

SciGirls

pbskids.org/scigirls



Nature Nurture

A get outside and
explore journal

This book belongs to:



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Made Possible By:



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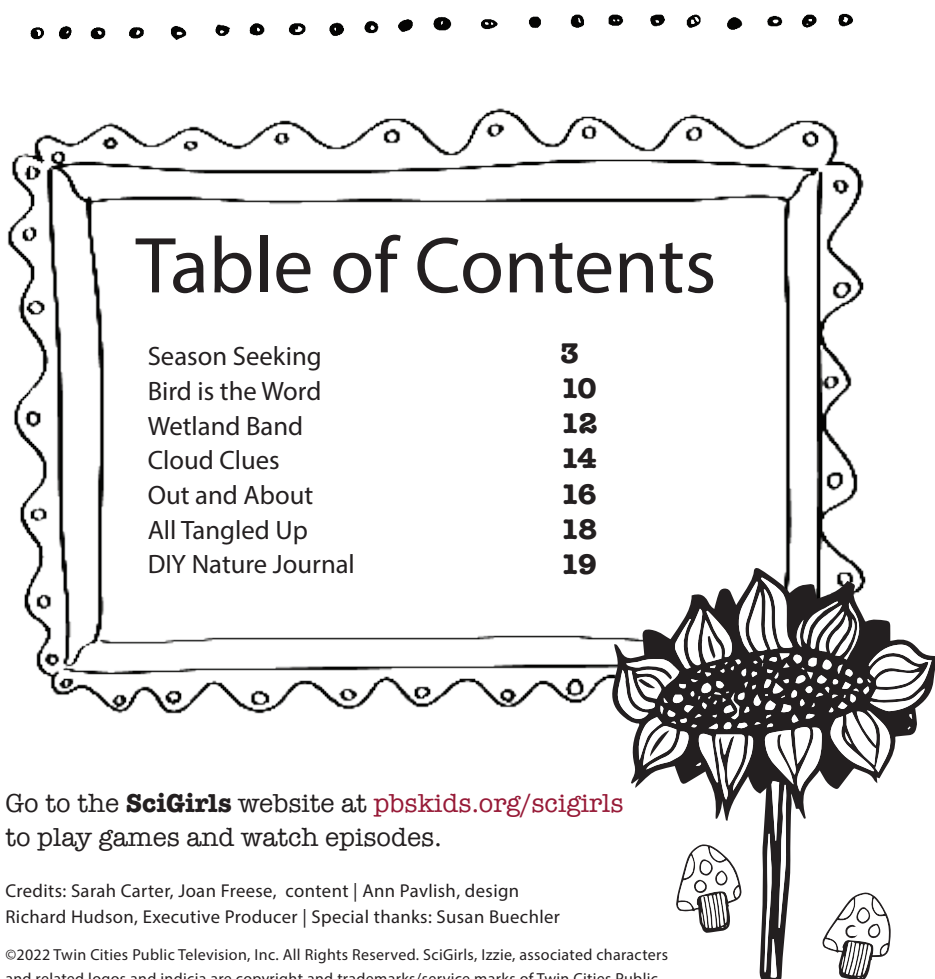
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What is citizen science?

Citizen science happens when ordinary people study the world around them and send in the data they collect to scientists. Anyone can do citizen science!

Citizen science projects cover all kinds of topics like dragonflies, birds and ants. You can learn a lot about your neighborhood or even your own backyard by joining a citizen science project.



Go to the **SciGirls** website at pbskids.org/scigirls to play games and watch episodes.

Credits: Sarah Carter, Joan Freese, content | Ann Pavlish, design
Richard Hudson, Executive Producer | Special thanks: Susan Buechler

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Season Seeking

Phenology is the study of the life cycle of plants and animals. Phenophases are the observable stages in these cycles, like flowers blooming, leaves falling and butterflies emerging from a cocoon.

