



White Mountain National Forest



Junior Forest Ranger Activity Book



2009

Printed on recycled paper

Welcome to the White Mountains!

This Junior Ranger book will help you discover some of the fascinating and fun things about a national forest. Together with an adult, a friend or even by yourself you can earn a Junior Ranger pin. All you have to do is:

- Complete as many pages as your age.
- Fill out the evaluation and certificate
- Bring this booklet to any White Mountain National Forest visitor center or Ranger District office
- Have the ranger check over your answers and give you your pin and certificate.

Good luck, have fun, and enjoy your national forests!

Please observe and enjoy nature in its own environment. Take only photographs and make sketches as souvenirs! Please practice the Leave No Trace principles while you are here.

Leave No Trace Principles

- Plan Ahead and Prepare
- Travel and Camp on Durable Surfaces
 - Dispose of Waste Properly
 - Leave What You Find
- Minimize Campfire Impacts
 - Respect Wildlife
- Be Considerate of Other Visitors



Huge thanks to Chris Bishop, Becky Peterman, Rebecca Oreskes, Jenny Young, Public Services Team, Dick Dow, Erin Hollingsworth, and Nancy Propfe for all their help in creating this activity booklet. Please let me know if you have any comments regarding this booklet or the activities. Enjoy!

Clare Long, CE Specialist, White Mountain NF

Did you know? A woodpecker represents self-discovery in the animal world. Look for the woodpecker throughout the pages and the "Did You Know" section. We invite you to be like the woodpecker and discover for yourself the wonders of the White Mountain National Forest.

My Nature Journal

Today's date is _____

The weather today is _____ (example: sunny, cloudy, rainy, snowing)

The temperature is _____ F

The season is _____

I am at the _____ of the White Mountain National Forest.
(location)

Something special that I observed outside today was: (Write as much as you can using descriptive)

Here is a sketch of what I observed:



Tree crickets are called nature's thermometer because temperature directly affects their rate of activity. Listen for a cricket and count the number of chirps it makes in fifteen seconds. Add 37. The sum will in Fahrenheit temperature.



Forest Prowl!



Go for a walk through the forest with a friend and see if you can find with your eyes the items for each Prowl Card. Put a check next to the sentence after you complete the task. You can find these by looking out your window too!

Prowl Card 1

Find something:

Soft Squishy Smooth Rough Slippery

Prowl Card 2

Find a spot in the forest that gets the most sunlight

Find a spot in the forest that gets the least sunlight

Find the driest spot

Find the wettest spot

Prowl Card 3

Find the oldest thing in the forest

Find the youngest thing in the forest

Find something that is natural

Find something that is unnatural

Find something that doesn't belong in the forest

Prowl Card 4

Find something that has 5 or more parts

Find something that is growing

Find something that is decaying

Find something that is living on something else



.....
• **Did You Know?** One young tree can absorb as much carbon
• in a year as a car produces while driving 26,000 miles.
.....



Water Everywhere!

