

Science @ Home

MY BACKYARD



The world right outside your door is surprisingly wild. Become a backyard naturalist with over two dozen activities for kids ages 4-8.

No backyard (or local park) expedition is complete without this trusty activity pack. Prepare for five days of outdoor, close-to-home adventures with guided videos, crafts, and hands-on experiments.

Please note: While Science @ Home activities are designed to be conducted by kids, some little ones might need adult help with reading instructions and preparing crafts.

Day 1: Step outside 60-90 min

- » Nature journal (activity) (*en español*)
- » Weather wheel (craft)
- » Find and Seek (app) (video)
- » My backyard scene (coloring) (*en español*)
- » Secret worlds walk (questions) (video)

Day 2: Incredible insects 45-60 min

- » Arthropod opera (questions) (video)
- » Sidewalk science: Bug collecting (questions) (video)
- » Insect sounds (video)
- » Insect invention (craft) (*en español*)

Day 3: The feathered and the furry 45-90 min

- » Birdwatching 101 (video)
- » Art is for the birds! (activity) (video)
- » Bird Spotter Binoculars (craft)
- » What's that scat? (activity)
- » Red light, feed light! (activity)

Day 4: Play with plants 60-90 min

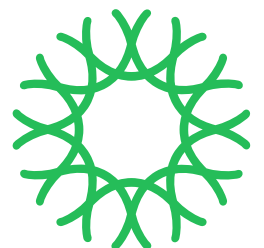
- » Blooming poppies (craft)
- » Make a plant pal (activity) (video)
- » Kitchen bingo (activity)
- » Pollinator power (questions) (video)
- » Design with plants (activity)

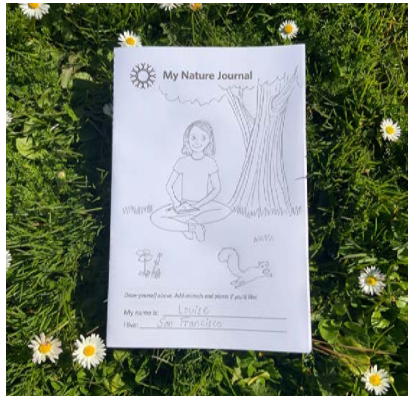
Day 5: Nature together 60-90 min

- » Tree detectives (questions) (video)
- » Nature band (questions) (video)
- » Instrument workshop (activity)
- » Mini watershed (activity)

Extension activities

- » iNaturalist (activity/resource) (video)
- » Create with nature (resource)
- » About that bird feeder... (resource)





Nature Journal

Scientists keep track of their notes in journals just like this one! Practice your observation skills and keep track of the amazing plant and animal neighbors you meet as you explore the nature near you.


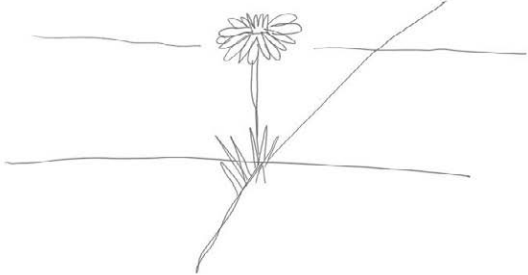
Materials

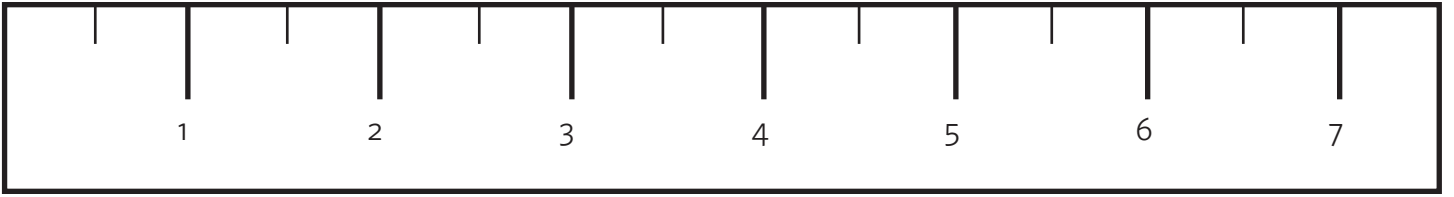
Pencil, pen, crayons, or colored pencils
Print-out templates (pages 3-6)
Optional: Staples

Directions

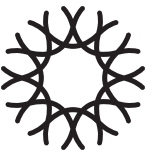
1. **Print out** the template pages (pages 3-6). Pages 4-6 are the pages of your journal, so print out more copies of these pages as you'd like. Print single or double sided.
2. **Fold** your pages in half along the dotted line, and put the cover page (page 3) on the outside of the filler pages (pages 4-6).
3. **Optional: Staple** the pages together.
4. **Explore** the outdoors with your Nature Journal and a writing implement! You can find living things in backyards, parks, or even city sidewalks. Consider bringing along:
 - a. An adult
 - b. Warm clothes
 - c. Sunscreen
 - d. Water bottle
 - e. Camera, magnifying glass, or binoculars

Your filled pages might look something like this:

<p>Date: <u>2/22/21</u> Weather: <u>Sunny</u> Time: <u>3:00 pm</u> Place: <u>Golden Gate Park</u></p> <p style="text-align: right;">☀️ 70°F</p> <p><i>Draw your observations here:</i></p> <div style="text-align: center;">  </div> <p><u>A pinecone</u></p> <p>This is as big as... <u>my hand</u> I notice... <u>it is bumpy. There are big scales and small scales.</u> I wonder... <u>Do animals live inside?</u> It reminds me of... <u>a hedgehog</u></p>	<p>Date: <u>2/23/21</u> Weather: ☀️ ☁️ Time: <u>1:00 pm</u> Place: <u>sidewalk</u></p> <p><i>Draw your observations here:</i></p> <div style="text-align: center;">  </div> <p>This is as big as... <u>a bottle cap</u> I notice... <u>there are lots of yellow petals</u> I wonder... <u>how it gets water</u> It reminds me of... <u>the sun</u></p>
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Ruler (inches)



My Nature Journal

Draw yourself above. Add animals and plants if you'd like!

My name is: _____

I live in: _____

Date: _____

Weather: _____

Time: _____

Place: _____

Draw your observations here:

Date: _____

Weather: _____

Time: _____

Place: _____

Draw your observations here:

This is as big as...

I notice...

I wonder...

It reminds me of...

This is as big as...

I notice...

I wonder...

It reminds me of...

Date: _____

Weather: _____

Time: _____

Place: _____

Draw your observations here:

Date: _____

Weather: _____

Time: _____

Place: _____

Draw your observations here:

This is as big as...

I notice...

I wonder...

It reminds me of...

This is as big as...

I notice...

I wonder...

It reminds me of...

Date: _____

Weather: _____

Time: _____

Place: _____

Draw your observations here:

Date: _____

Weather: _____

Time: _____

Place: _____

Draw your observations here:

This is as big as...

I notice...

I wonder...

It reminds me of...

This is as big as...

I notice...

I wonder...

It reminds me of...



Diario de la naturaleza

¡Los científicos y científicas toman notas en los diarios como éste! Práctica tus habilidades de observación y lleva un registro de los increíbles vecinos de plantas y animales que conozcas cuando exploras la naturaleza cerca de ti.