You'll need:

pencil
markers/crayons/colored pencils
optional: magnifying glass, binoculars,
plants and animal field guides

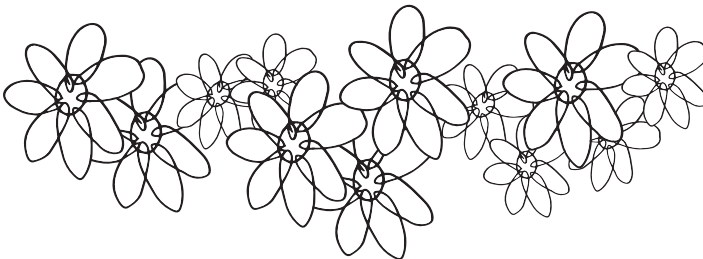


Here's how:

1. Go out and observe the plants and animals in your schoolyard, park, field, or nature center.
2. Make these observations every time you go to your location (add more if you'd like):
 - a. Date
 - b. Time spent observing
 - c. Weather conditions (temperature, precipitation, wind)
 - d. Drawings/photos
 - e. Location of the plant(s) and/or animal(s)
 - f. Name of the plant(s) and/or animals(s)
3. Visit the location multiple times so that you can see as many phenophases as possible.

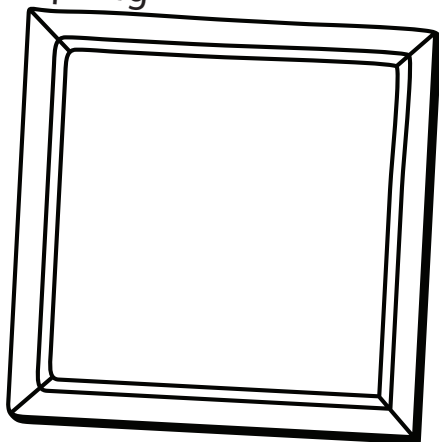


Watch **SciGirls** learn about phenophases on pbskids.org/scigirls. Select the **Flower Power** episode.

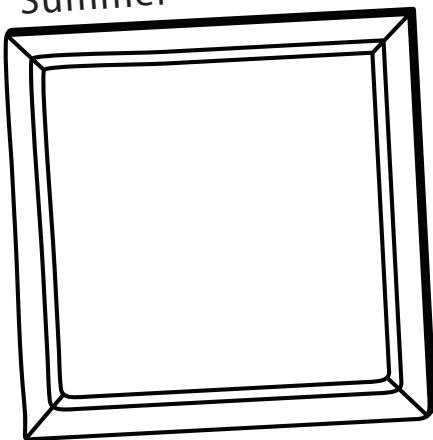


Draw some leaves!

