NATURE PLAY IN EARLY LEARNING

Learning Activities Co-Designed by
Woodland Park Zoo and Refugee Women's Alliance

Institute of Museum and Library Services

WOODLAND PARK ZOO

ReWA
Empowering families • Strengthening communities

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OUR MISSION

WOODLAND PARK ZOO saves wildlife and inspires everyone to make conservation a priority in their lives.

LAND ACKNOWLEDGMENT

These are the lands of the Tribal signatories of the Treaty of Point Elliott (1855), whose stewardship for the waters, plants, land and animal relatives in the Northwest has continued since time immemorial. Woodland Park Zoo acknowledges this stewardship, the sovereign rights of the Tribal signatories, and our responsibility to join with these Tribes to inspire and advance the restoration of relationships between humans and the living world around us.

This project was made possible in part by the Institute of Museum and Library Services [MA-251566-OMS-22]. The views, findings, conclusions or recommendations expressed in this publication do not necessarily represent those of the Institute of Museum and Library Services.

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DEAR EDUCATOR:

This nature play toolkit is the result of two years of collaboration between Woodland Park Zoo and Refugee Women's Alliance (ReWA), generously funded by the Institute of Museum and Library Services. The purpose of this project and the resulting nature play cards and associated training is to seamlessly and thoughtfully integrate nature play into early learning spaces in ways that are culturally meaningful and responsive to children, families and staff. The cards are intended for early learning professionals in a variety of settings, including preschools and center-based childcare like Early Childhood Education and Assistance Program (ECEAP) and Head Start. The activities featured on these cards are intended to increase comfort and capacity incorporating nature play across seasons, spaces, languages and learning goals.

Training and additional nature play resources are available on the zoo's free resource library at https://discoveryden.zoo.org. We hope these activities and tools are a natural fit for the invaluable learning and support you provide to the next generation.

WHAT IS NATURE PLAY?

Nature play is an educational practice you are probably engaging in, it is simply allowing children to play in natural environments and with natural objects. Encompassing everything from full outdoor schools to splashing in puddles on the asphalt, nature play is a key part of the childhood experience.

Some of the benefits of nature play include improvements in motor skills, creativity, problem-solving ability, empathy, social skills, emotional regulation, environmental identities and academic performance. Although a growing body of research shows the benefits of nature play, children of color, children who don't speak English at home and less-affluent children access natural spaces far less than their white, English-speaking and more affluent peers. With ReWA's expertise, this toolkit ensures that all children have access to local, learning-rich experiences building on – not overriding – their cultural identities and native languages.

Traditional literature considers nature play to be when children are engaging in self-guided play in a natural outdoor space. We know not everyone has access to this kind of space and we know not everyone is comfortable starting from that point. Nature play takes place on a continuum. No matter where you are in your nature play journey, these cards contain activities that will fit right in.

HOW TO USE THESE CARDS

Organized like the typical school year, from fall through summer, educators are encouraged to use these cards during their daily, weekly and monthly planning.

Examples are short seasonal prompts aligned to standards.

Activities are lesson plans for small or large groups that align to standards and popular seasonal topics.

These cards are aligned with Teaching Strategies GOLD (TSG) objectives and HighScope KDIs. For information on how TSG aligns with your program, consult your supervisor or the Teaching Strategies website.

For more information on nature play, how to best use these cards, additional activities, printouts and more, take the Nature Play Toolkit Training at https://discoveryden.zoo.org.


FALL

PUMPKINS

Physical (KDI C16/TSG 6)

Have children take turns lifting differently-sized pumpkins. Which ones are the hardest to lift? Which are the easiest?

Literacy/Language (KDI D28/TSG 18)

As a group, make up a story where a pumpkin is the main character. Try using sentence starters like, "Once upon a time," "The pumpkin said," and "Finally, the pumpkin went to."

Mathematics (KDI E36/TSG 22)

Compare the weight of a pumpkin to other items in a classroom. Use a balance scale, or create one using a clothing hanger, string and containers to hold the measured objects.

Science (KDI G48/TSG 24)

Invite children to predict what the inside of a pumpkin will look, feel and smell like. Record these predictions where the children can see. Then, open up the pumpkin and compare their predictions to what they see.

Art (KDI F40/TSG 33)

As a continuation to the Literacy/Language portion, ask children to illustrate the story. You can prompt their illustrations by giving them a piece of paper with a simple pumpkin already drawn on it.

SPIDERS

Physical (KDI C18/TSG 4)

Go for a walk outside on the playground. Can your children find any spiders or spider webs?

Literacy/Language (KDI D21/TSG 18a)

Sing the Itsy Bitsy Spider song and talk about what other things could have happened in the song. Visit Nature Play Toolkit Training at https://discoveryden.zoo.org for song lyrics.

SPIDERS (cont)

Mathematics (KDI E34/TSG 21b)

Explore the shapes that are part of a spider web and spider. Can children find shapes they recognize?

Science (KDI G52/TSG 28)

Practice using magnifying glasses to look at spiders and spider webs. What do children notice when they use a magnifying tool?

Art (KDI F42/TSG 35)

Have children work together to create a spider web in the classroom. Ask what materials they would need and see what they can find around the classroom to make a spider web.

FALL LEAVES

Physical (KDI C16/TSG 4)

Have children gather leaves into piles. They can run through piles, throw them up in the air and then gather them back together.

Literacy/Language (KDI D25/TSG 16b)

Create the letter "L" using leaves. What else starts with the sound "L"?

Mathematics (KDI E37/TSG 22)

Use leaves as a unit of measurement. Ask the children to figure out how many leaves long different objects (or children) are.

Science (KDI G49/TSG 25)

Wonder with the children where the leaves on the ground came from. Use observation skills to see if they can figure out together which tree produced which leaves.

Art (KDI F40/TSG 33)

What can you create using leaves? Examples might be a leaf person or using leaves as a covering for an animal drawing.