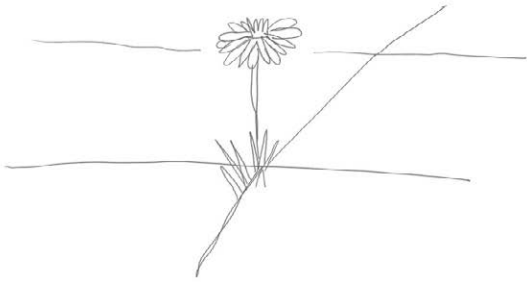
Materiales

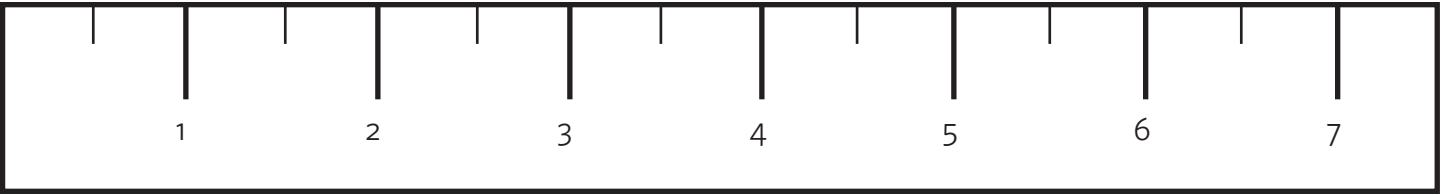
Lápiz, pluma, crayones o lápices de colores
Imprime las plantillas (páginas 3–6)
Opcional: grapas

Instrucciones

1. **Imprima** las páginas de plantilla (páginas 3-6). Las páginas 4-6 son las páginas de tu diario, así que imprime más copias de estas páginas como quieras. Imprima de un lado o doble.
2. **Dobla** tus páginas por la mitad a lo largo de la línea de puntos y coloca la portada (página 3) en el exterior de las páginas de relleno (páginas 4-6).
3. **Opcional: engrapa** las páginas juntas
4. **¡Explora** el aire libre con tu diario de la naturaleza y un implemento de escritura! Puedes encontrar seres vivos en jardines traseros, parques o banquetas de la ciudad. Considera traer contigo:
 - a. Un adulto
 - b. Ropa abrigada
 - c. Protector solar
 - d. Botella de agua
 - e. Cámara, lupa o binoculares

Tus páginas rellenas pueden mirar un poco similar al siguiente:

<p>Date: <u>2/22/21</u> Weather: <u>Sunny</u> Time: <u>3:00 pm</u> Place: <u>Golden Gate Park</u> Draw your observations here:</p>  <p><u>A pinecone</u></p> <p>This is as big as... <u>my hand</u> I notice... <u>it is bumpy. There are big scales and small scales.</u> I wonder... <u>Do animals live inside?</u> It reminds me of... <u>a hedgehog</u></p>	<p>Date: <u>2/23/21</u> Weather:  Time: <u>1:00 pm</u> Place: <u>sidewalk</u> Draw your observations here:</p>  <p>This is as big as... <u>a bottle cap</u> I notice... <u>there are lots of yellow petals</u> I wonder... <u>how it gets water</u> It reminds me of... <u>the sun</u></p>
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Regla (pulgadas)



Mi diario de naturaleza

Dibujate a ti mismo arriba. ¡Añade animales y plantas si quieres!

Mi nombre es: _____

Yo vivo en: _____

Fecha: _____ Tiempo: _____

Hora: _____

Lugar: _____

Dibuja tus observaciones aquí:

Fecha: _____ Tiempo: _____

Hora: _____

Lugar: _____

Dibuja tus observaciones aquí:

Esto es tan grande como...

Yo noto...

Me pregunto...

Me recuerda a...

Esto es tan grande como...

Yo noto...

Me pregunto...

Me recuerda a...

Fecha: _____ Tiempo: _____

Hora: _____

Lugar: _____

Dibuja tus observaciones aquí:

Fecha: _____ Tiempo: _____

Hora: _____

Lugar: _____

Dibuja tus observaciones aquí:

Esto es tan grande como...

Yo noto...

Me pregunto...

Me recuerda a...

Esto es tan grande como...

Yo noto...

Me pregunto...

Me recuerda a...

Fecha: _____ Tiempo: _____

Hora: _____

Lugar: _____

Dibuja tus observaciones aquí:

Fecha: _____ Tiempo: _____

Hora: _____

Lugar: _____

Dibuja tus observaciones aquí:

Esto es tan grande como...

Yo noto...

Me pregunto...

Me recuerda a...

Esto es tan grande como...

Yo noto...

Me pregunto...

Me recuerda a...



Weather Wheel

What's the weather like in your backyard?
Do you have snow in the winter, or fog in
the summer?

Create your own weather wheel to keep track
of the weather as the seasons change.

Materials

Arrow and weather template (page 2)

Paper plate

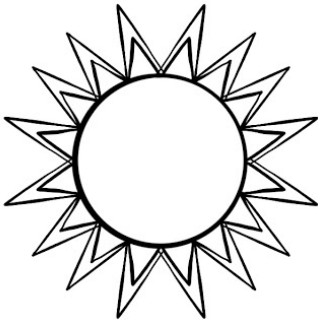
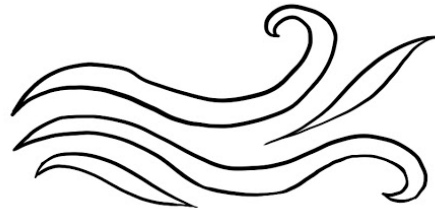
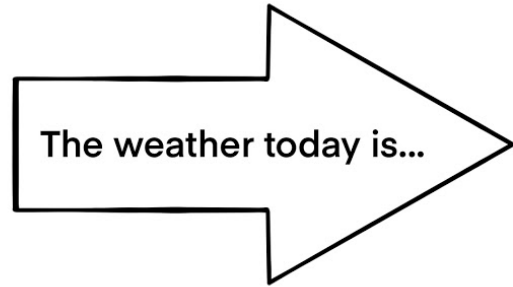
Paperclip

Miscellaneous craft supplies (construction paper, string, tissue paper, markers, etc.)

Glue or tape

Directions

1. **Draw** lines to divide your paper plate into sections. Think of what the weather is like where you live: do you have hail, rain, or snow? What about days that are sunny, cloudy or foggy? Add as many sections as you want.
2. **Choose** a type of weather for each section of the plate and, if you want to, write the type of weather on the plate close to the edge.
3. **Decorate** the sections with your craft supplies to represent each type of weather.
Optional: Cut out and color the weather images from the template on page 3.
4. **Poke a hole** in the center of the plate using the end of a paperclip. Slide the paperclip through the hole you've made until the plate reaches the second bend in the paperclip.
5. **Color and cut out** the arrow from the template of page 3.
6. **Tape** the arrow to the top part of the paperclip.
7. **Observe** the weather each day and move your arrow accordingly. Do you notice any patterns?





My Backyard Scene

Many plants and animals live in backyards, neighborhood parks, and even city streets!

Can you spot:

American Crow: This common bird has iridescent black feathers. *Iridescence* means that even though the feathers look black, they shine with different colors like a soap bubble when the light hits just right.

Anna's Hummingbird: This is just one of over 300 species of hummingbird! You can find them drinking nectar from flowers and pollinating plants as they go. Anna's hummingbird has bright red feathers covering its head and throat.

Black Ant: Ants are common insects, with six legs and three body segments. They may be small, but they work together in large numbers to build underground homes.

Blueblossom (or California Wild Lilac): The puffy clusters of tiny blue flowers on this plant make it popular with pollinators like butterflies. Its leaves have three distinctive veins.

California Pipevine Swallowtail: This butterfly has shiny blue wings with spots of white and orange. Its bright colors warn predators that the butterfly is toxic to eat.

California Poppy: California's state flower! These orange beauties are tough and can grow next to a busy street.