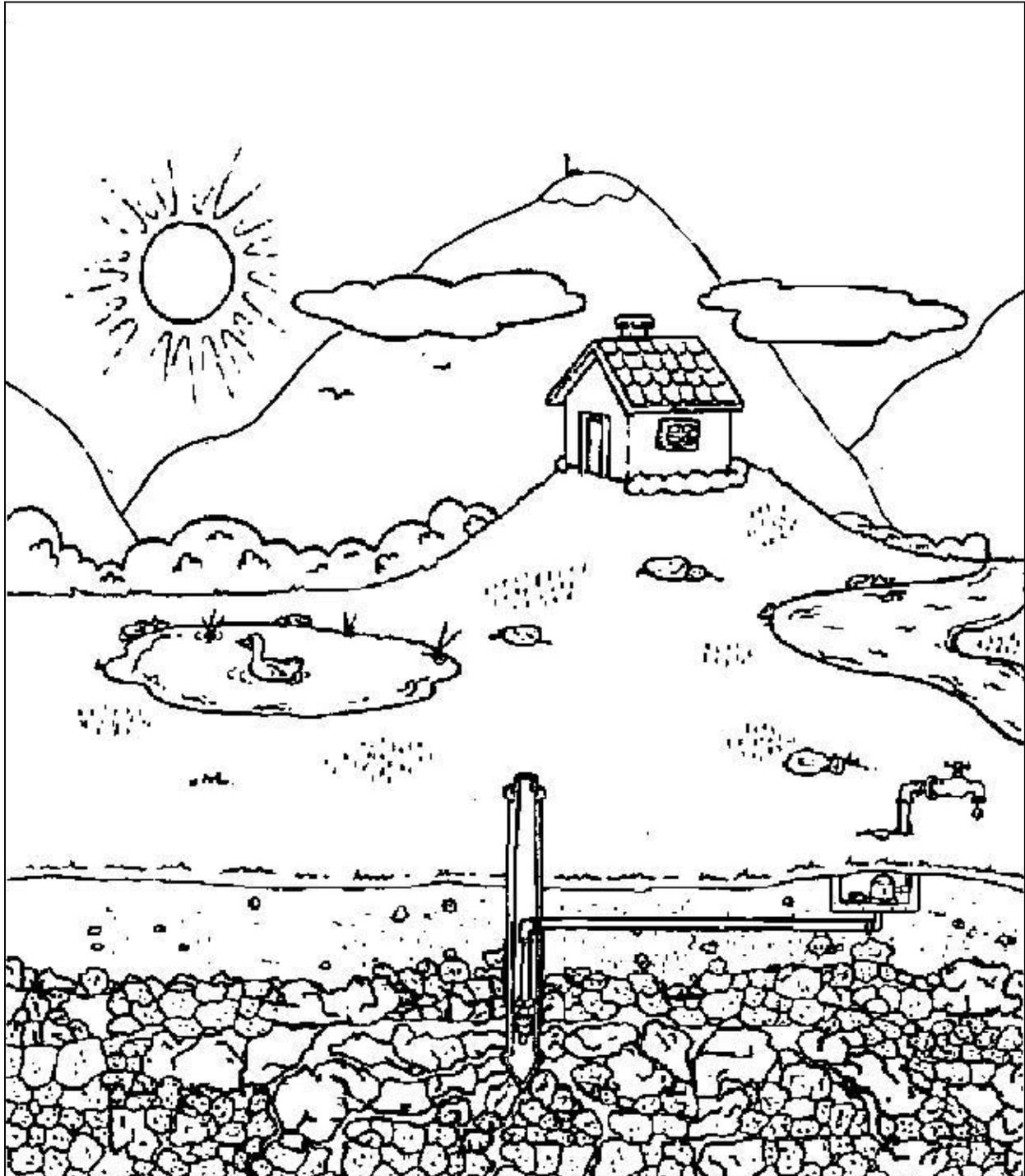
National forests help clean and preserve drinking water. Drinking water comes from mountains, lakes, rivers, streams, or under the ground (ground water). Label and color the water sources using the following words:

Pond

Well

River

Aquifer



■ **Did You Know?** Water originating in our national forests
■ provide drinking water for over 3400 communities, and
■ approximately 60 million people.



White Mountain National Forest

Wildlife Detective



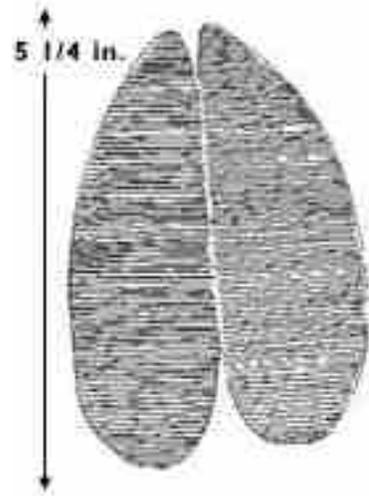
Wildlife Detective Forrest Visitor is on the scene!
You've received a report of a suspicious animal near
Lost Pond. Put these clues together to solve the case!

Clue # 1

You find several piles of brown, egg-shaped droppings. The droppings look like Milk Duds candy. Draw a sketch of what this might look like in the space to the left.

Clue # 2

In the mud near Lost Pond, you notice several big tracks that look like upside-down hearts that have been split down the middle. It measures 5 1/4" long. Compare your foot with the track. Is it bigger or smaller?



