



Become a **Junior**

SNOW RANGER

January 2012

The Science of Snow

**Meet Cutler, the Avalanche
Rescue Dog**

**Discover the Thrill of the
Chill on Snowshoes**

Fire and Ice

Create Your Own Avalanche

Be a Snowflake Sleuth

Have Fun With Winter Games

Make Your Own Snowshoes

Who Left These Tracks?

Make Frozen Bubbles

Interview a Snow Ranger



What's Inside

| | |
|--|----|
| Welcome to the World of the Snow Ranger | 1 |
| ACTIVITY: Memorize the Oath of the Junior Snow Ranger | 1 |
| Teacher's Page | 2 |
| What's Happening in Your Woods?..... | 3 |
| Dress Like an Onion in Three Easy Steps..... | 3 |
| The Science of Snow | 4 |
| ACTIVITY: Create Your Own Avalanche | 4 |
| ACTIVITY: Be a Snowflake Sleuth | 5 |
| Meet Cutler, the Avalanche Rescue Dog..... | 6 |
| ACTIVITY: Have Fun With Winter Games..... | 7 |
| Discover the Thrill of the Chill on Snowshoes..... | 8 |
| ACTIVITY: Make Your Own Snowshoes..... | 9 |
| How Animals Survive Winter Weather | 10 |
| ACTIVITY: Who Left These Tracks?..... | 11 |
| You, the Snow, and the Great Outdoors..... | 12 |
| ACTIVITY: Make Frozen Bubbles | 13 |
| Fire and Ice | 14 |
| ACTIVITY: How To Measure the Snowpack in Your Backyard..... | 15 |
| ACTIVITY: Interview a Snow Ranger or Forest Ranger..... | 16 |

SAFETY FIRST!

When you play outside in cold weather, your body works hard to stay warm. Eat extra food like protein bars, nuts, dried fruit, and trail mix to get extra energy and warmth.

10 Things You Need To Explore in Cold Weather

1. **Smart outerwear**—a hat, sunglasses, gloves, boots, and a bright-colored, insulated, windproof (not cotton) jacket.
2. **Drinking water** in an insulated container (so it doesn't freeze).
3. **Map and compass.**
4. **Pocketknife.**
5. **SPF 15+ sunscreen and lip balm.** (Yes, you can get sunburned on a cold day!)
6. **Duct tape** (to fix anything that tears or breaks).
7. **Whistle.**
8. **Flashlight or headlamp** (with extra batteries and bulb).
9. **First aid kit.**
10. **Space blanket** (special, lightweight blanket with super-warming powers).





Welcome to the World of the Junior SNOW RANGER

What's a SNOW RANGER?

A Snow Ranger works for the Forest Service—U.S. Department of Agriculture. Snow Rangers work in our national forests.

Snow Rangers...

- ❄ Keep visitors safe.
- ❄ Protect the natural environment.
- ❄ Ski down mountains to make sure skiers are safe.
- ❄ Warn skiers, hikers, and others about avalanches.
- ❄ Search for people who are missing.
- ❄ Rescue people when they are found.

What's a Junior SNOW RANGER?

A Junior Snow Ranger...

- ❄ Reads and uses this Junior Snow Ranger adventure guide.
- ❄ Gets helpful tips about winter.
- ❄ Learns new ways to have more fun outside during winter.
- ❄ Learns interesting facts about history, nature, and science.
- ❄ Shares new information with friends or classmates.
- ❄ Has safe, fun adventures in the winter forest.