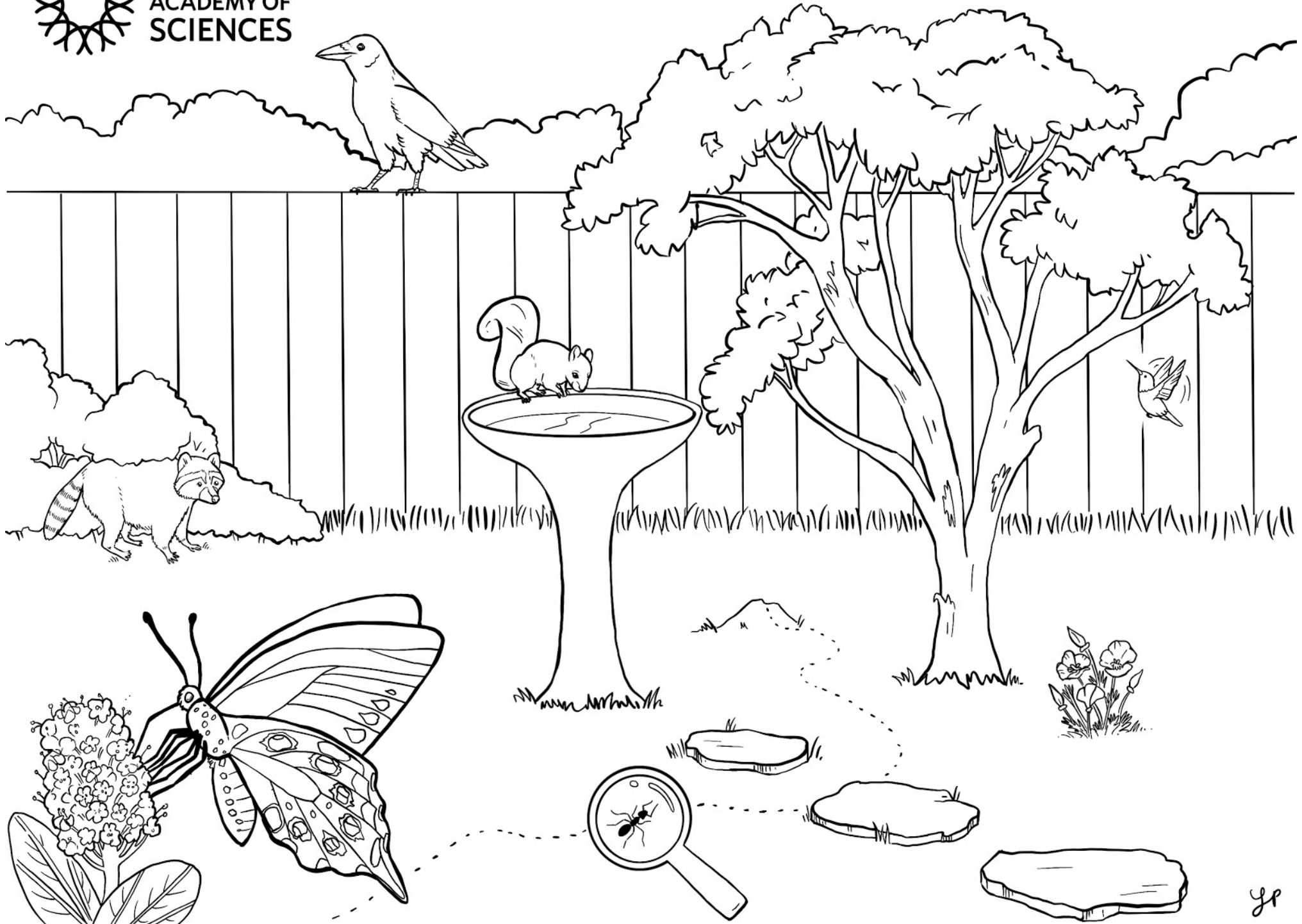
Grey Squirrel: Have you seen a squirrel before? These rodents are excellent climbers and can leap between trees.

Manzanita: These California trees are recognizable by their peeling bark and red trunks. Manzanitas can grow as a tree or a shrub, and their trunks feel cool to the touch.

Raccoon: These bandit-masked mammals can be found even in the busiest of cities. Can you color the stripes on the raccoon's tail?



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Mi escena del jardín trasero

Muchas plantas y animales viven en jardines traseros, parques del barrio y en las ¡calles de la ciudad! Puede detectar:

Cuervo americano: Este ave común tiene plumas negras iridiscentes. Iridiscencia significa que a pesar de que las plumas se ven negras, brillan con diferentes colores como una burbuja de jabón cuando la luz golpea justo a la derecha.

Colibrí de Anna: ¡Esta es sólo una de las más de 300 especies de colibrí! Puedes encontrarlos bebiendo néctar de flores y polinizadoras a medida que avanzan. El colibrí de Anna tiene plumas rojas brillantes que cubren su cabeza y garganta.

Hormiga negra: Las hormigas son insectos comunes, con seis patas y tres segmentos del cuerpo. Pueden ser pequeños, pero trabajan juntos en grandes cantidades para construir casas subterráneas.

Blueblossom (o Lila salvaje de California): Los racimos hinchados de pequeñas flores azules en esta planta lo hacen popular entre los polinizadores como las mariposas. Sus hojas tienen tres venas distintivas.

Cola de golondrina pipevine de California: Esta mariposa tiene alas azules brillantes con manchas de blanco y naranja. Sus colores brillantes advierten a los depredadores que la mariposa es tóxica para comer.

Amapola de California: ¡La flor del estado de California! Estas bellezas naranjas son duras y pueden crecer junto a una calle concurrida.

Ardilla gris: ¿Has visto una ardilla antes? Estos roedores son excelentes escaladores y pueden saltar entre árboles.

Manzanita: Estos árboles de California son reconocibles por su corteza pelada y troncos rojos. Las manzanitas pueden crecer como un árbol o un arbusto, y sus troncos se sienten frescos al tacto.

Mapache: Estos mamíferos enmascarados por bandidos se pueden encontrar incluso en las ciudades más concurridas. ¿Puedes colorear las rayas en la cola del mapache?



Insect Invention

An insect's body helps it thrive in its habitat. Some insects migrate with wings, others use color to camouflage. Some dig for shelter, and some stand up to their rivals. Have you ever noticed how insects look different from each other?

Learn more about insects' bodies on page three, and then invent your own insect with an egg carton, rock, or piece of paper.

Materials

Egg carton or rock
Paper
Scissors
Glue

Markers or paint
Paintbrushes
Pipe cleaners (optional)
Googly eyes (optional)

Directions

1. **Learn** about a few insects and their bodies on page 3.
2. **Think** about the insect you want to make and what adaptations you want it to have.
Some questions to think about:
 - a. What do you want your insect to look like?
 - b. Do you want it to blend into its surroundings?
 - c. Do you want it to have the ability to fly? To dig? To jump?
 - d. Can it make sounds?
3. **Design** your insect using a rock, a piece of paper, or an egg carton. Learn more about the different designs on the next page.
4. **Name** your insect. What kind of habitat would it live in? What would it eat?
5. **Challenge:** Pick a habitat (a spot in nature near where you live, a bookshelf, in your kitchen, etc.) and try to design an insect that would camouflage and blend into its surroundings. Once you are done, see if someone else can spot your insect.

Design 1: Rock

1. Go outside and find a rock. Be careful not to disturb live plants and animals, and make sure to follow the rules of the natural environment you are visiting.
2. Paint the rock to look like your insect. Paint wings, antennae, eyes, anything you want.



