying garden have the same features as the garden in your own schoolyard? Are there trees in their flying garden that they could climb? What about a climbing structure, a water feature, or flowerbeds? Ask students to make a name and a written story for their flying garden.

Install these mobile creations in the school grounds. Showcase them as part of a decorative outdoor art gallery, or simply lie down under the trees with the class and watch how their creations swing back and forth in the wind.







© SHARON DANKS

Play

Enriched school grounds encourage exploration, imagination, relaxation, and free choice among a variety of recreational options, from ball games and climbing equipment to informal play in bushes, trees, and flowers. They include space for traditional sports and games with rules created by adults, as well as places for children to dream up their own games without adult involvement.

Free Play. Rich, interesting, well-designed green schoolyard spaces invite children to climb and run and swing and balance, to dig and pretend and create. They lend themselves well to creative play with art materials, musical instruments and performing arts. Their planted areas invite kids to engage in open-ended “nature play”, find the little creatures that live in the soil, and unwind and explore “far-away lands” with their best friend from the comfort of a cozy corner of the schoolyard.¹

Risk-Taking. Risk-taking allows children and young people to learn vital lessons about themselves and their world. These are lessons that cannot be taught and can only be learned through experience. Caution, resilience, courage, knowledge about one’s own abilities and limitations, and the self-confidence to reach beyond them are learned through self-chosen action.⁴

Loose Parts Play. Including movable materials in school grounds adds depth to children’s play experiences and affords many more opportunities to engage their imagination compared to static play structures or manufactured toys. Loose

parts can include nature materials, such as sticks, stones, sand, pine cones, leaves, and straw bales, and manufactured materials such as plastic crates, cloth sheets, rope, and cardboard tubes. It’s helpful to provide dedicated outdoor storage spaces for extended use of loose materials, so children will know where to find them.

Games. Many places are lucky to have a rich collection of traditional childhood games, handed down through the generations, or shaped by local neighborhood culture and opportunities presented by the local environment. Ball games and sports also play a key role on most school grounds around the world, and often include dedicated play spaces with well-defined boundaries and rules of play.

Shared Use. School grounds can become shared community resources after hours, providing multi-use, public recreational spaces within walking distance of every neighborhood. They are often the sites of weekend or after school sporting events and community festivals, and can be used creatively outside of school hours.¹



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USING LOOSE MATERIALS FOR PLAY

AGES

2–10 years old

CONTRIBUTED BY

Grounds for Learning

Stirling, Scotland, United Kingdom
ltl.org.uk/scotland



© GROUNDS FOR LEARNING

Lots of schools take a variety of small play equipment into their grounds for pupils to play with over break or lunch times. If you provide children with hoops, balls, ropes, bean bags, and other loose play parts you will see lots of sports-type games going on. But what happens to those children who don't like sports very much? Why not add some different materials so that you can get everyone involved in creative and more social play. Using open-ended materials means that children work together to build dens, tell stories, invent their own worlds or make their own art works.



© SHARON DANKS

MATERIALS

The materials used for open-ended, loose parts play might include pieces of scrap or natural materials—anything that can be used in many different ways. Some ideas include:

- Sticks and stones
- Tarpaulins and sheets
- Sand
- Drainpipes
- Ropes
- Hosepipe
- Live willow plantings
- Logs
- Leaves, feathers, shells, gravel, pine cones
- Cardboard
- Bungee ties
- Straw bales
- Wooden pennies (circles of timber)

The most successful play provision is accompanied by staff training, including discussions of: the value of play; the role of the adult; issues and concerns of staff and parents; practical issues such as storage, maintenance and managing risk; practical sessions with children playing with different types of loose play equipment; and how to best include parents and other family members playing, too.

CREATING SMALL WORLDS IN YOUR SCHOOL GROUND

AGES

9–18+ years old

CONTRIBUTED BY

Evergreen

Toronto, Ontario, Canada
evergreen.ca



© PAULA GALLO

Children naturally gravitate towards creating fantasy worlds inspired by their interests. This activity will encourage and support this natural inclination providing children with a variety of small loose parts to spark their imaginations.

MATERIALS

Small loose parts that can be found in nature, such as: leaves, pine cones, seeds, and nuts; twigs, sticks, dry grasses, and evergreen branches; small logs; tree bark; rocks; and loofahs.

Additional items could include burlap sacks, miniature tree cookies (round tree branch slices), and rope.

DIRECTIONS

Ask students to construct a small world for fairies, elves, or other small creatures from local legend. Brainstorm different things these worlds could include, such as tiny homes, playgrounds, and forests. You may encourage children to draw from popular culture such as movies and TV shows, or to reference fairy tales and legends.

To help the students get started, hold up an object and ask the group to brainstorm things that object could be. For example, if you hold up some tree bark, it could be the wall of a house, a floor, or snow on the ground. Do this with several objects to help spark their imagination.

Split the children up into small groups and give them time to begin working on their small world. Ask them to make it as detailed as it can be, and to draw on their own experiences in a favourite park or environments they have seen in movies or imagined in stories.

When it seems like the groups are finishing up (usually about 10–15 minutes) gather everyone together and go on a “tour” of the different creations. Use a “talking object” such as an animal bone or a “stick microphone” held by the facilitator to take turns speaking.

ENRICHMENT AND EXTENSION ACTIVITIES

This activity can be used as the first step in an age appropriate writing or poetry lesson. After building their small world, children can write about the world they created, draw pictures that bring it to life, or create an imaginative story that takes place in that environment.

If cameras are available, children can take pictures of their small world creations and use them in collages or as a canvas that they can then add paint to, to elaborate on their ideas.

The small world environments can be used for an extended period of time for imaginative play. (e.g. as a “doll house village”) After this extended time playing with the small worlds, the class can create a play or dramatic performance inspired by their experiences.



PINE NEEDLE BARBER SHOP

AGES

3–10 years old

CONTRIBUTED BY

Dr. Ko Senda, Tsurumi Junior College
Yokohama-shi, Kanagawa-ken, Japan
tsurumi-u.ac.jp/site/en/childhoodcare-education.html

This activity is practiced by children at Miyamae Kindergarten in Kawasaki City, Japan. Children tie up pine tree needles they have collected on their school grounds and make pine needle dolls. Then they set up a pretend barber shop and cut the “hair” on their dolls with scissors as they play this imaginative game.

MATERIALS

- Pine needles
- String, glue, and tape
- Toilet paper rolls or rolled up colored paper (origami paper)
- Colored pens
- Scissors

DIRECTIONS

Ask children to collect fallen pine needles from the school grounds or from a nearby public location where collecting natural materials is permitted.

Show the children how to create bunches of pine needles around 5 cm – 10 cm (2 in – 4 in) in diameter, with all of the pine needles facing in the same direction. The pointed tips will become the “hair” in this pretend barber shop.

Tie each bundle of pine needles securely with string.

Put each pine needle bundle into a toilet paper roll and secure it from the inside with glue. If toilet paper rolls are not available, then the same effect can be achieved using origami paper rolled into a cylinder secured with tape.

Draw a face on each toilet paper roll with colored pens, beneath the “hair”. Repeat this process until every child has created several “dolls” with pine needle “hair”.

Set up a “barber shop” on an outdoor picnic table and supply the “shop” with scissors. Children can then cut the tops of the pine needles to make pretty hair styles as their doll’s barber.



© KO SENDA AND MIYAMAE KINDERGARTEN



POP-UP ADVENTURE PLAYGROUNDS

AGES

4–18 years old

CONTRIBUTED BY

Pop-Up Adventure Play

Manchester, England, United Kingdom
popupadventureplay.org

A pop-up adventure playground is a public play space designed to allow children to take ownership of their own play. Using natural and recycled loose material, this activity offers self-directed, open-ended opportunities for experimental, exploratory, and empowering play. This in turn helps to build social cohesion, personal resiliency, creative problem-solving, and empathy.

MATERIALS

Select a variety of recycled and natural loose materials that are low cost or free, such as: lightly used cardboard boxes, tubes, fabric, plastic bottle caps, rope, tyres, branches, leaves, acorns, and pebbles.

Think about how the materials might work together in harmony, like a wok filled with acorns, or rope to tie sticks together for a teepee. There is no right or wrong for how these open-ended objects can be played with, but make suggestions to the children to get them started. Be sure to select loose parts that are suitable for your audience (no tiny objects for toddlers) and for your space (nothing that shatters to become sharp). The only tools required for this type of play space are scissors and tape, and the permission to do whatever they want with whatever you have provided.



© POP-UP ADVENTURE PLAY

DIRECTIONS

Take your collection of loose parts to a school ground or other public space, set them up in a curious manner and then invite children to explore and play. The materials are cheaply or freely available so that we can create an environment where we can say “yes” to their imaginative ideas and plans.

Once this is in place, step back and observe, and only get involved when a child invites you to help. A successful pop-up adventure playground will require little adult involvement.

The tidy-up process can be a simple case of putting everything into the nearest recycling container or taking everything apart and storing it away to be ready for the next session. Schools might consider creating a permanent storage area for all types of loose parts, somewhere outdoors where children can access it at recess and before or after school. It’s helpful to label these storage bins so students can take charge of clean up.

The pop-up adventure playground model draws from the United Kingdom-based professional field of playwork theory and practice. Worldwide, there are now pop-up adventure playground independent organisers in 17 different countries. These events have taken place in many different locations including schools, parks, after-school clubs, arboretums, block parties, and even children’s birthday events. More hints and tips are available for free on our website.



STRUCTURES AND DENS

AGES

2–10 years old

CONTRIBUTED BY

Mindstretchers and
International Association of Nature Pedagogy
Crieff, Scotland, United Kingdom
mindstretchers.co.uk and naturepedagogy.com



© MINDSTRETCHERS

This activity explores how den building can be used to generate higher order thinking skills in children. We all loved to build a hut, shelter, or den when we were children and subconsciously considered many aspects of building and use. This activity helps children analyse the how, where, why, what, and even when of shelters. We use a Talking Tub™ to help children plan and think about all the aspects of den building before we dive in, helping them think more deeply and communicate their ideas to others. This activity can take half an hour or develop and evolve over several weeks.

MATERIALS

A den building kit should contain:

- A variety of materials with holes around the edges to facilitate tying, such as waterproof tarp, plastic, cotton, hessian (burlap), netting, silks, etc.
- Materials to tie with, such as Velcro straps, rope, and string made of different materials, pegs, carabiners, bungee/pegless washing lines
- Structural building materials such as sticks, and loose parts that suggest details, such as items that could be used as a doorbell, pots, cups, etc.

What is a Talking Tub™?

A box or bag with props and photos about a subject that stimulates a reaction in children and encourages them to share their thoughts and knowledge. Photos are used to stimulate visual learners. Props support our kinaesthetic learners. Items that make a noise help auditory learners. It is good to have a combination of the familiar to reassure children and the unusual or broken to generate higher order thinking skills. Pulling items out of the box stimulates a reaction in children. If they are not interested, they won't touch it. If they won't pass it on they love it.

DIRECTIONS

Create a Talking Tub™ that includes photographs and props related to den building. This may include a combination of real, familiar, unusual or even broken items. Use the Talking Tub™ with the children to establish their knowledge about dens. Pull items out of the Tub and ask them how each one relates to den building. This will extend the children's ideas and encourage them to think on a deeper level about where they will build their den, the materials they will use, and how they will fix it in place.

Now take the children outside with your den building kit(s). Allow them to walk around the site to find the best location. You may mention that the strongest dens have three points of contact or more. Dens can be large scale for children to get inside or small scale for “fairies” or “mice”. Children may wish to split into small groups to make a range of dens or work together to make a huge den.

Once the dens are complete children become “estate agents” and try to “sell” their den to others. They may describe why they picked the location, the types of materials they used, and why each feature is special. You can also check how waterproof the shelter is with a bucket of water—with the children inside or out depending how brave they are, or you are!

If you wish to extend the experience, the class can draw an annotated plan of the den(s) or write a functional and instructional description of how to build their den(s).

FORT BUILDING

AGES

6–14 years old

CONTRIBUTED BY

GoodPlanet

Brussels, Belgium

goodplanet.be



© GOODPLANET

When provided with the right loose material, children start building forts spontaneously and use their creativity to learn construction techniques. Building-oriented play challenges children on a social level and encourages role-playing games to emerge. If desired, adults can also guide this activity to expand children's collaborations and the scale of forts they produce. When acting as a team, students can build beautiful, strong forts. The guided version of this activity allows pupils to learn more advanced techniques, work on conflict-resolution skills, explore their talents, and improves group dynamics.

MATERIALS

- Building materials such as branches of different lengths, flexible twigs, leaves, straw, tree trunks, pallets, and planks, and rope to connect them together
- Living trees and bushes for the forts' environment
- Pots, pans, cans, kettles, wooden spoons, etc.

DIRECTIONS: GUIDED ACTIVITY

Teach the children a building technique, like lashing or weaving branches. Provide technical drawings or pictures.

Divide the children into groups and give each member of the team a role: project leader, designer, material coordinator, timekeeper, etc.

Ask each group to identify a good location for their fort, using the environment as part of the structure. For example, they might use a tree as a pillar, a low hanging branch as the roof, or an existing pit as the floor.

Start with a reliable structure: build a framework out of solid material, for example a tripod. Use smaller branches, leaves and grass to finish the hut. Use the new construction techniques along the way. The teacher can observe the different groups and can help where necessary.

Evaluation: Ask the pupils to score themselves and the various aspects of the activity by showing their fingers:

- Their contribution while building: 0=no contribution, 5 fingers=very good contribution

- Their specific role, for example as a designer: 0 fingers=I didn't play my role, 5 fingers=I played my role very well
- The resulting fort: 0 fingers=very bad result, 5 fingers=brilliant result, best fort ever!!
- Cooperation as a group: 0 fingers=we didn't work together at all, 5 fingers=we worked together like a well-oiled machine

DIRECTIONS: FREE PLAY

Hold an initial meeting with teachers and parents to discuss the value of free play, risk management, and the different roles mentors can play while the children are engaged in free play. Agree on rules about using branches and other materials, if this is not already part of your school's recess activities. Involve the children when making these rules. Make sure there is enough open space and lots of natural and loose material so that all students can participate.

Observe. Use these observations in the classroom and link them to themes such as leadership, collaboration, conflict resolution, trade and payment systems, gender roles, building techniques, and respect for each other, for the materials, and for nature.

Make sure school maintenance is coordinated with this activity. For example: don't cut bushes that can be used as part of a fort. Regularly check the safety of the forts (together with the children) and provide new material. Act appropriately if children's safety is compromised.

USING SAND AREAS TO BRING IDEAS TO LIFE

AGES

3–6 years old

CONTRIBUTED BY

The Anak Atelier Preschool and Kindergarten

Ungasan, Bali, Indonesia
theanakatelier.com



© ANAK ATELIER PRESCHOOL AND KINDERGARTEN

Sand intrigues most of us and it is well suited to the hands-on and imaginative nature of young children. Building on this natural interest is easy and because sand is open-ended, the child is able to determine the direction of his/her exploration. The teacher's role in this experience is to provide a framework that enables the child to extend their learning. This is done in two ways: setting up an environment and asking open-ended questions. Our school has used our sandpit as a tool to explore ideas and science related to volcanic eruptions in our region, making complex concepts accessible to young children.

MATERIALS

- Sand area with rocks and other loose natural materials
- Water, supplied from a hose or buckets
- Digging tools

BACKGROUND

In August 2015, Bali was affected by the eruption of a volcano in the East Java province, and again, three months later by the eruption of another volcano on the neighbouring island of Lombok. Our children were fascinated by how a “mountain with a hole that breathed fire” could stop airplanes from flying, and they wanted to find out more.

This prompted the teacher to instigate a science experiment using baking powder and vinegar, so the children could see for themselves what a volcano eruption might look like. The children crafted designs on paper first, using triangle shaped objects and then built a 3D version in the sandpit that they would use for the eruption experiment. It was truly inspiring to observe the children use their knowledge about volcanoes acquired from the science experiment to re-enact the experience in their sandpit exploration.

When children are actively involved in their own learning, they are able to build upon their own existing repertoire of knowledge and skills. This is an incredibly powerful way of igniting a passion for learning and discovery at a young age.

DIRECTIONS

To explore the power of volcanoes, set up a simple provocation in the sandpit, using a hosepipe with running water, digging materials and some rocks. Ask the children to build a “volcano” in the sand, based on what they have seen or studied. Encourage the children to build “houses” and other things around the volcano.

Fill the crater of the volcano with running water from a hose or bucket. Watch the water flow out of the crater and down toward the houses. Ask the children to talk about what they observe to be happening as the water flows downhill.

At our school, the children realised that when “lava” comes into contact with other things it destroys them. Together, they came up with the very logical conclusion that “lava breaks down houses”. Transferring and adapting what they have learned from one context to another is a significant part of children's development, and to see it in action, led so confidently by the children themselves, was a wonderful thing to witness.

What you decide to add to the sandpit will depend on what you are studying. For example, if an inquiry is focused on animals and dinosaurs you might add models and other loose natural materials. If the provocation is centred on mark-making and patterns, you may choose to add sticks, brushes, and forks. There are many ways to creatively use a sand area, just let the children show you the way!

INQUIRY-BASED SNOW PLAY

AGES

4–14 years old

CONTRIBUTED BY

KidActive's Outdoor Play and Learning Program

Ottawa, Ontario, Canada

kidactive.ca

Snow is one of the simplest, highest-value play elements that we can find in our schoolyards, when and where climate conditions are favorable. It sparks joy and excitement, offers endless possibilities for every child's imagination, and fuels their sense of wonder. It is accessible for nearly every child, regardless of their age, ability, or background. Integrating cross-curricular learning into a snow play session can include math (measurement, volume, form, shapes), science (solids, liquids, gases), art, culture, building structures, and other subjects.

DIRECTIONS

Select a day for this activity after a recent snowfall. Provide an initial 30 minutes of free time and space in an open area of your school grounds, ideally with untouched snow. Identify minimal parameters and boundaries and let each child explore and play how they choose!

Bring the group together into a sharing circle and engage children in a conversation about play, snow, and concepts of exploration, building, and creating. Ask questions like, "What does play mean to you?" or, "What does play feel like?"

Provide tools and loose parts such as: shovels, pots, pans, kitchen utensils, non-toxic paint, and spray bottles.



© SHAWNA BABCOCK

Introduce provocations about what the snow feels like, looks like, how it can be used, and what it can make (provide examples). Release children for another play session.

After a minimum of 30 minutes of play, bring children back to create a knowledge building circle focused on a staged inquiry process. Start with the question, "What is snow?" and have children describe their observations using all senses. Next ask, "What can we do to change snow?" Encourage them to wonder, predict, and describe—what will be the outcome or result of their experiment?

Return to snow play to experiment with activities that change the shape or texture or other characteristics of snow.



© CARLY MEISSNER

Managing cold temperatures

Is temperature a barrier to winter play? "As safe as necessary, not as safe as possible", is a principle that is being adopted by Outdoor Play Canada. It is essential to make outdoor play decisions that are based on the best available evidence and a strong understanding of your students. Temperature guidelines for outdoor play need to balance the benefits of outdoor play with safety. Keep a bin of extra clothing (snow gear, mittens, hats, boots) for children who do not have appropriate clothing to stay warm during snow play. We play outside when it is -25°C!

KPOKORO: AN OUTDOOR NIGERIAN GAME

AGES

6–12 years old

CONTRIBUTED BY

Elizabeth Babalola

Lagos, Nigeria



© ELIZABETH BABALOLA

This is a game usually played by girls, ages 6–12, in different parts of Nigeria and usually outdoors. There are a number of variations to the game depending on the location but the emphasis is on rhythmic clapping, coordination of leg movements, quick thinking, and the ability to predict your playmate's moves. The following directions are for the horseshoe variation of the game.

DIRECTIONS

Number of players needed: At least two girls, and usually up to a maximum of ten.

The objective is to accurately predict and mirror your playmate's leg movement two consecutive times while clapping and skip jumping rhythmically.

Players stand in a horseshoe formation and the first player, selected randomly or by lots, takes turns with each player in the horseshoe.

Player #1 (the leader) starts by standing face-to-face with Player #2 (the mirror). Player #1 leads them both in clapping and skip jumping to the same rhythm: "Clap pause clap pause clap-clap-clap pause". At the third pause the leader randomly puts forward one of her legs.

To win, Player #2 must simultaneously mirror the leader's leg choices two consecutive times. If Player #2 is successful in mirroring Player #1 on two consecutive attempts, they exchange places (switch), and the "mirror" becomes the "leader" and plays the next round with Player #3. If Player #2 is unable to mirror Player #1's movement, the latter immediately moves on to Player #3. She maintains the rhythm without pause and leads them both in clapping and skip jumping. Although the switch can happen at any point along the horseshoe, the new leader must begin at one end of the circle and work towards the end.

The winning player is the one who successfully moves from one end of the horseshoe to the other without being "mirrored" by any of her playmates.

For instance, I face you and begin to clap my hands, skip jumping to the rhythm. You clap exactly as I do. I then quickly put out my right leg on the third pause. If you mirror my movement (putting out your left leg) you get one point. On the second round if you again successfully predict and mirror my movement, you get a second point, exchange places with me and take the lead.

RULES

The mirror's leg choice must be done simultaneously to the leader's. There must be no hesitation from the player standing in the horseshoe.

If the player in the horseshoe is unable to mirror the leading player's leg choice simultaneously on the first try, the "leader" moves on the next person in line.

Accompanying myth

There is a story of a clever goddess, who comes to a group of young women offering each one a crown, an opportunity in life. Each girl has to correctly interpret the signs and seize her chance at the exact moment it is offered.

Reference: Brewster, Paul G. "Some Nigerian games, with their parallels and analogues." *Journal de la Société des Africanistes* 24.1 (1954): 31-33.



OBSTACLE COURSE CHALLENGE

AGES

7–10 years old

CONTRIBUTED BY

Nature Passport

Seattle, Washington, United States *and*
Perth, Western Australia, Australia
naturepassport.org

Watch the fun unfold as students transform a section of the schoolyard into their very own obstacle course, then race to complete a series of self-made challenges. This activity promotes creative thinking, as well as lots of physical activity as kids run, jump, limbo, crawl, and weave their way through obstacles of their own making. This activity encourages students to make use of natural materials and shape their obstacle courses to the natural environment they select.

MATERIALS

Items you can find at school or home to use as obstacles (e.g. hula hoops, toys, chairs, broomsticks, garden hoses, rope, etc.)

DIRECTIONS

As a group, find a suitable location in the school grounds. Search for a clear, open, grassy or soft space, or somewhere near existing play equipment.

Gather materials to create obstacles. Be creative and use whatever is available. (See above for suggestions.)

Discuss the common elements of obstacle courses with the children, such as jumping over hurdles, limbo-ing under things, crawling through tunnels, throwing or tossing items at a target, rolling, hopping, weaving, and balancing. Ask them to add to the list and discuss which of your materials could be used to create each type of obstacle.

Give your course a name like “The Eliminator” or the “Ninja Challenge”! You could even give it a theme. Are participants spies-in-training? Game show contestants? Superheroes chasing bad guys?

Have the kids plan where the start and finish will be, then get to work building the course. Remind them to allow enough room between each obstacle, and make use of existing play equipment and natural elements in the area, such as hills or trees, by building them into the course.



© NATURE PASSPORT

Give the course a test run and make final adjustments.

The only thing left to do? Declare the obstacle course open and let the challengers loose! Take turns completing the course and timing each other.



Nature Passport, a joint project of IslandWood and Nature Play WA, is a free app designed to get kids and families playing, exploring, and learning outdoors. With activities designed by experts in outdoor play and experiential education, and new content released every few weeks, it is a robust tool for both families and classrooms. Use it to complete this activity and more!



TRANSFORMERS

AGES

7–10 years old

CONTRIBUTED BY

Nature Passport

Seattle, Washington, United States *and*
Perth, Western Australia, Australia
naturepassport.org

Encourage students to use their imagination to transform an object from nature into anything they want! This simple game will challenge your creativity as a group, while fostering an appreciation for common natural items. This activity can also be used as an opportunity to develop kids' self-confidence by making them feel supported in being creative and being themselves.

MATERIALS

Transforming is all about using your imagination to look at things in a new way. You will only need the natural items you find outdoors, such as rocks, sticks, leaves, and feathers.

DIRECTIONS

Go on a walk with your team and choose ONE item from nature to “transform”, like a rock, stick, or leaf. Look for an item with an unusual shape, texture, or colour. Remind children to look on the ground for fallen items rather than picking from a living tree or plant.

Take turns holding the item, and finish this sentence: “This could be a _____.”

Make the game a safe space for creative expression by emphasizing that there are no wrong answers. Share a few examples to get the ball rolling. Example: For a stick, you might say “This could be a pencil ... the finger bone of a giant ... a very straight snake.”

Pass the item from child to child, with each contributing an idea “Yes and... this could be a _____.” Provide positive reinforcement.

Count your ideas as you go. How many will your group come up with?

Find a new item for the second round. This time, ask each child to say their idea and act it out. (e.g. if they say bat, they can hold the stick like a baseball bat) Remind the group not to



© NATURE PASSPORT

touch another person or thing when doing an action. Will you come up with more ideas than before?

If your team is feeling especially imaginative, choose a new item and get goofy with it! Think of your most ridiculous ideas and act them out. “This could be a _____.”

You have a group of transformer champions! Before finishing up, encourage them to remember that, with a little imagination, there's more to things than meets the eye.



Nature Passport, a joint project of IslandWood and Nature Play WA, is a free app designed to get kids and families playing, exploring, and learning outdoors. With activities designed by experts in outdoor play and experiential education, and new content released every few weeks, it is a robust tool for both families and classrooms. Use it to complete this activity and more!









Health

Enhanced school grounds foster children’s mental and physical health and well-being by providing settings for social engagement, curiosity, imagination, exploration, wonder, and adventure.

Improved Well-Being. Studies have shown that many types of green spaces have therapeutic properties that lower blood pressure, reduce stress, and provide other benefits that improve the mental health and well-being of children, teachers, school administrators, and visitors.

Sensory Exploration. Living schoolyards stimulate our senses and provide opportunities to engage the whole body to develop children’s sense of balance and coordination, and reinforce sensory integration. This is helpful for all children, and can be particularly useful for children with special needs. Enriched school grounds are also a “feast” for the eyes, ears, nose, and (sometimes) mouth, and provide endless textures for curious fingers to explore.

Physical Activity. School grounds that encourage children to run and jump and climb offer child-driven, play-based opportunities to improve motor skills and increase heart rate, to build and maintain physical health, and to fight obesity. Green school grounds also provide places for students to be physically active during physical education classes and while participating in sports and other organized fitness games.

Skills for Lifelong Health. Green schoolyards can promote healthier lifestyle choices by providing space for nutrition-oriented gardening and cooking programs. They are also places to learn new outdoor skills such as how to properly use tools, how to manage a campfire, and how to act responsibly at the water’s edge. These lessons build lifelong health by giving children and youth important skills for safely navigating the world.