Memorize the

Oath of the Junior Snow Ranger

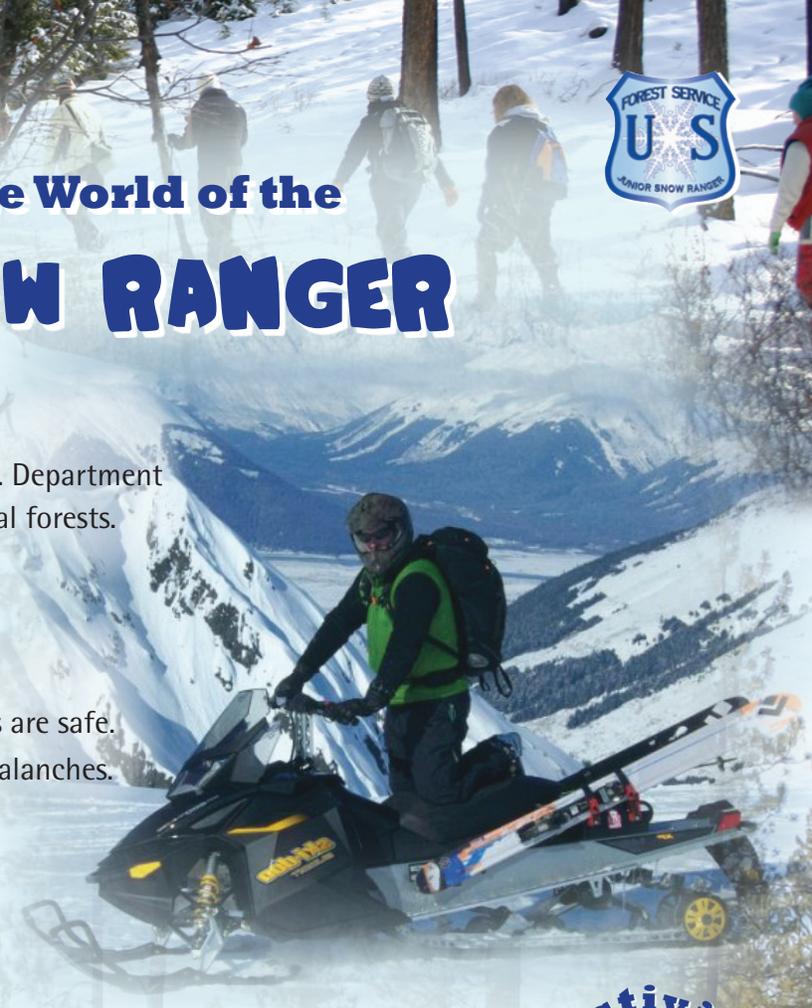
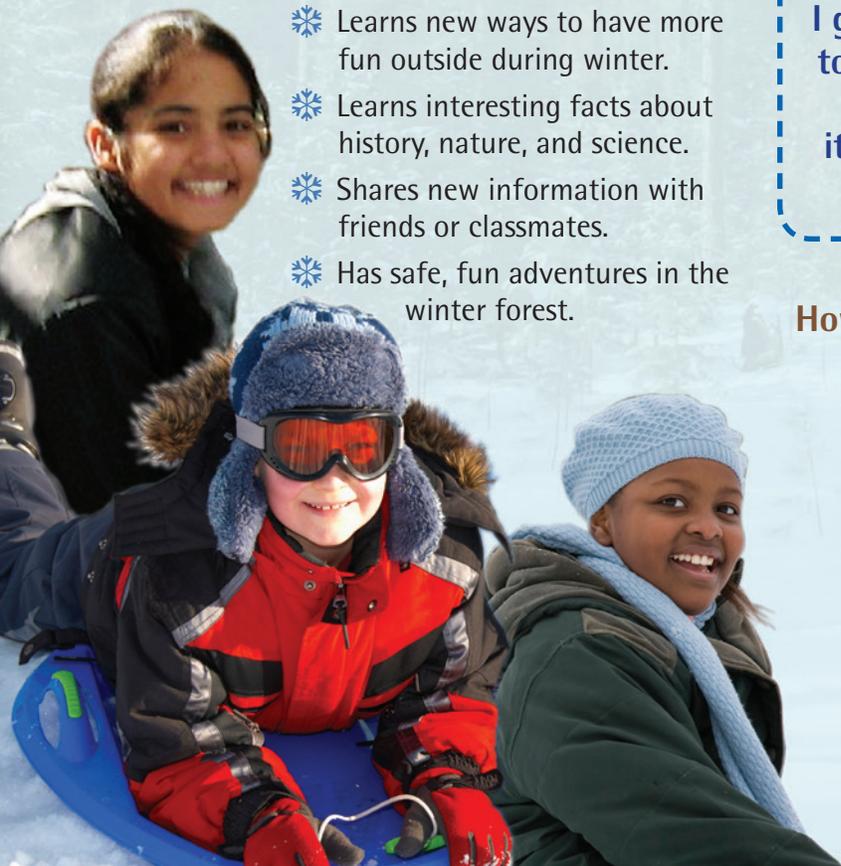
I give my pledge as a Junior Snow Ranger to save and faithfully defend from waste the natural resources of my country—its soil and minerals; its forests, flowers, and trees; its waters; and its wildlife.



How Can I Become a

Junior SNOW RANGER?

- ❄ Complete the activities in this guide.
- ❄ Mail back the Junior Snow Ranger Official Form.
- ❄ Receive your official Junior Snow Ranger, card, badge, and bandana.
- ❄ Use your Junior Snow Ranger tools to explore the winter woods!





Teachers' Page

Who Is This Book Designed For?

The Junior Snow Ranger adventure guide is designed for 4th and 5th grade students and emphasizes the standards of learning and educational skills for these grades. You can conduct the activities indoors and outdoors.