Design 2: Paper

1. Find a blank piece of paper.
1. Draw or paint your insect. Show different sides of your insect: top, side, and front views. *Optional: Glue pipe cleaners to your insect to make wings or legs.*



Design 3: Egg carton

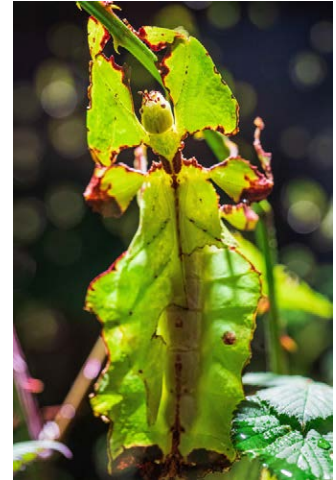
2. Cut out one cup from an egg carton.
3. Using paint or markers, color your insect. Make it any color and pattern you want.





Monarch butterflies use their wings for many different things, including warming up their bodies in cold weather and scaring off predators. Their wings also help them migrate up to 2,000 miles (about 3,200 kilometers) every year!

Leaf insects have bodies that help them camouflage or blend into their habitat. By camouflaging, they can stay hidden from both predators and prey. Can you think of any other insects that use camouflage? What do they look like?



Madagascar hissing cockroaches can make sounds with their bodies. By pushing air through holes on their sides called *spiracles*, they produce the hissing sound they are named for. This sound helps them communicate with other hissing cockroaches and warn off predators.

Male rhinoceros beetles use their horns for competition during mating season. The shape of their horns is different depending on the species. Some species can lift up to 850 times their body weight. That's like an adult human lifting six school buses!





Inventó un insecto

El cuerpo de un insecto les ayuda a prosperar en su hábitat. Algunos migran con alas, otros usan el color para camuflarse. Algunos excavan en busca de refugio, y otros se plantan cara a sus rivales. ¿Alguna vez has notado cómo los insectos se ven diferentes entre sí?

Aprenda más sobre los cuerpos de los insectos en la página tres, y luego invente su propio insecto con un cartón de huevo, una roca o un pedazo de papel.

Materiales

Cartón de huevo o roca
Papel
Tijeras
Pegamento

Marcadores o pintura
Pinceles
Limpiapipas (opcional)
Ojos googly (opcional)

Instrucciones

1. **Aprende** sobre algunos insectos y sus cuerpos en la página 3.
2. **Piensa** en el insecto que quieres hacer y qué adaptaciones quieres que tenga.
Algunas preguntas a tener en cuenta:
 - a. ¿Cómo quieres que se vea tu insecto?
 - b. ¿Quieres que se fusione con su entorno?
 - c. ¿Quieres que tenga la capacidad de volar? ¿para cavar? ¿saltar?
 - d. ¿Puede hacer sonidos?
3. **Diseña** tu insecto usando una roca, un pedazo de papel o un cartón de huevo. Obtén más información sobre los diferentes diseños de la página siguiente.
4. **Nombra** a tu insecto. ¿En qué tipo de hábitat viviría? ¿Qué comería?
5. **Reto:** Escoja un hábitat (un lugar en la naturaleza cerca de donde usted vive, una estantería, en su cocina, etc.) y trata de diseñar un insecto que camuflara y se mezclará en su entorno. Una vez que haya terminado, vea si alguien más puede detectar su insecto.

Diseño 1: Roca

1. **Salga y encuentre** una roca. Tenga cuidado de no molestar a las plantas y animales vivos, y asegúrese de seguir las reglas del entorno natural que está visitando.
2. **Pinte** la roca para parecerse a su insecto. Pinte alas, antenas, ojos, todo lo que quieras.



Diseño 2: Papel

1. **Encuentre** un pedazo de papel en blanco.
2. **Dibuja o pinta** tu insecto. Muestra diferentes lados de tu insecto: Vista superior, lateral y frontal. *Opcional: Pegue limpiadores de tuberías a su insecto para hacer alas o piernas.*



Diseño 3: Cartón de huevo

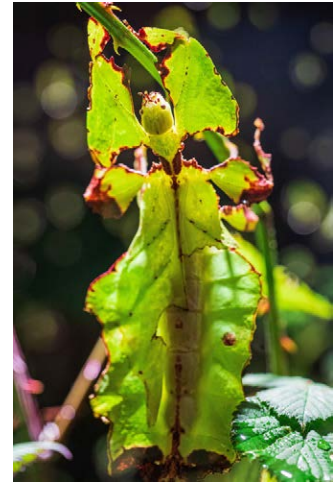
1. **Corta** una taza de un cartón de huevo.
2. **Colorea** tu insecto usando pintura o marcadores. Hazlo de cualquier color y patrón que quieras.





Las mariposas monarca usan sus alas para muchas cosas diferentes, incluyendo calentar sus cuerpos en clima frío y asustar a los depredadores. ¡Sus alas también les ayudan a migrar hasta 2.000 millas (unos 3.200 kilómetros) cada año!

Los insectos hoja tienen cuerpos que les ayudan a camuflar o mezclarse en su hábitat. Al camuflar, pueden permanecer ocultos tanto de depredadores como de presas. ¿Puedes pensar en otros insectos que usan camuflaje? ¿Cómo son?



La cucaracha gigante de Madagascar pueden hacer sonidos con sus cuerpos. Al empujar el aire a través de agujeros en sus lados llamados espigas, producen el sonido silbando por el que llevan su nombre. Este sonido les ayuda a comunicarse con otras cucarachas que sisean y a advertir a los depredadores.

Los escarabajos rinocerontes machos utilizan sus cuernos para la competencia durante la temporada de apareamiento. La forma de sus cuernos es diferente dependiendo de la especie. Algunas especies pueden elevar hasta 850 veces su peso corporal. ¡Eso es como un humano adulto levantando seis autobuses escolares!





Art for the Birds!

Most birds spend a lot of time flying, looking for seeds and insects to eat, water to drink, and generally taking care of other bird business. While they fly, they face an invisible danger: our windows! Using tempera paint, you can create a beautiful mural on the outside of your window to protect the flying birds in your neighborhood.

Why do birds fly into windows?

Birds are usually small, and can fly very fast. When they fly into a glass window or door, they often cannot recover. Clear glass windows and doors can act like a mirror, and reflect images of the sky and trees. To a bird on the go, a window reflection can unfortunately look like a great place to fly. The other side of the glass can also look like good habitat to the bird (a place where the bird can find food, water, or shelter). Both reasons cause our feathered friends to fly into windows.



Materials

Tempera paint (non-toxic, long-lasting, and washes off with water)

Plate

Brush or sponge

Rags

Bowl of water

Directions

1. **Go outside** (with adult permission) and pretend to be a bird. Look at all of your windows. Which one do you think might look invisible to a bird?
2. **Choose** a window. It can be big, or very small. Make sure the window is:
 - a. Reflective
 - b. Near active birds
 - c. Easy and safe to get to and paint on
3. **Get permission** from an adult to paint on the window you have chosen.
4. **Put** your different tempera paint colors on different parts of your paper plate.
5. **Dip** your paintbrush or sponge into the paint .
6. **Paint** a picture of your own design! As long as you paint the *outside* of the window, birds will see it and choose a safer place to fly.
7. **Wipe** away any paint drips with the rag and bowl of water.
8. **Pat** yourself on the back! Millions of birds fly into windows each year, and most of these windows are on houses. Your mural has just saved many future birds!
9. **Optional:** With an adult's help, download the [Seek](#) or [Merlin bird ID](#) app to help you identify your backyard birds.





Bird Spotter Binoculars

Humans use binoculars to make small things look larger, or to help us see things that are far away, like birds flying in the sky or perched in a tall tree.

Create and decorate your own pair of binoculars to help focus your observations on birds and other distant objects.