Beneficial Risk. Risk-taking opportunities are an essential component of a well-functioning school ground, and a key ingredient in fostering lifelong health. Educators are responsible for providing children and young people with opportunities to develop competencies such as common sense, problem solving, and confidence. Those who plan, design, manage, supervise, and maintain school environments should be encouraged to take benefits of risk into account. School grounds should not be as safe as possible, but as safe as necessary.⁴

Note. For more information about the benefits of risk for healthy child development, see the International School Grounds Alliance’s, *Risk in Play and Learning: Ubud-Höör Declaration*: internationalschoolgrounds.org/risk/





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SENSORY EXPLORATION

AGES

5–18+ years old

CONTRIBUTED BY

Greenstone Design
Auckland, New Zealand
greenstonedesign.co.nz

There is overwhelming evidence to support children’s enhanced social skills and cognitive function, improved health and well-being after time spent in a natural environment. Ideally you will have an area of the playground that has grass and some planting. If not, choose an area of smooth asphalt with a view to trees or planting.

MATERIALS

- Beach towels or blankets
- Blindfolds
- Paper and pens
- Bite-size fruit, enough for all students

DIRECTIONS

Tell your students in advance that you will be going outside into the school playground for this session. Ask them what they expect to hear and see from the location you have chosen. Take a beach towel or blanket for each child, blindfolds, paper, pens, and a plate of prepared fruit that the children can eat in their fingers.

Explain that for this creative writing exercise they will be developing their powers of observation and engaging with their environment with all of their senses. They will “observe” by seeing, touching, smelling, listening, tasting.

Brief your class the day before the lesson and again before you go outside so they know what to expect. Choose a space in advance where the children can spread out individually and not be in the way of others.

Take your class outside.

Get the children to spread out their towel or blanket and sit or lie down on the ground, preferably on grass, ideally near trees or other plantings. (Allow 3 minutes for the children to settle.)



© SCOTT DUNCAN

Ask the children to breathe deeply for 2 minutes.

Blindfold all of the children for the first 5 minutes. Offer them fruit to eat while they are taking in the environment.

Remove the blindfolds and ask the children to write or draw their observations for the next 10 minutes.

Then, for the next 5 minutes, keep the blindfolds off but ask the students to observe their environment silently. Then give the children another 10 minutes to write and draw their observations.

Return to the classroom. Remind the children to notice the colours and the view out the window. Ask them to write a short summary statement (5 minutes) to describe how they feel.



© SHARON DANKS

LEAF IDENTIFICATION CHALLENGE

AGES

7–13 years old

CONTRIBUTED BY

Karthikeyan V, Ramya Priya S, Surya Suresh
Horticultural Therapists at ArtyPlantz
Bangalore, India
artyplantz.org

This nature-based activity is designed to activate the senses! It can help students of all abilities to hone their sensing skills and develop a stronger connection to the natural world around them.

MATERIALS

- One blindfold for each pair of students
- 5-10 different textured, shaped or fragrant leaves, for each pair of students

DIRECTIONS

If this is practiced as horticultural therapy, it may be conducted one on one. In a classroom setting, students should be paired up to support one another in this exercise. “Educator” refers to the person who isn’t blindfolded, and “student” to the person who is blindfolded.

The educator collects 5-10 different types of leaves and does not reveal them to the student. The student sits comfortably and puts the blindfold on him/herself.

The educator gives the leaves one by one to the student, asking them to use their non-visual senses to observe the leaf. The educator gives the name of each leaf.

Next, the educator gives the leaves to the student in a different order and asks them to recognize each leaf. The student doesn’t name the leaf, but instead tries to remember the order.

The educator should arrange the leaves in front of the student according to the order given and then ask the participant to share the names of the leaves in this order.

Remove the blindfold and see if their memory and observations were correct.



If this activity is used in a classroom setting, the partners should switch roles and use new leaves.

In other settings, the educator can repeat this activity for other students, shuffling the leaf type and order to ensure students are using their senses.



Note: This game is not meant to encourage or discourage anyone. It is intended to improve memory, observation, and sensing skills. The teacher can help students by giving clues initially.



BUSY AND CALM

AGES

6–12 years old

CONTRIBUTED BY

Karel Komárek Proměny Foundation
Prague, Czech Republic
nadace-promeny.cz



© KAREL KOMÁREK PROMĚNY FOUNDATION

This activity encourages students to explore their school grounds to discover areas that feel calm and areas that feel busy. You will record and compare the noise levels in individual zones on your map, using a recording device or a mobile phone. Which sections are close to a fence where you hear the noise of cars passing by on the other side? Which sections are quiet or have noise from other students playing? How do the busy and calm sections of your garden differ? Use this as an opportunity to explore how different spaces make us feel.

MATERIALS

- Recording device or mobile telephone with a recording app
- Pencil and paper
- Map of the schoolyard
- Markers

DIRECTIONS

Before going outside, take time with your students to consider the differences in noise levels in various areas in your schoolyard. Where do you think the quiet places are? Where do you think the loud places will be? Why?

Plan a walking trip of the schoolyard, during which you will visit at least three loud and three quiet spots.

Break students into small groups. Have the groups walk through the garden and take photographs of the spots they selected.

At each spot, students should also make note of their observations about the place on their map. What is going on in that space? What kinds of sounds do they hear?

They can also use a recording device, such as a cell phone, to record the sounds and noise levels in each zone.

Afterwards, students can switch photos or maps and recordings with other groups, to try to match the photographs with the recordings. One group can try to identify the spots where the other group recorded sounds, and vice versa. They can also listen to the recordings and mark out a linear drawing depicting sound differences.

To close, discuss how the different spaces (quiet vs. loud) made them feel. Did they feel more calm in one part of the yard? Were loud places exciting or overwhelming?

Depending on your goals, you can use this conversation to inform further discussion about developing new spaces on the school ground or, for older students, a self reflection on what makes them feel calm or not.



STEAL THE FLAG

AGES

5–18+ years old

CONTRIBUTED BY

Dr. Ha Thi Hoang, Hong Duc University

Thanh Hóa Province, Vietnam

hdu.edu.vn/en-us

This is a traditional Vietnamese game that is beloved not only by children of all ages, but also by adults. It is played with simple rules. In addition to being lots of fun, the game also helps improve players' agility and it is good for their health.

MATERIALS

- Large open space, at least 10 m x 20 m (33 ft x 66 ft)
- A small flag or other available object such as a small tree branch, hat, cloth, etc.
- Territory markers: Movable objects of any type that are easily seen when placed on the ground

DIRECTIONS

Begin with 10 or 12 players (or a minimum of at least 6), and evenly divide them into two teams plus a referee.

Assign each player a number so that each of the teams has a corresponding pair. (For example, each team will have a "Player #1", "Player #2", etc.)

Place the "flag" in the middle of the playing space.

Divide the playing space so that each team has its own territory at opposite sides of the field, away from the flag. Mark the borders of the teams' territories in some way.

When the game starts, the referee will indicate which numbered players should run to the flag to try to steal it. He/she can choose one or two pairs, or more, for each round. The referee can also decide if one pair needs to return to their territory.



© HA THI HOANG

HOW TO PLAY

When the referee calls a number, opposing team members with that number each try to run and steal the flag before the other team can get it, and return it to their own territory.

If a team member with the wrong number runs for the flag, their team loses that round.

Once players of both teams get to the flag, everyone else joins. The person with the flag tries to return it to their territory without being touched by a member of the other team. They must cross back into their own team's territory before winning the round. Players use strategy to trick their opponents to avoid being touched while running back with the flag.

For small children: Simplify the rules so they only need to catch the flag and run back. Prepare many small flags for the game so each team can collect and keep their flags to count at the end.



POST BOXES

AGES

3–18 years old

CONTRIBUTED BY

Play Learning Life

Winchester, England, United Kingdom
playlearninglife.org.uk

This activity is a fast-moving relay race, posting (mailing) “letters” into boxes and matching clues with the corresponding answers. This activity can be played by all ages by adapting the clues and answers to the age and ability of participants.

MATERIALS

- At least 5 boxes, each with a label with a different answer on it
- Lots of “letters” to post (mail) into the boxes. Each letter is a piece of paper or card that has a clue on it that pupils will solve in order to see which box it will match. (Cards can be laminated to facilitate repeated use.)
- A pen for the teacher running the activity

DIRECTIONS

Place the boxes around the school grounds to define the boundaries for the game and decide how far you would like your pupils to run.

Divide the class into groups of three to five people, and assign each group a number.

Ask one person from each group to go to the leader to collect a “letter” with a clue on it. Make sure that each group is given a “letter” with their group’s number on it.

When the teacher says, “go” the first person from each group reads their clue, solves the puzzle, and heads out to find the box that is labeled with the answer to their clue. When they arrive at the right box, they put their letter inside and then return to their group. The first person then tags the second person in their group, who then runs to the teacher to collect a new clue. They solve the puzzle, find the appropriate box, and repeat the cycle until all members of the group have had at least two turns—or until the teacher runs out of letters, time or energy.



© PLAY LEARNING LIFE

As the game proceeds pupils can help each other locate the correct box for each question. This helps develop communication skills, too.

When the game is over, collect the boxes and count the number of correct responses by each team. (The team numbers on the back of the cards allow their responses to be tallied.) The team with the highest score is the winner.

VARIATIONS

Teachers can make the clues as easy or hard as they like, depending on the age and abilities of the group they are working with. Here are some examples:

- Match the names of cities with their countries. Put city names on the cards and countries on the boxes.
- Ask maths questions on the cards and put the answers on the boxes. Several different maths questions can have the same answer so that everyone has to solve a maths problem when it is their turn.
- For very young children, match colours or shapes, as shown above.

NINJA WARRIORS SAVE THE EGGS

AGES

7–18 years old

CONTRIBUTED BY

Sekolah Alam Nurul Islam

Sleman, Yogyakarta, Indonesia
sekolahalamjogja.com



© SEKOLAH ALAM NURUL ISLAM

This activity is an obstacle course that students navigate while holding an uncooked egg. The students design a package that will protect their egg during the activity, and challenge themselves to see if they can complete the course without breaking it. At our school, the obstacle course includes scaling tall walls, climbing into the tree house, and crossing the river.

MATERIALS

- 1 uncooked egg for each child
- Yarn, plastic bags, cartons, and other craft materials
- Obstacle course challenges like a trampoline
- Safety items such as safety ropes and life vests

DIRECTIONS

The teacher prepares for this activity by creating an obstacle course that contains a variety of challenges. The challenges should require that students use all different types of physical motion including jumping, rolling, twisting, rebounding, sliding, climbing, falling, etc.

Ask the students to design and create a package to keep their raw egg safe during their journey through the obstacle course. The students will carry the egg inside the “safety box” they create, and will take it with them through a variety of challenges which may include different types of impacts and stresses on their eggs. Students complete the obstacle course in groups. The groups compete to be the first to cross the finish line, with the fewest broken eggs.



CAMPFIRES IN THE SCHOOLYARD

AGES

3–18+ years old

CONTRIBUTED BY

Naturskolan i Lund
Lund, Sweden
lund.se/naturskolan



© NATURSKOLAN I LUND

A campfire in the schoolyard serves several purposes. It is a great gathering and social place, it allows for cooking and eating outdoors, and in areas with colder climates the warmth from a fire can extend the time spent outdoors. Setting up a campfire is an exciting and highly educational process that children of all ages can participate in. Fire has always fascinated people. Sitting together around a fire often leads to interesting conversations and reflections. Why do we use fire? How has fire been used throughout history? Does everything burn? Can you always hear crackling noises when it burns? Do the flames always look the same? Let the children make hypotheses and then test their ideas.

DIRECTIONS

Location. Discuss the most suitable location for the fire. Find a place that is flat and relatively open, and at least 5 m – 7 m (16 ft – 23 ft) from any surrounding trees or houses. Decide on the size of the fire pit. One fire = 70 cm (28 in) diameter.

Design. There are many ways to build outdoor fires, but here are three types that work well in a school context:

- *Loose stones surrounding a gravel filled bottom.* This type of campfire doesn't require much material and is easy to construct. In an unpaved area, dig out the top layer of grass and roots. Fill the hole with sand and gravel. Encircle the fire pit with loose stones, 20 cm (8 in) each.
- *Stone ring with a reinforced bottom.* This type of fire pit is more permanent. Dig a hole a bit bigger than you'd like the fire pit to be. Fill the bottom with concrete, reinforced with cobblestones. Put stones or bricks around the fire pit and use mortar to bind them.
- *Drain pipe.* This fire pit is very durable and it's a good option if your school is paved or you don't want the fire to be on ground level. Use a concrete drain pipe, 1 m (40 in) diameter, and bury it halfway down in the ground, or secure it firmly to the pavement. Fill it with gravel. Barbecue grills can be attached a few decimeters above the gravel surface. You can decorate the sides with mosaics or wood panels.



Seating. Logs make great seats around a fire. Tree stumps are also good but need to be anchored so they don't roll. Planks or large stones can be made into benches.

Cooking utensils. It is often useful to have a metal tripod with a chain to suspend a cooking pot to make soup or hot drinks over an open fire. To bake bread or fry, use large cast iron pans that can be placed over the fire. Any kind of metal BBQ grill can also be placed on top of stones in the fire to grill vegetables. Use extra-long soup ladles, spatulas, tongs, etc. to avoid being burned by steam or the fire. Oven mitts are also helpful.

Safety. Before you start a fire, make sure the ground is not too dry or warm, so the risk of fire spreading is low. Always have water and a first-aid kit readily accessible, and a fire blanket, if possible. Review the risks of open fires with everyone present, including children and adults. Discuss what to do if the fire spreads to the vegetation or if clothing catches on fire. Agree on a common set of rules about how to behave near the fire: Define a safety perimeter around the fire, inside of which everyone needs to be calm and running is not allowed. With smaller children, it's helpful to display a "fire flag" (shown above) whenever the area is hot so that everyone knows when to be careful.







Social and Emotional Well-Being

Enriched school grounds are ideal places to foster positive, healthy relationships among children, between children and adults, and between people and the environment. Research tells us that nature has a therapeutic influence on our mental and physical health. An environment filled with trees, shrubs, flowers, and wildlife is a helpful starting point to set the stage for learning the social and emotional skills that lead to autonomy, confidence, and healthy relationships later in life.

Empathy. Living schoolyards, filled with trees, plants, and other living creatures help schools foster an atmosphere that emphasizes care for one another, care for all living things, and care for the Earth. Green school grounds provide settings that teachers can use for lessons that range from understanding one another's feelings, to valuing the great diversity of life that shares our world.

Collaboration. Nurturing a positive school environment, both among community members and on the grounds, is best accomplished through collaboration built on strong, positive relationships. Living schoolyard environments provide opportunities to practice and hone communication, teamwork and stewardship skills, while providing balance for other aspects of school life that are more competitive.³

Self, Belonging, and Purpose.⁵ Research suggests that feeling confident and connected plays an essential role in determining children's overall well-being.

- A strong sense of *self* includes identity and the ability to self-regulate and develop healthy coping mechanisms for experiences of trauma. School grounds can be ideal spaces for reflection and decompression, which nurture these skills and provide solace for children in times of need.
- Outdoor activities and environments that foster small group conversation also help children develop their *sense of belonging* within their school community, as they invent games together and build relationships with one another.
- Schools can also cultivate children's *changemaking* skills and sense of *purpose* through hands-on collaborative projects that improve the physical environment of their school grounds. Engaging actively in schoolyard design, construction, and planting helps children to feel that they have a valuable place in their community and that they have agency in their own lives.



EMPATHY

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Keene, New Hampshire, United States

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Explore your school grounds from another creature's perspective — Evergreen; Toronto, Ontario, Canada

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Cooperate with the group to keep balls in the air — Fundación Patio Vivo; Santiago, Chile

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Build communication skills and create shapes as a group — Fundación Patio Vivo; Santiago, Chile



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ACORN GUIDED MOVEMENT

AGES

4–18 years old

CONTRIBUTED BY

David Sobel, Antioch University New England
Keene, New Hampshire, United States
antiochne.edu



In this guided movement activity, students listen to an adult read a descriptive narrative that helps them to imagine that they are an acorn, growing into an oak seedling. They move their bodies as the story is read to them, and experience the natural world around them from a new perspective. Words written below in **bold** are intended as movement prompts.

NARRATIVE TO READ TO STUDENTS

Attach yourself to a tree. What a great view it is from up here. Bright, blue sky, dry October day. You're an acorn attached to the twig of a sturdy oak tree. You can see all the way out to the glistening expanses of the Great Bay with tendrils of rivers coursing into it from all directions. The gentle breezes waft the leaves and branches and you **sway** back and forth, **clacking** up against the twig and other acorns, like your friend Corny who lives next to you on the branch. You **rock rhythmically** on your branch, and then gradually become still.

In the distance you hear a whoosh, like the breaking of waves on a distant beach, a big gust of wind coming towards you. You take a deep breath, anticipating the swooshing of your branch. The gust of wind **rattles** the branches of your big oak, you hold on tight, clinging, but then you're free, **falling, ricocheting** off lower branches, uplifted for a moment by a gust of wind, and clomp, you hit the ground, **bounce** in the leaf mulch and then settle in, rolling until you've nestled into a comfortable nook. Not as good a view, but much cozier down here on the forest floor. You like your new location, you take deep breaths and slowly **drift** off to sleep.

What's that? You awaken suddenly, aware of noises around you. Something is clattering the leaves, somehow you know it's a squirrel nearby. You hear gnawing and you realize the squirrel is sinking her teeth into another acorn. "*Oh no, maybe it's Corny!*" You make yourself as small as possible and you try to **scrunch** under the leaves so the squirrel doesn't see you. And it works, the squirrel scampers away.

Other leaves fall on top of you, it's like a warm blanket, you **nestle** down into the leaves and ready yourself for a long

winter's nap. You hardly notice when the snow falls and covers you. You're deep down under the leaves sleeping.

It's springtime, it's raining and you're surrounded by wet leaves. You feel something **stirring deep** inside you. You feel like you're **swelling**, like a sponge soaking up water, like a balloon being blown up. Your shell cracks, little by little, the crack widening. Then a little piece of you starts to **wiggle out**, your tap root, grows out to the side and then turns and starts to go down into the earth, **burrowing** through the leaves into the soil.

Now another piece of you, your stem, does just the opposite. This piece of you, slender and pale, **reaches upwards**, pushing aside the leaves, splitting your seed. You break through the leaves and move towards the sun, pushing your fleshy seed aside. This part **twists** and **stretches upward**, slowing reaching towards the light.

Now little parts of your leading tip start to separate. Your thin **growing tip spreads** and three tiny leaves emerge. They reach out widely, embracing the spare sunlight on the forest floor, **flattening out** to be horizontal to the sun's rays.

Then another pair of leaves, lower on the stalk and more tiny leaves from your leading bud open—first tiny as mice ears, then **stretching** and **straining** to become full-sized leaves. Your leaves **flop** and **wave** in the gentle breezes that stir the forest floor, you **soak** in the nourishing sunlight. You have become an oak seedling, perhaps destined for great things.

Reference: David Sobel, "Acorn Guided Movement", Antioch University New England. Keene, NH, United States. Used with author's permission.



ANIMAL PERSPECTIVES: MAPPING THE SCHOOL GROUND

AGES

6–18 years old

CONTRIBUTED BY

Evergreen

Toronto, Ontario, Canada
evergreen.ca

Students will use this activity to map the assets on their school grounds through the lens of a living thing.

MATERIALS

- Clipboard and paper, 1 per group
- Pencil, pen or marker, 1 per group



© KELLY CRUISE



© EVERGREEN



© CAM COLLYER

DIRECTIONS

Divide students into small groups of three to four students. Each group will assess the outdoor space from the perspective of a living thing. Choose animals or other living things that are appropriate to your region. (e.g. squirrel, raccoon, ant, butterfly, bird, toad, worm, snail)

Each group is to explore the school ground and map it, identifying any assets (treasures) and barriers (troubles) from the perspective of their living thing.

Encourage students to look at the big features of the school grounds as well as the smaller details, and ask them to examine the school ground closely for additional treasures and troubles (e.g. look under rotting logs).

As the students identify treasures and troubles, they should outline and label them on a “treasure map” of the school ground from the perspective of their living thing.

MODIFICATIONS

Include a base map of the school ground and let students fill in the details, or make three-dimensional representations of the features of the school ground.

For older students you may wish to map the school ground and surrounding community from the perspective of different stakeholders. (e.g. a developer, a child living in community, an urban planner, etc.)

Reference: This activity was inspired by Hilary Inwood, Instructor, Ontario Institute of Studies in Education, University of Toronto and “Nature Mapping” by Mark Batcheler, found in *Green Teacher Magazine*, Issue 84.

BEING MAMA

AGES

7–11 years old

CONTRIBUTED BY

Sekolah Alam Nurul Islam
Sleman, Yogyakarta, Indonesia
sekolahalamjogja.com



© SEKOLAH ALAM NURUL ISLAM

This activity helps children to relate to and feel empathy for their mothers' physical condition during pregnancy. While participating in this activity, students wear a heavy pouch that changes the way they move and feel throughout the day, giving them a sense of the heavy burden a mother carries during her pregnancy. Students also discuss their feelings and consider how to help pregnant women to ease their burden.

MATERIALS

Create a cloth “Front Pouch” for each child. The pouch can be modified from a cloth sac or apron. It should be designed to fit in place comfortably on a child’s belly, using simple straps that are tied on, like an apron.

2 kilograms (4.4 lbs) of sand per child, or the same weight of another smooth, soft material.

DIRECTIONS

Determine how long you will use this activity. It can take place over a day or over a whole week. All students in the class (or the school!) can participate at the same time, along with all of their teachers.

Ask students to put on their “Front Pouches” at the beginning of each day, and wear them throughout the day for ALL of their activities. The burden of 2 kg of sand will feel heavier in some activities than in others, and as the day progresses. Do not allow students to remove their pouches until they are ready to leave school for the day.

Match this physical experience with class discussions that are age appropriate and relate to your own curriculum. Discussion topics might include health, family studies, empathy, and other topics. At our school, we also talk with the children about family members’ roles.

Also include a discussion about the way the children felt as they carried this heavy burden all day. Ask them if there is anything they might be able to do to help their own mothers, or other pregnant women they know?



THE SECRET PICTURE

AGES

5–18+ years old

CONTRIBUTED BY

Naturskolan i Lund

Lund, Sweden

lund.se/naturskolan

This curriculum-connected activity helps children to practice cooperation and communication skills in a relaxing outdoor setting, while also improving their vocabulary for mathematical and spatial terms and concepts such as “over”, “under”, “below”, and “beside”.

MATERIALS

Conduct this activity in a schoolyard or park environment that is rich with “loose parts” from the natural world such as stones, leaves, flowers, and pine cones.

DIRECTIONS

Divide the group into couples. Ask each couple to fetch two sets of objects. For example, three black stones, two small leaves and one flower.

The couples should now sit down with their backs against each other.

One of the children in each pair uses his or her own set of objects to create a pattern or picture of his or her choice.

After this, it is time for the other child to recreate the same pattern or picture only by taking verbal instructions—no peeking!

When the couple thinks they have finished, they turn around and check if the pattern came out correctly.

What similarities and dissimilarities are there? Were the instructions easy or difficult to understand? What could have been communicated more clearly?

The best part: Everybody wins!



© NATURSKOLAN I LUND



ROBERT'S LITTLE FINGER

AGES

6–11 years old

CONTRIBUTED BY

Naturskolan i Lund
Lund, Sweden
lund.se/naturskolan

This activity teaches ratios and collaboration. Students work together to construct a scale model of a member of their group. This activity can be further extended by asking students to collect twigs of a variety of sizes before the activity begins.

MATERIALS

- 20+ twigs, from 2 cm – 20 cm long (approx. 1 in - 8 in)
- Flowers or other small, natural elements for making faces for the stick figures

DIRECTIONS

Divide pupils into groups of about five.

One pupil from each group must take one of the twigs.

Now each group must use the remaining twigs to create a model (stick figure) of the group member who took the single twig. The single twig represents that group member's little finger.

Pupils create the model on the ground and must decide on the proportions of their model. When each group has finished, they must guess the scales used by the other groups.

If the pupil's little finger is 4 cm, with a twig that is 2 cm, the scale will be 1:2. With a twig that is 20 cm, the scale will be 5:1.



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JUGGLING IN A GROUP

AGES

10–18+ years old

CONTRIBUTED BY

Fundación Patio Vivo

Santiago, Chile
patiovivo.cl



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This juggling game allows students to practice cooperative play, teamwork and psychomotor development in an enjoyable manner that also strengthens the classroom community. To play the group juggling game, children will collaborate to focus on their shared goal of keeping all the balls in the air, while also having fun!

MATERIALS

7–10 juggling balls

DIRECTIONS

Ask ten to twenty students to stand in a large circle.

Make eye contact with one student, then gently toss one ball to his/her hands. Make sure that the ball is easy to catch, and the distance across the circle is easy to throw.

Ask the first child to select someone else in the circle by making eye contact, and then throw them the ball.

Continue with this process, one student at a time, until all of the children have received and tossed the ball once. Nobody can receive the ball twice.

In the next round, each member receives a ball from the same person and throws it to another person that he/she has chosen. When each child knows from whom he receives the ball and to whom he throws it, the teacher can throw the first ball, and then slowly add the other six balls to the game.

This game requires attention and coordination among children, since each child will receive and throw a ball very often. When the seven balls are all being thrown simultaneously, the game is a success.

If a ball falls, the teacher has to stop the game, and ask the group to increase their attention and focus.

This game requires coordination and teamwork skills. It is very enjoyable when the group finds their rhythm and flow. To increase the difficulty, add additional balls.



BLIND SQUARE

AGES

10–18 years old

CONTRIBUTED BY

Fundación Patio Vivo

Santiago, Chile
patiovivo.cl



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This activity is a game that requires collaboration, communication, and awareness of other people. The goal is to be able to coordinate the movement of the whole group into the shape of a square, without looking. This game is very simple for a group of people who listen to each other, but can present great difficulties if the members of the group speak all at once. As they play this game, children share leadership, are listened to, and organize themselves. They have to make a clear image of the square in their minds and work collaboratively to create the shape and reach their shared goal.

MATERIALS

- 1 piece of rope, 20 m (66 ft) long
- 1 blindfold for each member of the group

DIRECTIONS

Gather a group of 15 to 30 people in the schoolyard. Stand in a circle and distribute the piece of rope to the group, so that each child can hold onto it with both hands.

Ask the children to work together to select one member of the group to be their guide. This person will give them clues and directions during the activity. The rest of the children will be blindfolded and will follow the guide's advice.

Distribute the blindfolds to everyone except the guide. If blindfolds are not available, ask everyone except the guide to close their eyes.

Give the students the task of shifting their circular arrangement into a perfect square without looking. To do this, they must ask the guide questions about how to move. The guide is also limited in that he/she is not allowed to speak! The guide can only communicate by applauding. One clap means: "Yes" and two claps means: "No".

Once the group has succeeded in making a square, they can take off their blindfolds and sit down to talk about the process. What did they have to do to achieve their goal? What were the difficulties? How could they do it better? The activity can be repeated several times with different guides until they do it very fast.

The game can also be extended by creating other challenging geometric shapes with participants' bodies, such as a triangle, pentagon, or hexagon.









Schoolyard Agriculture and Food

In our increasingly urban society, people of all ages have become disconnected from the natural and agricultural environments that sustain us. Starting a school garden is one way to reconnect students and school communities with local agricultural and ecological systems and to create new, vibrant, hands-on learning environments at the same time.