Clue # 3

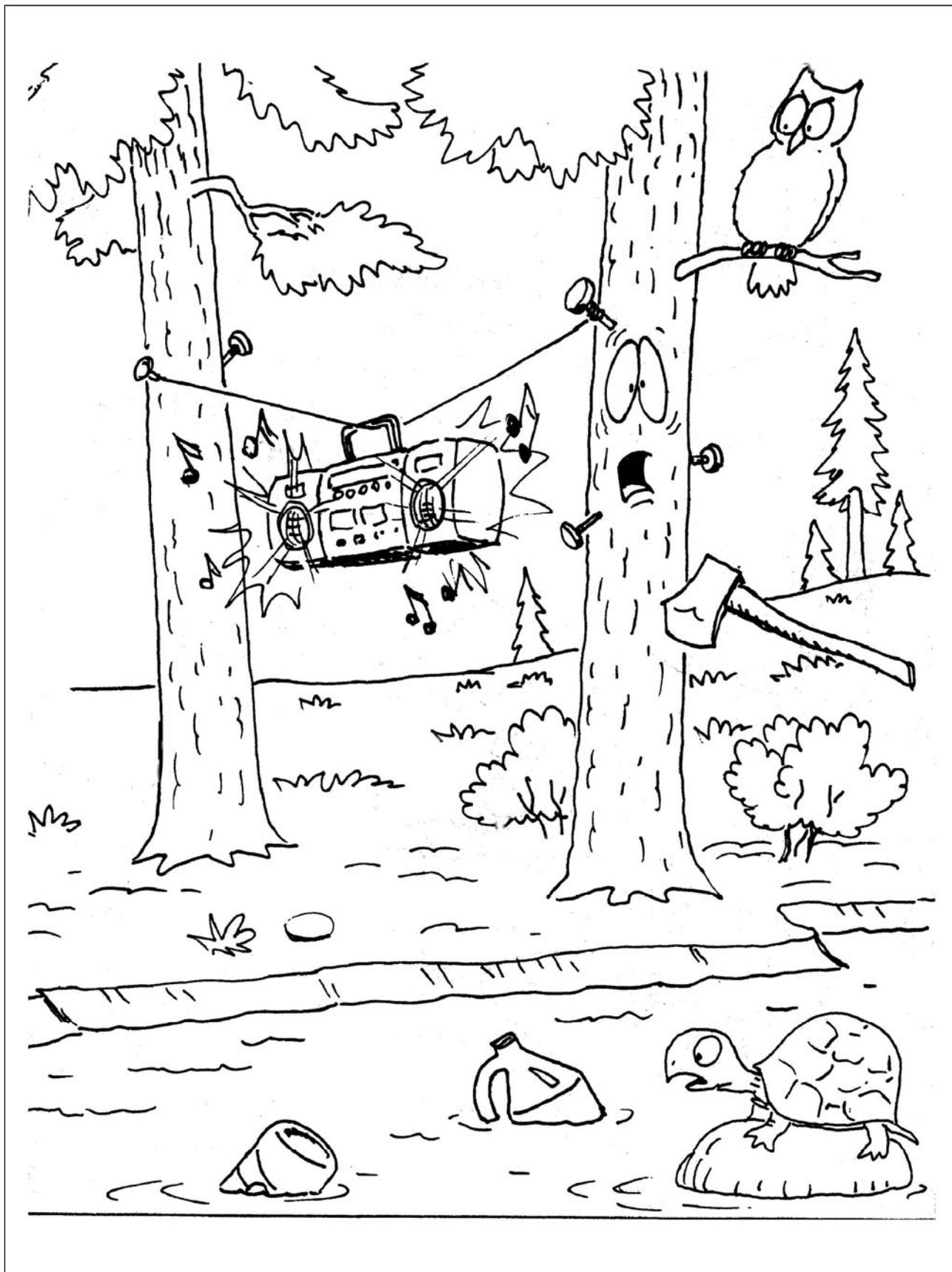
You find a large bony antler under a tree near the pond.

What animal left these clues behind?