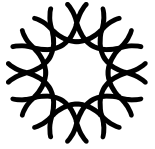
Materials

2 cardboard tubes
Yarn
Tape
Colored paper

Scissors
Markers, crayons, or colored pencils
Glue
Hole-punch (or pencil)

Directions

1. **Decorate** both cardboard tubes. You can color them with markers, crayons, or colored pencils. you can also cut shapes out of the colored paper and then glue them onto the cardboard tubes.
2. **Place** the tubes side-by-side and use tape to stick them together. To do this, stick the tape to the inside of one tube where it meets the other tube.
3. **Use** the hole punch (or pencil) to punch two holes on the outer edge of both tubes on one end. You may want to ask an adult for help.
4. **Cut** a piece of yarn about the length of your arm to make the neck strap. Ask an adult to help you tie one end of the yarn to one hole, and the other end of the yarn to the other hole.
5. **Make** some observations with your new binoculars! See if you can spot a bird flying in the sky, sitting in a nest, or perched in a tree.



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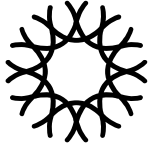


Bird scat is...

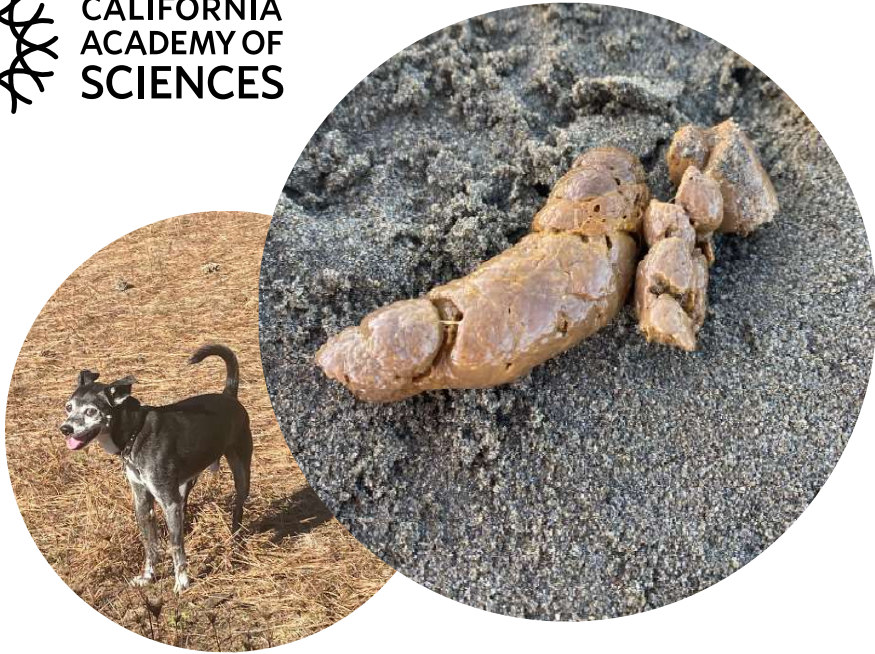
- » **made up** of three parts! 1st part is a brown or green solid. 2nd is a white, solid urine (pee). 3rd is also urine, but is clear.
- » **found** anywhere there are birds! Small birds may poop every 10 minutes, while larger birds go less often.
- » **is cool because** bird urine is a solid. This helps birds conserve water, and pooping often keeps them light for easier flying.

Use a brown, green, and white crayon or marker to draw your own bird scat!

Bird scat is a great clue that birds are near by! Where have you noticed bird droppings?



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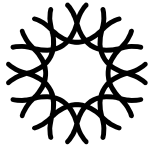


Dog scat is...

- » **shaped like** a caterpillar! It should have segments, and be firm.
- » **found** anywhere other dogs can find it. A dog's poop can tell other dogs where it lives, what it ate, and when it was last in the area. Dogs have powerful noses, and they can still sniff the information left behind by poop that has been cleaned up.
- » **is the color** of milk chocolate.

Use a chocolate brown crayon or marker to draw your own dog scat!

What would it be like if humans communicated like dogs?



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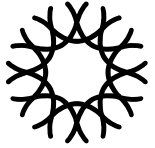


Raccoon scat is...

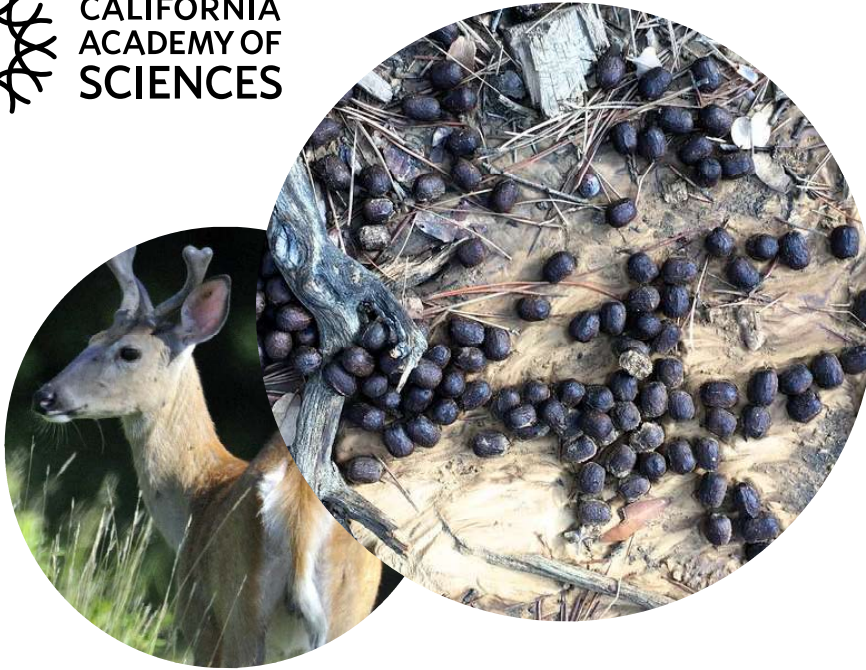
- » **shaped like** is a tube with flat ends, and is as wide as a nickle or a dime.
- » **found in** around the trunks of trees, or in human roofs, decks, attics, and sand boxes.
- » **the color** dark brown, and often you can see pieces of seeds and other food in their scat.
- » **important to know because** some raccoons have a unique roundworm that can be dangerous. Stay safe by washing your hands!

Use a dark brown crayon or marker to draw your own raccoon scat! Use other colors to add seeds and berries.

Look closely at the picture of raccoon scat. What do you think this raccoon ate?



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Deer scat is...

- » **shaped like** an oval pellet with a point at one end, and an indent on the other.
- » **found in** small piles around where the deer eats or sleeps.
- » **has the colors** brown, green, or black.
- » **cool because** deer can poop about 13 times a day in fall and winter, and up to 30 times a day in the spring and summer!

Use a brown, green or black crayon or marker to draw your own deer scat!

Baby deer hide in the same place every night, and poop far way to keep predators from finding their secret sleep spot. Where would you poop to confuse predators?



Red Light, Feed Light!

Animals are always on the lookout. Staying aware of their surroundings helps them find food to eat and avoid the attention of potential predators. Grab a (human) friend and test your instincts with this backyard edition of the classic “red light, green light” game.

Directions

1. **Print** out pages 3–5, single-sided. **Fold** each page in half so that there is a picture of a predator on one side and their prey on the other. Or, draw the animals on separate pieces of paper.
2. **Make** a start and finish line at least 6 feet apart. Use anything you want, such as tape or pillows.
3. **Ask** someone to help you test your instincts. **Review** the pictures together before you start each round so you both know which animals are predators and which animals are prey, or food.
4. To **play**, one person begins at the start line and pretends to be the animal from that round (crow, squirrel or butterfly). The other person stands behind the finish line and holds up the prey or predator picture. If they hold up the prey picture, the “animal,” or the person at the start line, moves towards the finish line. If they hold up the predator picture, the “animal” must freeze! Take turns being the picture-holder or the animal.