Horticulture. Culinary gardens are cost-effective, hands-on learning spaces for studying natural science, botany, and horticultural techniques. Gardens are commonly used to teach lessons on topics such as soil, weather, plant growth, insect life cycles, and decomposition. At many schools, children help to build and maintain their gardens by planning and constructing garden beds, designing and assembling trellises and other garden infrastructure, and raising and tending plants from seed to seed, to better understand growth cycles and seasonal change. School gardens are also places to practice and study composting techniques using materials from the schoolyard landscape.

Animal Husbandry. School gardens can provide an opportunity to introduce children to farm animals on a daily basis. Chickens are the most common, but some schools also raise bees, ducks, rabbits, sheep, goats, ponies, and other animals. The animals provide opportunities for children to practice stewardship and empathy, improve their nutrition, and help to enrich garden soil.

Sharing Food. Edible gardens give students of all ages insight into where their food comes from, what it takes to produce it, and the art of bringing it to the table in an enjoyable manner. Preparing and sharing food in the schoolyard is easier to do if schools build informal outdoor kitchen spaces with ovens, campfires or barbecues, sinks, and picnic tables. School garden harvests range from simple salads of freshly harvested lettuce to more complex cooking competitions with a wide range of ingredients and techniques.

Curriculum Connections. School gardens can also be springboards for topics in many disciplines. They help to bring social studies and history lessons to life, and provide engaging settings for teaching arithmetic and geometry, health and nutrition, art and music, reading and foreign languages.¹





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CREATE A BEAN TRELLIS PLAYHOUSE

AGES

2–10 years old

CONTRIBUTED BY

Green Schoolyards America

Berkeley, California, United States

greenschoolyards.org

Bean trellis playhouses are inexpensive, creative play elements that enhance school grounds for young children by providing a setting for their imaginative games that is cozy and inviting, and easy for adults to supervise. These simple structures can be built in a very short amount of time, are inexpensive, and are straight forward to assemble. They can be planted directly in the ground or use large, sturdy pots for support.

MATERIALS

- 5 to 10 sturdy bamboo poles at least 8 ft in length (3 m) and 1 in – 2 in diameter (3 cm – 5 cm)
- If planting in containers on a paved school ground, also purchase 1 large, sturdy pot or planter for each bamboo pole and fill them completely with rich potting soil.
- Edible bean plants that are vigorous climbers such as: scarlet runner beans, with lovely red flowers and large, tasty bean pods; pole beans, with white flowers and smaller pods; or other climbing plants. Purchase enough seeds or seedlings to have 4 to 6 plants per bamboo pole.
- Additional plants to enliven the base of the trellis or fill the surface of the pots, such as: nasturtiums, sorrel, lettuce, or other leafy and flowering edible plants.
- Twine to tie the bamboo poles together at the top and to attach the vines to the poles as they grow.



© SHARON DANKS

DIRECTIONS

Find a suitable location for the bean trellis playhouse in an area that receives some sun to help plants grow. Check to make sure this location is also away from ball games, so children who are engrossed in creative play will not be disturbed by flying balls.

Mark a rough circle on the soil or grass—or arrange large pots to form a circle—big enough for 2 to 4 children to sit comfortably inside.

Gather bamboo poles together. Wrap a piece of sturdy twine around the top of all of the bamboo poles, roughly 1 ft – 2 ft (0.3 m – 0.6 m) from one end, to hold them together loosely.

With several people working together, spread the poles out to form a cone shape, with the twine-wrapped end at the top. Place the bottom ends of the poles at least 2 ft (0.6 m) into the soil or to the bottom of the large pots that will serve as their base. Pack the soil down around the poles quite firmly and check to make sure that the structure is secure.

Plant bean seeds or seedlings around the base of the poles. Add additional flowering, edible plants to fill the tops of the pots or enliven the area at the base of the poles.

Water regularly. As the plants grow, tie the vines to the bamboo poles to give them support until they are well established.

PLANT, GROW, AND HARVEST A “NIBBLING GARDEN”

AGES

5–18+ years old

CONTRIBUTED BY

Bay Tree Design, inc.

Berkeley, California, United States

baytreedesign.com



© SHARON DANKS

Edible gardening is very popular on school grounds throughout California and around the world. Many schools have a school garden where students participate in the process of growing nutritious food, and classes work on hands-on curriculum activities of many types. In the San Francisco Bay Area, some schools are extending their horticulture programs by creating small “nibbling gardens” intended to engage children in their free time during recess. The value, beyond nutrition, is the learned skill and expertise of knowing what types of food are edible in one’s environment and when they are at their delicious peak of ripeness—in other words, teaching the concept of seasonality.

Nibbling gardens work best as an extension of a school’s curriculum-tied gardening program, after students have already been given some background in plant identification and understand the basics of plant growth. Since children engage with these gardens on their own, all plants in a nibbling garden must be edible.

DIRECTIONS

Choose a sunny spot with clean soil or someplace you can place food-grade planting containers. If using containers, be sure to select materials that are safe for growing edibles. For example, you can illustrate material reuse by reusing containers from local food industries such as wine or olive barrels. Many schools in our region also use sturdy new containers such as galvanized steel stock tanks, which can be found in agricultural supply or garden stores. Do not use tires, pressure treated lumber, or other potentially hazardous materials to grow edible plants.

If planting in the ground, amend the soil with organic compost. If planting in containers, fill them with organic compost and potting soil.

Start the nibbling garden by planting seeds or seedlings of robust edible plants that will produce food that students can harvest and eat on the spot during the school year.

Adapt the list to the right for your own local region and microclimate to teach students about the special edible plants that are grown in your part of the world.

Water, weed, and eat!

Plants that grow well in nibbling gardens in the San Francisco Bay Area include:

- Blackberries (*Rubus spp.*)
- Borage flowers (*Borago officinalis*)
- Fava beans (*Vicia faba*)
- Grapes (*Vitis spp.*)
- Lemon balm (*Mellisa officinalis*)
- Nasturtiums (*Tropaeolum spp.*)
- Raspberries (*Rubus idaeus* and others)
- Scarlet runner beans (*Phaseolus coccineus*)
- Snap peas (*Pisum sativum* var. *macrocarpon*)
- Sorrel (*Rumex acetosa*)
- Spearmint (*Mentha spicata*)
- Strawberries (*Fragaria spp.*)



GUERRILLA SUNFLOWER GARDENING DAY

AGES

7–17 years old

CONTRIBUTED BY

Crops in Pots

Karachi, Sindh, Pakistan

facebook.com/cropsinpots



© ZAHRA ALI HUSAIN

As freelance gardening teachers, we encourage all schools and individuals to participate in this wonderful activity on May 1st each year. The idea is very simple. Plant sunflowers on any empty piece of land: an unclaimed plot, a neglected container, around your school, in a public park—in short just anywhere!

Why sunflowers? Sunflowers are not only loved for their bright and vibrant colours, they are also valued for their ability to improve the ground soil by acting as a green manure and by suppressing weed growth. The stunning flower is rich in nectar and pollen that attract beneficial insects, especially butterflies, and improves bee forage in the summer. A single sunflower plant looks just as striking as when these massive flowers are bunched together in a group. The best part is that sunflower seeds are an excellent source of Vitamin E.

Since sunflowers are native to Pakistan, seeds are very cheap and available in most general and horticulture stores. Sunflowers are drought resistant which makes them ideal for Karachi. And birds love to eat them.



MATERIALS

- Heirloom sunflower seeds or seedlings
- A watering can
- Some tools and gloves
- Organic compost

DIRECTIONS

Arrange a trip to a public park with your students or select any other location, such as your school grounds, for your activity.

Let your students pick the spots where they want to see a giant sunflower grow in the future.

Students can carefully dig a hole and transplant their seedlings or simply sow seeds 0.5 in (1 cm) deep. Encourage the students to water them softly with a watering can. Return to provide additional water to the sunflowers as needed.

SEED-RAISING WITH PAPER POTS

AGES

4–18+ years old

CONTRIBUTED BY

greenED

Sunshine Coast, Queensland, Australia
greened.com.au

In this activity, students learn how they can re-use household litter to make pots for edible seedlings for their home or school garden. This activity works well as part of a lesson about waste reduction, botany, horticulture, or nutrition.

MATERIALS

Per child: 1 toilet paper roll; 1 piece of A4 paper or newspaperⁱ; herb or vegetable seedsⁱⁱ; ½ cup garden soil or shredded recycled paper

Per group of 4 children: Permanent marker; small cup-sized plastic containerⁱⁱⁱ to scoop soil; medium (1 L/1 qt) plastic container with lid (e.g. from yoghurt or ice cream); plastic drink bottle with lid for watering.

Notes about materials:

- i. Glossy and coloured paper and coloured inks are not recommended for use in edible gardens since they may contain heavy metals and other chemicals.
- ii. If possible, collect seeds from dried seed heads or fruit of existing plants. Dried pulses (beans, soy beans, lentils, chick peas) soaked overnight will also germinate.
- iii. Children can bring plastic litter items from home, or find these containers in their school lunch litter.

DIRECTIONS

Divide children into groups of four.

Ask each group to select seeds to plant and put them on the lid of the 1 L (1 qt) plastic container. Use permanent marker to write children's names and seed type on the lid, and then place it under the container (like a saucer).

Place the toilet paper roll at the short edge of the paper, 1 cm (0.5 in) from the top, and roll it up. Tuck the top ends in to make an opening, then push the lower ends in to make a base. Trim lower ends if necessary.



© KYLIE MOSES

Using the small plastic container, scoop the soil into the toilet roll pots. Place four pots into a medium plastic container and dribble water through the semi-closed lid of a drink bottle. (Opening the lid slowly regulates the flow.) Check to see if more soil is needed after watering.

Ask each child to plant a seed in their pot, just under the soil's surface. Dribble water again, checking that the seed remains covered and only a little water is in the base of the medium container.

Place all of the containers outside, sheltered from wind and heavy rain. Ask the children to check their seeds every day to ensure that the soil remains moist.

Once the plants have grown more than four leaves, soak the pots in water briefly, and then place them directly into school garden beds or larger recycled containers or boxes. Open the base of each pot before replanting, so the roots can grow out into the larger garden bed.



WELCOMING CHICKENS TO THE SCHOOLYARD

AGES

3–18+ years old

CONTRIBUTED BY

Office of the State Superintendent of Education
Washington, DC, United States
osse.dc.gov/service/school-gardens-program-sgp



© LOLA BLOOM, DC BILINGUAL PUBLIC CHARTER SCHOOL

Start a chicken program at your school to engage students. Chickens provide students with an opportunity to better understand how to properly care for and establish a positive relationship with animals, while also serving an important role in the schoolyard ecosystem. Chickens do require vigilant care and attention. Here is some guidance to start a chicken program at your school, based on our experience in Washington, DC in the United States.

MATERIALS

Chicken coop. The coop is a tightly constructed home for chickens that protects them from the weather. Coops can be made from a variety of materials, and they include nesting boxes where chickens lay their eggs. The number of chickens housed determines the size of the coop. Most coops allow 2 – 10 ft² (0.2 m² – 0.9 m²) per chicken.

Chicken run. The chicken run serves as the chickens’ “yard” where they can peck, roost, and just be chickens. The run contains watering trays, roosts, and any “toys.” Like the coop, the chicken run is tightly constructed, usually with hardware cloth and wood, to protect the chickens from predators such as raccoons.

Chickens. There are many chicken breeds to choose from. Take time to identify hearty, gentle breeds that will be tolerant of children. Find a reputable chicken supplier that will provide a health certificate for each animal. Consider selecting hens for a steady supply of eggs.

Food and water. Chickens eat a wide range of food and love treats like garden greens, fruits, and insects. They need clean water at all times.

DIRECTIONS

Reach out to your school district and the health department in your area to ask about the rules and regulations concerning chickens. Some areas do not allow backyard chickens or roosters, but may make an exception for schools.

Work with the principal and school community to identify a secure area of the school grounds that will provide the chickens some shade and ventilation.

Develop a plan that addresses the maintenance schedule and care for the chickens as well as how the eggs will be used. Eggs should be collected daily and the coop and run should be cleaned weekly.

Build the chicken coop and run with student participation. Older students can do more design and construction and younger students can contribute art and make toys, such as treat dispensers, tunnels, swings, and dust baths.

Work with students to create a list of behavioral expectations. Create and agree on rules that students will hold themselves accountable for when working with chickens and assign roles and jobs that students will be expected to fill.

Bring chickens to the new coop and run. This can include a welcoming ceremony. Allow students to practice how to approach, pick-up, hold, and set down a chicken.

ENRICHMENT AND EXTENSION ACTIVITIES

Consider building a “chicken tractor” (portable, bottomless pen) and creating a rotation plan to allow the chickens to work the soil in different areas of the garden, maintain soil health, and serve as a valuable teaching tool.

Eggs can be given away, sold at farmers markets, or used during a cooking class at school.



CHICKENS PROVIDE MANY THINGS

AGES

8–18+ years old

CONTRIBUTED BY

Sekolah Alam Nurul Islam

Sleman, Yogyakarta, Indonesia

sekolahalamjogja.com



© SEKOLAH ALAM NURUL ISLAM

In thematic learning, one object can be used to understand many things across different academic disciplines. Chickens can help us to teach children about the growth of living things, anatomy, death, and cooking. The students learn about the growth by inspecting about the progress of the chickens' weight over time. When the chickens are mature enough, the students can participate in a humane slaughtering process and then dissect the body to learn anatomy. The final lesson in this series is learning to cook the chicken's meat and create a special menu that is meaningful and healthy.

MATERIALS

- Some chickens
- Cages and chicken food
- Slaughtering and cooking equipment

DIRECTIONS

Divide the students into several groups and give each group the responsibility of raising a specific chicken together. Students care for their chicken on a daily basis and measure its growth and weight each week.

When the chickens have reached maturity and it's time to harvest them, every group prepares their own slaughtering equipment, and slaughters the chickens humanely, with guidance from a knowledgeable adult.

After the chickens are dead, the anatomy lesson begins. Each group dissects their chicken and observes their chicken's internal organs. The teacher can provide additional information about chicken anatomy and match this lesson with curriculum about bodily systems.

When the anatomy lesson is complete, each group prepares a special meal with their chicken and enjoys what they have cooked. Groups can also compete to make the tastiest food.



BARBECUING BANANAS

AGES

5–18+ years old

CONTRIBUTED BY

Learning through Landscapes

Winchester, England, United Kingdom

ltl.org.uk



© LEARNING THROUGH LANDSCAPES

Cooking bananas with chocolate on a camp fire is something any age will enjoy. This activity is a great way of introducing outdoor cooking in your school grounds or keeping volunteers full of energy as they take part in a practical work day in your school grounds.

MATERIALS

- 1 banana for each person
- Chocolate buttons or squares, about 4 – 6 per banana
- Cooking foil, cut into squares to wrap each banana
- A sharp knife
- A fire steel and cotton wool, or another type of tool to light the fire
- Dry wood in different sizes: tinder, small sticks, bigger sticks, and larger pieces of wood
- A fire pit or barbecue to use for outdoor cooking
- Barbecue tongs (or similar)
- Fire gauntlets or oven gloves
- Water, to clean hands and to be ready to put out the fire
- A first aid kit
- 1 spoon for each person



DIRECTIONS

Make sure you are aware of all the health and safety issues when working with fire on school grounds. Always have something to put the fire out at the end of the activity.

Light your fire and build it up to a good level. You may have to keep stoking your fire as you go depending on how long you need it at cooking temperature. The size of your fire will also dictate the number of bananas you can cook at a time.

Whilst you let your fire burn down to glowing embers, take each banana and split it down the middle, top to tail, with a knife. Cut through the banana, but be sure to leave the bottom side of the skin uncut. Younger participants may need help with this step. Older pupils may like to do it themselves.

Add the chocolate down into the slit banana, and then wrap the whole banana up in the foil. Each participant should add a distinguishing feature to the way they wrap their banana so that they can identify their own.

Place the wrapped bananas in the embers of the fire using the tongs. Ask the pupils what they think will happen to the banana and the chocolate.

After five to ten minutes turn the packages over to cook on the other side. After a few more minutes take the bananas out of the fire and hand them around. The foil cools really quickly but the bananas will be hot! With small children, it's helpful to use a spoon to break up the banana before they have a go. Eat and enjoy.

COOKING CONTEST CELEBRATING LOCAL INGREDIENTS

AGES

6–18+ years old

CONTRIBUTED BY

**Elizabeth Phal, Gilman Elementary School
and Yap Fusion**

Gilman, Yap, Federated States of Micronesia
yapfusion.blogspot.com

Gilman Elementary School is located in the community of Gilman in Yap State. It is one of the many public schools on the island that has a very active agriculture and culture curriculum and established activities that enhance these two subjects. The school has a garden where students of all grades grow local crops and herbs in addition to a few imported crops using traditional gardening techniques.

Gilman School holds a cooking fair on the last Friday of each quarter to celebrate the students' hard work in the garden and to encourage the students to eat and appreciate locally grown food. Students must plan their recipes around crops that are ready to harvest. Members of the community, representatives from various government offices and representatives from the Yap Inter-Agency Nutrition Education Council are invited to the fair.

The students are divided into groups and each group is led by a teacher. Each group must come up with at least three recipes to prepare and present during the fair. Each group's recipes are kept hidden from the other groups. Parents and teachers contribute the imported items such as onion bulbs, cooking oil, salt, pepper, sugar, etc. Portable stoves, pots, and utensils are also donated by the teachers, parents, and sometimes members of the community.

On the day of the fair, the students and teachers head to school in the morning eager and ready to cook. Students must be ready to present their creative dishes by lunch time. The winners are announced after everyone has had a taste of all the different varieties of food. The cooking fairs have changed the attitudes of both parents and students toward the consumption of locally grown food. Local food is super food!

Although the recipe to the right was awarded second place, it is one of my favorites because of its simplicity and bursting flavors. Allow approximately 35 minutes to prepare this salad.



© YAP FUSION

Recipe: A fruit salad for any occasion

Ingredients

- 3 bananas, sliced and diced
- 2 oranges, peeled and sectioned
- 2 cups (0.5 L) cubed fresh pineapple
- 2 cups (0.5 L) cubed ripe papaya
- 2 cups (0.5 L) cooked, diced pumpkin
- 2 cups (0.5 L) cooked, diced ash gourd (winter melon)
- 2 fresh coconuts, grated and squeezed for coconut milk, or 3 cups of coconut milk
- 1 cup (0.25 L) of fresh milk
- Sugar is optional. This fruit salad is sweet enough and has plenty of flavor on its own.

Directions

Skin and cut the pumpkin and ash gourd into cubes and cook with water. Boil for 25 minutes.

Skin and cut the pineapple into cubes. Peel and dice the banana and papaya. Peel and section 2 oranges. Remove the skin of each section and its seeds.

If you're using fresh coconut, grate the meat into a bowl and mix it with tap water. The water level should be the same as the grated coconut meat. Using a sieve, squeeze the mixture for coconut milk.

Drain the cooked pumpkin and ash gourd and set aside to cool. You can dunk the pumpkin and ash gourd in water to cool faster.

Put all the cut fruit and the cooked pumpkin and ash gourd into a bowl. Pour the coconut milk and fresh milk on top of the fruit. Mix carefully so the fruit is not squashed or crushed.

Add more coconut milk or fresh milk, to your taste.

GAGA FOR GREENS

AGES

5–8 years old

CONTRIBUTED BY

Horace Mann Elementary School
Washington, DC, United States
horacemanndc.org

In this activity, students learn about nutrition, vegetables, and the parts of the plant they come from, while creating edible art and having a good time!

MATERIALS

- Paper plates, 1 per student
- Assorted vegetables and greens
- Stapler or brass fasteners
- Elastic ribbon, assembled before beginning the lesson
- Paper and drawing materials for each child
- Pictures of Lady Gaga’s fantastic hats
- Pictures of hats made from vegetables



© AMY JAGODNIK

DIRECTIONS

Assemble your class outdoors in a comfortable place where students can see one another and the teacher, and also access the materials assembled for the lesson. Picnic benches work particularly well for this activity.

Present an assortment of fresh greens and vegetables to students, and let them use their senses to explore their colors, shapes, textures, and scents, first hand. Ask each student to choose a vegetable from the assortment silently and then in turn describe the attributes of that vegetable to the rest of the group. Students then try to identify the matching plant.

Show students some pictures of the fantastic hats that Lady Gaga wears for her public appearances. Next, show pictures of hats made from vegetables.

Ask students to draw a design for a hat they imagine could be made from some of the vegetables on the table. Optional: Students could also draw directly on the plates used for their hats in the next step.

Give each child a clean paper plate, with an attached elastic strap, to use as the base of their hat. Provide a selection of cut vegetables for students to choose from, and staples or brass fasteners that they can use to attach the vegetables to the hats. Give them time to construct creative arrangements on their hats.

Ask all of the children to wear their hats and hold a brief “fashion show” or “parade” to admire each others’ work.









Place-Based Understanding

Living schoolyards, built with local, natural materials and native plants, are each unique, reflecting the geography, ecology, and culture of their community. This makes school grounds special and memorable for the children, youth, and adults who spend time in them. It builds a “sense of place” and feelings of connection, belonging, shared ownership, and care.

School Ground Exploration. Many children today spend the majority of their outdoor time on school grounds, making these landscapes centrally important for shaping their experience of the world around them. As they attend school, children and youth visit the same outdoor environment day after day, and year after year, which gives them a nuanced and intimate understanding of the microclimates, wind patterns, rainwater flows, landforms, and communities of creatures, big and small, that share their landscape.

Schools can ensure that children of all ages develop a relationship with and understanding of place by giving them the time they need to explore their grounds every day, on their own. They can also foster outdoor learning that helps students weave their first-hand experiences of the grounds into a sophisticated understanding of the natural and human systems around them. Map-making is one way to harness students’ knowledge of their grounds and solidify their spatial understanding, while connecting concepts taught in the classroom with hands-on fieldwork.

Natural Context. By exploring their own surroundings, children build a connection to and affinity for these outdoor spaces and the living things that inhabit them. Green schoolyards can also showcase local ecosystems and species, helping children to build scientific understanding and an awareness of human impacts—inspiring stewardship and further academic inquiry.

Geographic Context. Large painted or three dimensional maps of many types can be added to schoolyards to illustrate the school’s location in the world, the country, the state, the city, the neighborhood, or even their watershed.

Cultural Context. Many school communities have incredibly rich cultural diversity which can be celebrated in their schoolyards with art, events, and activities that reflect the school’s population and context.

Historical Context. Every school site and surrounding neighborhood has its own history, whether it is newly built or has stood for hundreds of years. Curricula about local history can be connected to the unique patch of ground managed by your school, and the results may be displayed creatively outdoors, for everyone to enjoy.¹



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GUESSTIMATING, ESTIMATING, AND MEASURING

AGES

5–15 years old

CONTRIBUTED BY

Learnscapes Australasia

Angourie, New South Wales, Australia
inspiringschoolgrounds.com

Learning how to make your personal metre pace is fun for all ages. Measuring skills, especially estimating, are an essential life skill widely used in games, sports, and most careers. Measurement helps describe our world using numbers and offers the challenge to actively and physically involve students in their mathematics learning. It is an ideal context for dealing with numbers and with numerical operations of all sorts and at all levels. Metric measures provide the most useful real-world model of a base-ten numeration system we can offer to children. Estimation of measures should be a focus of any work that students do with measurement.

MATERIALS

- Measuring equipment for each group to accurately measure up to 30 m (~100 ft), including long tape measures, trundle wheels, and 1 m rulers (yardsticks)
- Objects such as short sticks, or chalk (if on asphalt or concrete) to mark 1 m (~1 yard) distances

DIRECTIONS

Divide the class into working groups with 3 or 4 students in each group. Preselect a suitable outdoor location (Spot X) for the activity. From Spot X identify a target building, fence, or easily seen landmark that the students will “guesstimate,” then estimate, then measure the distance to and from where they are standing. About 30 m is suitable, or reduce this distance for early years and increase it for senior students.

Without moving from Spot X, ask each group to discuss and guess how many metres it is to the target object. After two minutes ask groups to decide and “lock in their group guess”. Bring the groups together. Ask each group, in turn, to reveal their guess to the rest of the class.

In a different nearby space, lay out a long tape measure (at least 20 m) in a straight line on the ground. Students can help highlight each metre by laying short sticks (or drawing with chalk) beside each metre marking on the tape. In single file, students practise taking 1 metre steps along the side of the tape. They can adjust their step to experience the feeling of a 1



© LEARNSCAPES AUSTRALASIA

metre pace. Repeat the activity a few times until students feel confident taking 1 metre-long steps.

Go back to Spot X. Each group can step out and count the distance to the target using metre paces. Each group discusses, decides, and “locks in” a new estimate. Bring the groups together to reveal their new estimates. Ask students to calculate the difference between their first guess and their new estimate. This can be done in groups or by the whole class.

Finally each group, or a nominated group or groups with others watching, use measuring equipment to take an accurate measurement from Spot X to the Target. Calculate the difference between the estimate and the actual measurement for each group. Celebrate which group had the closest estimate and guesstimate.

Guess, estimate, and check a different part of the school grounds every day!



PHOTO-FRAMING

AGES

10–18+ years old

CONTRIBUTED BY

Dr. Victoria Derr

**California State University, Monterey Bay
and Growing Up Boulder**

Monterey, California and Boulder, Colorado, United States
growingupboulder.org

Photo-framing is a method to encourage conversations about the smells, sights, sounds, tastes, and local practices that give a community vitality and identity. Children can use green frames to indicate high quality features of a place and red frames to indicate problematic place features. The method can be used in preparation for site improvements that will increase wildlife habitat or nature play, or to explore other aspects of children’s relationships to place.

MATERIALS

- Cameras
- Cardboard photo-frames, made from mat board, cut cardboard, or repurposed picture frames, with one side painted red and one side painted green
- Data sheets, with columns to record positive and negative features of the environment and a brief explanation for why pictures are taken
- Clipboards and pencils

DIRECTIONS

Break students into teams of three. Demonstrate how to hold the frames while taking pictures, with one person holding the frame and a second taking the pictures. A third can record the image numbers and reasons why a picture was taken.

Explain that it is important for participants or facilitators to record why pictures are taken: Data sheets help preserve the immediate thinking that can otherwise be lost when participants take many pictures before returning to discuss them. They link image numbers to the photographer’s ideas.

Ask students to explore a specific area, using green frames to indicate places or elements of the environment that they like (or that are positive for wildlife habitat), and red frames to indicate places that they would change (or are negative for wildlife).



© VICTORIA DERR

Give students a set amount of time, from 15 – 30 minutes, to take pictures. Upload all photographs to a computer or print them. Ask students to organize their photographs by writing short descriptions, compiling them into a collage, or preparing a digital presentation.

Ask each group to share their photographs, describing why they took the pictures that they did. Discuss the photographs together. What are similarities across the pictures taken? What are differences? Write these themes down as a list.

Have students identify which of these themes is most important, and which of these themes they think they can change. (If desired, students can vote with 3 sticky-dots or check marks to establish priorities among the themes.)

Ask students to research these ideas further so that they can develop an action plan or series of recommendations, depending on your project goals.



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TRAVELING FRUIT AND VEGETABLES

AGES

8–12 years old

CONTRIBUTED BY

Play Learning Life

Winchester, England, United Kingdom
playlearninglife.org.uk

This is an activity about mapping, using fruits and vegetables grown in your own school grounds. Each is moved around the grounds by pupils. One person places a fruit or vegetable somewhere in the grounds and someone else has to find it and record its latest location on a map of the site.