FULL OF LEAVES

KDIs: C17, D22, G51, G58

TSG/GOLD: 11d, 13, 27

Vocabulary: leaf, stem, veins, texture, blade

Materials: several leaves of different types, simple diagram of a leaf, white paper, crayons, magnifying glasses, location for a nature walk

Beginning

- Show the leaves you brought in. Let children explore the leaves.
- Have children make sensory observations of the leaves. Ask them to describe how the leaves feel? Do any have a scent? What sounds do they make?
- Expand the exploration to what they notice about the different shapes, sizes, colors and textures.
- Show the leaf diagram (see next page), then list the parts of a leaf together.

Middle

- Take the children on a nature walk in a safe place. Encourage them to look for leaves of various textures, shapes, sizes and colors.
- Give the children magnifying glasses to observe the leaves up close. Encourage them to look for the veins, patterns and other interesting features.
- Ask children what they notice about the size, shape and texture of different leaves. Ask them to each collect one leaf to bring back to the classroom to investigate further.

End

- Ask the children to share something about their leaf and why they chose it.
- Children can continue to learn about the leaf by using it in an art project, doing a rubbing or making a leaf character and telling its story.
- Give each child a chance to tell what they decided to do with their leaf.

Accommodations

- Consider bringing strong-smelling herbs and leaves with a variety of textures for children with low or no vision.
- Add other languages to the leaf diagram. If children speak languages other than English, make sure their languages are represented in your visual aid.

Simple Leaf Diagram

OWLS HERE AND THERE

KDIs: A5, C17, E34, F40, G45, G51

TSG/GOLD: 11b, 27, 33

Vocabulary: owl, talons, feathers, leaf, camouflage

Materials: pictures of several different owls; a variety of art supplies, including small containers, nature items, glue

Beginning

- **Introduce the children to owls by showing them pictures of different types of owls. Discuss their characteristics, such as big eyes, feathers, silent flight and being active at night.**
- **Make observations about shapes and patterns you notice as you look at the owl pictures.**
- **Discuss the shapes that make up an owl. (Most owls have a round head, large eyes, an oval body and powerful feet with claws called talons.)**

Middle

- **Tell the children they will be able to create their own owl from art and nature supplies.**
- **Make the various natural items available to the children, so they can choose their own materials to make their owl.**
- **Keep in mind that this activity should be their creative expression! This is art inspired by real life. This is NOT a craft; it is okay if their art does not look like an owl.**

End

- Once the children have finished their owls, ask them to share their creations.
- Encourage them to talk about their owls, the colors and materials they used for their project. Ask them if their owls have names and where they might live.

Accommodations

- To help support children with sensory concerns, don't require the use of any specific materials.
- For children with low or no vision, use art materials with lots of different textures, such as pine needles, leaves, sand and dirt.

Do More

- This activity can be recreated with any animal and during any season using nature materials found during that time of year.
- For additional resources for this activity, check out the Nature Play Toolkit Training at https://discoveryden.zoo.org.

SEED INVESTIGATION

KDIs: D22, C17, G45, G51

TSG/GOLD: 7a, 9, 25

Vocabulary: seed, plant, pod, sprout, root, leaf

Materials: variety of fruit and vegetable seeds, mallets, magnifying glasses, tweezers, paper plates, illustration – simple seed diagram

Beginning

- Introduce seeds explaining that seeds are tiny parts of plants that can grow into big plants.
- Talk about the different parts of a seed (embryo, seed coat and food store.)
- Show children different seeds and ask questions like... What kind of seed do you think this is? Where would these seeds come from? What would happen if they were planted in soil?

Middle

- Encourage children to use their senses to explore the seeds. Provide tools like magnifying glasses, tweezers and a mallet. Ask what they notice about the seeds.
- What should we do if we wanted the seeds to grow? Talk about how plants grow.
- Encourage children to suggest things the seeds would need, such as soil, water, sunlight, etc.
- Show photos of different stages of a plant life cycle and ask the children what they notice at each stage.

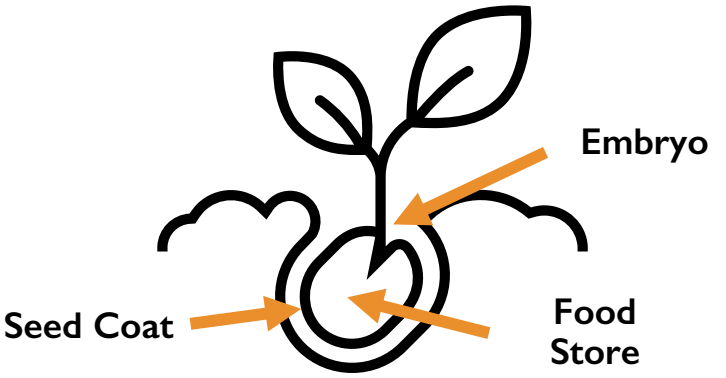
End

- Invite each child to choose a favorite seed and tell you about it.
- Draw attention to the similarities and differences among the different seeds described by the children.

Accommodations

- Be aware of food allergies and only bring seeds that are safe for all children in the group.
- If a child tends to explore with their mouth, do not use seeds from outside.

Simple Seed Diagram



YOUR SPECIAL SPOT IN NATURE

KDIs: A6, B9, C18, C20

TSG/GOLD: 1a, 11

Vocabulary: relaxation, calm, senses, observations, nature

Materials: paper and drawing materials

Beginning

- Go outside and ask the children to find a comfortable place to sit, kneel or lie down.
- In a calming, gentle voice, ask them to take a few deep breaths in and out to calm their bodies.
- Encourage them to notice how they use their senses.
- Ask them what they hear, see, feel and smell and the last thing they remember tasting.

Middle

- Tell the children a sit spot is a special place where they can sit quietly and notice the world around them.
- Tell them this is a great way to calm their mind and body and use their senses.
- Ask them to take a few deep breaths. Practice breathing in and out.
- Give children an opportunity to share their observations about what they see, hear, smell, feel or recently tasted.

End

- Encourage the children to share observations. Have them draw something they noticed while in their sit spot.
- Talk about other safe places at home or in their neighborhood they could sit and explore using their senses.

Accommodations

- It may take some practice for children to calm their bodies and be able to settle into a spot outside.
- Repeat this activity regularly, so the children have opportunities to practice.
- Teachers can model sharing what they notice, to help children feel more comfortable sharing.