Round 1: American Crow

5. **Flap** your wings like a crow as you fly from start to finish. When the cardholder holds up a picture of your prey, the orb-weaver spider, keep **walking** forward. When they hold up the picture of your predator, the red-tailed hawk, **freeze** where you are.

You: Crow
Action: Flap your wings



Your prey: Spiders
Action: Move forward



Your predator: Hawks
Action: Freeze!



Round 2: Squirrel

6. **Walk** on all four legs like a squirrel and **move** forward when you see acorns to eat. **Freeze** when you see your predator, the bobcat.

You: Squirrel

Action: Walk on four legs



Your food: Acorns

Action: Move forward



Your predator: Bobcats

Action: Freeze!



Round 3: Cabbage White Butterfly

7. **Flutter** your wings and **move** forward when you see a flower. **Freeze** when you see a house sparrow that might want to eat you!

You: Butterfly

Action: Flutter your wings



Your food: Flowers

Action: Move forward



Your predator: Sparrows

Action: Freeze!



One more time!

8. **Challenge:** Which "animal" got to the finish line the fastest? Try the race again, but this time move the start and finish lines further apart.









Blooming Poppies

The beautiful, bright orange California poppy is California's state flower. Color your own poppy and watch it bloom in water! As the paper absorbs the water, the fibers inside the paper expand, pushing the petals open.

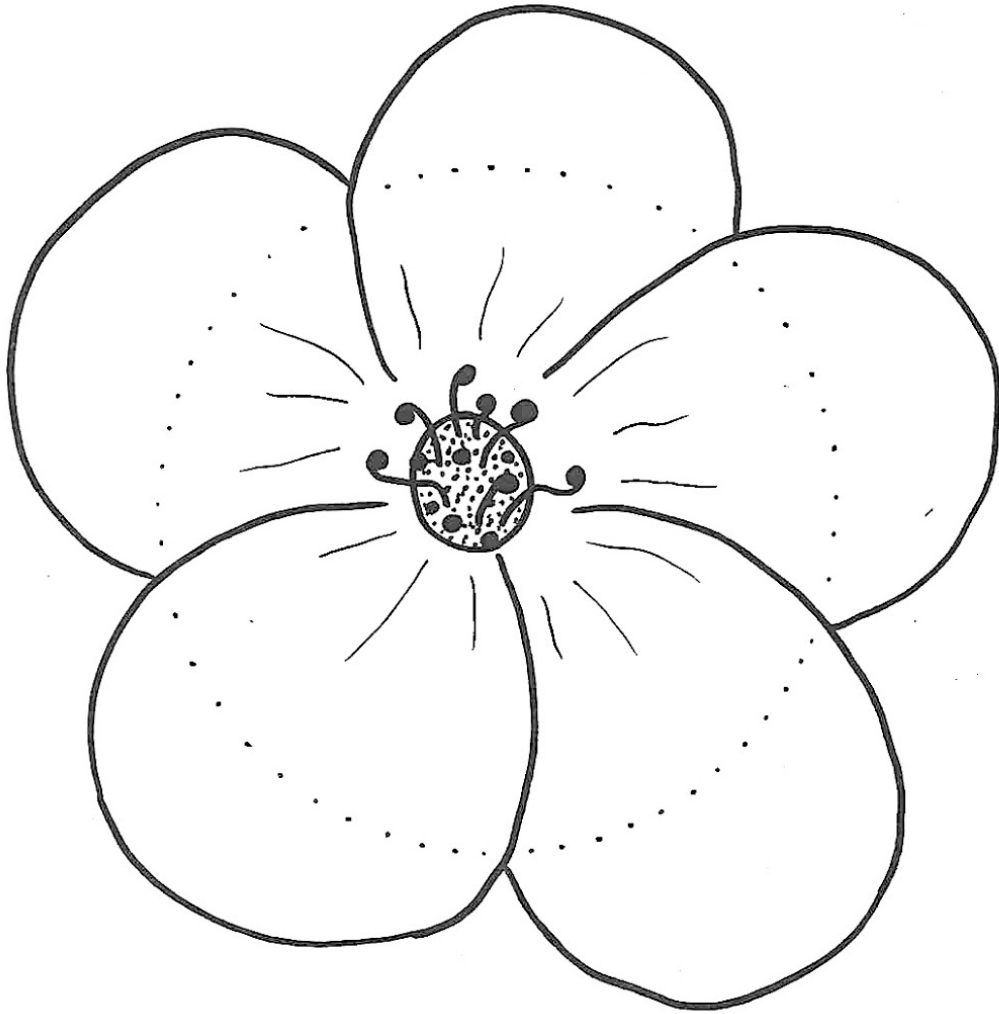
Materials

Poppy outline (page 2)
Crayons or colored pencils
Scissors
Tray of water

Directions

1. **Print out** the poppy outline found on page 2.
2. **Color** in your flower using colored pencils and/or crayons. The California poppy is bright orange, but yours can be whatever color you'd like.
3. **Cut out** your flower along the solid black line.
4. **Fold** the flower petals inward along the dotted line.
5. **Gently place** your flower into the tray of water.
6. **Watch** as your poppy starts to bloom. Wow!





Make a Plant Pal

From the tallest tree to the tiniest flower, plants are an incredibly diverse group, and people and animals all around the world rely on them for food, medicine, and shelter. Use this guide to practice the power of observation, and make friends with one of your plant neighbors.

Materials

Nature journal (or blank paper)

Pencil, pen, marker, or crayon

Flat surface to draw on, like a clipboard or cardboard (optional)

Directions

1. **Watch** the "[Meet a Plant](#)" video for a guided experience.
2. **Choose** a plant. It can be a tree, a flower, a bush, or even a houseplant. Find a comfortable place to sit near your plant.
3. **Observe** the leaves of your plant, noticing as many details as you can.
 - a. How big are the leaves?
 - b. What shape are the leaves? Do they have any veins?
 - c. What color are the leaves?
4. **Sketch** a leaf. Nature sketching helps us remember what we noticed.
5. **Use your senses!** Gently touch the leaves. What do they feel like? What do they smell like? Does your plant rustle in the wind? Are there pollinators buzzing in your plant?
6. **Sketch** the other parts of your plant. Look for patterns in how the branches or stems grow.
 - a. Does it have flowers? Are they blooming? Can you count the petals?
 - b. Does it have fruits or berries? *Note: Never eat a plant you find without asking an adult who knows exactly what it is.*
 - c. Does it have cones?
7. **Photograph** your plant using the [Seek](#) or [iNaturalist](#) app on an adult's phone to find out more about it, or use your photo and drawing to find your plant in a guidebook.
8. **Extension:** Do this activity with friends or family members, with each person observing a different plant. When you are finished, trade notebooks for a plant scavenger hunt!



Kitchen Bingo

We are connected to nature through what we eat! All of the ingredients in our food come from nature: Avocados grow on trees, potatoes grow underground, and even milk comes from cows that eat grasses growing from the ground. Every plant needs water, sunlight, and soil to grow—and the Earth provides everything plants, humans, and animals need to live.

Let's play "Kitchen Bingo" to discover all the fruits, seeds, leaves, roots, and shoots that are "hidden" in the things we eat. *Bon appétit!*

Materials

Bingo cards (pages 3–5)
Pen, marker, crayon, or pencil

Directions

1. **Print** 1 bingo card (pages 3–5) for each person playing.
2. **Read** your cards together before you begin the game. Which foods sound familiar?
3. **Ready, set, go!** Search for the fruits, vegetables, and roots on your bingo card. You can look in your fridge, freezer, cupboards, cabinets, or wherever you keep your food.
4. **Call out** each food item you find and mark it on your card with your pencil. Only the person who finds the food and calls it out first gets to mark it on their card.
5. **To win**, be the first to get 5 items in a row either up and down, side to side, or corner to corner. When you get 5 in a row, say, "Bingo!"
6. **Hint:** If you are having trouble finding something on your card, remember there are a lot of "hidden" foods in prepared foods like canned soup, sauces, dips, drinks, and frozen pasta, pizza, and more. Check the ingredients list!