MATERIALS

- One fruit or vegetable per student group
- Map of school grounds (preferably created by students)

DIRECTIONS

For this activity, pupils work in groups. Each group chooses, or is allocated, a different fruit or vegetable grown on their school grounds. Each group must have a different item so that they can tell which is theirs when they go searching around the school grounds.

The first person in each group takes their piece of fruit or vegetable and places it in full view somewhere in their school grounds. They should put it somewhere that it would not be expected to be seen so that there is no confusion with other fruit or vegetables outside. No one else in their group should see where the fruit or vegetable has been placed.

After placing their item, they return to their group and the second person sets out. When they find the item they take a photograph of it and mark its location on a map of the school grounds. They then reposition the item somewhere else in the grounds.

The second person then returns to their group and sends the next person out to photograph it, mark it on their map and move it. Continue this until everyone has had a go. You should end up with the person who first placed the item outside finding and recording its final location before bringing it back to the group.



© PLAY LEARNING LIFE

On return to the group, print out the photographs of the fruit and vegetables and place them on the team's map. Pupils can also create a map of all the journeys their fruit and vegetables have taken, seeing how much of the grounds everyone visited. Use different colours to indicate the different pathways each piece of fruit or vegetable went on its travels around the grounds.



Reference: This activity was inspired by "The Travelling Lemon" from *Cabin Pressure*, by John Finnemore.

BAGGAGE TAGS FOR LEARNING

AGES

9–18+ years old

CONTRIBUTED BY

Evergreen

Toronto, Ontario, Canada

evergreen.ca

This is an observation activity that can be used to introduce any subject or theme, or as an assessment to demonstrate students' understanding of a topic that they have explored in class. Students will label objects in the schoolyard to reflect descriptions on their "baggage tags".

MATERIALS

- Cardstock paper and scissors
- String or elastic

PREPARATION

Before including students in the activity, create "baggage tags" by cutting cardstock into small note-sized pieces, punching a hole in the top of each one, and threading it with a string or an elastic band.

Print an instruction on each "baggage tag" that describes something that the students should look for on the school grounds, that is related to a topic they are exploring in the curriculum. For example: evidence that an animal has been here; something prickly (tied to study of the five senses, or adaptations); something granular (connected to a study of geology); "where some of our ammonia and nitrogen are being recycled" (tied to studies of ecology and nutrient cycles).



© EVERGREEN

DIRECTIONS

Provide each student with a "baggage tag" that has an instruction printed on it.

Give students a fixed amount of time (e.g. 5 minutes) to find a place within a well-defined area of the school ground that matches the description on the card. Ask each student to hang their card on or near the item that matches the description on their card.

Ask all of the students to return to a central gathering spot when they have accomplished their task.

Take the whole class on a walk along the trail created by the baggage tags, and ask the kids to share their findings. With larger classes, students can work in pairs to reduce the number of trail stops.



Reference: This activity was inspired by Dennis Wendland, former Evergreen Associate, Waterloo Region.

COLOUR IN OUR OUTDOOR WORLD

AGES

3–10 years old

CONTRIBUTED BY

Learnsapes AustralAsia

Angourie, New South Wales, Australia
inspiringschoolgrounds.com



© LEARNSCAPES AUSTRALASIA

Colour is one of the most noticeable attributes of the world around us. Not only does colour play an important role in the overall aesthetic of a space, it can also impact an individual's mood, emotional well-being, productivity, learning and behaviour. Colour can sway thinking, change actions, and cause reactions. Understanding colour is an essential building block that students will use for learning in all areas of their life. So when it comes to designing and creating kids' spaces, colour is one of the most important elements to consider.

MATERIALS

A range of different coloured paint samplers from the paint or hardware shop.

DIRECTIONS

In small groups, pairs, or individually investigate where different colours occur in the school grounds. Use a warm-up activity (practice run) inside the classroom.

Divide up the colour swatches between the individuals, pairs, or small groups of students. Ask students to find coloured items or features in the classroom that match their colour swatch.

Ask each group to report their findings back to the rest of the class. Record the class's findings. Discuss and classify the results according to living and non-living items, warm and cool colours, and other categories you determine.

Go outside and repeat the activity. Ask students to look for coloured items or features in the outdoor environment that match their colour swatch. Repeat the process of sharing and recording everyone's findings, and discussing and classifying the results.

Discuss any differences found in the range of colors inside and outside. Ask the students why enhancing the range of colours found outside in the school grounds could be beneficial.

Research ideas and make plans to add more colour to the school environment through both living and non-living colour opportunities.



BIOTIC OR ABIOTIC?

AGES

8–18+ years old

CONTRIBUTED BY

Green Schoolyard Network

Wayland, Massachusetts, United States
greenschoolyardnetwork.org

In this activity, students will learn the difference between living and non-living things and the relationship of those things to each other within an ecosystem.

MATERIALS

- Clipboard
- Paper
- Pencil/Pen

DEFINITIONS

Biotic factors in an ecosystem include all living things or anything that was once alive. These include all plants, animals, fungi or bacteria.

Abiotic factors are all nonliving components of an ecosystem. These include chemical and geological features such as water, soil and rocks and physical components such as temperature and weather.

DIRECTIONS

Each group will explore the school grounds and identify and list five biotic things and five abiotic things.

Encourage students to look at both big features and also very small things.

Discuss the interdependence of biotic and abiotic elements of an ecosystem (e.g. birds/air, worms/soil, plants/water or sun). Ask the students some questions, such as:

“Is a car biotic or abiotic? What if it has leather seats?”

“Does your body depend upon both biotic and abiotic elements to survive?”

Conclude the activity by asking students to think about relationships that create a healthy ecosystem.



© BOSTON SCHOOLYARD INITIATIVE



Videos

See the following videos for more background information:

youtube.com/watch?v=E1pp_7-yTN4

youtube.com/watch?v=cH0KX19V--Y



COUNTING IS FUN!

AGES

4–7 years old

CONTRIBUTED BY

Centre for Environment Education

Ahmedabad, Gujarat, India

ceeindia.org and ecoschools.in

The goal of this activity is to help children learn to count by using things found in nature. This is a wonderful activity to build numeracy skills in a fun and engaging way in young learners, while also getting them to engage with the outdoors. The activity can be done any time of the day or year.

MATERIALS

- Paper
- Pen or pencil
- 10 different materials from nature including flowers, leaves, twigs, seeds, fruits, pods, grass blades, petals, etc. Students will collect these as part of the activity.

DIRECTIONS

Ask students to create individual worksheets with the numbers “1” through “10” written down one side. For younger children it might be useful to provide worksheets written by an adult.

Let students move around the school grounds and collect different types of materials found in nature. Give them at least ten minutes to do this. Teachers should guide students to collect multiple numbers of the same type of material, for example, one feather, two seeds, three stones, etc. Teachers should also guide students not to pluck things from plants, but to collect material which has fallen onto the ground.

Help the students to place the items they collected in the correct place on their sheet. They should place one natural item by the number “1” on their worksheet, two items by the number “2”, and so on.

VARIATIONS

Direct students to collect specific numbers of items, e.g. “Go find two of something”, “Go find four of something”, etc. When they get back they can place their items in the correct section of their worksheet.



© SUKPRIT KAUR

Alternately, give students ten minutes to collect any items they can find, and then have them use their sheet to count what they have found. If they find three seed pods they can lay those out on their worksheet in the “3” row, or they can lay out their six pebbles in the row for “6”, etc.



Reference: Center for Environment Education collaborates with Pramarth Investment Partners, The Foundation for Environmental Education (FEE) and Eco-Schools Programme India. For more information see: fee.global and ecoschools.global

NORTH, SOUTH, EAST, WEST

AGES

6–16 years old

CONTRIBUTED BY

Learnsapes AustralAsia

Angourie, New South Wales, Australia
inspiringschoolgrounds.com



© LEARNSCAPES AUSTRALASIA

Explore the accuracy of your school ground map. It is a rare occurrence that any school holds a fully accurate map or site plan of its buildings and grounds since many changes that occur in schools are not recorded on a site map. Once kids are introduced to reading a school plan as a bird's eye view, they absolutely love to locate various features and point out all the "mistakes" by identifying either what no longer exists as represented on the site plan or features that are missing from the plan. For better results, invite adults and students to work together.

MATERIALS

- 1 copy of the school ground site plan (map) for each student or group of students, so that every student is able to see or share the map
- Rulers, pencils, erasers
- Outdoor measuring equipment (trundle wheels and/or long tape measures to share)

DIRECTIONS

Divide the class into small groups or conduct this activity with the whole class.

Begin by reading the title bar of the school ground site plan. What does it tell us? Find the date this plan was made. What does it tell us? Find the North Point on the plan. Confirm the orientation.



Locate the place where you are currently situated. (classroom, library, under the big tree)

- What is located in the North of the site?
- What is located in the South of the site?
- What is located in the East of the site?
- What is located in the West of the site?
- What is located in the North East of the site?
- What is located in the North West of the site?
- What is located in the South East of the site?
- What is located in the South West of the site?
- What is located in the centre of the site?

Look at the site plan and identify what is no longer here and what is not shown. Ground-truth the map by checking it while you are outdoors. Cross out things that no longer exist. Draw in features not shown. Estimate or measure the size and shape of new features.

Discuss the accuracy of the site map and any possible reasons for this. Decide whether or not to prepare an updated version of the site map. What are the advantages of doing this? Is it important or not? Why?

GEOCACHING IN YOUR SCHOOL GROUNDS

AGES

6–18+ years old

CONTRIBUTED BY

Evergreen

Toronto, Ontario, Canada
evergreen.ca



© PLAY LEARNING LIFE

Geocaching is the fastest growing outdoor recreational activity in the world, with more than 5 million participants in over 200 countries. The basic premise is that a person can go to the official geocaching website (geocaching.com), type in a location such as a city name or postal code, pick a hidden geocache in the area, load the coordinates into their GPS unit, and then go out and search for it.

You'll be amazed at how many geocaches are hidden all around you in both urban and rural areas! Usually the geocache takes the form of a waterproof container with tradable items inside. Once the container is found and the contents explored, the logbook is signed and the cache is returned to its hiding spot. Then the find is recorded online. This last step enables the finder to communicate with the geocache creator, and to describe their experience as they searched for and found the cache.

Many educators have also recognized geocaching as a valuable tool that can enhance curriculum right across the board. Using the website at geocaching.com, teachers can find creative ways to incorporate teamwork, social skills, problem solving and other academic challenges into their lesson plans—all while getting their students outside!

Activities for younger students could include finding containers with different coloured counters inside, which the students could then sort by number, size and colour, and then colour a graph to display their results. Older students might have to solve a math problem, sort out a logic puzzle or decrypt a code in order to find the longitude and latitude coordinates of the next geocache, and so on.

For environmentally themed lessons, students can be given coordinates for a certain area of a pond, or a specific type of tree where they may find nature at its best. Other tasks could be to measure the height of a certain species of tree, identify the type of animal tracks on the bank of the creek, count the numbers of fossils in a large rock or simply take a crayon rubbing of a word on an historical plaque. The possibilities are as endless as the creative ideas one possesses.

Geocaching is the perfect outdoor activity because anyone can do it! No matter your age, physical abilities, or interests, you can find a geocache that fits your needs and encourages you to get outside, engage in a fun and challenging activity, and explore. Remember, "it's the journey, not the destination". So grab a GPS and head outdoors—there is a whole world just waiting to be discovered.



GREEN CITIES

AGES

6–12 years old

CONTRIBUTED BY

Karel Komárek Proměny Foundation

Prague, Czech Republic
nadace-promeny.cz



© KAREL KOMÁREK PROMĚNY FOUNDATION

What impact do green areas have on life in cities? How do built-up urban areas differ from open spaces, parks, and gardens? Often, green spaces have much more variety of terrain than urban development, which can feel different to walk on or play in and changes the character of the space. In this activity students will explore these concepts, learn about contour lines and maps, and create a model of their landscape!

MATERIALS

- Maps of your area, including one with contour lines showing elevation
- Cardboard, a small stack per group
- Small items collected from nature (leaves, grass, etc.)
- Scissors
- Glue
- Paint (optional)

DIRECTIONS

Start by discussing the differences between open spaces and urban areas. Think about the green areas in or near your school or your home. Discuss their importance to you and others in your community. What features do they have? What benefits do they provide?

Show students the maps of your area. Working together, identify streets, buildings, and parks. How are these indicated on the map? Can you find hills and sloped areas as well? How are these marked on the map?

Show students the map with contour lines. Explain that these are lines of consistent elevation or that they indicate where there are hills and mountains. The closer together the lines are, the steeper the hill! To increase students' understanding of contour lines, you can have students match drawings of the contour lines for different hill or mountain shapes (aerial views) to what those landforms would look like in profile.

Afterwards, take a walk through your school grounds and pay attention to its terrain. The ups and downs of the landscape are more dramatic if you are blindfolded! Try this game to experience the landscape: Ask students to put on blindfolds or close their eyes and all hold onto a rope. Then slowly lead them over flat and sloped areas or ask them to try to descend or ascend a hill in a line together.

When the class is familiar with the idea of contours and variety in the terrain, they can create a model landscape! Create a stack of cardboard sheets. Starting with the bottom one, cut them so that each layer is a little smaller than the one below it, creating a hill or two! Once they are done cutting, students can glue them together and decorate their models with paint or things they have collected from nature, to signify where there are pathways, trees, bushes, grassy areas, parks, waterways, or other biotypes. Name the place they created and talk about its character.



NEIGHBORHOODS

AGES

6–12 years old

CONTRIBUTED BY

Karel Komárek Proměny Foundation

Prague, Czech Republic

nadace-promeny.cz



© KAREL KOMÁREK PROMĚNY FOUNDATION

Do you know your neighbors, the people who frequent the public spaces in your neighborhood? What is and who makes up a community? What are community gardens, and why do people build them in cities? In this activity, you will find out about the people who live and work near your school and design a garden that is suitable for everyone who lives in or visits the neighborhood, including children, the elderly, and parents with baby carriages!

MATERIALS

- A small box (like a shoe box) for each small group
- Things from nature: stones, pine cones, grass, sand, etc.
- Scissors
- Cardboard
- String
- Glue

DIRECTIONS

Discuss with the class: what a neighborhood is, what a community is, and what a community garden can be. Use videos or photographs of specific community gardens in your neighborhood or city as inspiration.

Determine the needs that a community garden should meet, who it should serve, and what its essential components are. Think and talk specifically about who is in your community, what their needs are, and how a community garden could serve them. If you can, it helps to take a walk around the neighborhood, do research, or make observations throughout a few days about who comes and an out of your schoolyard at different times. Make a list of features you think your garden should have, so that it serves the different people in your community.

Students then work in small groups (no more than six students), to design their own community garden, using natural materials in a box as a model. They will look over the

list of possible features you have made as a class, and decide which will be included in their model. Discuss individual components and materials—what will things be made of? Where will they go? Each group will make the design in their box using things collected from nature, either from your school grounds or nearby.

Be sure each team creates a space that has multiple uses! Each garden should function not only as a meeting place, but can also be used for growing vegetables, composting, and organizing community get-togethers.

When all of the models are finished, students can take a tour and share them with each other, explaining why they made the design decisions that they did (either in regard to the materials they used or what they represent.)



CREATE AND FLY CARP STREAMERS ON YOUR GROUNDS

AGES

4–10 years old

CONTRIBUTED BY

Environment Design Institute
Tokyo, Japan
ms-edi.co.jp/youho/htdocs

More information and instructions

In Japanese, with helpful step-by-step photographs:
<http://bit.ly/1RYwhjv>

May is the season of flying carp streamers (fish-shaped wind socks) and includes Children's Day in Japan. Let's encourage schools to fly carp streamers on their grounds, and to make them with children. When the carp streamers are finished, encourage the children to draw pictures of their school grounds with flying carp streamers.

MATERIALS AND DIRECTIONS

- Pieces of cloth to create the fish-shaped wind socks
- Needle and thread to sew the fish-shaped wind socks
- Acrylic paint to decorate the fish (You can make the carps' scales using children's handprints!)
- Some rope and wire to hang up the completed fish



© ENVIRONMENT DESIGN INSTITUTE

TRADING POST

AGES

4–10 years old

CONTRIBUTED BY

The Carey School

San Mateo, California, United States
careyschool.org

Trading Post is an activity created by the students and inspired by lessons learned about the Native Americans trading goods with early American settlers. Children find materials to use for this activity around the school's natural play space. These items are then brought to the Trading Post for trade, sale, or barter.

MATERIALS

- Small items to barter with, such as pine cones and acorns found in the schoolyard or child-made artwork

DIRECTIONS

Set up a space in your green schoolyard to be your Trading Post.

Give a lesson on early American life and explain the bartering system that was used at Trading Posts.

Tell kids they will be trading items and they should either collect natural items or make art to trade.

Ask the students to bring items to trade, sell, or barter to the Trading Post, and let them experiment with the terms of each trade to get a feel for this type of economy.

The students can then use the new items they receive in their trades to make new creations.



© HELEN LEW



MAY DAY CELEBRATION

AGES

4–18+ years old

CONTRIBUTED BY

Children in Nature Collaborative

San Francisco Bay Area, California, United States
cincbayarea.org

Maypole dancing is part of a lively celebration of spring. It can include simple circle dances for younger children, and gain increasing complexity for children in older grades. Older student ensembles can also play music to accompany the dancing. The Maypole is a tradition going back to the 16th century in Europe—originally a decorated tree set up on May 1st that was often part of a village festival.

MATERIALS

- One 12 ft – 15 ft (3.5 m – 4.5 m) tall pole, that is 3 in (8 cm) in diameter
- One 18 in (45 cm) diameter round wooden disk (for the top of the pole) and a 6 in (15 cm) carriage bolt to attach the disk to the top of the pole.
- Twenty four 2 in (5 cm) bolts with accompanying flat washers, spring washers and wing nuts to attach the ribbons to the wood disk.
- Twenty four colorful ribbons made of cotton or satin cloth, 25 ft – 30 ft (7 m – 9 m) long and 4 in (10 cm) wide—in two contrasting colors or a variety of colors (rainbow). Attach sturdy grommets to both ends of each ribbon.
- A piece of plastic or metal pipe, 3 ft – 4 ft (1 m – 1.25 m) long and 5 in (13 cm) wide, to insert in the ground to hold and stabilize the vertical pole.
- A basket with a flower bouquet, to place at the top of the Maypole. Wire to attach the basket to the pole.



© WALDORF SCHOOL OF THE PENINSULA

DIRECTIONS

Preparation before the May Day Celebration: Dig a narrow, 3 ft – 4 ft (1 m – 1.25 m) deep hole in the ground with a post-hole digger and insert the pipe vertically, to provide a sleeve that will support the tall pole.

Day of the celebration: Attach ribbons to the wooden disk that will go on top of the pole and anchor the disk to the pole using the carriage bolt.

Install the tall wooden pole by placing it into the pipe sleeve in the ground. Use two to three people to lift and place the pole into the sleeve in the ground.

Using a tall ladder, attach the flower basket to the disk on top of the pole using wire.

Spread the ribbons out around the pole. Use bamboo sticks, placed through the grommets at the ends of the ribbons, to hold them in place until the dancing begins.

Begin Maypole dancing! Younger grades start first with simple dances and older grades continue with more intricate weaving. Traditional Maypole dances result in creating different types of ribbon patterns down the length of the May Pole. Dances include: Circle Dance, Barber's Pole, Spider's Web and traditional Single Braid.

For more information about Maypole traditions and Maypole dances, please visit this website: <http://bit.ly/1NaV8nm>





Wildlife and Habitat

Schoolyard wildlife sanctuaries and native habitat zones are important and engaging places that help students of all ages connect to the natural world. They illustrate that “the environment” is not just a far away place—it is something that surrounds us all in our local neighborhoods.

Wildlife sanctuaries and schoolyard ecosystems, large or small, enrich school curricula while providing refuges for a variety of species. They allow students to see that wildlife can exist in urban and suburban areas and even thrive with a little help. Wildlife areas and native plantings can be connected to the curriculum in countless ways, including nature observation in science classes, sketching practice in art classes, and population estimates and counts for math or science classes.

The strongest school ground wildlife projects provide well-rounded habitats that fulfill the basic needs of local creatures—consistent food sources, clean water, shelter, and areas where they can rear their offspring. Successful schoolyard wildlife sanctuaries also provide places for students to observe birds, animals, and insects while leaving the creatures relatively undisturbed. They are peaceful havens for quiet reflection where flora and fauna are nurtured, changes happen slowly following ecological cycles and planting schemes highlight seasonal change and mimic natural patterns.¹

School grounds can also be used to explore wildlife- and habitat-themed games and other hands-on lessons that foster a deeper understanding of the needs of local wildlife. Outdoor learning can also extend from the school grounds into the neighborhood to investigate the health of local ecosystems.

Chapter Notes. Some of the activities that follow focus on conveying a general understanding of ecosystems and their interconnections. Other parts of this chapter are organized by the type of organism, to make it easy to find curriculum connections and to build teachable moments after seeing particular creatures or plants on the school grounds.



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© SHARON DANKS



WEB OF LIFE

AGES

8–18+ years old

CONTRIBUTED BY

Green-Schools Ireland
Dublin, Ireland
greenschoolsireland.org

A colleague introduced us to this activity many years ago and we have been using it ever since. We have found it to be really effective for demonstrating the interconnectedness of all living things. It is a very enjoyable and engaging activity for all ages and all sorts of groups!

MATERIALS

- 1 ball of string, at least 20 m (~65 ft) long
- Approximately 15 labels or pictures, each being the name or image of an element in an ecosystem. For a woodland ecosystem in Ireland, that could include the following: oak tree, frog, heron, otter, fish, spider, bee, fly, beetle, bat, bluebell, squirrel, river, soil, river, rain

DIRECTIONS

Participants stand in a circle, facing inwards.

Each participant is given a label or picture to stick on the front of their jumper, or to hold facing the inside of the circle.

One participant (e.g. the “oak tree”) holds the end of the string, then hands the ball to another participant (e.g. the “spider”) while making a statement about the relationship between the two things, e.g. “The oak tree provides shelter in its branches for the spider to weave its web.”

Next, the “spider” passes the ball to a third participant, e.g. “the fly”, whilst still holding onto a section of the string, again making a statement about their relationship in nature, e.g. “The spider gets its energy by eating the fly.”

Now two participants are holding the string, whilst the third participant is holding the ball of string. Be sure to keep the string taut!



© GREEN-SCHOOLS IRELAND

The activity continues like this, with the ball being passed back and forth, but each participant holds onto a piece of the string, after they have made a statement.

Some elements like the soil or the oak tree, will end up having multiple relationships and connections. In this case, the participant may be holding the string in three or four different places.

Soon a web of string will have been created, producing *The Web of Life!*

EXTENSIONS

Ask participants some questions to explore the topic further, e.g. “What does the string look like now?”, “What does this tell us about connections in nature?” The facilitator can gently push the centre of “the web” to demonstrate how strong the web is.

To demonstrate that “the web” can be disrupted, you can remove one key element of the web, e.g. “the river gets polluted” or “the oak tree gets chopped down”. The participant with that sticker or picture then drops all of the string that they are holding. The web is no longer strong, it is weak with loose thread. Discuss this with the group and ask them to talk about the consequences this will have on all elements of the web.

Reference: Green-Schools Ireland collaborates with The Foundation for Environmental Education (FEE) on the international Eco-Schools programme. For more information, see: fee.global and ecoschools.global

GROWING PLACES FOR ECOLOGICAL LEARNING

AGES

9–18+ years old

CONTRIBUTED BY

Dr. Keitaro Ito, Kyushu Institute of Technology
Fukuoka, Japan
keitaroito-lab-kit.com

In this activity, students learn about ecological processes by assessing the biodiversity in their school ground and then acting to create and improve their own schoolyard ecosystem.



MATERIALS

- Native plant species found in local ecosystems
- Garden tools
- Materials related to your own local ecosystem

BACKGROUND

This project to create a schoolyard biotope (wildlife habitat) started at an elementary school in Fukuoka City, in southern Japan, and engaged children in creating a place to play while helping to restore nature to their neighborhood. The goals of this project are: 1) to restore nature to an urban area; 2) to create a “natural” play area for children that also serves as a space for environmental education; and 3) to link the schoolyard green space to a larger urban ecological network to help address wildlife habitat fragmentation in the region. The school children and teachers participated throughout the project, and contributed to the design, construction and planting process. Children now



© KEITARO ITO

enjoy their schoolyard biotope for learning and play, and it is home to many small creatures.

DIRECTIONS

Invite professors and students from local universities to work with teachers and students at your school. Collaborate with local experts to evaluate your school ground with students to understand what types of animals and plants it currently supports. Study local ecosystems by touring nature areas near your school and determine which plants and animals are native to your school’s neighborhood.

Work with students to transform the schoolyard into a model of a local ecosystem. Invite all students to learn about ecological processes and participate in building the landscape and installing new plants. Students will learn about ecological issues first hand as they garden. Study and record biological diversity before, during, and after the project is completed. Discuss ecological processes.



BUILD A HOME FOR ANIMALS IN YOUR NEIGHBORHOOD

AGES

9–18+ years old

CONTRIBUTED BY

Evergreen

Toronto, Ontario, Canada
evergreen.ca



© EVERGREEN

Children love to learn about where animals live, and what their homes are like. This hands-on activity allows students to learn in a kinesthetic and experiential manner about the different features and structures of animal habitats. Children will also gain a deeper understanding of the needs of animals in their local area.

MATERIALS

- Loose parts that can be found in nature, such as: leaves, pine cones, seeds, and nuts; twigs, sticks, dry grasses, tree bark, small logs, and evergreen branches; rocks; loofahs and other similar materials
- Additional items could include burlap sacks, miniature “tree cookies” (round tree branch slices), and rope

EXPERIMENTATION

Brainstorm different animal homes that can be found in your local area. Discuss distinct features of these animal homes such as the materials that are used and the shape and location of the home (e.g. inside a tree, on a cliff, or on the ground).

Choose one of the homes to discuss and ask students why it is the way it is. Encourage them to link its various features to the animal’s needs. For example, a squirrel drey (nest) is high in a tree so the squirrel can be safe from predators, and it is lined with fur and mud to keep the small animal warm in the winter.

Split the students into small groups and instruct them to pick an animal. Once they have done so, ask them to tell the educator which animal they picked, what its home looks like, and to identify its key features.

When it seems like groups are finishing up (usually about 10–30 minutes) gather everyone together and go on a “tour” of the different creations. Use a “talking object” such as an animal bone or a “stick microphone” held by the facilitator to determine who is sharing from each group. Let the group know how many things they have time to share.

EXTENSIONS

For older students, this activity can include a “4 Tests” approach at the end of the activity: Will the structure withstand snow? Will the structure withstand a predator attack? Will the structure be a good place for hibernation? Does the structure address sound and visibility concerns of the animal?

The snow test can be done with a facilitator leaning against the habitat to mimic the weight of the snow. A predator attack can include directing the students to stand clear and throwing an object against the habitat to see how strong it is. A hibernation test can be performed by asking the entire group try to fit inside. Sound and visibility tests can be conducted by challenging the students to fit inside without being seen or heard.