Do More

- Use nature guides or picture books to help children learn the names of plants and animals they observe while in their sit spot.
- Create nature journals for children to record what they observed. Journal entries can be mostly pictures with writing from the child or written by the teacher.
- Incorporate storytelling or imaginative play based on the children's observations and experiences in their sit spots.

WINTER

ANIMAL HOMES

Physical (KDI C17/TSG 7a)

Using plastic or wooden animals, have children use nature items to build a home for their animal. Talk about what living things need to keep them warm in the winter.

Literacy/Language (KDI D28/TSG 18)

Read a story about animals in the winter. Using the art activity featured in this section, have children create their own page to add to the story. Then follow up by adding key words to describe the children's pictures.

Mathematics (KDI E35/TSG 21a)

Compare animals of different sizes, then compare the size of their homes. Which animal has the biggest home? Who has the smallest?

Science (KDI G51/TSG 25)

What would a winter home be like for an animal that lives in the snow (like a penguin, fox or polar bear?) Compare that to an animal that lives in a climate that is warm year-round (like a sloth, parrot or anaconda.)

Art (KDI F40/TSG 33)

Have children draw their own page to add to the story read in Literacy/Language section.

DIRT

Physical (KDI C17/TSG 7a)

Use soil as a base for a sensory bin, you could include things that live in the dirt like seeds, wooden animals (earthworms, ants, gopher, pillbugs, mice, turtles, etc.) Include a trowel or other garden tools.

Literacy/Language (KDI D25/TSG 16)

Make soil while making the word: help children form the word "soil" in sand, wet clay and compost, then mix them all together to create real soil.

Mathematics (KDI E38/TSG 23)

Use natural materials to create patterns in the dirt. Have children follow a pattern. Can they make their own patterns?

Science (KDI G50/TSG 28)

Use small shovels to dig into the dirt. Soil is made up of many different things. Compare different types of soil (local soil, potting soil for different climates or plant types). Discuss some of the physical properties (color, texture, smell, etc.) of the different soils.

Art (KDI F40/TSG 33)

Create a soil collage. Provide different types of soil for children to glue on to a sturdy piece of paper or cardboard.

WHAT ANIMALS CAN YOU FIND?

KDIs: D21, G46, G51

TSG/GOLD: 3, 8a, 8b, 14a, 25, 32

Vocabulary: winter, bird, mammal, insect

Materials: pictures of animals found in Washington, a sheet of paper with these same pictures, clipboards, pencils

Beginning

- Prep for the activity by placing animal pictures around the classroom. Include locations that are easy and hard to find.
- Ask the children what animals they have seen recently when they have been outside.
- Have children share things they notice about plants and animals in the winter.
- Ask Children how does it feel when they go outside in the winter? Describe an animal you see outside when it is cold? Ask what changes do you notice in trees during the winter?

Middle

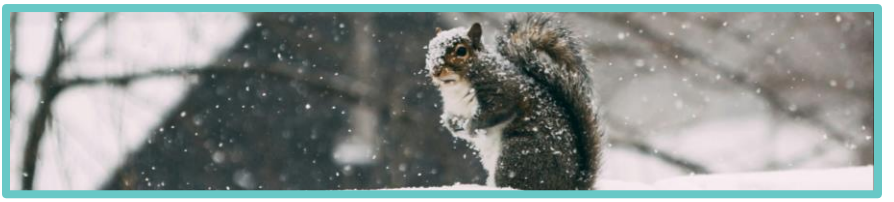
- Hand out the sheets of paper with pictures of animals.
- Ask children to pretend they are outside in the middle of winter.
- Ask the children to see how many animals they can find on their paper around the classroom.
- Give them a set amount of time to explore the classroom and see how many animals they can find.

End

- Discuss what animals they found. Ask children were some easier to find than others? Were there any animals you expected to find but didn't? Do you usually see more animals in the winter or other times of year?

Accommodations

- Make sure you leave enough time when they are finding animals in the classroom so the children are not overly rushed.



Do More

- Go outside and look for evidence of animals. Ask children why they think they found mostly birds and mammals? What do you think happens to bugs, reptiles and frogs in the winter?
- Introduce the concepts of hibernation, migration and adaptations to further the conversation of what animals do in the winter to survive.
- For additional resources for this activity, check out the Nature Play Toolkit Training at https://discoveryden.zoo.org.

WE ALL NEED HOMES

KDIs: F40, G51, H56

TSG/GOLD: 7a, 14a, 25, 27, 32

Vocabulary: habitat, den, nest, burrow

Materials: photos of different animal habitats and animal homes, small realistic model animals, small boxes, variety of natural materials

Beginning

- Begin with a discussion about the word "habitat," which means a home for animals.
- An animal's habitat is where they live, find food and stay safe.
- Just like people live in neighborhoods, animals live in habitats that are just right for them.
- Habitats can be various places like forests, oceans, deserts or even your backyard!
- Each habitat has special things like plants, water and other animals who help the animals who live there survive.

Middle

- Ask each child to choose a model animal they want to build a habitat for.
- Give each child a box to use and plenty of nature materials to create their habitats for animals.
- Remind them of the basic things we all need (food, water, shelter and space) and encourage them to represent that while building their habitats for their animals.

End

- Ask children to share about their animal and the habitat they created.
- Ask them to talk about their own habitat (their neighborhoods) and describe how they get their needs met each day.

Accommodations

- If any children have sensory concerns around touching certain types of nature materials, having classroom items and art supplies that they are familiar with to draw or build a habitat instead.
- Encourage the use of natural materials, but never require it.

Do More

- Think about ways places like zoos and aquariums create an environment to support the animals who live in their care. How might they provide a variety of activities to keep animals interested and engaged?
- For additional resources for this activity, check out the Nature Play Toolkit Training at https://discoveryden.zoo.org.

MUD PAINTING

KDIs: C19, G48, G49

TSG/GOLD: 24, 33, 7a, 7b,

Vocabulary: soil, mud, water, mix, mixture

Materials: soil, containers, popsicle sticks, water, paper, paintbrushes, cotton swabs or other items children can use to paint

Beginning

- Start by showing the children a cup of soil. Ask what they think it is and where it comes from.
- Give children the opportunity to feel the soil. Ask how does it feel?
- Ask children what they think will happen if you add water to the soil. Demonstrate how to add water to your soil and mix it together.
- Ask if they can think of a way to use the mud to create art. What would we need to be able to create art with the dirt?