Objectives

When using this adventure guide, students will have the opportunity to:

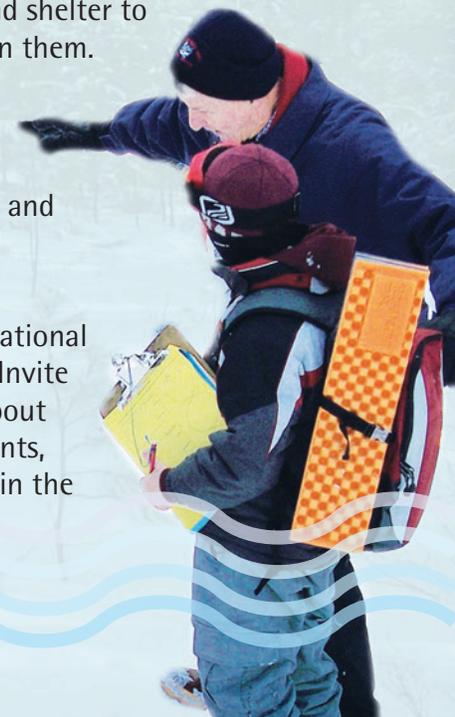
- Understand safety as an important component of winter recreation.
- Transfer knowledge of winter and safety to peers and adult caregivers.
- Recognize that the Snow Ranger is a career that the students can pursue, if they are interested.
- Understand that winter is a great time to enjoy and understand how nature changes and adapts.
- Understand and appreciate forest resources during the winter.

Activities

- ❄️ Plan a hiking trip to a nearby forest or park on National Winter Trails Day!
- ❄️ Make this activity book part of your science class in connection with the National Winter Trails Day.
- ❄️ Visit a national forest, museum, zoo, or State park. Or, have someone from one of these sites come to your classroom to talk about winter safety, recreation opportunities, or winter science.
- ❄️ Take your class outside to appreciate and learn about trees and how they change during winter. Visit a national forest or State forest.
- ❄️ Use a map to locate the forest or park that is closest to your school.
- ❄️ Take your students for a hike with a local naturalist.
- ❄️ Invite Woody Owl to your classroom to talk about conservation practices during winter.
- ❄️ Ask children to write about their preferred winter activity and why that activity is important to them.
- ❄️ Ask children to keep a nature journal during winter.
- ❄️ Invite a Snow Ranger or Forest Ranger to your classroom to talk about enjoying winter in a safe and fun way.

Discussion Themes

- Forests are communities where trees, plants, animals, and insects live. Forests give shade, food, and shelter to the many animals and plants that live in them.
- Forests are important for people, too. They are fun to visit. They are important to our health because they give us food, medicine, clean air, water, and places for us to recreate and have FUN!
- We need to take care of our forests.
- Ask your students: Have you visited a national forest with your family during winter? Invite them to discuss what they liked best about the forest. What did they see (trees, plants, animals, footprints)? What did they do in the forest (hike, practice a winter sport or activity, fish)?



WHAT'S HAPPENING IN YOUR WOODS?



Winter is a great time to find out what's happening in the woods. So, go exploring! Just put on your boots, skis, or snowshoes—and be sure to take your "senses" with you.

As you walk through the woods, stop every now and then.

Look around. What do you **see**?

Close your eyes and listen. What do you **hear**?

Breathe in deeply through your nostrils. What do you **smell**?

Touch the rocks, tree branches, snow, or ice. What do you **feel**?

Stand very still. What do you **feel**?

Make a list of your observations—what you saw, heard, smelled, and felt. What one **new thing** did you learn from your observations?

When You Explore the Forest

- * When exploring the winter woods, always go with an adult and never go alone.
- * Stay on marked trails and in designated areas.
- * Pay attention to signs and instructions.
- * Pace yourself. Don't go so fast that you'll get tired. Keep track of time. For example, if you head out the door at 1:00 p.m. and plan to return at 4:00 p.m., you should turn around to head home at 2:30 p.m.—half way through your 3-hour adventure.
- * Know some first aid (like how to treat a small cut). Learn about and watch out for hypoglycemia (low blood-sugar levels). If you live in a cold area, learn about and watch out for frostbite, hypothermia, and snow blindness.



Dress Like an Onion in Three Easy Steps

On a cold winter day, animals have feathers or fur to keep warm. We do not. So, we wear extra clothing to stay warm and dry when we play outside. When you put on extra clothing, you need to "dress like an onion" and wear many layers. Layering your clothing gives you control over how hot or cold you feel. Wear only the layers you need to feel comfortable. If you start to feel cold, put on another layer. If you get too hot, simply remove a layer before you start to sweat.

Step 1. Base Layer

The base layer touches your skin. Wear a tight-fitting layer like long underwear made of wicking cloth—hi-tech fabric that lets moisture (sweat!) evaporate from your body to keep you warm and dry. Don't wear cotton—it can get wet and make you cold.

Step 2. Middle Layer

The middle layer insulates—it keeps body heat inside your clothing and prevents it from escaping. This layer also pulls sweat away from the base layer to help keep you dry. Wear a turtleneck sweater and pants (no jeans!) that are loose but that still touch the base layer.

Step 3. Outer Layer

The outer layer blocks wind and lets moisture escape. This layer may be made of material like fleece. Wear a coat with a hood (to keep your neck warm), waterproof snow pants, and boots with a waterproof foot and warm lining.