This activity could be used at the start of a science unit on structures, to explore the role of a particular animal and its home in an ecosystem, or to better understand how conservation efforts connect to animals and their homes.

Reference: Activity created by Peter Demakos.



© SHARON DANKS

THE WALKABOUT FIELD GUIDE

AGES

7–18+ years old

CONTRIBUTED BY

**The Trust for Public Land's
NYC Playgrounds Program**
New York, New York, United States
tpl.org

This hands-on activity helps students become comfortable with identifying the trees in their neighborhood and schoolyards. The students practice looking closely at varying leaf shapes and tree habits. They also get introduced to the idea that all trees have a common name and a scientific name, noted using Binomial nomenclature. This activity is especially suited for schoolyards or streets with a wide variety of trees.

MATERIALS

- Sidewalk chalk
- Tree field guides
- Science notebooks and pencils (optional)
- Camera (optional)

DIRECTIONS

Split the class into groups of three or four students and assign each group to a tree in the schoolyard or on the sidewalk in front of your school.

Distribute the field guides. The teacher can assist each group in identifying their schoolyard or street tree, and confirm the tree's name.

Ask students to create a tree label on the sidewalk or asphalt using chalk. The label should include the scientific and common name of the tree, and a drawing of the leaf shape and the tree habit.

After everyone is finished, ask all the groups to “walkabout” the schoolyard and use their science notebooks to take notes on all of the other trees’ names, leaf shapes, and habits.

Two optional steps are to photograph each groups’ work and then print out and laminate this very site-specific field guide for future use.



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BOTANY BOUQUET

AGES

6–18 years old

CONTRIBUTED BY

**Earth Partnership for Schools, University
of Wisconsin-Madison Arboretum**

Madison, Wisconsin, United States
arboretum.wisc.edu/learn/eps/



© MARY JACKSON

This activity introduces various plant species from the same or different ecosystems and encourages observational, organizational, and taxonomic skills. It could be a good introduction to a plant unit, or it could be used as a creative and interactive “icebreaker” among a group of students who do not know each other well.

BACKGROUND

There are a variety of languages spoken around the world. For a long time scientists were confronted with the challenge that one plant or animal species could have many different names, depending on what language was spoken. This challenge created all sorts of language barriers when scientists from different parts of the world wanted to talk about their research. In 1758 a Swedish biologist, Carl Linnaeus, decided everyone should use the same name to describe a given species. He proposed a universal naming system, using Latin as the root source. He chose Latin, which is often a combination of Latin and Greek, because it was historically the language used by educated people in his part of the world, Europe.

This activity will help students understand the scientific naming process and familiarize them with the diversity and unique attributes of species they plant on their school grounds. Students will learn to closely observe the variety of patterns and shapes of plant parts. The next step can be applying names to what they observe in terms of plant structure.

MATERIALS

Before the activity begins, prepare a bouquet of plant species representing one or more ecosystems. You will need multiple samples of plants from a handful of different species. The number of samples of each species should equal approximately a third to a quarter of the total number of students in your group. For example, a group of twenty students might break into four smaller groups of five, which would require five samples each from four different plant species.

DIRECTIONS

Mix the bouquet well and give one plant to each person. Those who already know the names of the plants should not share that information until the end of the activity.

With your plant in hand, find other students who have the same plant and form a small group. If you don't know the other students, introduce yourselves to one another. In your small group, come up with a creative description of your plant based on your close observations. Describe it in a way that would help others identify the plant. Then, come up with a creative name for your plant. At this point, ask representative(s) from each group present their plant's creative name and description.

Once each small group has shared their creative name and plant description, find out if the larger group knows the common and scientific names of the plant. If the names are unknown, the teacher can share them along with a further description, especially identifying the plant's ecological and human uses.

After this activity, discuss as a group why you think there are scientific names for plants. Then review the history of why plants have scientific and common names. Visit the library to further research the plants used in this activity, their habitat preferences, and their human uses. Expand on the activity to include different plants and animals that would be found in the habitat you are restoring on your school grounds.

Reference: Earth Partnership for Schools, “Botany Bouquet,” *Study the Model 1-3*. University of Wisconsin, Madison Arboretum. Adapted excerpt used with permission.



WORM LIFE CYCLE

AGES

9–18+ years old

CONTRIBUTED BY

Education Outside

San Francisco, California, United States
educationoutside.org

In this lesson, students examine worms at different life stages and diagram each stage. Students will learn the concept of life cycles and produce an accurate drawing of each stage of worm development.

MATERIALS

- Worm bin with worms
- Diagrams of worm life cycle and worm anatomy
- Containers
- Magnifying glasses
- Paper
- Pencils
- Crayons or colored pencils
- Clipboards

PREPARATION

Search in your worm bin for worm eggs, baby worms, juvenile worms, and adult worms, and place each in separate containers.

Make sure there are enough pencils, magnifying glasses, and paper for each student.



© PAIGE GREEN, EDUCATION OUTSIDE

DIRECTIONS

Ask students to define the word “cycle” and identify the stages of the human life cycle.

Ask students if they know the stages of the worm life cycle. Show diagrams of the worm life cycle and worm anatomy. Ask students to note the attention to detail and labels on the diagrams.

Break students into four groups. Have groups rotate along life cycle stations, using magnifying glasses to observe worms and start drawing their own diagrams.

Give students time to finish drawing and labeling their detailed diagrams.

Ask students to regroup and prompt them to share their diagrams and discuss some of the differences they noticed in the different life stages of the worm.

For a more challenging exercise, ask students to find, identify and categorize examples of the worms’ life cycle stages, themselves, instead of separating them from the worm bin before the lesson.

Resources

Worm Life Cycle: <http://bit.ly/1VsCjPN>

Worm Anatomy Diagram: <http://bit.ly/1NNVnFn>

BUTTERFLY BREEDING PROGRAM

AGES

6–13 years old

CONTRIBUTED BY

Pelangi School

Ubud, Bali, Indonesia

pelangischoolbali.com

Pelangi School encourages students to learn through nature. We have developed a natural campus to which many butterflies are attracted. We planted appropriate flowers, shrubs, and trees for the butterflies to feed from, lay their eggs on and for their caterpillars to eat. Through their stewardship, our students are gaining important scientific knowledge about life cycles, plants, and the natural environment, while learning to respect and appreciate nature in their play and learning spaces.

MATERIALS

- Plants, appropriate for your own local butterflies
- Bottle of water, plate, and a secure ventilated box with a transparent panel that makes the interior visible

DIRECTIONS

Identify local species of butterflies in the immediate and surrounding areas. It is helpful to engage the help of a lepidopterist for this first step.

Locate, observe and identify plants that butterflies use for food and laying eggs, and that caterpillars are eating. Plant butterfly-attracting plants and trees nearby. (This is essential to continue feeding hungry caterpillars.)

Collect caterpillars and eggs with a small amount of their food source plant. Place the food source in a bottle of water and then put the bottle in the middle of a plate of water without any leaves touching the side of a secure ventilated box. The water will prevent ants from attacking the caterpillars and the box will protect them from insects such as praying mantises or wasps.

Observe the caterpillars daily and add additional food plants as needed. Clean the box daily to deter ants, and add a very light mist of water daily to help the caterpillars avoid dehydrating. Place the box in a light-filled area without direct sun.



© KAHN WILSON

In addition to caterpillars, students may also collect some butterflies in their chrysalis stage, when they are still attached to a plant stem in the school grounds. (Detaching the chrysalis will destroy it.) Put them in a secure box in the classroom to protect them from predators such as ants, lizards and praying mantises.

After approximately 20 to 25 days (depending upon species) a butterfly should emerge. After documenting and discussing the life cycle, students can release the butterfly into the school garden and enjoy the excitement of watching it fly.

The process becomes self-sustaining if emphasis is placed on maintaining the trees and plants that the butterflies need to survive. This enriched environment will naturally attract additional local butterflies and will improve the ecology of your neighborhood. Over time, a nature table, with a collection of found specimens, can be established to highlight the range of wonderful creatures living on the school grounds.



IN A FLUTTER

AGES

6–10 years old

CONTRIBUTED BY

BirdLife Malta
Xemxija, Malta
birdlifemalta.org

This class activity includes a craft project about butterflies and wild flowers, followed by an outdoor game and planting activity. It aims to make children aware of how important wild flowers are to butterflies and how damaging pesticides are to them. After learning about common local butterflies, their caterpillars and food plants, kids take action by planting butterfly-friendly shrubs in their school grounds.

MATERIALS

- Large pieces of paper, card stock, and drawing materials
- Magnetic strips, wooden sticks, scissors, glue
- A variety of butterfly habitat plants

PREPARATION

Research four common butterflies in your area, their caterpillars and the food plant(s) they lay their eggs on. Children can learn about these butterflies through the Internet, a visit to a local nature center, or a presentation from a local expert. Make sure they understand that each butterfly has its own caterpillar that eats the leaves of a specific plant, and that butterflies cannot survive if they don't find the right plant to lay their eggs on. Include a conversation about the damaging effects impact of pesticides on butterflies.

Take the class outside and look at school ground or neighborhood wild flowers. See if there are any butterflies or caterpillars and if the children recognize them.

DIRECTIONS

Craft project. Divide the children into in four groups and ask each group to make a large drawing of one of the four butterflies they are studying. Glue their drawings onto sturdy card stock. Ask each group to cut out their butterfly drawing. Add a magnet to the end of each butterfly's "proboscis" and attach a wooden stick to each butterfly as a handle. (See photo)

Prepare 20 playing cards for the game with a variety of images that relate to the butterflies' needs. The images can be



© DESIRÉE FALZON

photographs or line drawings for children to color in. Write the score value on each card, as follows:

- wild flowers in your area (5 points)
- the food plant of the caterpillar (10 points)
- dead plants (0 points)

Place a magnetic strip on the back of each card.

Game. Find a clear patch in the school grounds to play the "In a Flutter" game. Divide the children into four groups, each with a butterfly on a stick. Place the game cards face down in a group at one end of the play area and line up the teams at the other end.

Now explain that the cards are all plants, and each "butterfly" must find enough flowers to feed from and the right food plants for its caterpillars. Play the game as a relay race, with the first child in each row running to the cards, picking up one using their "butterfly" and rushing back to their team. When you blow the whistle, check what each team has collected and add up the points. The successful "butterflies" are the ones that managed to find the right food plants for their caterpillars as well as flowers without pesticides to feed on.

Action. Now take action for butterflies! Plant flowering shrubs in your school grounds to provide nectar for butterflies. Select native wild flower seeds appropriate for your caterpillar species and plant them to grow caterpillar food. Label your plants as they grow to educate passers-by!

Reference: Desirée Falzon, BirdLife Malta, *Dinja Waħda Action Guide*

ARTFUL INSECT HOTELS

AGES

6–18 years old

CONTRIBUTED BY

Eesti Rohelised Koolihoovid

Tallinn, Estonia
koolihoovid.ee

Designing and building an “insect hotel” is the perfect way for children to get a closer look at their local environment. Through this activity, children will learn basic design skills and how to use natural building materials. They will also become familiar with the small bugs and insects that live in the school grounds and surrounding area. They may even be inspired to build one at home, too!

MATERIALS

- Paper
- Pencils
- Small pieces of wood for the hotel frame
- Wooden chips or pieces of bark
- Fir or pine cones
- Pieces of moss
- Wire mesh
- Hammer, nails, wire cutters
- Wood paint or stain and paintbrush (optional)

DIRECTIONS

Begin by discussing local fauna with children, including the bugs and insects that live underground. Think together about how bugs are good for the soil and also provide food for birds and other animals. Think about where the best place for an insect hotel in the school grounds might be. Make sure to choose a location that gets sun, as well as shade.

Let children design their hotel using the paper and pencils. Their hotel might be shaped like a common house, be geometrical, or resemble an animal or flower. Any shape works! What is important is to create different sized “rooms” within the shape, as the future inhabitants may need different spaces.



© ESTONIAN GREEN SCHOOL GROUNDS

Using the students’ designs, start building. Use hammer and nails to secure the small pieces of wood together to form the frame and the small rooms within.

Cover one open side of the frame with wire mesh and attach the mesh with nails. Cut any sharp ends with using the wire cutters. Next, fill the rooms with natural materials like wooden chips, fir cones, twigs, bark, etc. Place the filling materials inside the rooms loosely, so that there will be enough space for the bugs to move around. Keep the materials in place by covering the second open side with wire mesh and securing it with nails.

If you wish, you can either paint or stain the outsides of the hotel so it is more colorful and cheerful! When your hotel is finished, place it in the location that you selected on the school grounds.

You might want to visit the hotel after a couple of days, and after longer periods of time, to see how many inhabitants are using it. Discuss the life and behaviour of different bugs with the children.



THE MAGPIE GAME

AGES

6–10 years old

CONTRIBUTED BY

Naturskolan i Lund

Lund, Sweden

lund.se/naturskolan



© NATURSKOLAN I LUND

This curriculum-connected, wildlife-oriented game gives students an understanding of the competition birds and other wildlife face from one another as they gather the resources they need from the environment. It also teaches students about strategy (“Where should you place your nest so others don’t pick up all of your sticks?”) and basic mathematical concepts and terminology used to describe the outcome of the game (e.g. “fewer sticks” vs. “more sticks”). This game also involves a lot of running and gives the children exercise as they learn academic concepts.

MATERIALS

A large number of sticks, gathered with permission from the school grounds or other free, local source. We recommend that you gather enough sticks for each “magpie couple” to begin with 20–50 small or medium sized sticks for their initial “nest”. If you don’t have a natural area onsite, distribute the sticks over a wide area of the school grounds before beginning the game, so the “magpies” will be able to “forage” for them.

It’s often easiest to acquire a large number of sticks when the shrubs and trees on school grounds are pruned. Make arrangements with the maintenance department for the school, or a local park, to save the sticks for you when they do their pruning work.

Prepare some colored string, in a wide variety of colors, in short lengths the children can use to tie to selected sticks. You will need five pieces of string per “magpie couple,” in a different color for each couple.

DIRECTIONS

Start the game by letting the children form “magpie couples”, pairing off into groups of two. Each magpie couple should decide how many sticks they believe they can collect in one minute and then tell the others what they think. Start the clock and let the magpies “fly out” and collect as many sticks as they can. When the minute is over, the children count their sticks. What is the result? Did they fetch a higher or lower number than they thought? Double, half, a third, less, and so on. Practice different mathematical words.

Each magpie couple should now build a nest of all the sticks except five nice sticks that they mark with a piece of colored string. Build the nest like a circle big enough for the magpie couple to sit or stand inside. The magpies should now fly to the other nests to steal the marked sticks and put them in their own nest. They are only allowed to take one stick during each flight. No magpie is allowed to stay in the nest to protect their own sticks. The teacher will decide when the flight is over, and this will also be the time to count the sticks again. How many marked sticks are in the nests now? Did the number increase or decrease? What strategies did the couples chose to build their nests? Once again, use mathematical words to discuss what happened.



CONNECTING URBAN BIRDS AND CLIMATE

AGES

14–18+ years old

CONTRIBUTED BY

Elizabeth Babalola

Nairobi, Kenya



© ELIZABETH BABALOLA

This hands-on, outdoor science activity will help introduce students to their local built and natural environments, and deepen their interest in local bird species. Over the course of a two week period, students will collect precipitation and bird data and then follow the steps below for a culminating activity that encourages critical thinking and collaboration. The goals are to: familiarize students with birds in their local neighborhood; help students practice scientific data collection, documentation, and online research; demonstrate and develop critical thinking, collaboration, self-reflection, and presentation skills. The activity is equally suitable for a high school science class or an after school eco-club.

MATERIALS

- Rain gauges (1 for each chosen location)
- Writing tools
- Field guides with information about local bird species and/or access to a local bird expert (optional)

DIRECTIONS

PART I — RESEARCH

Begin the project by contacting a local bird expert and asking him/her to speak with the students about the birds in their neighborhood. It's also helpful for the students to study local field guides and to use online resources such as eBird (ebird.org).

Scout locations for birding on school grounds or in the neighborhood, and assign two groups of three or four students to each location. Set up a rain gauge in each place.

Ask students to collect data over a two week period before the culminating activity. They should make a minimum of two weekly trips to each location to observe and record data about bird sightings. The groups can alternate responsibility for recording precipitation data.

Ask all students to make detailed observation notes and sketches, and to take pictures of the birds they see.

Using information from national and regional bird experts, bird books, and online research, students will then identify the birds they observed, and research their migratory patterns and behavior.

PART II — ANALYSIS AND REFLECTION

Each group will use the information they gathered in the field to create a short summary presentation about their findings, and then share them with their classmates. Each presentation should include slides that describe the birds they saw, their identifying characteristics, and the bird behavior they observed.

Ask the groups to also share their precipitation data for each location, and to compare this to the weather forecast. They can hypothesize about differences they find (if any) and engage the class in a discussion. The students can also hypothesize about relationships between precipitation data and bird data, and include this in the class discussion.

Ask the students to upload their findings to the eBird website, to make this information available more widely.

Students may be assessed on the quality and content of their presentations, the quality of the data collected by each team, their levels of individual and team participation in discussions, and their ability to make connections between bird and weather data.



TADPOLE INSPIRATION

AGES

9–18+ years old

CONTRIBUTED BY

Sekolah Alam Nurul Islam
Sleman, Yogyakarta, Indonesia
sekolahalamjogja.com

Observing an object or a phenomenon can help trigger students' writing abilities and become the seed of a story. In this activity, we observe tadpoles' metamorphosis into frogs and use this process as our inspiration for multifaceted learning. Students practice their scientific observation, writing, and drawing skills over the course of a month-long project.

MATERIALS

- Local species of tadpoles, removed with permission from a nearby pond where they are plentiful, and/or a few local frogs to breed tadpoles to study
- Food for the tadpoles to eat, from the same source
- Clear bottles or jars
- Pen, paper, and other writing tools



© SEKOLAH ALAM NURUL ISLAM

DIRECTIONS

When the local pond is full of tadpoles, students catch them and put them into bottles or other clear containers to transport back to the school grounds. Once back at school, ask the students to observe tadpole activity and begin writing and drawing their observations. Feed the tadpoles regularly using leaves (with algae) and other plant material from their home pond. Keep the bottle out of direct sunlight and be sure to add air holes to the container, or leave the container open.

The students can bring the bottles home to watch the tadpoles change every day. Ask them to record their written observations daily. They can also take pictures each day to record the transformation over time, or draw pictures to illustrate what they see.

After a month or so, the students can present their tadpole writing and pictures to one another and share what they have learned. They can also use their scientific knowledge as the basis of a creative writing project that further extends their learning. The students' writing and pictures can also be used to create an exhibit on the wall of the school for other students to learn from and enjoy. When the project is complete, the young, healthy frogs can be returned the same pond where they were found.

Note

If the class is observing tadpoles that you have purchased, DO NOT release them into the wild at the end of the activity. Frog populations are very sensitive and introducing non-native frogs can harm local ecosystems.



HOLD AN AMPHIBIAN!

AGES

12–16 years old

CONTRIBUTED BY

Friends of Nature (FON) Nepal

Kathmandu, Nepal

fonnepal.org

This activity takes an enjoyable, hands-on approach to educating students about amphibians. Connecting biology to a memorable experience helps to solidify the lesson. Globally, frogs are endangered and it is important to educate children about their conservation. Urban children presume all amphibians are poisonous, which is untrue. Catching an amphibian is challenging and is also good exercise. This is easier if there's a river or pond near the school.

MATERIALS

- A pair of wellingtons (rain boots) for each student
- Measuring scale (ruler), notebooks and pens
- Camera

DIRECTIONS

Form two groups with 15–18 students each and an educator. Teach the class about amphibians, their status, diversity, life history, ecological significance, threats, conservation issues, and “what we can do?” before moving outside.

If there's a river or pond in or near the school grounds, that will be the primary study location. Frogs spend the majority of their time near water but also live in a variety of habitats: leaf litter, bush, forest, farm land, artificial refuges, etc.

In a pond or nearby river, the educator of each group will walk down to the water's edge and look for frogs. Upon detection, he/she will slowly immerse both hands laterally and try to catch the amphibian. The frog might escape several times, so it requires patience for success.

The hand held amphibian is identified first by the expert, and then their body length (in mm) is measured (snout-to-vent) using a measuring scale. The frogs will be observed closely and handled by students.

Students can easily distinguish between frogs and toads upon touching: frogs are slippery due to their huge dependence on



© FRIENDS OF NATURE NEPAL



water while toads have warts and dry skin as they visit water bodies less. Frogs also have long hind legs which allows them to jump far, in contrast to toads' shorter hind legs.

Now it's the students' turn to catch their own amphibian! Each student will note the type of habitat it was found in as well. Students will write their own observations about their frog's color, pattern, body structure, and activity. They can take pictures to help remember the specific attributes and identify the species of frog later.

Upon returning to the classroom, the two groups can collate the information they obtained in order to measure and describe the diversity of amphibians in the area.

Note: Amphibians are cold-blooded animals and depend upon external temperature for functioning. They hibernate in winter and come out with the onset of rainfall. Thus, this activity should be carried out during summer or when there's plenty of rainfall.







Watershed Stewardship

Clean, fresh water is a precious resource. It comes to our schools and communities in the form of rainfall and through municipal plumbing systems and natural waterways. It leaves school grounds through man-made storm drains and sewer networks, and by flowing over the landscape, percolating into the soil, and running through local creeks. In most cases, water from these sources is relatively clean when it arrives on school grounds and dirtier when it leaves. School communities have the power to improve their local water systems and to use them as educational resources at the same time by incorporating stormwater planning into the design and use of school grounds.¹

Stormwater Management. Schoolyards designed to manage stormwater can be beautiful and educational while holding and utilizing rainwater, and purifying runoff. Small scale stormwater management projects like rain gardens, vegetated swales, rain barrels, and cisterns can often be developed by the school community with some assistance from local experts. Larger stormwater management projects usually require substantial assistance from landscape architects and engineers, but they can have important beneficial impacts for their school and community.

Some schools around the world are removing large amounts of asphalt, concrete, and other impermeable surfaces and developing “green infrastructure” on their grounds that makes them feel more like parks. Converting school grounds to multi-use spaces with topography, ground cover plants, and trees can make it possible to absorb *all* of the runoff from the whole school site—helping to recharge the water table and prevent flooding of the school and surrounding neighborhood.

Water Conservation. Living schoolyards can conserve water by finding and fixing leaks, incorporating drought tolerant plant species, building gardens with efficient irrigation systems, and deeply mulching planted areas.

Water Quality Monitoring. Well-designed green schoolyards can improve the purity of local water bodies by removing particulates, nutrients, and pollutants from stormwater flows by catching them in planted areas before they can reach nearby rivers and lakes. Students can conduct citizen science studies to check the water quality of surface water on their school grounds and in their community.

Greywater Reuse. Schools can capture lightly used water from the building, purify it, and then use it to water trees, reducing the amount of fresh water they need from the municipal system. Each country and municipality has different rules that govern the use of greywater, so it is important to do some local research before implementing your own greywater reuse system.





WATERSHED UNDERSTANDING

- Watersheds and Water Flow** 128
 Create model watersheds — Science World British Columbia; Vancouver, British Columbia, Canada
- Water Detectives** 129
 Observe how water moves through the school grounds — Evergreen; Toronto, Ontario, Canada

STORMWATER MANAGEMENT

- Rain Chains** 130
 Make decorative and functional stormwater management artwork using recycled materials
 — Creative STAR Learning; Inverurie, Scotland, United Kingdom

WATER QUALITY MONITORING

- Water Sleuths** 131
 Monitor water pollution and macroinvertebrates — WESSA; Johannesburg, Gauteng Province, South Africa
 and The Foundation for Environmental Education; Copenhagen, Denmark
- Wetlands and Ecosystem Services** 132
 Observe ecosystem services of wetlands in action — Education Outside; San Francisco, California, United States

RELATED ACTIVITIES IN OTHER CHAPTERS

- Inquiry-Based Snow Play** 45
 Experiment and play with snow — KidActive; Ottawa, Ontario, Canada
- Growing Places for Ecological Learning** 111
 Support local wildlife by building a wetland — Dr. Keitaro Ito, Kyushu Institute of Technology; Fukuoka, Japan



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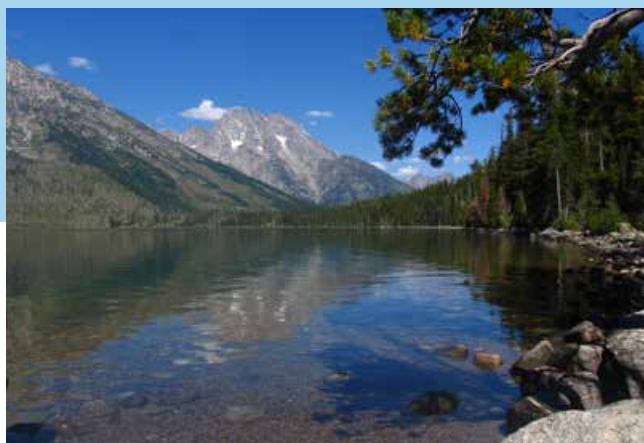
WATERSHEDS AND WATER FLOW

AGES

8–15 years old

CONTRIBUTED BY

Science World British Columbia
Vancouver, British Columbia, Canada
scienceworld.ca



© SHARON DANKS

An area where all water drains to the same river or body of water is called a watershed. In our modern age, we transport water from one watershed to another by: transporting bottled water; transporting food, which is full of water; and piping water away to be used in irrigation for our agriculture. If we take water out of one watershed faster than it is replenished (for example, by precipitation or glaciers melting) then our reservoirs will slowly decrease in size.

MATERIALS

- 2 turkey basters
- 2 cups of water
- 2 deep clear baking trays
- 2 pieces of brown paper
- 1 bottle of food colouring
- 4 thick books (at least 2 to help prop up each tray)
- Tape
- 1 black marker
- Plasticine

OBJECTIVES

- Describe a watershed and how water flows through the environment
- Describe methods and the importance of water conservation
- Explore the effects of water pollution

SET-UP

Prop up both baking trays at an angle (~45°) using books to create one high elevation edge and one low elevation edge. Each baking tray represents a watershed. Tape paper to the inside of each baking tray. Label these papers “SOIL” using the black marker. Add plasticine shapes to create landscapes.

Put a few drops of food colouring on each piece of paper and around the plasticine to represent minerals, nutrients, or pollution. Pour 1 cup of water on the low edge of each baking dish to create a reservoir, ocean, lake, or any body of water.

INSTRUCTIONS

Give one volunteer in each watershed group a turkey baster. Ask them to suck up water from the reservoir at the lowest point of their watershed (evaporation). Direct them to release the water at the top of their baking tray (precipitation).

Observe how the water flows. Note that some water is infiltrated into the soil, and some flows on top, flowing back down to the same body of water.

Repeat steps 1–3 a few times. As the water flows on the surface and in the soil, it picks up some of the minerals, nutrients, and pollution found in the soil. Ask a volunteer to suck up water from one body of water using both turkey basters and release the water into the other watershed.

Even though there is the same amount of water in total, by displacing the water, one reservoir will decline in size.

EXTENSIONS

Get a map of your region. Follow the flow of water through your closest watersheds. Where does the water start? Where does it end? Where does your drinking water come from? Where does your wastewater go?