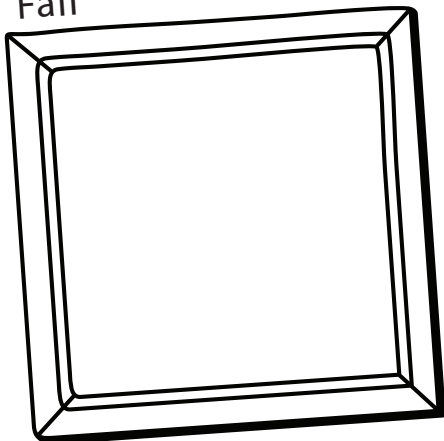
Spring



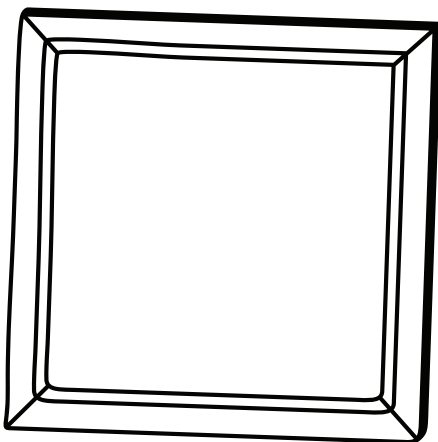
Summer



Fall

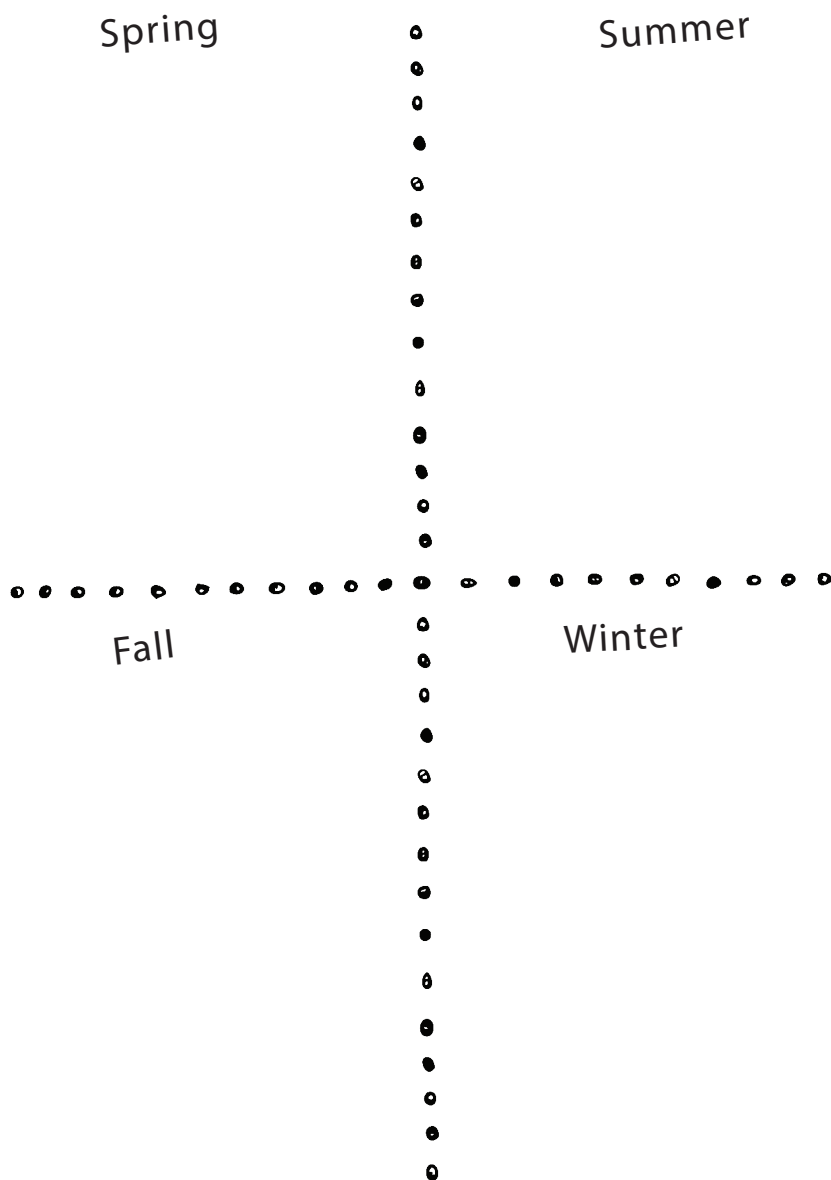


Winter



- Are buds breaking open with the leaves visible?
- Are leaves fully open or unfolded?
- Have the leaves changed color?

Sketch some flowers!



- Are the flowers all open?
- Are there flowers and flower buds?
- Can you see pollen grains when you gently shake the flower?

Find fruits!

