

# Winter Weather Adventure Booklet



Earn your digital badge!

Junior  
Wildlife  
Ranger



This Book Belongs To:

# Welcome

Are you ready to become an environmental superhero? Junior Wildlife Rangers are superheroes because they take action to protect plant and animal life. Usually, Junior Wildlife Rangers earn their badges in protected natural areas like parks or wildlife refuges. Now, you can become a Junior Wildlife Ranger in your own community with the Neighborhood Badge!

Today, you will learn about winter changes - how the weather works, how water affects plant life, and how animals have adapted to chilly weather! This winter, you will stay cozy with fun, indoor activities to discover why the weather is what it is in your neighborhood. Along the way, you will discover how we change the climate, and what you can do to make a positive impact.

## How to Earn Your Badge

Complete at least 2 out of the 3 activities and share a picture of your project with us at [resources@juniorwildliferanger.org](mailto:resources@juniorwildliferanger.org). Optional: Have an adult post the picture to instagram — tag @juniorwildliferanger and use the hashtag #neighborhoodwinterbadge.

## Finished?

Scan the QR code at the end of the booklet with a smartphone camera to receive your digital badge. Or, if you don't have a smartphone, see instructions below.\*



\* If you do not have a smartphone, register for your Junior Ranger passport online at [juniorwildliferanger.org](http://juniorwildliferanger.org) and send us an email at [resources@juniorwildliferanger.org](mailto:resources@juniorwildliferanger.org).

# Water Cycle

Water is essential for plants and animals to survive. Water **evaporates** from bodies of water (like lakes or the ocean), **condenses** into clouds, and then falls as rain or snow. We call this process the **water cycle**. In winter, it snows in Minnesota, while it rains in California. Wherever you live, the water cycle affects the weather you see every day. Ready to learn more?

What **precipitation**, or kinds of water falling from the sky, do you observe during winter?

Rain   Sleet   Snow   Hail   Freezing Rain

## Materials:

1. 1 clear plastic bottle (optional)
2. 1 Plastic Bag (or clear tupperware)
3. Tape
4. Permanent marker(s)
5. Blue food coloring (optional)



## Water Cycle Model

**Step 1:** Decorate your plastic bag.

The bottom will be the ocean, and you can draw clouds and a sun.

**Step 2:** Add water until 1/4 of the tupperware or bag is full. Mix in one drop of blue food coloring (optional).

**Step 3:** Seal the bag and tape it to a window that receives the most sunlight. Let it sit for 1-2 hours and then observe!

**Step 4:** Take a picture of your water cycle model with condensation and post it to instagram — tag @juniorwildliferanger and use the hashtag #neighborhoodwinterbadge.

### Bonus Activity

Make a rain gauge to collect actual rain for your water cycle activity! Find instructions at our website:

[juniorwildliferanger.org/](http://juniorwildliferanger.org/)

## Questions:

1. What changes did you see in your bag?

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2. Where do you think water gets the energy to change its form?

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# Sprout a Bean!

Did you know that the beans you eat are seeds? When beans are exposed to water, they grow into bean plants. Watch as your bean seeds start to sprout roots, stems, and leaves!

**Curious?** All plants need water, but some need more than others. Depending on how much rain, or **precipitation**, falls, different plants grow.

How often do you see rain or snow in the winter?

Do the plants you see outside need lots of water, or only a little?



## Materials:

1. 5-10 bean seeds:  
Any dried beans from the grocery store will do (i.e. lima beans, black beans or mung beans)
2. Paper towel
3. Plastic bag
4. Tape

## Steps:

1. Soak the beans in water overnight before you start.
2. Drain the beans, then place in a folded, damp paper towel in the plastic bag.
3. Seal the bag completely and tape it on a window.
4. Observe over the course of several days as the bean begins to sprout. After 24 hours, the beans will begin changing, and after 3 days to a week, they should sprout!
5. Take a picture of your seedlings and post it on instagram, tagging us at @juniorwildliferanger with the hashtag #neighborhoodwinterbadge or send to [resources@juniorwildliferanger.org](mailto:resources@juniorwildliferanger.org)
6. Optional: After 10 days, move the sprouts to a small planter with potting soil and continue watching them grow!

Try to unscramble these words while you wait for your seeds to germinate and sprout!

pnalt enba irwnte inhnuenss

## Questions:

1. Did your sprouts grow? \_\_\_\_\_ Advanced question (optional): If so, what conditions helped it to germinate? If not, what factors were missing?