WATER DETECTIVES

AGES

5–14 years old

CONTRIBUTED BY

Evergreen

Toronto, Ontario, Canada
evergreen.ca



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Water is a rich source of learning at any age. Just think how impressed students will be to learn that the rain falling on their school grounds is the same water from a puddle that a dinosaur splashed through 200 million years ago! School grounds provide an opportunity to bring the water cycle to life as students act as detectives through direct observation and experimentation.

MAKING OBSERVATIONS

When rain falls on your school ground, where does it go? Go outside and explore your school grounds when it is raining to look for clues.

Where does the water get “soaked up”? Where does the water pool? Where does it flow? Can you see any curves on your school grounds that indicate which way the water will go? Where the water might end up?

After a rainstorm, find puddles in your schoolyard. Make observations about the puddles. Label the puddles with chalk. Visit the puddle locations again later in the week. What do you notice?

EXPERIMENTATION

Follow up with some experimentation to further explore your observations.

Pour buckets of water over different surfaces (pavement, grass, sand) to explore the concepts of percolation and runoff. What happened to the water on each surface?

Make evaporation tangible. Place tinfoil pans of water around the school grounds, leaving some uncovered and some covered in plastic wrap. Predict what you will see when you go back outside to check on your tinfoil pans in three hours. What will you see when you go back the next day? The next week? Discuss your observations.

EXTENSIONS

Experience water’s journey through drama and music. Invite students to become water molecules and act out the water cycle. Create a musical rainstorm using body percussion.

Measure the volume of rain. Use a rain gauge to measure the rainfall on your school ground.

Design a landscape that reduces runoff. Invite students to design a school ground that reduces runoff. Explore a variety of approaches. (e.g. permeable pavers, green roofs, rain gardens)

Live in a snowy climate? Embrace winter. Learn how snow is formed and how to identify snowflakes using the International Snow Classification System.

Go on a water quest in your community. Look for more clues about where the water may go in the natural and built community beyond the school grounds. Look for storm sewers, creeks and streams, ponds, drainage ditches, and other clues.

RAIN CHAINS

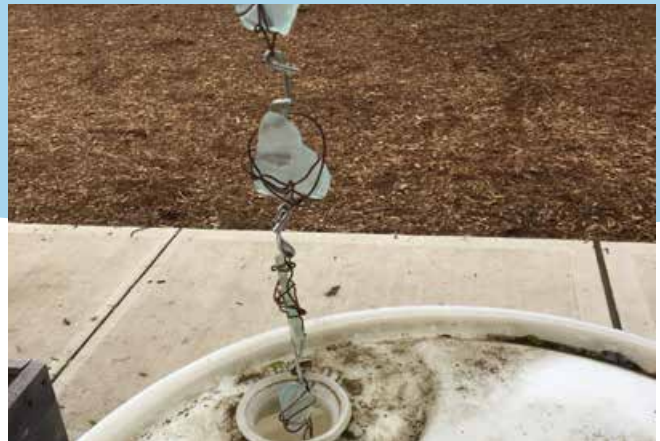
AGES

6–18+ years old

CONTRIBUTED BY

Creative STAR Learning

Inverurie, Scotland, United Kingdom
creativestarlarning.co.uk



© JULIET ROBERTSON

Reference: A rain chain made of sea glass and wire, created by teacher Laura Sheinkopf and her class at Cold Spring School, in New Haven, Connecticut, United States, inspired this activity.

The purpose of a rain chain is to allow water from a roof to run off a length of guttering and be channelled to a specific place such as a water barrel, a drain in the ground, or a soakaway, swale, or other area of permeable surfacing such as gravel. It can replace the need for a down pipe in a functional yet decorative manner.

DIRECTIONS

The first step is to find a good location for a rain chain. Start by surveying the site to look at where the rain gutters are. You can pick one on a building, shed, or other outdoor structure. Think also about where the water will go. If there is no natural drainage in that spot, then what alternatives can you think of? Ask the children to think of solutions. For example, putting a watering can, rain barrel, or cistern at the foot of the rain chain means that the rain can be collected and use for watering plants.

Once you have chosen a site, calculate how long to make the chain. Have the class look at the proposed place it will hang and brainstorm ideas for how to measure this length. Document their ideas and see which ones can be tried safely. If the chain will be connected in a high place, then search online for ways of measuring the height of a tree. The same methods can be applied to the rain chain.

Next, your class will need to consider how to attach the rain chain to the guttering. Usually this involves drilling a hole at the end of the piece of the guttering.

Finally, your class will need to decide what materials to use. The materials must be able to stand up to being wet and other factors of your local weather and climate. This is also an ideal opportunity for reusing items that would otherwise be thrown away. There are many possible materials including: unwanted cookie cutters (plastic or metal), chain links, pine cones, metal buckets, plastic cable ties, copper items, old cutlery, spare keys, shower hooks, soda bottles, wire, sea glass, and other materials.

Encourage your children to consider which materials are more likely fade and disintegrate sooner than others. Ensure that all of the materials you use will not contaminate or degrade the water quality. (e.g. Avoid making rain chains out of lead!) Once you have gathered your materials, children can help to assemble the pieces and celebrate the installation!



WATER SLEUTHS

AGES

10–18+ years old

CONTRIBUTED BY

WESSA

Johannesburg, Gauteng Province, South Africa
wessa.org.za



© CATHY DZEREFOS

Macroinvertebrates are small animals living among rocks, sediments, and aquatic plants in streams, rivers, and lakes. Visible to the naked eye, their absence warns that the aquatic system has been compromised by pollution. By monitoring and evaluating water sources, young people are introduced to citizen science using a practical exercise that includes qualitative and quantitative analysis. Careful planning is essential to anticipate risks from drowning, harmful pollutants, or dangerous animals.

MATERIALS

- Nets for each group of students
- Flat-bottomed light colored containers
- Magnifying glasses, tweezers, and gumboots (optional)
- Identification sheets and data collection sheets
- Scoring chart (right)

DIRECTIONS

Ask learners to observe the river and identify water beetles, pond skaters, tadpoles, crabs, or fish. Brainstorm the food sources of animals observed and predict where aquatic macroinvertebrates or prey could be hiding.

Divide the group to investigate different habitats such as the base of reeds, next to rocks, and the muddy or sandy river bed. Use a net or gumboots to agitate the area and scoop up macroinvertebrates that are dislodged. Empty the net into a container to observe and identify the catch. Also lift up loose rocks and wash the underside into the container looking carefully for well camouflaged flat worms, snails, and leaches. Remember to add some clear water to the container and return the macroinvertebrates quickly to the river to avoid killing them.

Calculate the health of the river by adding the sensitivity score of the macroinvertebrates found and dividing by the number of groups (see chart). If little or no life is found, further investigation upstream is suggested and the local authorities and newspapers should be brought in to assist. Replication at different sites along the river or through the seasons will provide

a greater degree of accuracy, so adopt a water body and make a long-term investment. Results can be entered on minisass.org and will be moderated by GroundTruth and the Water Research Commission. Identification sheets and further information are also available from minisass.org

MATHS Crib Sheet	GROUPS	SENSITIVITY SCORE
1. Circle the sensitivity scores of the identified organisms in the adjacent table	Flatworms	3
2. Add up the sensitivity scores	Worms	2
3. Divide the total sensitivity score by the number of groups identified.	Leeches	2
4. The result is the average score , which can be interpreted into an ecological category given below.	Crabs or shrimps	6
	Stoneflies	17
	Minnow mayflies	5
	Other mayflies	11
	Damselflies	4
	Dragonflies	6
	Bugs or beetles	5
	Caddisflies (cased/uncased)	9
	Trueflies	2
	Snails	4
	TOTAL SCORE:	
	NUMBER OF GROUPS:	
	AVERAGE SCORE:	

Average Score = Total Score ÷ Number of Groups

Ecological Category (condition)	River category	
	Sandy	Rocky
NATURAL CONDITION (unchanged/untouched-Blue)	>6.9	>7.2
GOOD CONDITION (few modifications-Green)	5.9 to 6.8	6.2 to 7.2
FAIR CONDITION (some modifications-Orange)	5.4 to 5.8	5.7 to 6.1
POOR CONDITION (much modification-Red)	4.8 to 5.3	5.3 to 5.6
VERY POOR CONDITION (critically modified-Purple)	<4.8	<5.3



WETLANDS AND ECOSYSTEM SERVICES

AGES

6–10 years old

CONTRIBUTED BY

Education Outside

San Francisco, California, United States
educationoutside.org



This activity introduces students to wetland ecosystems and highlights the role wetlands play in purifying water, reducing flooding, and preventing erosion. Students will be able to see the differences in water quality after water passes through three distinct ecosystems, and will practice making predictions and observations as they discover the benefits and ecosystem services provided by wetlands!

MATERIALS

- 3 large containers with drainage hole on one end: 1 filled with soil and sprouted seeds; 1 filled with soil and organic matter (compost, leaf litter); 1 filled with bare soil
- 3 small clear containers to collect water from the big ones
- String to hang collecting containers
- Watering can or water source for demonstrations
- Paper for students to record predictions and observations
- Optional: Images of different wetland ecosystems to show at the end of the activity

DIRECTIONS

Show students Setup #1 with bare soil. Ask the students to share what they see and make predictions. Ask: “What will happen when we pour water into this system?” Next, demonstrate Setup #1 (bare soil). Pour water through the system and repeat as necessary for students to make observations. Students can draw the output from Setup #1 and share what they observed with a partner.

Introduce the other two Setups. One will be filled with organic matter and the other with living plants. Ask: “What do you notice? What will happen when we pour water into Setups #2 (soil and organic matter) and #3 (growing plants)?” Ask students to write down their predictions. Demonstrate all three Setups. Students can observe and draw the output from each one. Ask: “What was the same in each set up? What was different?” Prompt students as needed to think about the color

and quantity of water, the speed of the water coming out, what the substrate looked like in the large container after water was poured in, etc.

DISCUSSION

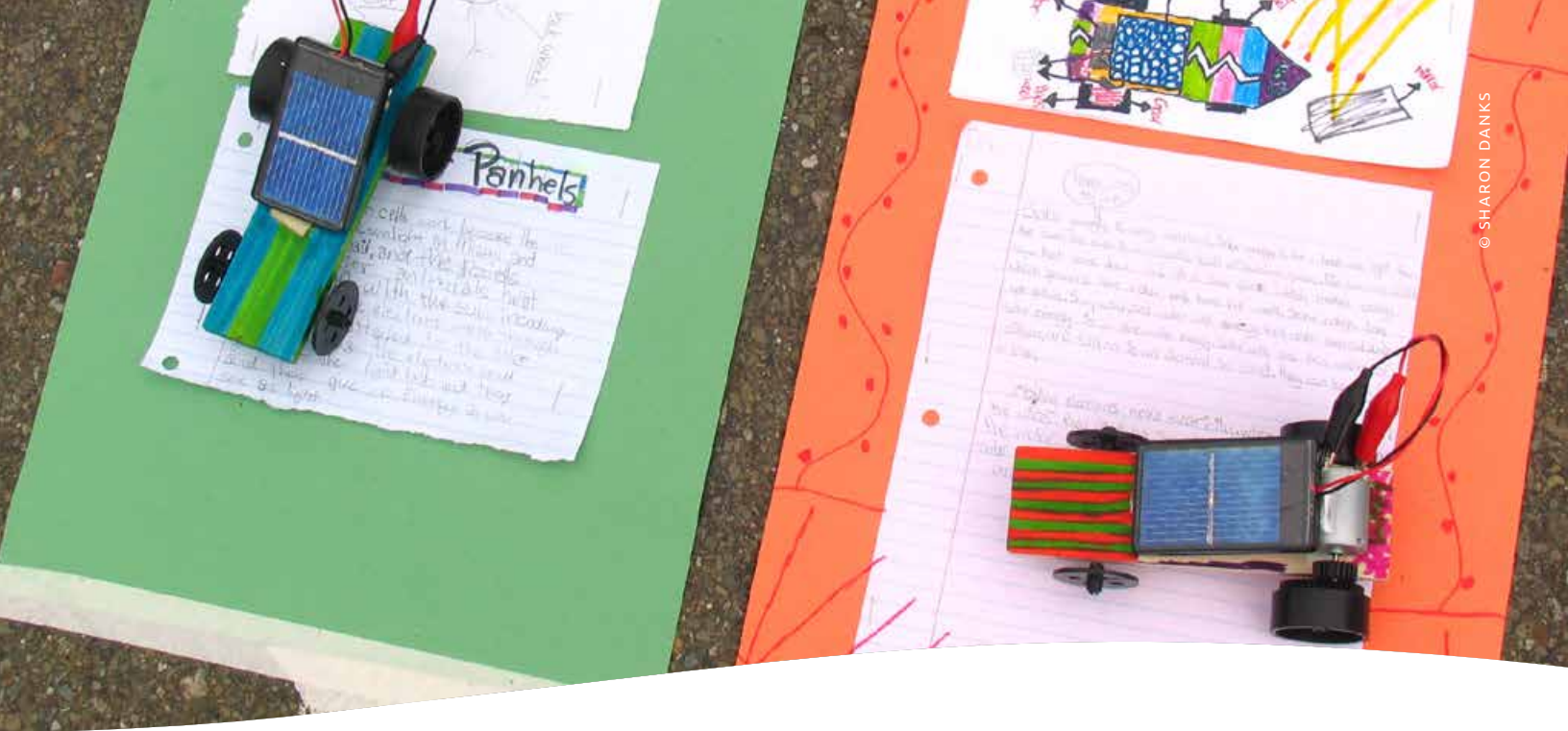
Ask: “Can you think of places you’ve been that remind of you of any of these ‘ecosystems?’” Introduce the term *wetlands* to the students. Wetlands occur where water meets land. Water often covers the soil, or the soil is saturated with water in a wetland. Wetlands can support aquatic and terrestrial species, and can occur around lakes, rivers, and near oceans. Sometimes they are called swamps or bogs.

Ask: “Which of these containers do you think is most like a wetland? Why?” Consider how long it takes the water to pass through the container, the amount of water that ends up in the cup (to discuss role of wetlands in mitigating flooding by soaking up water and slowing the flow of water), and the quality (color and clarity) of the water (to discuss the role of wetlands in filtering water and preventing erosion).









Energy and Climate

School facilities use a substantial amount of energy for heat, light, and power, and many school community members use fossil fuels to commute to school. Schools can engage students in reducing their facility’s energy footprint (and saving money), while teaching real-world lessons about where energy comes from and what it takes to produce and transmit power. Students can also be encouraged to walk and bike to school to reduce fossil fuel use.¹

Renewable Energy. School grounds can host renewable energy demonstration systems that power decorative fountains—or the entire school—teaching children and their communities about clean and sustainable sources of energy. Schools around the world are incorporating solar energy systems into their buildings and grounds, and many also use simple, low-tech “solar box cookers” to demonstrate the power of the sun’s energy to cook foods that the children like to eat. Some schools also use small or large scale wind turbines, biomass demonstrations (e.g. burning wood), and other techniques to demonstrate and use renewable energy at school. All of these renewable energy demonstrations can serve as models and provide context for teaching about the math, physics, and design concepts that underlie renewable energy systems.

Climate Improvement. School ground design can address climate change and make the site more comfortable by removing pavement, rubber, and plastic, which heat up in the sun, and by planting trees and shrubs to provide shade for students and school buildings.³ Students can engage in citizen

science projects to analyze their school ground microclimates to understand variations in temperature, wind, and other factors, and look for ways to make their schoolyard landscapes more comfortable year-round. Teachers can also demonstrate climate improvement techniques by composting with their students, to illustrate concepts related to carbon sequestration.

Solar Analysis. School grounds are an ideal setting to provide hands-on learning opportunities for solar science and other curricula related to the movement of the Earth around the sun. The changing seasons afford opportunities to study the ways that day length and sun and shade patterns shift throughout the year. Younger students can use art and science activities to help them understand the sun’s power to provide heat and light. Older students can use their school grounds to understand the solar system’s geometry and motion, and use math to calculate the best location for photovoltaic (solar) panels to power their school buildings.





CLIMATE UNDERSTANDING AND IMPROVEMENT

Exploring the Greenhouse Effect 138

Demonstrate the greenhouse effect using a simple experiment — Science World British Columbia;
Vancouver, British Columbia, Canada

A Ravishing Radish Party 139

Mimic and measure effects of microclimates — Life Lab; Santa Cruz, California, United States

SOLAR ANALYSIS

Shadow Stick 140

Predict and assess school ground shade patterns — Learnscapes AustralAsia;
Angourie, New South Wales, Australia

Light and Shade 141

Trace the shadows — The Karel Komárek Proměny Foundation; Prague, Czech Republic

RELATED ACTIVITIES IN OTHER CHAPTERS

Connecting Urban Birds and Climate 120

Record and study local precipitation and bird data — Elizabeth Babalola; Nairobi, Kenya



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EXPLORING THE GREENHOUSE EFFECT

AGES

10–18 years old

CONTRIBUTED BY

Science World British Columbia
Vancouver, British Columbia, Canada
scienceworld.ca



© SHARON DANKS

Greenhouse gases such as carbon dioxide are naturally found in our atmosphere, but human activities are accelerating the rate at which they are produced. These greenhouse gases contribute to the warming of the atmosphere and to global climate change. This activity explores how the greenhouse effect operates and contributes to climate change.

MATERIALS

For each group:

- Paper and pencils (for recording)
- 2 thermometers
- A large, clear glass jar
- Stop watch
- Sunshine

OBJECTIVES

- Understand the connection between human activities and the carbon cycle
- Understand the role of greenhouse gases and how they contribute to climate change

PREPARATION

Prepare by creating a simple temperature vs. time chart for recording observations, like the one below:

Time	Temperature Outside	Temperature in Jar
0 minutes		
5 minutes		
10 minutes		
15 minutes		
20 minutes		
25 minutes		
30 minutes		

DIRECTIONS

Find a place outside in the sun to perform this activity.

Place the two thermometers on the same outdoor surface. One thermometer will be covered by the glass jar and the other will be left uncovered. Make a prediction of what could happen to the temperature recorded by the two thermometers.

Cover one of the thermometers with the clear glass jar. This glass jar will act like a greenhouse.

Record the starting temperatures for both thermometers. Then, record the temperature from each thermometer every five minutes for a period of at least thirty minutes.

Note anything else that you observe happening in the jar.

DISCUSSION QUESTIONS

- Is there a pattern in the temperatures? Does it match your prediction?
- Is there a difference in the temperature? Why?
- What does the glass jar do?
- What is the greenhouse effect?

EXTENSIONS

Use a lifestyle carbon calculator to calculate your greenhouse gas emissions and your impact on the environment.

Make a list of everyday actions to reduce your greenhouse gas emissions and your impact on climate change.



A RAVISHING RADISH PARTY

AGES

9–12 years old

CONTRIBUTED BY

Life Lab

Santa Cruz, California, United States
lifelab.org



Students place sown flats in the garden in five locations that have different microclimates and make biweekly observations. The objective is to measure the effects of different microclimates on soil temperature, soil moisture, and plant development.

BACKGROUND

Climate can vary in important ways within a relatively small area. Each area that seems to have a different climate is called a microclimate. Factors that contribute to variations in climate include shade, direct sunlight, reflection, barriers, exposure to wind, etc. Students can determine the microclimates on their school grounds by walking around outside and seeing/feeling differences or taking temperature readings in different areas.

MATERIALS

- Radish seeds, 5 seed flats, 5 garden labels, 5 rulers
- Potting soil to fill the flats
- Soil thermometers and air thermometers
- Grease pencils and science journals

DIRECTIONS

Prepare seed flats. Prepare enough soil for five seed flats (planting trays), and ask each group to fill one flat and moisten the soil. Explain that each flat will be planted the same way, to keep that aspect of the growing conditions constant.

Show each group how to plant eight rows of radish seeds in their flat, leaving 1.25 in (3.2 cm) between each row and 0.75 in (2 cm) between each seed in a row. Ask each group to water their flat with 1 qt (1 L) of water. Place each flat in a different microclimate.

Maintain the plants. Ask the students to agree on a consistent maintenance schedule and describe why it is important to maintain all of the flats the same way. Provide a maintenance

chart for each group to keep their plant care consistent and ask each group to check off the tasks they complete each day. The seeds will need more water the first week, so it's important to monitor the flats carefully and keep them moist.

After 12 days, the seedlings may seem crowded in the flat. The whole class can decide how to thin each flat consistently so they are the same distance apart.

Collect data. Ask the class to design a table for collecting data twice a week. Each group will use the same type of data chart to record soil temperature, air temperature, number of plants, and average height of plants per flat. Other observations can be noted in their science journals.

Continue the project until the radishes are ready to harvest, approximately 25–40 days. Harvest the radishes and compare the total number of radishes per flat, observing and measuring root size.

Celebrate. Have a radish party! Make salads and dips. Be creative and enjoy the crop.

Wrap up. Ask questions to complete the activity: What type(s) of microclimate are best for radishes? Will all plants do best in this microclimate? How can weather affect the way plants grow? Ask each group to average their soil and air temperatures, number of plants, and plant heights, so that they have one figure for each category. Then make a bar graph with the class to compare the data from the different microclimates.



SHADOW STICK

AGES

5–15 years old

CONTRIBUTED BY

Learnsapes Australasia

Angourie, New South Wales, Australia
inspiringschoolgrounds.com



© LEARNSCAPES AUSTRALASIA

This activity focuses on predicting, checking, and recording shade patterns while involving students in an assessment of their school grounds. Hands-on research onsite provides a multitude of learning opportunities and exploration of the scientific method using practical measurement techniques. This activity is particularly useful when a school is planning for grounds improvements and needs to know about the presence or absence of shade in different areas, at different times of the day, and at different times of the year.

MATERIALS

- 1.2 m (4 ft) wooden stakes
- Mallet
- Tape measure
- Coloured string or wool (or chalk for hard surfaces)
- Gathered tokens (stones, sticks, etc.)
- Sunny day

DIRECTIONS

Discuss differences between sunny and shady areas, how shade moves, how students feel in sunny and shady places at different seasons of the year and whether or not it is important to record where the shade is at different times of the day in the school grounds.

Work together as a class group or in smaller groups to find a position onsite that will be sunny all day. Erect the stake so that it measures 1 m (or 3 ft) from top to bottom.

The 1 m stake will cast a shadow that will change throughout the day. Plan to check the size and position of the shadow every hour.

Lay the wool or string from the base of the stick to the end of the shadow it casts. (If you are working with a paved schoolyard, you can use chalk instead of string.)

Ask each student to select a small stone or stick and place it where he/she predicts the shadow line will end after an hour.

Bring the class back to the stake at one-hour intervals to observe which stones or sticks are closest to the end of the new shadow. Mark the shadow line from the base of the stick with another piece of string or chalk line.

Ask students to repeat their shadow prediction for the next observation period. Repeat this process throughout the day.

Discuss any patterns that are revealed and whether or not the students' predictions have become more accurate.

Discuss what the shadow stick pattern may look like during different seasons during the year. Consider repeating the activity to test your predictions.

EXTENSION

Research and find a suitable spot where a shadow stick could be set up permanently. This could be on asphalt or concrete where the shadows can be monitored in different seasons and the lines painted on the ground using a different colour paint for each season.

LIGHT AND SHADE

AGES

4–8 years old

CONTRIBUTED BY

Karel Komárek Proměny Foundation
Prague, Czech Republic
nadace-promeny.cz

Have you ever noticed how the world around us is constantly changing? Leaves on the trees create moving shadows as the wind swirls them around in the sunlight. The silhouette cast by the slide on the playground changes shape as the sun moves across the sky over the course of the day. This activity helps to capture the changing images that light creates around us and recreates these elusive moments.

MATERIALS

- Chalk or crayons
- Paper

DIRECTIONS

Start by watching the shadows in the schoolyard and discussing what students see: What shape do the shadows take? What do they remind you of? When do the shadows emerge and disappear, and how do they change during the day and during the seasons? Which shadows change slowly, like those cast by houses, and which ones constantly flicker, like trees in the wind?

Ask students to try to draw the outlines of shadows. They can use various materials—colored pastels on black paper, black marker on transparent film or tracing paper, or charcoal on white paper all work well. Lay each piece of paper down under a shadow and ask students to try to trace the outlines as they move!

It can be fun to layer drawings, since multiple objects often cast shadows over each other in the same spot. To do this, students can use different colors or shades to draw the shadows cast by different objects on the same spot. Shadows drawn on transparent film or tracing paper can be stacked over one another. Observe how the resulting image changes as each new layer is added.

Transparent drawings look great displayed in windows or suspended in empty spaces in school!



© KAREL KOMÁREK PROMĚNY FOUNDATION







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Thoughtful Use of Materials

Everything a school chooses to include in its environment says something about its values. Over the last few decades as the green building movement has grown, many schools have started to question conventional playground materials— asphalt, concrete, stainless steel, plastic, and rubber—that are widely used. Schoolyard landscape features designed using sustainable, natural, and recycled building materials demonstrate green building practices to the school community and can reduce the school district’s costs and impact on landfills and other urban infrastructure.¹

Natural Materials. Living plants, wood, bamboo, straw, stone, sand, clay, adobe, snow, and other natural materials are teaching tools for lessons about environmental stewardship and time-tested building techniques that are still relevant today. They lend themselves well to artistic expression and cultural connections, and their simple construction techniques invite community participation in schoolyard building and stewardship projects.

Natural materials are also wonderful replacements for plastic toys, blocks, and math manipulatives. Their highly varied textures and colors provide a wide range of sensory experiences and, unlike man-made objects with predetermined forms, their identity and uses are flexible, affording endless opportunities for high-quality, imaginative play.

Decomposition. Plant-based materials are gentle on the Earth and can be composted at the end of their useful life. The decomposition process returns valuable nutrients to the soil and helps to make them more accessible to other plants. Students of all ages can study natural materials’ decomposition process

onsite using a compost bin to process landscape clippings. Some schools also intentionally harness the decomposition process by adding temporary features to their landscape. For example, straw bales can act as informal outdoor seating or as centerpieces of a nature play area, for about one season. After that, the bales begin to break down and can be moved on to a second use, as mulch in the school garden. Once the straw is spread on garden beds, it will last another season before fully decomposing and returning its nutrients to the soil.

Reclaimed and Recycled Materials. Using salvaged materials on school grounds diverts bulky waste from landfills and recaptures the remaining value of the materials for further use. It reduces the need to mine, harvest, process, and transport new materials, which in turn, saves additional energy and effort, and preserves environments at the extraction source.¹

Reducing Waste. School grounds lend themselves well to life-cycle analyses of commonly used materials. Students can also conduct waste audits to see what they find on their grounds and explore ways their school community can reduce waste.



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- Bamboo Climber** 146
Construct a play structure using natural materials — Alana’s Children and Nature Program; São Paulo, Brazil
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BAMBOO CLIMBER

AGES

4–18 years old

CONTRIBUTED BY

Alana
Children and Nature Program
São Paulo, Brazil
criancaenatureza.org.br

This structure has become quite popular in São Paulo urban parks and schools. The idea is to build a climbing structure from bamboo poles with two levels. Younger kids can engage in climbing at the lower level and the oldest ones will slowly find their way up to the highest level. Kids love to try different body positions or to just stay up there chatting with friends!