Middle

- Give each child a cup with some soil and a separate cup of water.
- Let the children mix the soil and water in their cups, encouraging them to experiment with different amounts of water and soil.
- Hand out paper and brushes to each child, then encourage them to try painting with the mud they created.
- As children work, ask them to tell you about their art. Why did they choose to make a certain shape?

End

- After creating art, put their work in safe places to dry.
- Complete your clean-up routine, involving the children whenever possible.
- Encourage them to move slowly like mud to their next activity.

Accommodations

- Use a soil that is pesticide and fertilizer-free. This way it is safe if a child puts materials in their mouth.
- Let each child lead their sensory exploration of the mud.

Do More

- Try doing this activity outdoors, on the sidewalk or other concrete area.
- You can add a science extension by having the class leave a cup of mud paint out and make observations of what happens to it over a few days or weeks.

PINECONE BIRD FEEDER

KDIs: B10, C17, H58

TSG/GOLD: 7, 9d, 10a, 25

Vocabulary: bird, food, water, shelter, air, space

Materials: pinecones, vegetable shortening, nut-free birdseed, spoon, plate, dried fruit (unsweetened and with no added flavors), bags

Beginning

- Talk with the children about what animals need to survive. Animal's have five basic needs (food, water, shelter, air and space.)
- Ask children to share their favorite food, where they get water and what their shelter or space is like.
- To keep animals safe most animals should not eat people food. One of the exceptions is songbirds, who can eat some kinds of people food such as dried fruit.

Middle

- Pour birdseed into one or more shallow bowls or plates.
- Give each child a pinecone and help them tie a string to one end so it can be hung outside.
- They can then use the knife or spoon to spread shortening over the pinecone.
- Children may need help spreading shortening evenly on the cone.
- Then they can dip their cone in the bird seed and fill in gaps with raisins or dried fruit.

End

- Put each child's bird feeder in a bag for them to take home.
- Once they hang it up at home, ask them to notice (and draw pictures of) birds who visit the feeder.

Accommodations

- Be ready to help with spreading shortening on the pinecones.
- Make sure you do this activity someplace with easy access to soap and running water.

Do More

- Hang a pinecone bird feeder outside the classroom for the children to observe.
- If there are many birds, consider getting a better feeder to provide year-round chances to see birds.
- You can track different birds you see through different seasons.
- Provide bird guides to help children identify different local birds.


SPRING

SEEDS

Physical (KDI C17/TSG 7a)

Explore different types of seeds. Have children use their fingers to group them into categories.

Literacy/Language (KDI D28/TSG 18a)

Read a book about how seeds grow. Practice finding the letter "S" for seed in the book.

Mathematics (KDI E35/TSG 21a)

Looking at pictures of growing seeds, identify where the seed is in relation to the ground/earth.

Science (KDI G47/TSG 24)

Have children examine seeds and make predictions about how they will grow. Using wet paper towels, germinate different types of seeds. Check them daily to record changes.

Art (KDI F40/TSG 33)

Provide a variety of different seeds. Have children draw a flower, then have them glue seeds to the picture to add texture and color to the drawing.

BABY ANIMALS

Physical (KDI C16/TSG 4)

Talk about how different kinds of baby animals move, then have children act out these motions.

Literacy/Language (KDI D24/TSG 16)

Explore sounds made by different animals. Do baby animals make the same sounds as adults?

Mathematics (KDI E32/TSG 22)

Compare animals to see how many babies they usually have at a time. Children can group different animals by the number of babies. Ask how else they might group the animals.

BABY ANIMALS (cont)

Science (KDI G46/TSG 25)

Compare baby animals to their adults. What changes as the babies get older? Can you find an animal that looks the same as a baby and an adult? What is an animal that looks different? Name one of the differences.

Art (KDI F40/TSG 33)

Using some of the activities above as prompts, have children draw a picture to describe or demonstrate the prompt.

WORMS

Physical (KDI C17/TSG 7a)

Teach children how to gently touch or pick up a worm. Practice using a stick first. What does the worm feel like? How do you think the worm senses the things around it? Explore the topics together.

Literacy/Language (KDI D24/TSG 9a)

Sing the Nursery Rhyme "Wiggly Woo." Visit Nature Play Toolkit Training at https://discoveryden.zoo.org for song lyrics.

Mathematics (KDI E32/TSG 20a)

Worm's bodies are different than ours. They are made up of many segments. Can you count the segments on the worm?

Science (KDI G51/TSG 24)

Worms are a great source of curiosity! Help children create questions about worms. Worms can be a great opportunity to learn how to research questions and learn together as a class.

Art (KDI F40/TSG 33)

Draw an outline of a worm on a large paper. Then cut yarn, string or fabric into worm length pieces. Have children dip their "worm" in paint and wiggle them on the paper to create a large mural.

CAN YOU FIND ME?

KDIs: C17, F40, G51, H58

TSG/GOLD: 8b, 11e, 25, 33

Vocabulary: camouflage, adaptation, predator, prey, blend, pattern

Materials: pictures of camouflaged animals, animal coloring sheets of a butterfly, bird, beetle, markers, crayons

Beginning

- Talk with the children about what animals eat. Some animals eat other animals, for example, birds eat worms.
- The animals who hunt are called predators and the animals hunted by them are called prey. The bodies of many prey and predator animals are colored to blend in with their surroundings, which is called camouflage.
- Ask them if an animal wanted to hide on a table, what color would it be?

Middle

- Show them photos of animals with camouflage that blend into their surroundings to hide.
- Offer children their choice of animal outline to color.
- Encourage them to think of the kinds of colors they have seen outside and what colors would help the animal they are coloring hide.
- Once their animal is colored ask them to look for places in the classroom (or outside!) that their animal would blend in and places it would stand out.

End

- After the activity, ask the children to talk about their camouflaged animal.
- Encourage them to talk about what colors they chose and why.
- Ask children how hard was it to find a place for your animal to blend in outside and inside?
- Wrap up by having children share why they think camouflage is important to animals.