Spring

Summer



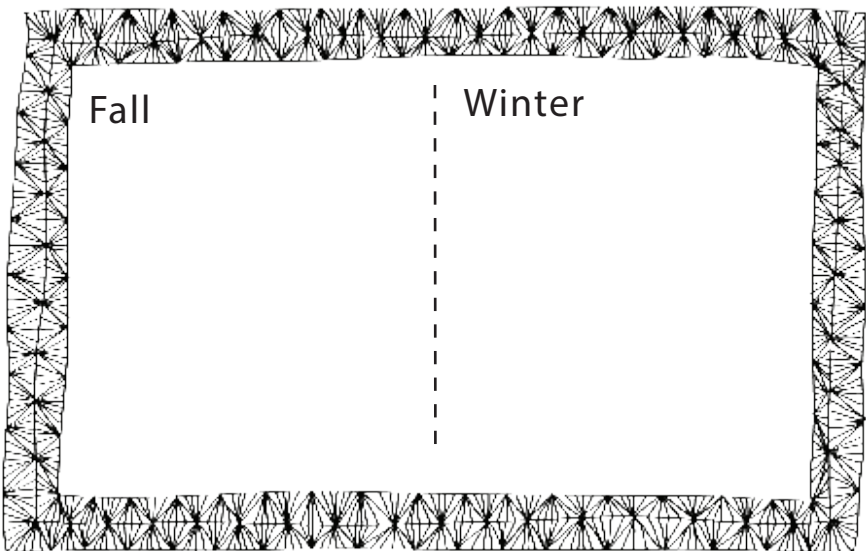
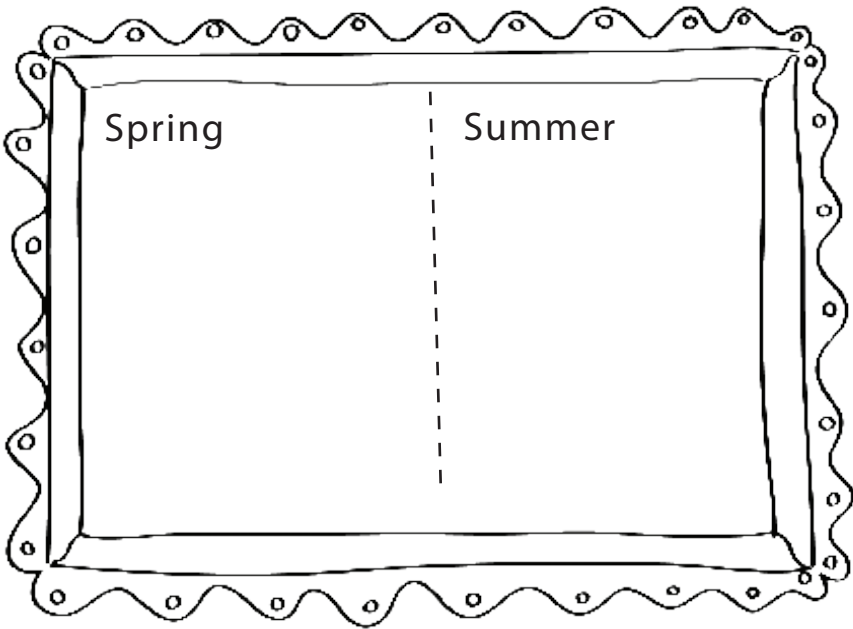
Fall

Winter



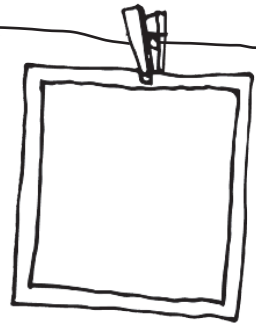
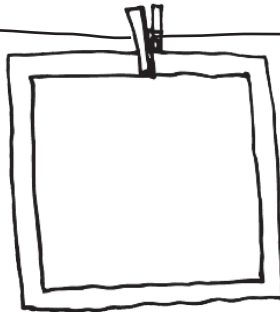
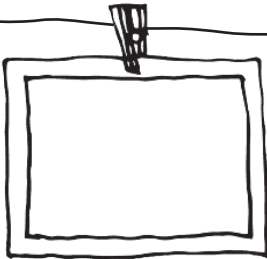
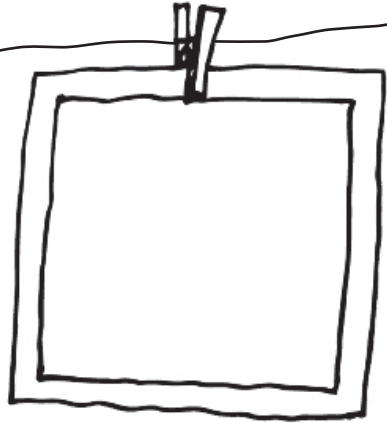
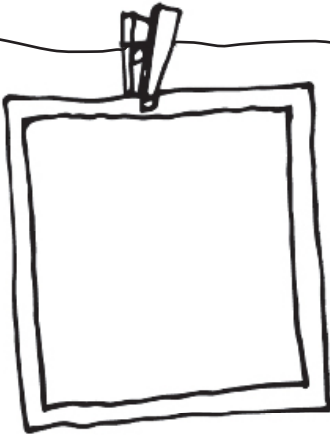
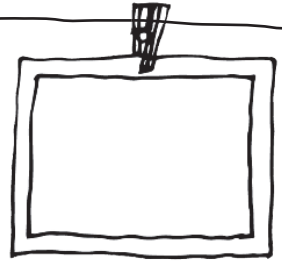
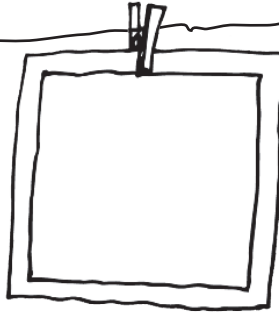
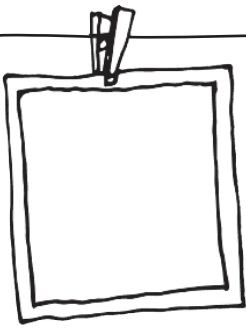
- Are the fruits ripe?
- Has any fruit recently fallen on the ground and dropped its seeds?