MATERIALS

- Bamboo rods, 3 of each size:
 - Approximately 8 cm (~3 in) in diameter and 3.40 m (~11 ft) in length (Type A)
 - Approximately 8 cm (~3 in) in diameter and 2.80 m (~9 ft) in length (Type B)
 - Approximately 8 cm (~3 in) in diameter and 1.80 m (~6 ft) in length (Type C)
- Tape with high resistance (such as silver or duct-tape)
- Rope, 1 cm (~0.4 in) in diameter and 10 m (~33 ft) in length
- Scissors, saw, and metal file
- Lighter

DIRECTIONS

Cut the bamboo to size using a saw. Take care to smooth the ends of each piece, sanding them with a metal file until there are no barbs or splinters.

Protect 40 cm (~16 in) of the end of each pole using a strong tape. For a final finish, seal the protective tap caps together by going over the tape quickly with a lighter.

Use a portion of the rope to bind the Type A rods together at one end, forming a bundle. Then bind the Type B rods together to form a triangle. Bind the Type C rods together to form a second triangle.

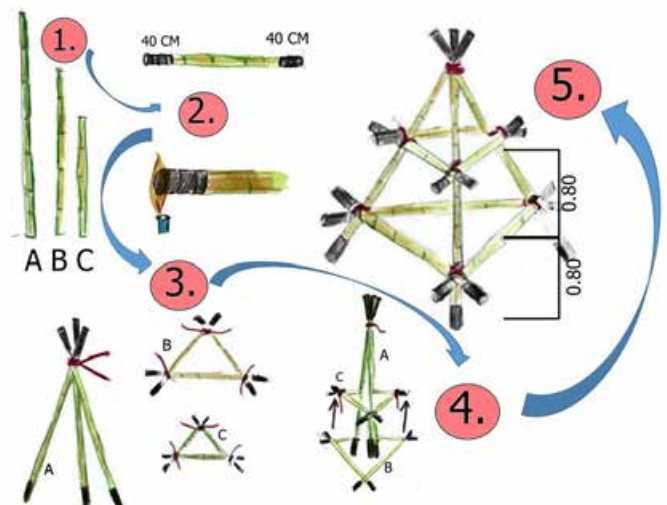


© ALANA'S ARCHIVES

Organize the bound rods like this: Put the Type B triangle under the Type C triangle and put the Type A bundle inside of these triangles. Open the legs of the Type A bundle while lifting the other two triangles. The B triangle needs to be around 80 cm (~32 in) up off of the ground and the C triangle needs to be about 80 cm (~32 in) above the B triangle (see diagram).

Use rope to secure the triangles in place permanently.

Place your structure on a soft surface, such as grass or sand. Depending on local requirements, you may need a special ground material to cushion the fall zone around it. Check your local safety regulations to determine the proper fall zone requirements, since it varies by country.



SCULPTING SOIL BALLS: ENTHO-ENTHO

AGES

6–18 years old

CONTRIBUTED BY

Sekolah Alam Nurul Islam

Sleman, Yogyakarta, Indonesia

sekolahalamjogja.com



© SEKOLAH ALAM NURUL ISLAM

Playing with soil has many health benefits and learning opportunities. Mixing water with soil in different ratios allows students to experiment with 3D shapes and become inventors. This activity improves the understanding and designing of 3D forms of all types. Children seem to most enjoy making soil into round balls of various sizes. This activity is equally adored by both girls and boys of many ages, and can be incorporated into academic lessons or enjoyed in the students' free time outside.

MATERIALS

- Soil with soft, fine particles and high clay content, if possible
- Water and cups
- Half-pipe material, such as bamboo, cut in half lengthwise (optional)

DIRECTIONS

Collect some soft soil from the school grounds and make cups of water available to students.

Show students how to add water little by little to the soil with their bare hands, and to feel how much water is needed, until they produce a stiff batter similar to modeling clay.

Ask students to shape the soil into a ball as big as their fist, and try to make it as round as possible. Students can also compete to make the biggest or roundest ball.

EXTENSIONS

The teacher can help students to make a track using a half pipe or piece of bamboo that has been cut lengthwise. This will serve as a race course for the finished balls.

Suggest that the students arrange the tracks in a sloping position, and experiment to find the best angle for rolling their balls. (We find that arranging the track with at least a 30° angle will allow the balls to roll freely.)



The tracks can also be used to test how round the balls are. Children may set up longer tracks for their balls and experiment further during class or their play time. They can also simply roll the balls on the ground.



THE ABC MAT

AGES

5–12 years old

CONTRIBUTED BY

Naturskolan i Lund
Lund, Sweden
lund.se/naturskolan

In its simplest form, this curriculum-connected game teaches young children about the alphabet and helps them to work on their language and spelling skills. For older children, teachers can modify this activity to teach more complex grammar lessons and practice foreign language skills. The game also helps pupils tune in to the natural world around them.

MATERIALS

- ABC mats, showing the alphabet, with letters in four or five rows, as shown above. These mats can be hand drawn and made from a large sheet of paper.

DIRECTIONS

Conduct this activity in a schoolyard or park environment that is rich in “loose parts” from the nature world such as stones, leaves, flowers, pine cones, etc.

In the playground or woods, lay out a mat on the ground that shows the letters of the alphabet. The aim is for pupils to notice the details of their surroundings. A normally insignificant stone can now grace the “S” on the ABC mat and a bit of moss can now proudly take its place on the “M”. Pupils scan the area and try to name both small objects and large objects in their hunt for the correct first letter.

Divide the class into groups of three to five. Each group is given an ABC mat. They must find an object for each first letter. This activity can be made into a competition, where each letter of the alphabet gives one point and where the teacher sets a limited time of, for example, ten minutes.

VARIATIONS WITH ADDED COMPLEXITY

Groups receive two points for each object they can be more specific about. For example, a leaf on the “L” receives one point, whereas a maple leaf on the “M” receives two points. You can, of course, play bingo using the ABC mats.



© NATURSKOLAN I LUND

The activity can be repeated with slight changes:

- collect nouns, adjectives, or verbs
- collect opposites
- collect species (e.g. not just a leaf but a maple leaf, not just a berry but a blueberry)
- collect imaginative words
- move to another area
- allocate points for synonyms: one point for the word “leaf”, two points for the word “foliage”
- collect objects that rhyme



© EVERGREEN

THE NATURE OF ARRAYS

AGES

5–12 years old

CONTRIBUTED BY

Nature Play SA

Adelaide, South Australia, Australia
natureplaysa.org.au

In math, an array refers to a set of numbers or objects that will follow a specific pattern. It is most commonly used as a visual tool for demonstrating multiplication and division and there are many everyday examples of arrays. In this activity, students develop problem solving, reasoning, and numeracy skills through the use of natural materials. They design, build, and reflect upon arrays that can be extended and redesigned with ease. The outdoor learning environment provides access to natural materials that can be translated and transformed into an indeterminate amount of subjects and connects the teaching of concepts indoors to the application of that skill in the outdoors.

MATERIALS

- Digital camera
- Cards with arrays drawn on them (approximately 6 cards)

DIRECTIONS

Setting the scene. Gather the class in an outdoor learning environment and have a handful of natural materials available to build an array in the centre of the group. (The array itself can be differentiated for students depending on their abilities.)

Tuning in. Hold up one of the cards with an array example on it (e.g. 6×4) for three seconds and ask students to close their eyes and picture that array. After a few seconds ask them to go and make that array with natural materials around them. Students can often visualise a multiplicative situation by looking at the structure of a rectangular array.

Active learning. In small groups, use various materials to build arrays and invite students to connect their array with a creative and imaginative mathematical story as they build. For example, three leaves fell from a tree in a storm and the next day three more fell. Every day for a week, three leaves kept falling on the ground; how many were there on Friday? At the end of the week? How many would there be after two weeks?

Review and recording. Once an array has been composed, take a photo of it and ask students to record the mathematical story to accompany their array.



© MARIA TAYLOR

Reflection. Collate all of the arrays into a mathematical book for display in the classroom. Students can also pose questions in response to other arrays.

Going further and future connections. Try exploring outdoor environments beyond the school grounds as an opportunity to take the learning further.



Tip

Muffin baking trays, ice cube trays, or egg cartons are a useful resource when exploring the concept of arrays with younger students, to give them a framework to build within.

TENS FRAME SYMMETRY

AGES

5–7 years old

CONTRIBUTED BY

Creative STAR Learning

Inverurie, Scotland, United Kingdom
creativestarlarning.co.uk



© JULIET ROBERTSON

Symmetry is a “geometric transformation” which is commonly seen in nature. For example, many leaves are symmetrical and can be folded along the midrib. The body patterns of many insects such as butterflies display beautiful symmetry. The purpose of this activity is to introduce children to the art of making a symmetrical pattern that builds upon what they have observed in the world around them.

MATERIALS

- A tens frame. This can be drawn onto card or a cotton sheet with a permanent marker pen. See the photo above.
- A range of natural materials that can be found outside
- An acrylic mirror

DIRECTIONS

Gather in a circle. Ask children to find a partner.

With their partner, they must each find a natural object, such as a leaf, that is as similar as possible to their partner’s and bring both back to the gathering circle. Remind the group of any expectations about what may or may not be collected.

Each pair of children should look closely at their two objects and discuss what is the same and what is different about them. Upon close examination there will be tiny details that make each leaf unique.

Hand out the tens frames to each pair of children, who should place their objects symmetrically opposite each other on two squares of the tens frame.

The children can check with the mirror that their objects are symmetrical and can re-arrange them if needed.

The challenge is then to find a further four pairs of objects to place on the tens frame so that every square has an item.

Once the children have checked frame with a mirror, the objects can be returned to where they were found.

EXTENSIONS

One child can lay down five objects on their side of the tens frame. Their partner has to find the same objects and place them symmetrically in the opposite square.

The activity can be repeated but with a blank cotton rectangle and a straight stick to represent the mirror line.

As the children’s abilities and confidence increase, the children will eventually be able to create symmetrical pictures from found resources (see below).



COMPOSTING WITH WORMS

AGES

5–18+ years old

CONTRIBUTED BY

Ramona Winkelbauer

Washington, DC, United States

This activity is a “classroom scale” exploration of how worms turn organic materials into mature compost. After dividing into groups, students develop different “recipes” to explore and identify the best combinations of materials to create rich compost. Students will discuss how the mixtures were fast, slow, or resistant to vermicomposting and analyze the number of worms present at the end. The most successful “recipes” may be used to continue composting at a larger scale, if desired.

MATERIALS

- Pint or quart carryout food containers with lids, to use to develop vermicompost*
- Small, clear glass or plastic jam jars, with lids, to compare the finished vermicompost*
- Local soil
- Shredded paper or newspaper, used as bedding material for vermicomposting
- Leftover food materials such as apple cores, kitchen food waste, coffee grounds, etc. It’s best to avoid using meat or milk products, or oily food waste, due to the odors they produce when decomposing.
- Water
- Worms: red wigglers (*Eisenia fetida*), redworms (*Lumbricus rubellus*) or local earthworms
- Plastic covering to count/evaluate contents of containers

* = washed to remove food and soap residues



© SHARON DANKS

DIRECTIONS

Divide students into groups to share a vermicompost container. Request that each group put six to eight holes in their container’s lid to allow air to reach the contents.

Ask each group to suggest ratios of soil, organic leftovers, bedding materials and worms to put into their container, and then guide them in preparing their container according to their pre-determined ratio. Students then use water to moisten the shredded newspaper until it is lightly saturated.

Put the containers in a dark place or make paper enclosures to create a darkened environment. Leave the containers undisturbed for four to six weeks and then examine them.

Ask each group to open their container onto tables covered with plastic and count the number of worms. Each group should also examine the resulting compost, put a sample into a jam jar, and label the jar with their group’s name.

Pass the jars around for everyone to see, and compare similarities and differences in the final product. Ask the groups to report their final number of worms and evaluate the quality of their compost. Explore which recipe worked the best, which did not work well, and identify how the recipes can be improved.

Note: The ratio “recipe” we find most useful includes: 1 in – 2 in (2.5 cm – 5 cm) of bedding; 1 in – 2 in (2.5 cm – 5 cm) of soil; food by-products filled to 2 in (5 cm) below lid level; and 3 worms per pint (0.5 L) or 6 worms per quart (1 L). Experiment to see what works best for you!



BURY IT!

AGES

9–18+ years old

CONTRIBUTED BY

Enviroschools

Hamilton, New Zealand
enviroschools.org.nz

This intriguing way to explore waste in your school community involves burying pieces of everyday waste. Decomposition is the breakdown of natural materials by the action of insects, worms, fungi, and bacteria. Decomposition is a natural biological process which replenishes the Earth, *Papatūānuku*. By monitoring changes over time students will discover which things are biodegradable and which aren't. This will help the school community to think about the effects of landfilling, and how long different types of waste will persist in our environment.

MATERIALS

- Waste materials collected from the school
- An area of your school grounds to bury the waste
- A sheet to record your observations
- A set of scales
- Ice block (popsicle) sticks
- Gloves

DIRECTIONS

Using gloves, collect different pieces of waste from school ground bins, or from students' lunch boxes. Try to find at least one example of each of the following materials: glass, metal, plastic, paper, food, and food packaging.

Ask students to work in small groups to take a piece of waste, weigh it, and record their observations. Combine this information in a class chart to record: the name of each piece of waste; individual predictions about which pieces are biodegradable and non-biodegradable; and how long each piece will take to break down.

Select a place in your school grounds where you can dig small holes to bury your waste materials. Bury the waste in the soil. Be sure to take photos before you fill the holes. Use ice block (popsicle) sticks to mark where each piece of waste is buried.

Dig up your waste each week and record the results looking at changes in shape, colour, texture, weight, and smell. Use a



© ENVIROSCHOOLS

magnifying glass to look around the waste and identify which organisms are helping to decompose the waste materials.

Note: Over the four weeks, water the soil to keep the area damp.

REFLECTION QUESTIONS

What was the result of burying different pieces of waste? What do you think is needed to help break down waste?

What makes good *kai*/food for *Papatūānuku*/our Earth Mother? What would cause her indigestion?

How many generations will it take for some of your waste items to break down? What changes could you make to your lunch box?



TURTLE MESSAGES

AGES

4–12 years old

CONTRIBUTED BY

greenED

Sunshine Coast, Queensland, Australia
greenED.com.au

In this activity, children make sea turtle models using recycled materials to convey a message about the environment. The turtles they produce can be used to play a game and to help spread a message of care for turtles in the community.

MATERIALS

- Egg cartons: 1 egg section and a piece of the carton lid, per child
- Coloured pencils or markers, scissors, staplers for the class to share

BACKGROUND

Sea turtles are found in oceans around the world. They are in trouble in our modern world due to litter that ends up in the ocean. Sea turtles mistakenly eat litter (particularly soft plastics) and get injured by plastic straws and other items floating in the ocean. Sea turtles also lay eggs on the beach, so litter must be kept out of waterways and beaches so sea turtles can nest.

DIRECTIONS

Show children a picture of a sea turtle. Discuss what sea turtles are, their body parts, where they live, and what they eat. (They mainly eat sea grass and jellyfish, but are increasingly eating plastic by mistake.)

Explain this activity and the children’s opportunity to raise awareness about the plight of turtles.

Show the children a completed egg carton turtle model and explain how they can make one, too. Allow children to make their designs for their turtle’s head, front and back flippers—or, use the diagram on the right as a pattern. Ask the children to cut out the turtle’s features and attach them to the 3D egg carton “shell” using tape or staples. Decorate the turtles.



Ask the children to write a message to accompany their turtle that conveys the problems turtles have with litter. For example, their message might read: “say no to straws”, “say no to plastic bags”, or “pick up litter when you see it”.

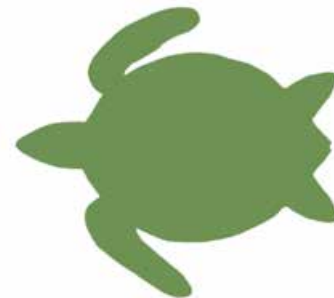
Share turtle messages with friends, families, and the community by installing the turtle artwork at school or through additional drawings or short videos.

EXTENSION

This game, called Jellyfish and Turtle Tag, was invented by kindergarten children in our community.

Create jellyfish models using a semicircle cut from a cereal box for the head/body. Glue or staple on tentacles made from lunch litter packets or cling film, cut into lengths.

To play, several children become “turtles” and carry their egg carton turtles while they chase other children, who are the “jellyfish” (holding their jellyfish models) around the school grounds, trying to eat (tag) them.



COOPERATIVE CRATE CONSTRUCTION

AGES

6–10 years old

CONTRIBUTED BY

Outras Paisagens Lda.

Lisbon, Portugal

outraspaisagens.com

This building activity challenges students to collaborate in solving a construction challenge. It is a child directed activity, with the teacher serving as a moderator only as necessary. The process of building with zip-ties requires students to work together and help each other—developing their cooperation, teamwork, and problem solving skills. The building process also helps to improve children’s fine motor skills and strength, and enhances their spatial awareness. The main building material, fruit boxes, came from a market in the school community, but can also be found in the school kitchens. Using these local items for another purpose teaches children to recycle and reuse materials.

MATERIALS

- 30 fruit boxes
- 150 zip-ties

DIRECTIONS

Set the materials out in the schoolyard and give students an opportunity to explore them. Explain to the students that they are going to build structures with the materials provided. Collectively students can discuss what kind of structure they need and where it should be built. Do they need a shelter, a bench, a tunnel, a fence? Where should it go on the school grounds?

Working in small groups, students can then take turns building a part of the structure. During the construction process, take time to pause and discuss the group’s progress and the various options available to them. This improves the children’s construction skills and their ability to collaborate in a team.

When a new group joins, they should analyze the work done by the last team before continuing the construction. Invite each group to record or write their opinion about the next steps of construction for the group that follows.

The structure can stay onsite and can be tested, reinforced, and maintained. Children can also analyze ways of improving it. It can be useful in the vegetable garden, supporting climbing plants, or delineating the space. The structure can be disassembled and redone in other ways as often as is needed.



© MARIA JOÃO GOMES

Students with their crate construction at Externato Grão Vasco in Lisbon, Portugal.



VARIATIONS AND ENRICHMENT

Mixing different ages, or different ability groups is interesting as a way of increasing interactions, sharing knowledge, and learning to cooperate.

Students can work in small groups to plan the building structures, and draw and/or create a model.

Photograph the whole process and record the durability of the structure.

Reference: Activity by Maria João Gomes and Susana Morais



BALANCE SEESAW HYBRID

AGES

3–18+ years old

CONTRIBUTED BY

Playground Ideas

Melbourne, Victoria, Australia
playgroundideas.org



© ROSIE LEAKE

This playground element is a balance beam with a twist! These planks seesaw in a fun cause-and-effect movement, which is great for developing kids' gross motor skills and coordination. It can be made using recycled and low cost materials and can be incorporated into any existing school or pre-school playground.

MATERIALS

- Building materials: Truck and car tires, wooden planks, dome headed bolts and washers
- Paint (lead free)
- Tools: Grinder with thin metal cutting disc; drill; wood plane; hammer; shovel, pick or hoe; utility knife

DESIGN AND CONSTRUCTION NOTES

Only a little movement is required for this element. If it moves too much children will be less likely to try it, for fear a larger child will catapult them off the element.

Dome headed bolts or other fixings that reduce tripping should be used throughout.

We suggest a clear, safe fall zone of at least 150 cm (~5 ft) around this element. This zone may also need to be filled with soft fall material if required by your local playground safety guidelines. Check regulations, as these differ by country.

DIRECTIONS

Sand and plane the wooden planks. Connect the truck tires to the planks using dome headed bolts. Arrange the tire and plank pieces into whatever angles you want, making sure there is a gap between the different planks.

Mark the location of the tires on the ground. Move the tires and planks and dig a hole for each tire, so that only a quarter or less of the tire is out of the ground. Higher planks mean more movement, lower planks mean less. Place the tires in the holes and fill and pack hard with soil, gravel, etc.

Remove the sidewalls from a car tire with a utility knife, taking care not to cut into the tread and expose the wires. Press the resulting loop flat with your foot and cut through the rubber tread down to the steel belt. Use the grinder to gently cut through the steel layers and turn the loop into a strip. Use water to cool the rubber and stop smoke. Cut the strip into pieces long enough to cover the gap between planks and put in the bolts on each end. Use the grinder to smooth the ends of any protruding wires.

As shown below, drill and bolt the tread strips to the planks with enough slack in the tread to allow the see saw movement. Paint the element beautifully in lead free paint.



Detailed instructions for safe construction

The instructions here provide only a general outline of the construction process. For more detailed instructions on how to safely build this playground feature, please visit playgroundideas.org. There you will also find 150 other designs, a drag and drop online design tool, and a crowdfunding platform for playground projects!

OUR SCHOOL'S PLASTIC FOOTPRINT

AGES

7–11 years old

CONTRIBUTED BY

Plastic Pollution Coalition

Los Angeles, California, United States
plasticpollutioncoalition.org



© ERICA FINE

Plastic pollution is a growing threat to the planet. Students can learn about the problem by gathering data at their school. Using the plastic footprint tool below, they will discover which single-use plastic is the most prevalent on their schoolyard. They can then design a project to lower their use of single-use disposable plastic.

DIRECTIONS

Explain that the class will count (audit) trash to learn how much and what kind of single-use plastic is used at your school.

Pair the students up to be an observer and a recorder. Distribute and review the Plastic Footprint Data Record (see example on the right).

Assign sections of the schoolyard for pairs to search and record. Send the students to these locations to collect data.

On returning, allow students time to summarize their findings and engage in a class discussion:

- Which brands and products were most prevalent?
- Which of the items is their biggest concern?
- What is the source of the plastic: home? school?
- Which alternatives can be used in place of single-use plastic? Can the use of some items be eliminated? (e.g. straws)
- Which changes could be made at the school to help reduce the disposable plastics?

Create a “Plastic Free School Action Team.” Include students, teachers, custodians, and parents.

Define the changes you want to see. Learn about alternatives that can be used. Set a specific, measurable goal and create a timeline. Figure out who you need to work with in order to make change happen. For example, maybe the PTA can help raise money for water fountains, reducing the need for disposable bottles.

PLASTIC FOOTPRINT DATA RECORD

Item	Number	From school?	From home or store?	Product Name	Brand
Plastic cups					
Polystyrene (Styrofoam) cups					
Polystyrene (Styrofoam) plates					
Plastic bottled water					
Plastic bottled juice or soda					
Plastic utensils (forks, spoons)					
Plastic straws					
Plastic grocery bags					
Plastic sandwich/snack bags					
Plastic wrap					
Plastic to-go boxes					
Paper boxed milk juice, or soda					
Plastic or aluminum drink pouches					
Chip bags, energy bars, candy, cookies wrappers					
Other					
Other					









© SHARON DANKS

Community Engagement

School grounds are unique public spaces. They are community resources that are fully occupied during the school day—but may also be used when school is not in session to enhance the well-being of residents in the local neighborhood and the surrounding community. Community members can participate in enriching, maintaining, and using school grounds for all of their possible benefits—from habitat and curriculum connections to imaginative play and mental health.

Stewardship. The process of building and sustaining green schoolyards connects communities to place, and helps to engage students, teachers, staff, parents, neighbors, businesses, nonprofits, public agencies, and others in collaborations to care for and improve their school grounds. This cooperation reinforces interdependence and local self-reliance, and builds a “sense of community” while creating useful, beautiful school environments at affordable prices. Students and members of the school and local community can help to design the school grounds and also often participate in schoolyard work days to build, plant, and maintain elements of the school grounds.¹

Festivals and Special Events. School grounds can be venues for school-related public events that draw parents and family members further into their child’s education and invite neighbors and the wider community to participate in life at school.

Joint Use. Some school grounds become part of their city’s public park system after hours, providing access to green space and recreation for students and other members of the local community when school is not in session. Engaging the community on school grounds after hours is an essential benefit of green schoolyards and also helps to ensure that there will be enough hands to build them, care for them over time, and help them to survive and thrive in the years to come.¹





SCHOOL GROUND STEWARDSHIP

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Collaborate to create master plans for school grounds — School Ground Greening Coalition; Portland, Maine, United States
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Use natural material building techniques and instructions — Galway Mayo Institute of Technology, Mayo Green Campus; Castlebar, County Mayo, Ireland *and* Foundation for Environmental Education; Copenhagen, Denmark
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Make nature-based play spaces accessible to all — Nature Play Solutions; Perth, Western Australia, Australia

FESTIVALS AND SPECIAL EVENTS

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RELATED ACTIVITIES IN OTHER CHAPTERS

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SCHOOL GROUND COMMUNITY DESIGN WORKSHOP

AGES

5–18+ years old

CONTRIBUTED BY

School Ground Greening Coalition

Portland, Maine, United States

greeningschoolgrounds.wordpress.com

trails.org/ssgctour



© SCHOOL GROUND GREENING COALITION

A design charette (workshop) is an ideal community activity for gathering ideas and engaging stakeholders, building ownership, and ensuring an effective design outcome for a shared community space. School grounds are public “commons”, ideal places for students to learn about shared use of public spaces, environmental stewardship, and design that works well for people. This activity could be used for the design of a small outdoor area, or an entire school ground. A charette helps everyone who has a stake in school grounds have a voice in their design, and teaches participants about components of design in the process. This activity should be run in coordination with a landscape architect or designer who understands schools.

MATERIALS

- 1 large copy of a school ground site map, per table of 5–8 people (24 in x 36 in or A1 paper size). The map should include the space you will be designing and the surrounding context. Include the map’s scale and compass orientation. Label as many items as possible, since many people are not familiar with reading site plans.
- Drawing materials for each table: a set of markers or colored pencils, pens, paper, and post-its
- Name tags and a sign in sheet
- Food and drinks to enjoy during the workshop

PREPARATION

Find a date and time for the charette that is convenient for many people. Reserve a time slot 1.5–2 hours long.

Send invitations, well in advance, to everyone from the community who might be interested in sharing their ideas for the school grounds. Consider including: students, teachers, custodial staff, administrators, parents, neighbors, elected officials, local business owners, gardeners, and other people with related interests and expertise.

Set up each table for 5–8 people and plan to mix the groups so each will include people with different backgrounds. Identify 1 person to take notes (“scribe”) and 1 person to act as a facilitator to ensure that everyone’s voice is heard.

CHARETTE PROCESS

Ask a lead teacher or principal or parent to introduce the project and explain why it is happening, where the idea came from, and what issue(s) it is addressing. (5–10 minutes)

Show slides of case study ideas to get the ball rolling (10–20 minutes). Also encourage participants to think of related places they have visited that they love.

Explain the discussion format: everyone can participate and draw on the shared map. Each group should label their drawings, add written details, and make additional lists of ideas that they would like to include. Encourage everyone to dream! No ideas should be discouraged. (5 minutes)

Get to work! Let the groups begin discussing their ideas, writing, and drawing. Guidance for this part of the process may include a set of questions for each group to address regarding the area to be designed. (25–45 minutes)

Ask the scribe in each group to put the group’s number on all documents and add participants’ names to the site map as well, in case there are questions later.

Wrap-up: Ask each group to share the three most popular ideas in their discussion. At the end of the workshop, gather all of the drawings and notes, and pass them to a landscape architect who will incorporate them into a design.