Accommodations

- Since children's fine motor skills vary, have a variety of markers, crayons and colored pencils available.
- Thick markers put down the most color at once.
- Egg-shaped crayons are very helpful for some children.

Do More

- Explore more animal adaptations that relate to colors, such as animals that have warning colors. Animals like poison dart frogs and monarch butterflies have bright colors to alert animals that might want to eat them that they taste bad or are poisonous. Other animals protect themselves with mimicry, which is when harmless animals look like animals who taste bad or are poisonous.
- For additional resources for this activity, check out the Nature Play Toolkit Training at https://discoveryden.zoo.org.

KIDS CAN COMPOST

KDIs: A6, G45, G48, G58

TSG/GOLD: 8b, 12a, 22, 25, 31

Vocabulary: soil, compost, decompose, recycle

Materials: clear container, soil, cups, vegetable and fruit scraps, tea or coffee grounds, spray bottle, clipboard and paper

Beginning

- Explain that composting is like recycling for our soil. We take scrap or leftovers from our kitchen and turn them into healthy soil.
- To make compost you need: "browns," "greens," air, water and time.
- "Browns" are dry and woody plant trimmings such as wood chips, dried leaves, sawdust and eggshells.
- "Greens" are moist vegetable and fruit scraps, green leaves, grass, tea and coffee grounds.
- A compost needs about half brown and half green materials.

Middle

- Guide the children in taking turns adding layers of brown and green in the bottle.
- Sprinkling soil between the layers will also help in the composting process.
- Explain that these materials will break down over time to become compost.
- Find a sunny spot in the classroom or outdoors to set the clear container.
- Use the spray bottle to moisten the materials in the clear container.

End

- Composting takes a few weeks. Leave the container in a sunny spot while you wait.
- Children will need to spray the materials periodically to keep them moist.
- Make observations weekly and record what changes over time.

Accommodations

- The textures and smell can be overwhelming for some children.
- Do this activity outside where children can choose to watch from a distance.
- Encourage closer participation by providing gloves and masks.

Do More

- Watch timelapse videos of food scraps breaking down to help understand the process of composting.
- Once the compost process has completed, use the compost to grow seeds. Observe the seeds and have children make predictions and observe about what happens over time.
- For additional resources for this activity, check out the Nature Play Toolkit Training at https://discoveryden.zoo.org.

FROGGY HOP

KDIs: D22, D23, E38, G51

TSG/GOLD: 9d, 14b, 21a, 23

Vocabulary: frog, pond, pattern, habitat

Materials: rocks, leaves, pinecones, moss and other nature items, small toy frogs

Beginning

- Start by telling the children a story about a frog whose home is by a pond. Talk about how the frog gets across the pond by jumping onto different objects (ex. lily pad, log).
- Ask children to demonstrate how to hop like a frog.
- Use nature items to create places for the frog to hop to. As children hop, name the object they lands on.

Middle

- Give each child a container with a variety of nature items and a toy frog.
- Ask the children to create their own story about a frog jumping.
- Encourage them to count or name the objects as the frog leaps on it.
- Narrate how you see children arrange the nature items.

End

- Ask children to share the items they placed in their ponds.
- Describe patterns you observe in the ponds.

Accommodations

- Modify the story to incorporate animal figures or natural materials that represent the home cultures of your children, including names for the animals in other languages.

Do More

- Outside, use tape or chalk to create lily pads. Ask the children if they can hop like a frog from lily pad to lily pad.
- Encourage them to count the lily pads as they hop from one to another.
- Use books or illustrations to discuss the frog life cycle. Encourage them to make a frog life cycle using play dough, pencils, crayons or paints.

NATURE CIRCLES

KDIs: D22, E38, F40, F44,

TSG/GOLD: 7a, 11b, 11e, 23,

Vocabulary: circle, texture, pattern, design, compare, sort

Materials: 8-10 sticks per child, various nature items, small basket or container for each child

Beginning

- Explain to the children that they are going to create a piece of art called a nature circle
- Creating nature art can be relaxing and calming.
- Have children use a bucket to collect some nature items.
- Then ask them to find a nature item they think is special that they will place in the center of their design.

Middle

- Give each child 8-10 sticks to make a circle.
- Have children make a circle and place their special item in the center and the other objects around the special item.

End

- Ask children to take turns sharing something about their circles.
- Ask them to talk about the item they chose to be in the center.

Accommodations

- Children with sensory concerns may not want to touch certain types of nature materials.
- If they want to make their circle using only rocks, only with leaves, etc., that's perfectly fine.

Do More

- A nature circle can be called a mandala, a geometric figure representing the universe in Hindu and Buddhist symbolism. Show photo examples of mandalas and make observations.
- Ask children to try to replicate one of the examples with nature materials.
- Then have them create their own mandala.

SUMMER

ICE AND WATER PLAY

Physical (KDI C16/TSG 7a)

Have children explore ice cubes using their senses. What words can they use to describe ice?

Literacy/Language (KDI D27/TSG 17b)

Using the mathematics example below, have children follow your verbal directions. Have them help you create pictograms or written directions for the activity.

Mathematics (KDI E36/TSG 22)

Using ice or water, have children fill differently-sized containers. Which container has the most ice/water? Which one has the least? Using a smaller container, how many times do you have to refill it and pour the contents into a larger container before it is full?

Science (KDI G47/TSG 26)

What happens to ice as it melts? Where does the water come from? How can you turn the water back into ice?

Art (KDI F40/TSG 33)

Have children create art with ice and water. Try drawing on different surfaces like the sidewalk, something made of wood or metal. What happened to the drawings over time? Try drawing in both direct sun and shade, comparing what happens.

INSECTS AND SPIDERS

Physical (KDI C16/TSG 4)

Find a few insects or spiders outside (or watch some videos inside) and notice how they move. Try to move in the ways insects and spiders do.

Literacy/Language (KDI D23/TSG 8)

To learn the body parts of an insect, sing and use body movements to the song "Head, Thorax, Abdomen" to the tune of "Head Shoulders Knees and Toes." Body parts include head, thorax, abdomen, antenna, compound eyes, 6 Legs and sometimes wings.

Mathematics (KDI E32/TSG 20a)

Insects and spiders have different numbers of legs. Use pictures and toys to count the number of legs and group them by their number of legs. (Insects have 6 legs and spiders have 8 legs.)