Spot some birds!



- Are they feeding?
- Are they calling or singing?
- What are they eating?
- Are they building nests?

Sketch some mammals!



- Are they feeding?
- What are they eating?
- Are their young present?

Investigate some insects!



- Are there active larvae? What are the larvae doing?
- Are there active adults? What are the adults doing?

Bird is the word

Birds are fascinating animals to watch and it's easy to learn how to spot and name them. Casual watchers can use the same tricks to identify birds that scientists use!

You'll need:

pencil
crayons, markers, or colored pencils
optional: field guides, binoculars

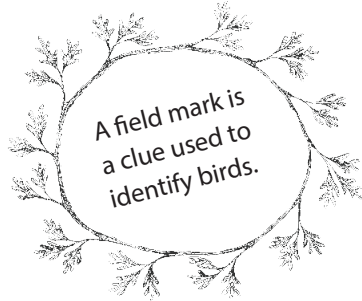


Here's how:

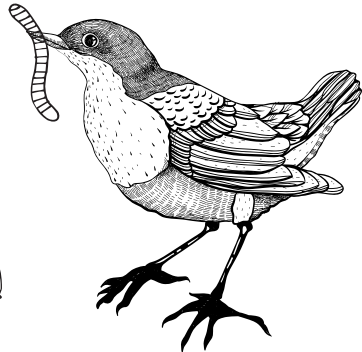
1. Choose a bird found in your area to study.
2. Use photos, videos, websites and your own observations to learn how to identify your bird. Remember to watch birds without disturbing them.
3. Draw your bird and label the field marks.

Field Mark Checklist

- ☐ Overall size and shape
- ☐ Breast color
- ☐ Rump color
- ☐ Tail color
- ☐ Wing color
- ☐ Eye stripe color
- ☐ Eye ring color
- ☐ Head color
- ☐ Behaviors (tail movements, where it eats, flight pattern, sounds it makes)



 Watch **SciGirls** learn how to identify birds on pbskids.org/scigirls. Select the **Feathered Friends** episode.



bird is the word

Draw the birds you see on your adventures.
Can you identify some of them?



Go to the **SciGirls** website at pbskids.org/scigirls to play games and watch episodes.

Wetland Band

Frogs and toads make lots of noise when they're warning others, defending territory or looking for mates. Take the frog-call challenge: Can you learn to recognize the frogs and toads that live near you?

Here's how:

1. Research the frogs and toads that live in your area (aza.org/states-and-territories) and find recordings/videos of their calls.
2. List the names of the frogs and toads in your area and describe the calls they make.

Frog or Toad Name	Description of Call



12 Watch **SciGirls** learn the calls of their local frogs and toads on pbskids.org/scigirls. Select the **Frog Whisperers** episode.

Wetland Band

Now that you know the frogs and toads in your area, create your own set of instruments and make some frog and toad music!

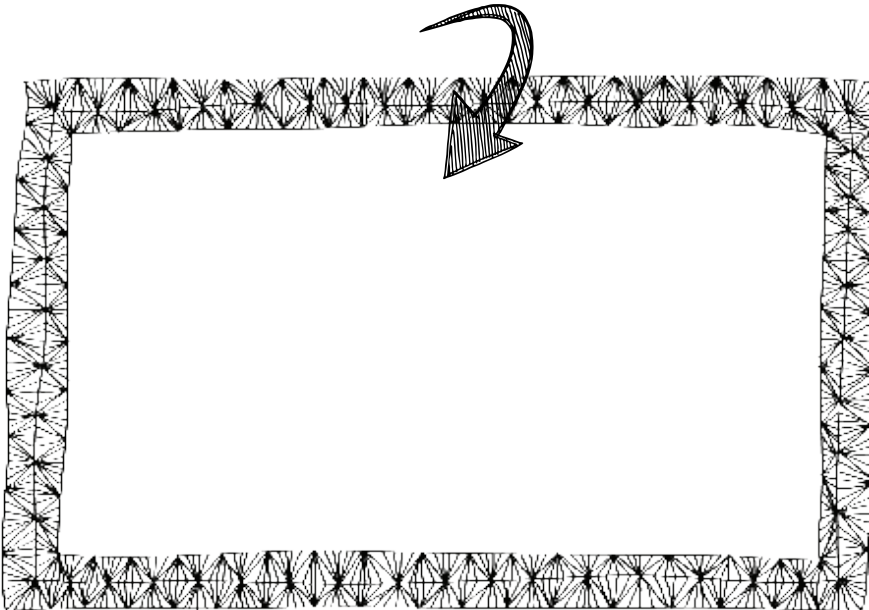
You'll need:

empty glass or plastic bottle
small rocks
marbles
small bells
small plastic comb
rubber bands
small plastic cup
balloon
zipper
whistle



Here's how:

1. Mimic the sounds of the frogs and toads in your area using some of the materials listed to make musical instruments.
2. Draw your instruments and label the materials you used in the space below.
3. Create a song using your frog and toad instruments.
4. Now that you are familiar with some frog and toad calls, go outside 30 minutes after sunset and see how many frogs and toads you can identify. Don't forget to bring an adult with you!



Cloud Clues

Materials have lots of different properties; one is called visual opacity, which means how much light passes through the material. There are three different ways to describe visual opacity:

Transparent – light passes through the material/object; things on the other side can be seen clearly. (Example: plastic wrap)

Translucent – light passes through the materials/object; things on the other side can't be seen clearly. (Example: wax paper)

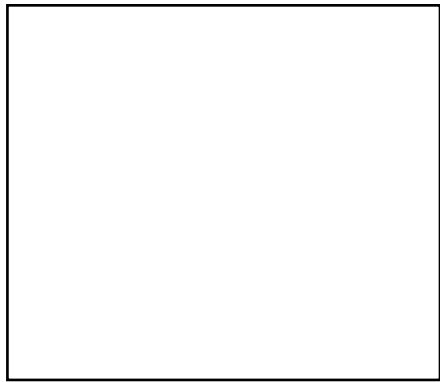
Opaque – little or no light passes through the materials/object. (Example: paper bag)

Here's how:

1. Come up with a way to test the visual opacity of different everyday items.
2. Describe your test. You can draw your setup if needed.

Describe:

Draw:



3. Test your materials and sort them. List the results below:

Transparent	Translucent	Opaque

Cloud Clues

Clouds are often described by their opacity. Knowing whether they are transparent, translucent, or opaque tells scientists how much sunlight (energy) they allow in.

Go outside
and look at the
clouds!

Remember not to look
directly at the sun.



Sketch your observations
of the clouds:



The clouds today
were (circle one):

transparent

translucent

opaque



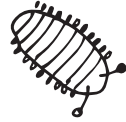
Watch **SciGirls** collect data about
clouds on pbskids.org/scigirls.
Select the **SkyGirls** episode.

Out and About

When studying a specific animal, like a butterfly, scientists also study the plants and other animals that live in the species' habitat. Field guides are great tools for helping identify plants and animals you don't know.

You'll need:

pencil
colored pencil, markers, or crayons
optional: binoculars, magnifying glass,
camera, plant and animal field guides

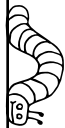


Here's how:

1. Spend some time observing in a local butterfly garden, park, or other natural area.
2. Take notes on and draw (or photograph) the interesting plants and animals you see, hear, or smell.



Date:	Drawing (or photo) of the location: (interesting plants, animals)
Name of Location:	
Notes about the location: (interesting plants, animals, weather conditions)	



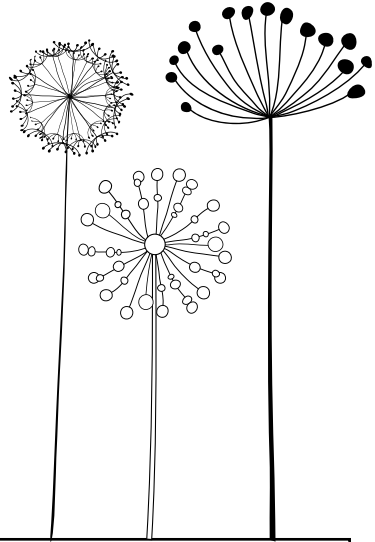
Out and About

Create your own field guide page!