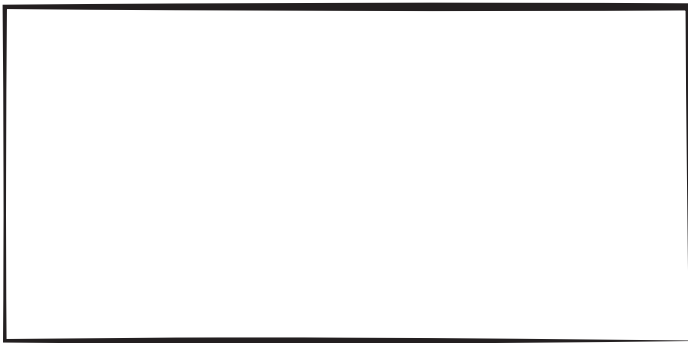
2. Can you name 3 more plants that need water and sunlight to survive?

Word scramble answers: 1. plant 2. bean 3. winter 4. sunshine

# Stay Warm Like a Polar Bear

Some parts of the world, like California, experience light rain and sun all year long. But in other parts of the world, the temperature drops below 32°F and snow falls from the sky. In Antarctica, plants and animals developed special **adaptations** to survive when the average temperature is -70°F.

Can you draw a polar bear and its environment? What parts of the polar bear help it survive in an antarctic ecosystem? What other animals, plants, and land features are part of a polar bear's ecosystem?



Polar bears use their thick fur and blubber (a layer of fat beneath the skin) to keep warm in the icy ocean water and freezing antarctic air. These traits are called adaptations because they make polar bears uniquely suited for the cold temperatures of the antarctic environment.

## To Make Your Own Polar Bear Fur:

### Materials:

1. Cotton balls, dish towels, or another type of fabric
2. Plastic Bag
3. Large bowl of ice water

### Steps:

1. Put the cotton balls or fabric material in the ziploc bag.
2. Put one of your hands inside of the ziploc bag with the material, wrapping the material around your hand.
3. Place both your hands (one bare, one with the ziploc bag/cotton ball "fur") in the ice water. Be careful, don't let your hand get too cold!
4. Take a picture of your hand with the polar bear insulation and post it to instagram-- tag @juniorwildliferanger and use the hashtag #neighborhoodwinterbadge

What do you notice about each of your hands? How do they feel different?

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The cotton balls help your hand stay warm by acting as insulation, just like a polar bear's fur and blubber!

# My Impact: Changing Climate

You have learned how water evaporates and falls as rain or snow in the **water cycle**. You have learned how plants need water to grow. And you learned how animals adapted to stay warm and survive.

What is your favorite weather, and why?

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The long-term patterns of weather, or **climate**, affect all plants and animals - including humans. Unfortunately, humans are causing **our climate to change**. When humans burn **fossil fuels** like oil or coal, **greenhouse gases** trap heat in Earth's atmosphere, just like heat is trapped in a greenhouse.

## Climate change

means hotter average temperatures, more intense storms, and sea level rise. We need YOUR help to save the earth. You can learn more about climate science, share what you know with others, and reduce your greenhouse gas emissions to make a difference.



Circle all the activities you do that involve fossil fuels:

1. Riding in a gas-powered car
2. Buying a product that was transported from far away
3. Using electricity for lightbulbs, a refrigerator, or computer
4. Warming your house with a gas or electric heater

What are two things you can do to reduce your greenhouse gas emissions? (hint: look at the activities you do that involve fossil fuels!)

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# Congratulations!

You have earned the Neighborhood Winter Badge and are now a Junior Wildlife Ranger. A Junior Wildlife Ranger is a protector of the environment, a keen observer, and a sharer of your knowledge with others.

What is one thing you learned today that you're excited to share with others?

Today I:

**Atmosphere:**  
a thin, continuous layer around the planet where the weather takes place

**Condensation:**  
when water turns from a gas to a liquid - like when the mirror 'fogs up' after a shower

**Precipitation:**  
water that falls from the sky - rain, snow, or hail

**Photosynthesis:**  
the process plants use to turn water and carbon

**Weather:** the temperature or precipitation on a given day - sunny, cloudy, hot, or cold

**Germination:**  
when a seed grows into a sprout!

## Speak Like a Scientist

**Evaporation:**  
when water turns from a liquid to a gas - like when boiling water creates steam

**Climate:**  
the general temperature and precipitation in an area over a long period of time - tropical, temperate, or arid climates

Flip the page to learn how to earn your badge!



# Congratulations!



To claim your Neighborhood  
Winter Weather Badge, scan this  
QR code  
or email us at  
[resource@juniorwildliferanger.org](mailto:resource@juniorwildliferanger.org).



For more fun activities and to fill your passport with more badges, visit  
[juniorwildliferanger.org](http://juniorwildliferanger.org).

To learn more about weather and climate change,  
check out:

<https://oceanservice.noaa.gov/kids/>

<https://climatekids.nasa.gov/climate-change-meaning/>

## Special Thanks To:



Children in Nature Collaborative



*reconnecting with the natural world*