Science (KDI G46/TSG 25)

Insects and spiders are not covered with skin like humans. Their skeleton is on the outside of their body and the softer parts on the inside! This is called an exoskeleton. Using toy animals, group them by which animals have skin and which have an exoskeleton.

Art (KDI F40/TSG 33)

Provide children with a variety of art materials and nature items. Ask them to use their imagination to create their own insect or spider and name their creation!

WHAT'S IN THE SKY TODAY?

KDIs: D38, G45, G50, G51

TSG/GOLD: 9, 12a, 24, 27, 33

Vocabulary: sky, cloud, horizon, hazy, weather, fog

Materials: paper, pencils, drawing board or clipboard (all optional)

Beginning

- This activity works best when the sky has color variations.
- Take children outside (or make observations from a window). Look up at the sky.
- Ask them, what colors do you see? Does the color change closer to the horizon? Does the color change high up in the sky?
- Ask children, are there any clouds? If there are clouds, what do they look like?
- Have the children the draw what they see.

Middle

- Ask the children to close their eyes and imagine the sky. What colors do they see? Can they think of a color they only see sometimes in the sky?
- Ask them to add clouds to their imaginative image. What shapes are the clouds?
- Describe what they sky looks like when it is warm outside.
- Ask the children, what does the sky look like when it is cold outside?

End

- Finish with each child sharing their favorite kind of sky.
- What is the weather like when the sky looks that way?
- Additional prompts can include: What happens to the sky when its foggy, rainy or smoky out?

Accommodations

- Some children may be red-green colorblind. Colorblindness is more common in boys than girls and can include other colors.
- While they should be able to see the blue of the sky, they can struggle with subtle differences in colors.

Do More

- Track the sky, including colors, clouds and temperature over a week or longer.
- Make a graph with observations in each category daily.
- At the end of each week come together as a group to discuss what you all noticed about the sky over the past week and what it could mean.

COLORS IN NATURE

KDIs: A5, A6, G39, G46, G51

TSG/GOLD: 13, 22, 31, 33

Vocabulary: colors, matching, nature, compare

Materials: 6-8 containers of different colors, nature items that can fit in the containers, basket or container for each child

Beginning

- Ask the children to talk about the colors they see when they are outside.
- Ask them, do they see the same colors all year? Do the colors change at different times of year?
- Ask children if they have a favorite color they would like to share.
- Ask them if they think they will be able to match items found in nature with paint or marker colors.

Middle

- Take the children outside on a nature walk and have each child collect natural objects. (You can instead provide nature items for the children to choose from in the classroom.)
- When you return from the walk, ask children to place the nature items in the container that matches the item's color.
- Ask children to set aside items whose color doesn't match any of the colors of the containers.

End

- Once children have placed all the items in the matching container ask them what colors were left?
- Encourage them to share their favorite discoveries and any interesting observations they made during the activity.

Accommodations

- If providing nature items, make sure to include a wide variety of shapes, colors and textures for those who have sensory concerns.
- If children need support matching colors, you can use visual aids and illustrations.

Do More

- Take photos of the natural items and create a nature color matching booklet or poster to display in the classroom or at home.
- Give children an egg carton and paint. Ask them to paint each cup a different color and try to match the nature items they collected.
- Encourage them to explore more color options by mixing colors. What happens when you mix two colors?

NATURE FACES

KDIs: B9, C17, F40, G47, G51

TSG/GOLD: 1, 7a, 9a, 14a

Vocabulary: face, feelings, emotions, expressions

Materials: chalk, rope or string, circles cut from paper, nature items baskets or containers for each child

Beginning

- Create circles with chalk, make circles on the ground with a rope or hand out circles cut from paper.
- Ask each child to collect nature items they think would be good to make faces with.
- Ask them to use the items to make a face in the circle.
- Looking at the face they created, can they describe how someone making that face might be feeling?

Middle

- Ask children to share a time when they were feeling the way the nature face is expressing.
- Have children try changing the expression on their nature face by moving the natural items around.
- Ask them to describe what they changed and how a person with that expression might be feeling.
- Ask them what they changed.

End

- Once everyone is done, ask them to talk about their nature face or expression they created.
- Ask how many children make happy faces? Sad faces? What other feelings did their nature faces represent?

Accommodations

- We suggest doing this activity as part of a curriculum on feelings and emotions.
- Talking about big feelings and experiences that caused those feelings, can be difficult, especially for children who have experienced trauma. Be prepared to follow up and provide support.

Do More

- Ask children to tell a story about the emotion on their nature face. What feeling are they representing?
- You can encourage everyone to make faces expressing the emotions of the characters in a book you choose to read.
- Give them opportunities to express their emotions using their whole bodies.

SINK OR FLOAT?

KDIs: C17, F40, G47, G51

TSG/GOLD: 9a, 11a, 12b, 26

Vocabulary: sink, float, size, weight, texture

Materials: large containers, variety of natural items (sticks, leaves, rocks, pinecones, acorns, flowers, seeds, etc.)

Beginning

- Begin by filling the containers about 3/4 full of water.
- Introduce the concept of sinking and floating.
- Explain there are some things that sink in water while other things float.
- Ask children to share something they have seen sink and something they have seen float.

Middle

- Ask each child to choose 1-2 natural items.
- Ask them to predict whether their objects will sink or float.
- Encourage them to explain their reasoning based on what they know about the item's size, weight and texture.
- Ask the children to take turns in pairs or small groups and gently place their natural items into the water and discover whether each item sinks or floats.

End

- After testing their items, have the children share their observations.
- Talk about why they think some items sank while others floated.
- Encourage them to test different ways to make items float if they originally sank.

Accommodations

- Some children may not want to touch water or get wet.
- Offer gloves, aprons or a splash free zone for children who prefer to observe.

Do More

- Incorporate storytelling or imaginative play based on the natural items and their sink or float properties.
- Introduce concepts of density and buoyancy by discussing why some items float while others sink.
- Take photographs of the items and create a sink or float chart to display in the classroom or at home.

YEAR-ROUND

SHADOWS

Physical (KDI B12/TSG 2c)

Create shadow puppets using your hands. What animals can you create this way? Turn it into a game where children try to guess what animal someone else's hand shadow puppet is creating.