7. Challenges:

- a. If you see something on your bingo card that you haven't heard of, look it up in a dictionary or online with the help of an adult. Can you find it at the store the next time you go shopping or order food?
- b. If you are feeling adventurous, try making something using the fruit or vegetable you just discovered.
- c. If you had a garden, what would you plant? Draw a picture or make a poem about your garden.
- d. Look at the other food in your fridge. Things like cheese, meat, fish, eggs, milk, yogurt, and even rice, pasta, and other grains all rely on sunlight, water, and good soil. Talk with an adult friend or family member and see if you can figure out how each of those foods are connected to our Earth's systems.
- e. Why are sunlight, water, and soil so important for people and animals? How can you and your family save water?

Melon	Kale	Plum	Lime	Taro
Lychee	Cucumber	Ginger	Snap pea	Celery
Zucchini	Mushroom	FREE SPACE	Long bean	Carrot
Onion	Radish	Tomato	Pepper	Garlic
Squash	Berry	Grape	Banana	Avocado

Okra	Tomato	Squash	Mushroom	Pepper
Broccoli	Snap pea	Kale	Potato	Asparagus
Lemon	Lettuce	FREE SPACE	Taro	Zucchini
Onion	Orange	Melon	Long bean	Lychee
Celery	Limes	Radish	Berry	Nopales

Berry	Onion	Lettuce	Mushroom	Squash
Orange	Pepper	Tomato	Zucchini	Melon
Corn	Lime	FREE SPACE	Tangerine	Radish
Grapes	Carrot	Plums	Long bean	Asparagus
Lemon	Ginger	Celery	Avocado	Kale

Grape	Tomato	Apple	Broccoli	Lettuce
Garlic	Pepper	Lime	Avocado	Asparagus
Onion	Melon	FREE SPACE	Cucumber	Nopales
Plum	Lychee	Ginger	Kale	Snap pea
Berry	Squash	Corn	Mushroom	Radish

Garlic	Orange	Broccoli	Squash	Grapes
Kale	Taro	Berries	Melon	Potato
Lemon	Ginger	FREE SPACE	Zucchini	Celery
Radish	Nopales	Pepper	Apple	Lime
Lettuce	Asparagus	Okra	Mushroom	Carrot

Squash	Mushroom	Lettuce	Lemon	Corn
Tomato	Long bean	Lychee	Okra	Pepper
Broccoli	Radish	FREE SPACE	Plum	Banana
Zucchini	Berries	Carrot	Orange	Garlic
Snap pea	Onion	Taro	Limes	Tangerine



Design With Plants

Plants come in all shapes, sizes, and colors, provide places for animals, insects, and even humans to live, and produce fruit for us to eat and flowers to enjoy. In this artistic challenge, use your senses to observe the plants around you, then make your own masterpiece out of found plant material.

Materials

Blanket or sheet (to sit and place natural material on)

Natural materials (grass, sticks, leaves, rocks, dirt, etc.)

Watch or clock (optional; time limits can help generate creativity or ideas, but aren't necessary, especially for younger ages.)

Directions

1. **Go outside** to an area like a backyard, park, or greenspace. (Be sure to get an adult's permission first!)
2. **Look around** for natural materials for 10 seconds to one minute. What plants do you see? Are there trees with leaves? Small or large rocks? Patches of grass, dirt, or sand?
3. **Gather materials** like grass, sticks, leaves, rocks, and dirt for a few minutes. (Take only a small amount of anything you find, and only things that have already fallen to the ground. Be sure not to disturb any animals' homes!)
4. **Design or build!** Think about a plant or something else you saw outside. Using your found materials, try to recreate it. (For example, if you saw a tree, you could lay sticks on the ground, like a trunk, and put grass on top, like leaves). It



does not need to look exactly like what you saw. Be creative, it's ok to make mistakes!

5. **Share** what you made with a friend or family member. Can they guess what you made? Now, look around again and take a minute to try and make something different!
6. **Repeat** steps 2 through 5. Try observing for longer and building for less, or the other way around.
7. **Challenge:** Design and build your own plant that stands up on its own! What features does your plant have? Stems? Leaves? Flowers? Can you make a "plant" one foot tall that stands on its own? Enjoy creating with nature and designing with plants!





Instrument Workshop

The natural world is full of music, from the rhythmic sound of rain falling to the pitched melodies of bird songs. Add your own tune to nature's soundtrack by making three simple musical instruments—"claves," a "shaker," and a stick "xylophone"—out of natural materials you find outside.



Materials

Please note: Take only a small amount of any natural materials you find, and only things that have already fallen to the ground. Also, be sure not to disturb any animals' homes!

12–20 sticks of different sizes and shapes

Natural materials (small amount of grass, pinecones, seeds, etc.)

Rocks or gravel, about one handful

String (or any material to weave and tie like twine or yarn)

Paper

Crayons, markers, or colored pencils

Tape or glue

Jar or can (plastic or metal, with a lid or something to enclose the end)

Directions

1. Make “claves”

- Select** two sticks from your supplies that are about one inch thick.
- Break** the sticks so they are about 8–12 inches long (short enough to hold one in each hand easily).
- Hit** the sticks together! What do you hear? “Claves” make a sharp click sound.
- Try** sticks that are longer, shorter, thinner, or thicker. Are the sounds different?



2. Make a “shaker”

- Add** a handful of gravel into your can or jar. You can add other hard materials like seeds or bits of sticks, but leave lots of room for material to move around.
- Close** the top with the lid or a piece of cardboard and secure it with tape. Make sure it's closed up really tight!
- Decorate** your paper with crayons, markers, or anything else. Then, wrap the paper around the can or jar and secure with tape or glue.
- Shake** your “shaker”! What sounds do you hear? A shaker keeps time, like the “claves,” and helps musicians play together while making different sounds.
- Try** different materials to make different sounds! Does gravel in a can sound different than gravel in a jar? What about using stick pieces instead of gravel? Try making a shaker from a piece of hollow wood, or use cardboard to make a cool shape.



3. Make a “xylophone”

- a. **Gather** 12 sticks of different sizes, breaking sticks into different sizes if needed.
- b. **Lay** the 2 longest sticks on the ground, one a few inches above the other.
- c. **Lay** the sticks in order of size, from shortest to longest on top of the 2 longer sticks so they look like train tracks.
- d. **Tie** the sticks on top to the parallel sticks below using string or a similar material. After you tie each one down, you can weave them together and tie it once more until secure. (This is the hardest part, so you may need to ask for help!)
- e. **Drag** another stick across the center of the “xylophone,” hitting each of the different “keys” along the way. What sounds did you hear? Do you notice a difference from stick to stick?
- f. A “xylophone” can play different pitches of sound, like the different pitches in a bird song. Different-length pieces should make a different sound. Which stick makes the highest sound, like a bird tweet? Which one makes the lowest sound, like thunder? Try to make a “xylophone” with different amounts of sticks and lengths.



4. Play together!

- a. Using your instruments, try to make sounds in a repeating pattern. A fun way to practice is to count from 1 to 10, making a sound with the instrument each time you say a number.
- b. Got that down? Try to count from 1 to 4, over and over (1, 2, 3, 4, 1, 2, 3, 4, 1, 2...), making a sound on each number. This is a basic music rhythm. Invite friends and family to join your “band”!
- c. Listen to the world, be inspired, and fill your life with the music of Earth!



Mini Watershed

Where does the water go when it rains? See for yourself by creating a miniature world where *you* control the weather! In this activity you will make your own watershed using items from around the house. This activity is messy but can be done inside or outside.