Choose one plant you observed and make a field guide page for it, include the following:

- ☐ plant name
- ☐ plant illustration
- ☐ flower color (if the plant has flowers)
- ☐ blooming season
- ☐ height of plant
- ☐ organisms observed on this plant
- ☐ optional: butterflies that use the plant

Try it!



Watch **SciGirls** learn about monarchs on pbskids.org/scigirls. Select the **Butterfly Diaries** episode.

All Tangled Up

What is an environmental challenge facing your community? (Examples can include not enough recycling, polluted waterways, light pollution, etc.)

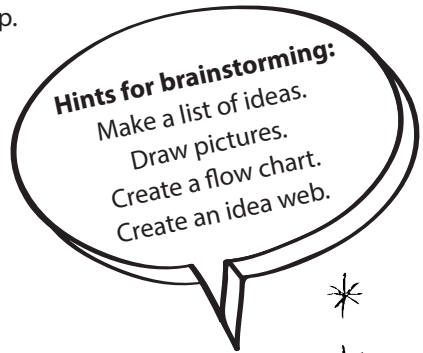
Here's how:

Research the problem and possible solutions and create a short presentation (less than 2 minutes) that:

- describes the problem,
- shares why people should care, and
- gives examples of ways people can help.



Use this space to brainstorm about your presentation.



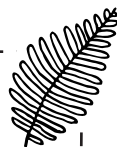
Watch **SciGirls** create and edit a video encouraging people to care for the ocean on pbskids.org/scigirls. Select the **Terrific Pacific** episode.

DIY Nature Journal!

A nature journal is a good way to keep track of what's happening around you. You can use it when you go on adventures with friends or just when you're hanging out at a neighborhood park.

You'll need:

blank and lined paper
pencil or pen
optional: decorations for the outside of the journal,
colored pencils, graph paper

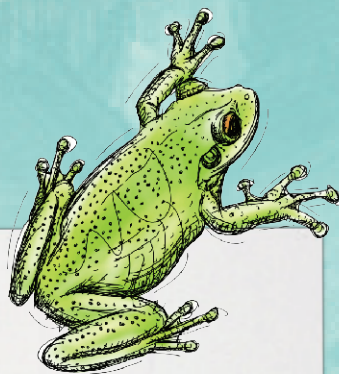
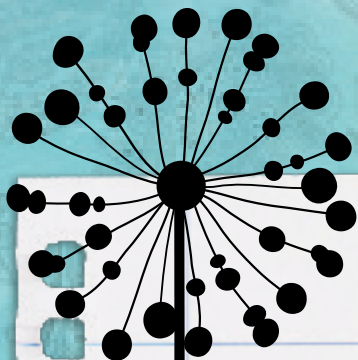


Here's how:

1. Create your journal using an existing notebook, or make your own by combining blank and lined paper together in a small book.
2. Personalize the outside of your journal. Make sure to include your name and contact information on the inside front cover in case you lose it.
3. Number your pages and create a table of contents that you can fill in as you go.
4. Each time you start a new journal entry record some of the following items: date, time, location, type of habitat, temperature, weather.
5. Record your observations: what you see, smell and hear. Use both drawings and written descriptions.
6. Include explanations or interpretations of what you recorded as well as any questions you have.
7. Add leaves, pressed flowers, and photos of your observations.



Make a mini: Create a small journal on a string to wear around your neck.



Want to know more?

Here's a collection of projects you can try:

Celebrate Urban Birds (celebrateurbanbirds.org)

FrogWatch USA (aza.org/frogwatch)

Migratory Dragonfly Partnership

(migratorydragonflypartnership.org)

Monarch Larva Monitoring Project (mlmp.org)

Nature's Notebook (nn.usanpn.org)

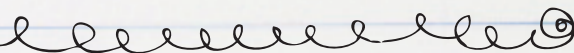
NASA GLOBE Clouds (observer.globe.gov/do-globe-observer)

School of Ants (schoolofants.org)

SciStarter (scistarter.org)

The Great Sunflower Project (greatsunflower.org)

Zooniverse (zooniverse.org)



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SciGirls