BUILD A LIVING WILLOW CLASSROOM

AGES

9–18+ years old

CONTRIBUTED BY

Galway Mayo Institute of Technology, Mayo Green Campus
Castlebar, County Mayo, Ireland
gmit.ie/mayo/mayo-campus



© GMIT MAYO GREEN CAMPUS

The Galway Mayo Institute of Technology created a living willow classroom with students on our grounds. It is made of bundles of freshly harvested, live willow tree cuttings, tied together to form the overall structure. Over time, the cuttings will form roots, sprout, and grow if the ground is kept moist. The willow uprights are planted in the ground and the hut comes alive in the summer months. Our classroom is a simple A-frame building shape with a wooden shiplap roof. We use this structure as an outdoor classroom for the university students and it is also used by the local community. Building a living classroom like this is a real community endeavour where relationships and interconnections with people, landscape, and natural material has a big impact on the social and ecological awareness of the participants. The building can be used as a classroom, meeting place, assembly hall, yoga hut, or simply a place to relax and reflect in nature. Willow is an important tree that provides for and supports biodiversity. It is very forgiving and can be worked and woven into great things.

MATERIALS

- Gather or purchase live willow trees that are about 5 m (15 ft) long and about 5 cm (2 in) diameter. It takes as many as 100 trees to supply enough willow to create a classroom like this, but it all grows back quickly!
- Sturdy rope and strong, thick wire
- Gloves, saws, shovels, and pruning shears

DIRECTIONS

Select an unpaved part of your school campus as a building site, and obtain any permission you need to construct an outdoor classroom of this scale. If your school is in an urban area, check to make sure that your building site is not near underground water pipes, since willow roots may clog them over time. If your climate is dry, pick a place that remains damp year-round or has a high water table.

Discuss the design and building process for this structure with the school administration and students and adults who will participate. Recruit additional adults as needed to help supervise and participate in construction.

Bring the willow trees and other supplies onto your school grounds and arrange them near the building site. Plan your work day(s) carefully, so that you have all of the materials and supplies needed, before you begin.

Create long, horizontal cross beams by laying willow trees in opposite directions for added strength, and tying each bundle firmly with rope and wire.

Construct the pillars for the A-frames on the ground, by bundling 12–15 long willow trees together and tying them firmly with rope and twine. Place them into the shape of an A-frame and secure with wire. After the A-frames are assembled, lift them into pre-dug holes, 60 cm (2 ft) deep. Be sure to have many people help lift the structures since they are large and heavy. Once they are upright, the frames need to be tied and pegged with guy lines and ideally connected by a top beam to give the some rigidity while the trees take root. The A-frame design gives enough support that steel reinforcement is unnecessary. The roof is optional and depends on the planned use of the classroom. It is possible to weave the willow, as it grows, to create a roof over time. We opted for a more waterproof option but we hope to eventually weave the willow over it.

Our building measures 8 m x 5 m (about 26 ft x 16 ft) and uses four A-frames, however the size can change based on your needs. Our classroom was built by university students as part of a final year assessment in environmental place-based education in Outdoor Education and Heritage Studies.

DEVELOP A “BUSH” PLAY SPACE

AGES

3–18 years old

CONTRIBUTED BY

Nature Play Solutions

Perth, Western Australia, Australia
natureplaysolutions.com.au

In Australia, many schools have rich natural spaces within or on the fringes of their grounds. Unfortunately, many of these schools also prohibit children from accessing these spaces. With some careful planning, a little hard work and some practical, common sense safety measures, these spaces can become wonderful play and learning environments.

MATERIALS

- Equipment to slash down tall grasses and weeds
- Fallen or pruned branches and other loose materials such as timber, sheets of fabric, tarpaulin, nets, bricks, ropes, etc.
- Large rocks, small boulders, logs of varying diameters and lengths (optional)
- Crushed gravel to make a pathway (optional)

DIRECTIONS

Ensure there are no serious hazards, e.g. poisonous plants, dangerous animals (venomous snakes) or hazardous materials such as asbestos or other toxic substances.

Engage a qualified arborist to assess all trees to ensure they are in good condition. Damaged trees or trees prone to dropping limbs should be felled. The timber may be retained for use as climbing logs, informal frames for dens or teepees, or cut into short lengths for seating.

Slash down tall grasses and weeds to create an entry and pathway through the space, and places for play within the selected area.

Depending on the density of shrubs and bushes, these may need to be thinned a little to create spaces for play within the designated zone and to support discrete supervision of the children. Be sure to maintain most of the bushes or the space will become too sterile to support imaginative and construction-oriented activities. Children need access to the leaves, flowers, nuts, berries and twigs such plants provide for play, art and learning.



© NATURE PLAY SOLUTIONS

Allocate an informal area for storing or adding fresh supplies of loose materials. At the same time, be mindful of creating large piles of timber or similar that might create habitat for termites, poisonous spiders, or snakes.

Develop a set of simple guidelines with the children to govern their use of the space. Shape the rules to help students develop the array of positive life skills and attributes that such spaces afford. Avoid a long list of “don’ts” that will hamper their exploration and enjoyment.

Allow the children freedom to work together or alone to build dens, to play shop, to create and visit other worlds, to tackle challenges and find their own solutions.

These spaces can also provide opportunities to support hands-on formal and informal learning about your local environment, e.g. observing seasonal changes and life cycles of creatures that live in the area.



THE BIG SCHOOL GROUNDS FESTIVAL: THE COMEDY STAGE

AGES

5–18+ years old

CONTRIBUTED BY

Learning through Landscapes

Winchester, England, United Kingdom

ltl.org.uk



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In the United Kingdom in June 2014, schools took part in The Big School Grounds Festival to celebrate National School Grounds Week. To help them with their ideas, Learning through Landscapes created a range of resources on different themes. Here we share some of our comedy ideas.

MAKE 'EM LAUGH

Performing comedy pieces in the outdoors is a wonderful experience, but does carry a few challenges.

Decide on your performance area early in order that any rehearsals indoors can reflect the actual space you have available outside. There is nothing worse than children huddled together when there is a lot of the stage available to use. Solo performances need to make good use of the space without leaving the performer out of breath!

Sound is often an issue, so do a few test runs to make sure that the voices/sounds that need to be heard can carry effectively to all the seats. Also think about your backdrop and how you will orient your stage. Having your audience facing into the sun is not a good idea so think about that when you select your location, and plan accordingly for that time of day.

Visual comedy can be particularly good for younger children whilst older children can discuss why the work of some comedians is controversial. You may want to find extracts from comic plays for children to perform, or ask them to work on examples from their favourite TV programmes. Parody can also work well so they could look at a programme that is not a comedy, and then look at ways it could be parodied.

A comedy show might include sketches, stand up, extracts from a Shakespeare play, physical comedy, or even comedy songs.

PUPILS CAN PARTICIPATE IN MANY WAYS

- Design and make costumes
- Direct or be stage managers
- Design and build scenery
- Manage the technical aspects of the production such as lighting and sound, or video and audio recording
- Write scripts
- Produce an accompanying sound track
- Produce programmes and write reviews for the local media, school website, or magazine
- Set up a micro-enterprise (door charges, drinks, etc.)



HANDS FOR THE ENVIRONMENT

AGES

3–18+ years old

CONTRIBUTED BY

Hong Duc University

Thanh Hóa City, Thanh Hóa, Vietnam
hdu.edu.vn

This activity, where participants trace their own hands on colorful paper and write or draw their wish for the environment, is a wonderful addition to a school or community festival. It inspires children and adults to consider their personal role in protecting our environment by sharing a wish with others. A sea of hands swaying in the breeze makes a striking art installation with meaning. The activity can also be used in a classroom setting to encourage reflection after discussions or activities where environmental stewardship is a topic.

MATERIALS

- Colorful paper, such as construction paper, that is plain on at least one side
- Markers, pencils, scissors, tools to punch holes in paper
- String or yarn
- A place to hang the finished hands

DIRECTIONS

Ask each participant to choose a piece of colored paper, trace their hand, and cut it out.

Encourage participants to write or draw their wish for the environment on one or both sides of their hand cut-out. The wish should be something they would like to share with others.

Use the hole punch tools to put a hole at the top of each paper hand. Tie a piece of yarn or string through the hole and make the string long enough to hang from a tree branch, low enough so the text on the hands can be read.

Hang the paper hands from tree branches or other places where they can blow in the breeze, in a place they will be seen. Celebrate your good work by taking a tour of the installation, and reading all of the messages for the environment!



© SHARI WILSON



Reference: Activity created by Hoang Ha, Shari Wilson, Heather Nisbett-Lowenstein, and teachers Nguyen Thi Thu Hien, Ly Thu Hang, Le Thi Hien, Hoang Van Anh, Vo Thi Thanh Phuong, Ngo Thi Thu, Hoang Phuong Thuy, Nguyen Thi Thuy, Le Thi Xuan, Duong Thi Thu Phuong.

THE SPOT

AGES

4–18 years old

CONTRIBUTED BY

Fundación Incursiones

Caracas, Venezuela

incursiones-ve.com

The SpOT (Space Occupation Tool) is a “device” for occupying and reclaiming neglected and misused public spaces. It is a mobile, compact, and light machine that can be expanded to create multiple scenarios, from guided activities to music and theater plays. In its deployment and operation, the SpOT requires the active engagement of users. Through this, it looks to involve citizens from the very onset in the construction of a space built through interaction and agreement, opening the door to more complex participatory dynamics.

OVERVIEW

The goal of this activity is to inspire a city, community, or school to rediscover, reclaim, and take ownership of public space. We initiate this through something we call the SpOT.

The SpOT does not have a defined shape. It is deployed by and for children, and as such, it empowers them and enables them to be positive civic role models for everyone.

The only requirements of the SpOT is that it builds the capacity for wonder in those who interact with it, that it has flexible uses, and that it can be easily moved. It often takes the form of a portable display or structure which complements the activities that are or could be done in that space. We recommend the following steps to design, construct, manage, and implement your version of the SpOT.

DIRECTIONS

Choose a place and observe it. Think about the activities that occur or might occur there. Evaluate the existing and/or potential users of the space. Who are they? What do they do in the space? When do they use it? How do they feel about it?

Create a network of allies. Contact everyone you think will want to get involved in the project—individuals and institutions surrounding the space, who will benefit from its recovery and the empowerment of its young managers.

Give it shape. Dare to invent! There are no limits, it can be as simple or complex as you want. Take into account the users,



© GABRIEL OSORIO

needs, and dynamics of the space. Including a professional designer or builder in the team will guarantee the durability of the urban showcase.

Create an action plan. Establish when and how the SpOT will appear! Share this information with your allies and future, potential users. (Curiosity is your best ally.)

When the SpOT is ready, take it for a ride! Make the unveiling an event! Share the activities you imagined it being used for and allow children to imagine new ones.

Build support for the installation by capturing and telling the stories of people’s experiences with the SpOT.



Reference: This activity is based on a collaborative project designed and implemented in partnership with Central Arquitectura, Caracas Mi Convive, Fundación Carlos Delfino, and Taller X.



TAKE A NIGHT HIKE!

AGES

6–15 years old

CONTRIBUTED BY

Outdoor People

London, England, United Kingdom
outdoorpeople.org.uk



© CATH PRISK

Big adventures can be had on your own doorstep. Even the most familiar places feel strange and different at night, in the dark, so why not invite your class (and maybe their parents) to come and experience the oh-so-familiar playground and nearby outdoor spaces in the mysterious nighttime!

BEFOREHAND

Plan your route and walk the whole length of it during the daylight. Part of the night hike should be done in total dark so you need to know the route well. A key part of your risk-benefit assessment should be to check where all of the hazards are on the journey, as well as identifying all the benefits that the children can enjoy.

Make sure children and adults wear the right gear. Bring extra hats and warm layers. Close-toed shoes may also be a good choice.

Ensure that at least two adults have good torches (flashlights). Consider bringing small extra ones for students.

If you don't have a playground, this works just as well in a park! You just need to be away from street lights.

THE HIKE

Gather in an outdoor space to set the tone for the evening's activity.

Explain that participants can use their lights where they absolutely need to, but should try to use them as little as possible so they can practice using their night vision. Avoiding looking at lights helps our eyes adjust to the dark!

Think about taking the children under, over, through, and around the area and the objects in it (trees, benches, play structures, etc.). Don't make it too easy.

Aim for about 20 minutes of slow walking. Encourage participants to touch, smell, and listen, as well as try to see.

Plan to stop and gather in an area that is peaceful. Listen to the dark. Ask everyone to be quiet and still for a minute or two, then pass around a stick (or other natural object). As the stick goes around, ask the participant holding it to tell the group about one great thing that happened that day. When everyone has had a turn, ask everyone to turn off their lights. Now howl to the moon! Hoo hoo hoooooowooo!

When you are ready, turn your lights back on and lead the group back to the start. Give the children 15 minutes playing around the dark playground (make lights available). Allow them to soak up the experience of feeling what it is like to be in this familiar place at night. This is a good time to offer hot cocoa to the adults in the party, too!

EXTENSIONS

Create night pictures or poems inspired by the experience.

Allow small groups to devise their own night routes.

Take photographs and videos and share them to inspire others!

Tip

Red light torches (flashlights) will not harm your night vision. Use red lights to provide a sense of security for any timid students, while still allowing them to experience the joys of the dark!

OUTDOOR CLASSROOM DAY

AGES

0–18 years old

CONTRIBUTED BY

Project Dirt

London, England, United Kingdom
outdoorclassroomday.com



© OUTDOOR CLASSROOM DAY

Every child needs to learn many skills and lessons that you just can't teach inside the classroom ... grit, resilience, to be more physically active, to deeply love the environment, and to be more creative. Outdoor Classroom Day invites you to have a go at taking your planned lessons outdoors, to observe how important playtime is during the school day, and to learn that even if you are "poor in resources", you too can be "rich in environment"!

BEFOREHAND

Outdoor Classroom Day is an international event. Sign up to say you are taking part! If you can't do your outdoor lesson on the actual Outdoor Classroom Day, that's okay. Choose your own! (Visit outdoorclassroomday.com to see this year's dates.) Make sure you have permission from parents for photos.

If you don't have school grounds, then think about using the street outside your school (ask if it can be closed) or a local park or green space.

Be sure children and adults are prepared for different weather possibilities. Plan ahead, but do leave room to be inspired on the day!

ON THE DAY

If this is your first time taking lessons outdoors focus on the process. Designate an area as the class space, be clear on expectations, and keep the lesson simple. There will be plenty of time for more complicated lessons when this is part of your everyday routine.

Make playtime super special and LONGER. Give children 10 minutes at the start to run around so they get those fidgets out first!

Can you offer more "play objects" than a few balls? Consider asking local businesses donate cardboard boxes, or asking every child bring in a bit of "junk" like old curtains, broken computers, crates, or tires. Even something simple like chalk can be a great addition to the outdoor play environment.

Observe what is going on at playtime—there are so many unteachable skills developing in a great recess. Can you spot the leaders? The team players? The child enjoying the feel of the sun? The persevering child? Get to know your students in a different way!

Record your experiences. Take photographs and videos of the fun that you have had so you can share them with students and parents alike.

AFTERWARDS

Invite the children to reflect and discuss what they did and how they felt with their classmates. Listen to the language they use and encourage classmates to ask questions

Give children "outdoor play" homework. Can you inspire parents to get their children outdoors more after school or on the weekends, too?

Share your experiences. Outdoor Classroom Day is all about building a movement, so inspire everyone with what you and your students have done! Send a press release to your local paper, put up photos on noticeboards, or give a presentation to school administrators or governors. If you share images on Facebook, Twitter, or Instagram use the hashtag **#outdoorclassroom**. You can also share with parents on **#dirtisgood!**

Contributing Organizations

The *International School Grounds Month Activity Guide* is the result of a fruitful collaboration between the International School Grounds Alliance and 73 other organizations from 27 countries around the world, who each contributed a school ground activity that reflects their own organization's mission, programs, and areas of expertise. The diversity of ideas they shared will now enrich school ground programs in many countries. We greatly appreciate everyone's participation and extend our sincere and heartfelt thanks to this wonderful community of colleagues.



Source, both maps: Google My Maps. Map data ©2018 Google, INEGI



Organizations from around the world that contributed their ideas to the *International School Grounds Month Activity Guide* are shown with red markers on the maps.

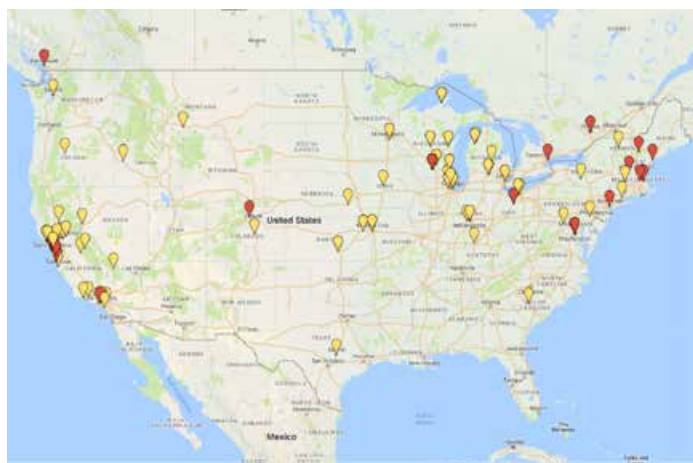


Organizations from the United States that contributed their ideas to the companion publication, *Living Schoolyard Activity Guide*, are shown with yellow markers on the maps.

Authors around the world!

The map above shows the fantastic geographic diversity of the author-organizations that have contributed activities to this publication. It also includes the locations of author-organizations from the companion guide in this set, produced by our colleagues at Green Schoolyards America. (map detail, right) This is truly a global movement!

Do you see your state/province or country on the map? If your organization helps schools use their grounds to their fullest, we'd love to include you in the next edition! Please contact us to find out more about how to submit an activity: info@internationalschoolgrounds.org



Abruzzi School Garden Program
Siankhore, Baltistan, Pakistan
abruzzischoolgarden.com



Children in Nature Collaborative
San Francisco Bay Area, California,
United States
cincbayarea.org



**Alana
Children and Nature Program**
São Paulo, Brazil
criancaenatureza.org.br



CitySprouts
Cambridge, Massachusetts, United States
citysprouts.org



**The Anak Atelier
Preschool and Kindergarten**
Ungasan, Bali, Indonesia
theanakatelier.com



Creative STAR Learning
Inverurie, Scotland, United Kingdom
creativestarning.co.uk



ArtyPlantz
Bangalore, India
artyplantz.org



Crops in Pots
Karachi, Sindh, Pakistan
facebook.com/cropsinpot



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Bay Tree Design, inc.
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**Earth Partnership for Schools,
University of Wisconsin-Madison
Arboretum**
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arboretum.wisc.edu/learn/eps



BirdLife Malta
Xemxija, Malta
birdlifemalta.org



Eco-Schools India
Ahmedabad, Gujarat, India
ecoschools.in

Dr. Herb Broda
Ashland University
Ashland, Ohio, United States
movingtheclassroomoutdoors.com



Education Outside
San Francisco, California, United States
educationoutside.org

The Carey School
San Mateo, California, United States
careyschool.org



**Eesti Rohelised Koolihoovid
(Estonian Green School Grounds NGO)**
Tallinn, Estonia
koolihoovid.ee



Centre for Environmental Education
Ahmedabad, Gujarat, India
ceeindia.org



Environment Design Institute
Tokyo, Japan
ms-edi.co.jp/youho/htdocs





Enviroschools
Hamilton, New Zealand
enviroschools.org.nz



Green-Schools Ireland
Dublin, Ireland
greenschoolsireland.org



Ayesha Ercelawn
La Scuola International School
San Francisco, California, United States
lascuolasf.org



Green Schooyard Network
Wayland, Massachusetts, United States
greenschooyardnetwork.org



Evergreen
Toronto, Ontario, Canada
evergreen.ca



Green Schoolyards America
Berkeley, California, United States
greenschoolyards.org



The Foundation for Environmental Education (FEE)
Copenhagen, Denmark
fee.global
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Greenstone Design
Auckland, New Zealand
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Friends of Nature (FON) Nepal
Kathmandu, Nepal
fonnepal.org



Grounds for Learning
Stirling, Scotland, United Kingdom
ltl.org.uk/scotland



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Caracas, Venezuela
incursiones-ve.com



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Boulder, Colorado, United States
growingupboulder.org



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Santiago, Chile
patiovivo.cl



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Berlin, Germany
gruen-macht-schule.de



Galway Mayo Institute of Technology, Mayo Green Campus
Castlebar, County Mayo, Ireland
gmit.ie/mayo/mayo-campus



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GoodPlanet
Brussels, Belgium
goodplanet.be



Horace Mann Elementary School
Washington, DC, United States
horacemanndc.org



greenED
Sunshine Coast, Queensland, Australia
greenED.com.au



International Association of Nature Pedagogy
Crieff, Scotland, United Kingdom
naturepedagogy.com





IslandWood
Seattle, Washington, United States
islandwood.org



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Karel Komárek Proměny Foundation
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KidActive
Outdoor Play and Learning Program
Ottawa, Ontario, Canada
kidactive.ca



Learning through Landscapes
Winchester, England, United Kingdom
ltl.org.uk



Learnsapes AustralAsia
Angourie, New South Wales, Australia
inspiringschoolgrounds.com



Life Lab
Santa Cruz, California, United States
lifelab.org



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Crieff, Scotland, United Kingdom
mindstretchers.co.uk



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Seattle, Washington, United States
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naturepassport.org



Nature Play SA
Adelaide, South Australia, Australia
natureplaysa.org.au



Nature Play Solutions
Perth, Western Australia, Australia
natureplaysolutions.com.au



Nature Play WA
Perth, Western Australia, Australia
natureplaywa.org.au



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Lund, Sweden
lund.se/naturskolan



Office of the State Superintendent of Education
Washington, DC, United States
osse.dc.gov/service/school-gardens-program-sgp



Outdoor People
London, England, United Kingdom
outdoorpeople.org.uk



Outras Paisagens Lda.
Lisbon, Portugal
outraspaisagens.com



Pelangi School
Ubud, Bali, Indonesia
pelangischoolbali.com

Elizabeth Phal
Gilman Elementary School
Gilman, Yap,
Federated States of Micronesia
fsmcd.fm



Plastics Pollution Coalition
Los Angeles, California, United States
plasticpollutioncoalition.org



Playground Ideas
Melbourne, Victoria, Australia
playgroundideas.org





Play Learning Life
Winchester, England, United Kingdom
playlearninglife.org.uk



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Manchester, England, United Kingdom
popupadventureplay.org



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London, England, United Kingdom
outdoorclassroomday.com



School Ground Greening Coalition
Portland, Maine, United States
greeningschoolgrounds.wordpress.com
trails.org/ssggctour



Science World British Columbia
Vancouver, British Columbia, Canada
scienceworld.ca



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The Trust for Public Land
NYC Playgrounds Program
New York, New York, United States
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wildpainting.org



WESSA
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Yap Fusion
Gilman, Yap, Federated States of
Micronesia
yapfusion.blogspot.com





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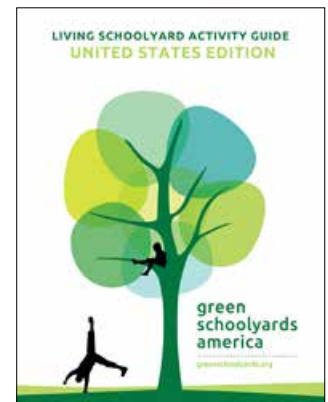
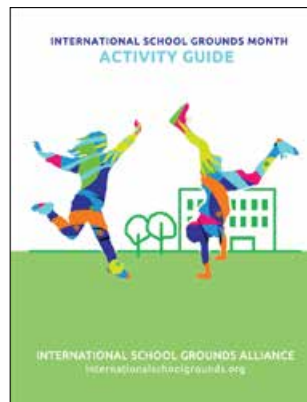
Companion Publications

We hope you enjoyed the *International School Grounds Month Activity Guide*! We also invite you to download a free copy of the *Living Schoolyard Activity Guide*, a companion book in this set, produced by our partners at Green Schoolyards America. This *Guide* shares the same format and includes additional school ground activities from organizations across the USA.

The ISGA's *International School Grounds Month Activity Guide* includes 104 ideas for use outdoors on school grounds, written by 73 organizations from 27 countries.

Green Schoolyards America's *Living Schoolyard Activity Guide* includes an additional 131 ideas for year-round school ground activities, written by 122 organizations from across the United States.

Together these two publications include a total of 235 outdoor activities written by 187 organizations! We hope the wide variety of geographic and cultural contexts in this set of *Activity Guides* will support your work anywhere in the world—during International School Grounds Month in May, and throughout the year. We encourage our readers to download and try activities from both books in this free set.



Now in Czech and Chinese! Both of the school ground *Activity Guides* are available on our websites in English. The international edition is also available in Czech and Chinese!

International School Grounds Alliance

International School Grounds Month Activity Guide
internationalschoolgrounds.org

Green Schoolyards America

Living Schoolyard Activity Guide – United States Edition
greenschoolyards.org





International School Grounds Alliance

The International School Grounds Alliance (ISGA) is a global network of organizations and professionals working to enrich children's learning and play by improving the way school grounds are designed, used, and managed. We invite like minded organizations and professionals to become ISGA members and collaborate to nurture and grow this international movement.

THE ISGA BELIEVES SCHOOL GROUNDS SHOULD:

- Provide powerful opportunities for hands-on, outdoor play and learning
- Nurture students' physical, social, and emotional development and well-being
- Reflect and embrace their local ecological, social, and cultural context
- Embrace beneficial risk-taking as an essential component of learning and child development
- Be universally accessible and contribute to sustainable communities
- Fosters partnerships between professionals and organizations across the globe
- Organizes international conferences and programs
- Promotes enriched school grounds as uniquely positioned, engaging environments for children
- Supports the United Nations' Sustainable Development Goals (2015-2030)

THE ISGA:

- Promotes children's participation in school ground design, construction, and stewardship
- Advocates for inclusive, universally accessible and sustainable school grounds
- Facilitates a dialogue about innovative research, design, education, and local and international policy

Join the conversation

Become a member of ISGA and receive our newsletter:
<http://bit.ly/ISGAjoin>

Attend our upcoming conferences:
<http://bit.ly/ISGAconf>

Participate in our LinkedIn Group:
<http://bit.ly/ISGALI>

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IMAGINE. In one corner of the school ground, a small group of children play together at the edge of a puddle, learning about the water and its inhabitants, stretching their creativity, and building friendships. In another, a teacher supervises as pupils collect natural materials, improving their fine motor and numeracy skills as they arrange their treasures in patterns. Across the yard, older youth are running and jumping, testing and growing the limits of their physical abilities, then sitting quietly under a tree, reflecting and releasing the stress of the day. After school, a family or community group uses the grounds for a performance and a party—celebrating their community in a space that they helped to envision, create, and maintain.

This is the spirit of International School Grounds Month, a global celebration of school grounds that takes place each year in May. This *Activity Guide*, developed with written contributions from around the world, provides an introduction on how to use and enrich school grounds for curriculum connections, community engagement, and the health and well-being of children and the environment. We hope this *Activity Guide*, developed for International School Grounds Month, will encourage your school to take your students outdoors regularly to use the school grounds to their fullest year-round.

A companion *Activity Guide* with additional school ground ideas produced by our colleagues at Green Schoolyards America is also available for free on our website.

Come alive outside!

INTERNATIONAL SCHOOL GROUNDS ALLIANCE
internationalschoolgrounds.org