Literacy/Language (KDI D22/TSG 18c)

Tell or read a story using shadow puppets; see art activity below.

Mathematics (KDI E34/TSG 22)

On a sunny day, compare the length and width of a shadow at different times of day. Is it the same size all day? Does the size change? When is it the biggest? Smallest?

Science (KDI G51/TSG 26)

Have children explore what elements are needed to create shadows. Practice creating shadows in the classroom and explore where to make shadows outside. What season can you find the most shadows outside?

Art (KDI F43/TSG 36)

Have the children create shadow puppets to help tell a favorite story. Tell the story, having the children use the shadow puppets they created as the visual for the story. Find a place to outside that allows them to use their shadow puppets while you tell the story.

BUBBLES

Physical (KDI B11/TSG 2c)

Did you know you can make your own bubble mixture? Check out the recipes on https://www.discoveryden.zoo.org and turn class into a bubble-making party!

Literacy/Language (KDI D25/TSG 16a)

Pop your name letter. Have children say the first letter of their name as they pop a bubble. Teachers could also say the letters and children listen to the first letter of their name to pop a bubble.

Mathematics (KDI E32/TSG 20)

Can you pop ten bubbles? Use any number and ask children to try to pop that number of bubbles and count them as they pop.

Science (KDI G45/TSG 24)

Explore the parts of a bubble. What is inside the bubble? How can you make a bubble bigger? Smaller? Experiment with bubbles on a warm day and a cold day and compare.

Art (KDI F40/TSG 33)

Add a tiny amount of food coloring or watercolors to a small cup of bubbles. Hang a large sheet outside. Have children practice blowing through a bubble wand, then use the wand to blow colored bubbles onto the sheet. Look at the mural we can create together!

CALM LIKE A CRITTER

KDIs: A6, B9, E32

TSG/GOLD: 1a, 8a, 8b, 11a, 20a

Vocabulary: calm, breathe, tree, snake, mindfulness

Materials: none

Beginning

- Mindfulness helps develop executive function, build body awareness and is a valuable tool to help children self-regulate and learn to calm their bodies.
- Invite children to join you in a moment of mindfulness and use the following prompt: Imagine you are a snake. Take a snake breath—breathe in through your nose, hiss out through your mouth. Repeat tree times.
- Slowly stand up and imagine you are a tall tree. Turn your feet into roots and push them into the ground. Stretch your branches up to the sun and continue breathing.

Middle

- Ask the children to think of an animal and create a pose that makes them feel like that animal. Ask children to think about how their bodies feel after pretending to be an animal.
- Ask children to sit or lie down on the floor or ground.
- In a calm, gentle voice, ask children to take a deep breath in through their nose and breathe out through their mouth. Continue taking breaths in and out and let your body relax.

End

- Repeat this activity both indoors and outside.
- Ask children what part made your body feel the calmest? Do you have a favorite spot to sit and breathe and help calm your body? Do you feel calmer when you are outside or inside? Discuss why that is.

Accommodations

- Sitting still may not be the best way for all children to calm their bodies.
- Ask them to try sitting down and hugging their own body. Rocking back and forth while you hug your body may help some children feel calm.

Do More

- Have children feel their breath in their bellies. Start by asking them to lie down on their belly and feel how their belly moves as they breathe in and out.
- Then have children paint a rock that will become their belly buddy. Ask children to lay down on their back and put their belly buddy on their belly. Ask them what happens to their bodies when the belly buddy moves up and down?

EXPLORING PEBBLES AND ROCKS

KDIs: A1, A5, E38, G51, G52

TSG/GOLD: 11d, 13, 24, 27, 28

Vocabulary: rock, pebble

Materials: container of small rocks or pebbles for each child, magnifying glasses

Beginning

- Begin by giving each child a rock to examine using a magnifying glass.
- Ask children to share things they notice about their rock.
- Draw children's attention to the ways the rocks are the same and the ways they are different.
- Ask children, where do you think this rock came from? Does it have a story? Do you think people, plants or animals have been a part of its story?

Middle

- Give each child a small container of rocks and pebbles to examine. Ask the children if they can find some that are the same. Ask them what makes them the same?
- Watch how children group their rocks. Look for children sorting rocks by color, size, shape or texture and comment on what you observe.
- Repeat the words the children use to describe their groups. Occasionally add new vocabulary words to their descriptions.

End

- Invite each child to choose a favorite rock or pebble and tell you about it.
- Draw attention to the similarities and differences among the children's rocks.

Accommodations

- Some children may be hesitant to touch unfamiliar items.
- Provide a variety of rocks with different textures (bumpy, smooth, rough) for children to choose from.

Do More

- Continue to talk about non-living and natural things in your outside space.
- Make comments—and encourage the children to make comments—about grass, trees, flowers, rocks, weeds, bugs, birds, worms and so forth.
- Provide egg cartons (cut in half) so children can collect more rocks, pebbles or other natural items.

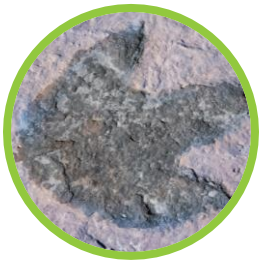
NATURE IMPRINTS

KDIs: A5, C16, C17, E34

TSG/GOLD: 6, 7a, 11e

Vocabulary: imprint, texture, pattern

Materials: play dough, natural items (pinecones, leaves, rocks, shells, sticks, etc.,) plastic animals, photos of animal tracks and fossils

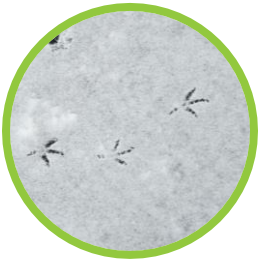


Beginning

- Show the children photos of animal tracks and ask them how they think they were made.
- Encourage them to share anything else they notice about the tracks in the photos.
- Then show photos of fossils.
- Fossils are made when something like a leaf or shell gets trapped in mud and after a very long time changes into rock.
- Ask the children what they notice about the fossils.