Materials

- 1 large tray, tub, or flat area outside that can get messy
- 3 or more cups and/or bowls
- 1 trash bag, wax paper, or aluminum foil
- Plastic spray bottle full of water
- Variety of small ingredients such as dried herbs, spices, chocolate chips, and baking sprinkles



Directions

1. **Find** somewhere in or around your home that can get wet and messy. This could be a large tray on a balcony, a tub on a kitchen floor, an empty bathtub, or a flat area in a backyard. **Place** a few cups or bowls upside down in that area.
2. **Place** a plastic bag or other water-resistant material over the top of the cups. **Arrange** it so that it looks like hills or mountains. What would you name those mountains?
3. **Build.** What do you think you might find on the ground in this little world? Gently **add** ingredients such as dried herbs, spices, chocolate chips, and baking sprinkles on and around your mountains to represent things like leaves, dirt, animal poop, and trash. Also feel free to add small toy figurines of animals, trees, or cars if you have them around your home.
4. **Pick** two or three different pieces that you sprinkled on the mountains, and guess where they would go if it started raining in your little world.
5. **Make** it rain! Use the water bottle and start spraying the top of the mountains. Notice where the water goes as it runs down the side of the mountains.
6. **Extension:** The water in a watershed all drains into the same place, like a river, bay, lake, or ocean. Is there a bay, lake, or ocean near where you live? What can your family do to keep it clean?

Nature Play: Create With Nature

Encourage kids to directly engage with nature through tinkering and sculpture, in a safe and supportive environment.



The Importance of Nature Play

Conserving nature begins with connecting to nature. Research shows that giving families opportunities to engage in hands-on nature-based activities can increase children's excitement toward environmental behaviors. Through Nature Play, parents and caregivers can promote that connection to nature.

Choosing the Right Spot

Find a safe area that is away from traffic, and free of trash and hazardous materials. Parks, gardens, and backyards are great places to start. It may help to have a dry, flat area such as a bench, tarp, or picnic blanket on which to build your creations.

What to Bring

All you need is weather-appropriate clothing, natural items found outside, and your own creativity. Work together to gather natural objects to build with. Try to find objects in a variety of shapes and sizes. Avoid picking or breaking live plants unless you have permission to do so. See below for a few object ideas.

Objects to Try

- Landscape trimmings
- Wood rounds
- Pinecones
- Sticks
- Branches
- Dry leaves
- Pine needles
- Rocks
- Wood chips
- Sand
- Seeds
- Seashells



Offer an Idea or Challenge to Get Started

Make a pretend house for an animal, favorite toy, or imaginary creature, like a fairy house.

Spell out your name using the found objects.

Have a competition to see who can build the highest tower.

Create a model of something you've seen before, such as an animal, a person, or landmark.



Play Together

Create something together or build your own creation alongside the kids. Being interested and involved in the process turns the activity into a social, and often bonding, experience. When you are having fun, others will too.

Encourage everyone to participate in their own way. Some kids may want build together while other want to make their own creation. Some kids may be excited to make what you suggested while others want to do something else. Encourage each child's individual interests and let them guide the activity.

Model how to take risks and learn from failure. Keep an upbeat attitude when your rock tower collapses or the wind blows over your bug house. Recover from those challenges by talking about what you learned from that experience and using that knowledge to try out new ideas. Ask for help and experiment with ways to make the structure more sturdy.



Facilitate Meaningful Conversations

Ask kids to tell you about their creations.

Recognize and celebrate creativity.

Use "I notice...", "I wonder..." and "It reminds me of..." statements to model inquiry and exploration.

Clean Up and Reflect on the Experience

Give a 5-minute warning before you intend to clean up to avoid disappointing an in-progress artist or architect. Optionally, take a few photos of your creations before you clean them up.

Ask everyone to help gather and clean up the materials. Return all of the natural objects back where they were gathered. Look around to make sure no litter or personal belongings are left behind.

As your cleaning up and heading out, talk together about what you found and what you made. Share photos or stories of the experience with family and friends.



About That Bird Feeder...

Birds are beautiful and observing them is a wonderful way to connect with nature. One way some people get to know their backyard bird visitors is by putting out bird feeders and watching who comes to visit. Learn more about how the impact of bird feeders on our local environment is complex.

Good things:

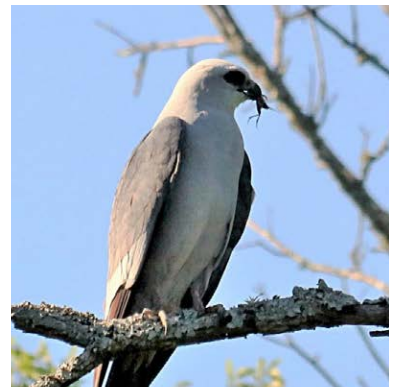
Bird feeders will bring more birds to your backyard or window. It helps us humans watch and learn more about our feathered friends. More birds means we can enjoy more bird songs and see different kinds of birds up close.

Challenging things:

Bird seed feeds all kinds of animals, like squirrels and chipmunks. They are very clever, and your bird feeder can quickly become a squirrel feeder.

Cats and predatory birds (like hawks and other raptors) can learn where a bird feeder is, and use it as a hunting spot. This could put vulnerable birds in danger.

Bird feeders are sometimes hung very close to windows. Since windows are often invisible to birds, they can fly into them, and often not survive.



Birds get used to always having that food available, and can change their normal patterns to visit the bird feeder. Some people worry that by regularly feeding birds, the birds will come to depend on the bird feeder to survive. Scientists think this is not likely, and the birds at your bird feeder will usually still search for other food sources.

Bird feeders can become a place where birds spread bacteria and become sick. In February 2021, wildlife experts asked people to take down their bird feeders to slow the spread of salmonella among pine siskins and other birds. Removing bird feeders when asked can help keep our bird friends healthy and safe.



Bird feeders are a responsibility

If you want to keep a bird feeder, here are some ways to do it safely.

- » **Reduce window collisions:** Hang your feeder away from a window; or, install screens outside your windows, tape patterns, or paint the outside of your window to alert birds to the invisible barrier.
- » **Choose your bird feeder with care:** Like a pet food bowl, non-porous materials like metal, ceramic, and plastic can keep bacteria from growing. Wood can harbor bacteria and cause birds to get sick.
- » **Clean feeders a few times a year:** Old seed can become wet, and grow deadly mold. Clean your bird feeder at least once a season. You can use a brush, then scrub with dish detergent, and rinse until all soap is completely gone.
- » **Choose your food carefully:** Learn about what specific bird species you want to feed, and what healthy, fresh food options are. Nut butters and many other foods we feed birds can be full of sugar and harm them in the long run.
- » **Keep cats indoors:** Or, put your cat on a leash when outside. Cats are great hunters, and outdoor cats can be very dangerous to local birds. A “catero,” or enclosed outdoor “cat patio,” is another way for your cat to be outside safely.



Caring for our bird neighbors

There are lots of ways to help birds survive and thrive on our shared planet without installing a bird feeder:

- » You can **fill your gardens and window boxes with native plants**; local birds will love eating their seeds and hiding in their leaves and branches.
- » Choose to **provide water** instead of a bird feeder: Flowing water will stay fresh and prevent mosquitoes from hatching there.
- » **Install a bug hotel** or leave a leaf pile on the ground for insects to live in. Many birds depend on insects to feed themselves and their babies.
- » Best of all, you can **advocate for and improve open natural spaces**. The best thing we can do for our bird friends is to protect and improve our shared ecosystem so they have plenty of places to find healthy food on their own.

There are lots of great resources you can explore, like the [Audubon Society](#), the [American Bird Conservancy](#), and the [American Birding Association](#). You can also check out your local nature center. Happy birding!