Middle

- Give each child a fist-sized ball of play dough, a variety of natural items and plastic animals.
- Encourage the children to touch and feel the textures of the items and experiment with pressing them into the dough.
- Ask them to use different items to create a variety of tracks and imprints.
- Encourage everyone to experiment with combining different natural items and animals to create unique patterns and designs.



End

- Ask children to share observations about their imprints or tracks.
- Invite children to explore each other's work. Look for patterns and textures that are different then what they made.
- Do any of the tracks or patterns tell a story?

Accommodations

- Be sure to be aware of food allergies or other dietary restrictions among your group of children and use a dough recipe that's safe for everyone.
- Some commercial play doughs contain wheat.

Do More

- You can make your own play dough using ingredients like flour, salt, cornstarch, oil, etc. Then the play dough itself a nature item.
- Add ingredients (food coloring, herbs, pedals or leaves) to your playdough to give it different colors, textures or scents. Have children try the play doughs and share their favorite addition.
- For additional resources for this activity, check out the Nature Play Toolkit Training at https://discoveryden.zoo.org.

WIGGLING WORMS

KDIs: G50, G51, G56, G58

TSG/GOLD: 11b, 11c, 22, 25, 32

Vocabulary: worm, dirt, tunnel

Materials: photos of earthworms and red worms, small shovels, magnifying glasses

Beginning

- Ask the children what they already know about worms.
- Introduce the importance of worms by sharing that they are amazing creatures whose job is to make soil the best place for plants to grow. They help by eating soil and pooping out even better soil and by making tunnels with their bodies that give space for plant's roots to grow.
- Ask the children to share where they have seen a worm and what they remember about that worm.

Middle

- Look for worms while raining or just after the rain. Take children outside on a worm hunt. If there are no worms on the surface, then gently dig into the soil.
- Once they find a worm, ask children to use their eyes to watch the worm and discuss what they observe.
- If children are interested in holding a worm, demonstrate how to gently scoop the worm onto their hand to get a closer look.
- Children can also make observations using a magnifying glass.

End

- Encourage children to name their worm. Ask the children to share their observations.
- Have the children return the worm back to where they found them or in a safe place in the soil where the worm would not get stepped on.

Accommodations

- Some groups of children may not be ready to touch worms. Demonstrate how to touch a worm gently using "two science fingers" (index and middle finger held together and used to lightly touch the top of the worm's body.)

Do More

- Ask children what do they think is your worm's story? Where do you think your worm came from? Do you think your worm has met other animal friends before you found it?
- Have children try to move like the worms they found. Can they copy the movements the worms made?
- Ask the children to draw or paint a picture of their worm and their habitat.

APPENDIX – RECOMMENDED BOOKS

FOR CLASSROOM READ-ALOUDS

A Seed Is Sleepy by Dianna Aston, Sylvia Long

ABC Yoga: Join us and the animals out in nature and learn some yoga! by Christiane Engel

Actual Size by Steve Jenkins

An Elephant and Piggie Book: Are You Ready to Play Outside? by Mo Willems

Bumblebee, Bumblebee, Do You Know Me?: A Garden Guessing Game by Anne Rockwell

Not a Stick by Antoinette Portis

Penguin and Pinecone: a friendship story by Salina Yoon

Planting a Rainbow by Lois Ehlert

The Tiny Seed by Eric Carle

The Tree in Me by Corinna Luyken

Tidy by Emily Gravett

Up in the Garden and Down in the Dirt by Kate Messner, Christopher Silas Neal

Waiting for Wings by Lois Ehlert

Where Would I Be in an Evergreen Tree? by Jennifer Blomgren, Andrea Gabriel

Whoo's There? Bedtime Shadow Book by Peter Pauper Press

APPENDIX – RECOMMENDED BOOKS

FOR EDUCATORS

Breathe Like a Bear: 30 Mindful Moments for Kids to Feel Calm and Focused Anytime, Anywhere by Kira Willey and Anni Betts

Connecting Animals and Children in Early Childhood by Patty Born Selly

Loose Parts by Miriam Beloglovsky, Lisa Daly

Naturally Developing Young Brains (cards) by Deborah McNelis

Naturally Inclusive: Engaging Children of All Abilities Outdoors by Ruth Wilson, PhD

Nature and Young Children by Ruth Wilson

Nature-Based Learning for Young Children: Anytime, Anywhere, on Any Budget by Julie Powers, Sheila Williams Ridge

The Play's the Thing: Teachers' Roles in Children's Play by Elizabeth Jones, Gretchen Reynolds, Sharon Ryan

Transforming Your Outdoor Early Learning Environment by Lisa Daly

Wiggling Worms at Work by Wendy Pfeffer

ACKNOWLEDGMENTS

We would like to thank the following staff for their care, expertise, and collaboration in the co-design of the nature play toolkit.

WOODLAND PARK ZOO

Allison Weber, Ann Lindblad, Anna Johnson, Bryan Vasquez, Daniel Rother, Emily Palena, Erica Johnson, Hannah Tilden, Janel Kempf, Kristi Dodds, Laurel Abbotts, Mary Jackson, Misty Fried, Nemesia Herzstein, Polly Morrison, Stephanie Bohr

REFUGEE WOMEN'S ALLIANCE

Addisselam Kefle, Agustina Bembibre, Ai Qun Zhong (Amy), Aida Assefa, Alva Corona, Anita Zhen, Annie Fok, Asha Ali, Bud Ira Bong (Ira), Chanel Lau, Dan-Tuyen Townley, Danielle Fannin, Dieu Hien Do, Erlinda Rivera-alas, Erin Pinter, Gloria Escobosa, Hailing Xu, Hannah Jones, Helen Hwang, Hope Duncan, I-Mei Tai, Josaly Kerney, Julie Lu, Kim Johnson, Laurent Chavannes, Mariam A. Dosso, Mercedes Wedaa, Michael Hansen, Minh-Hien Doan, Monica Washington, Peilei Fan, Qiyi Wu, Susan Lee, Vennie Phounsavan, Virginia Pena, YanChang Ruan (Rachel), Yin Lai (Carol), Ying Huang, Youjun Huang (Jenny)

SPECIAL THANKS

Crusty the Gecko, Gus the Cat, Spot the Snake, Stanley the Dog, Stella the Dog