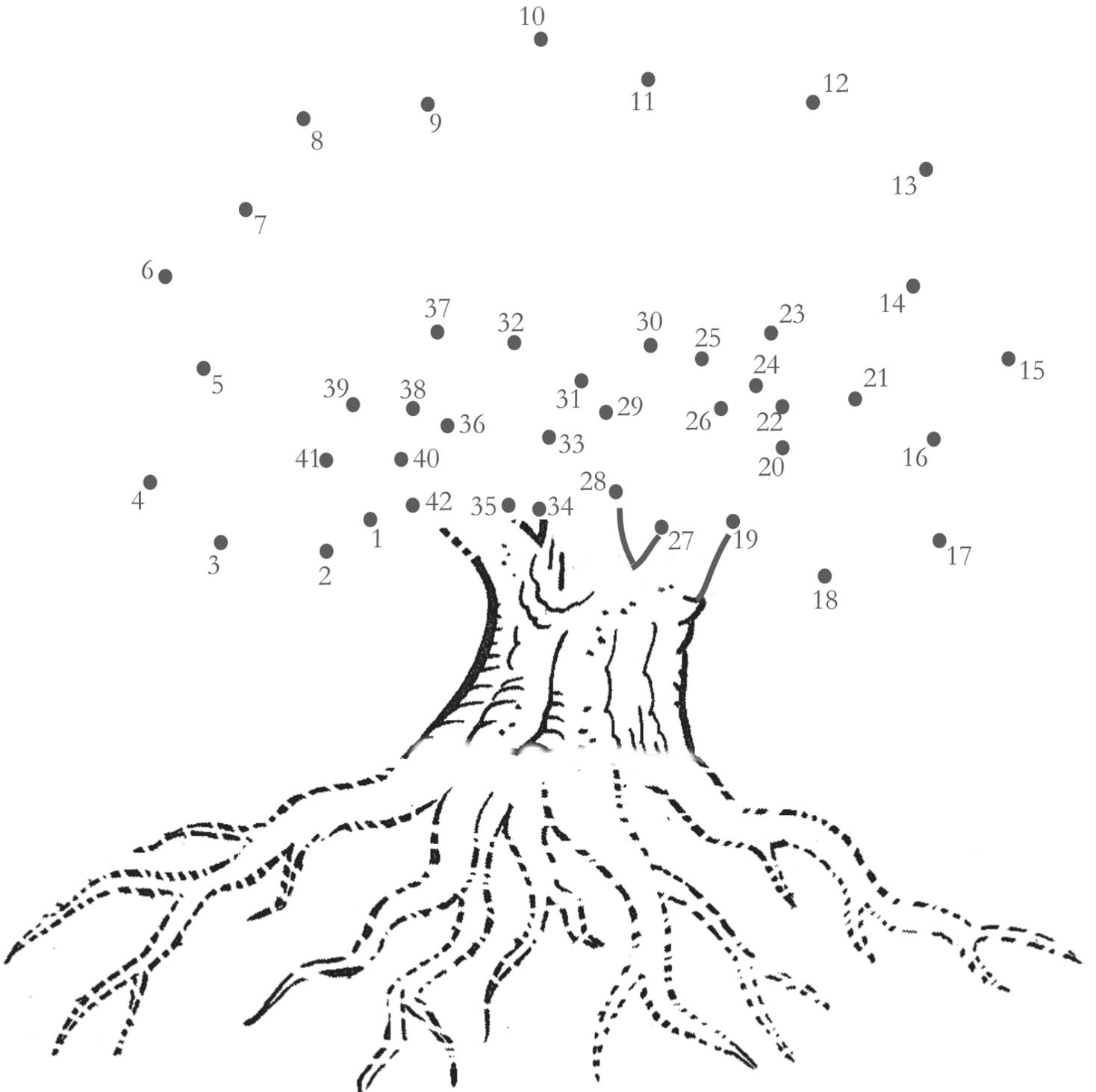
**Please respect nature and each other.
Leave no trace, pack out your trash
and enjoy the quiet!**

Circle the things you shouldn't do in the outdoors. Then color the page.



Tree Factory

A tree has different parts that make food and help it grow. LEAVES use sunlight to make food for the tree. BRANCHES hold the leaves up to the sun. The TRUNK holds the tree nice and tall. ROOTS get water and nutrients from the soil and hold the tree up. Connect the dots to complete this drawing of the tree. Draw a Yellow sun, Blue rain water, and brown soil. Then color the tree and all its parts.



A Forest Provides These!

People rely on forests in many ways and for many things. Unscramble the following words to find out what a forest provides!



nelca ria _____

senercy _____

sbjo _____

dofu _____

widfile atibaht _____

retreciona _____

frotse prudcots _____

nelca rewat _____

blurme _____

apper _____

friedwoo _____

Can you think of others? Share them with the Forest Ranger and get a Smokey sticker!



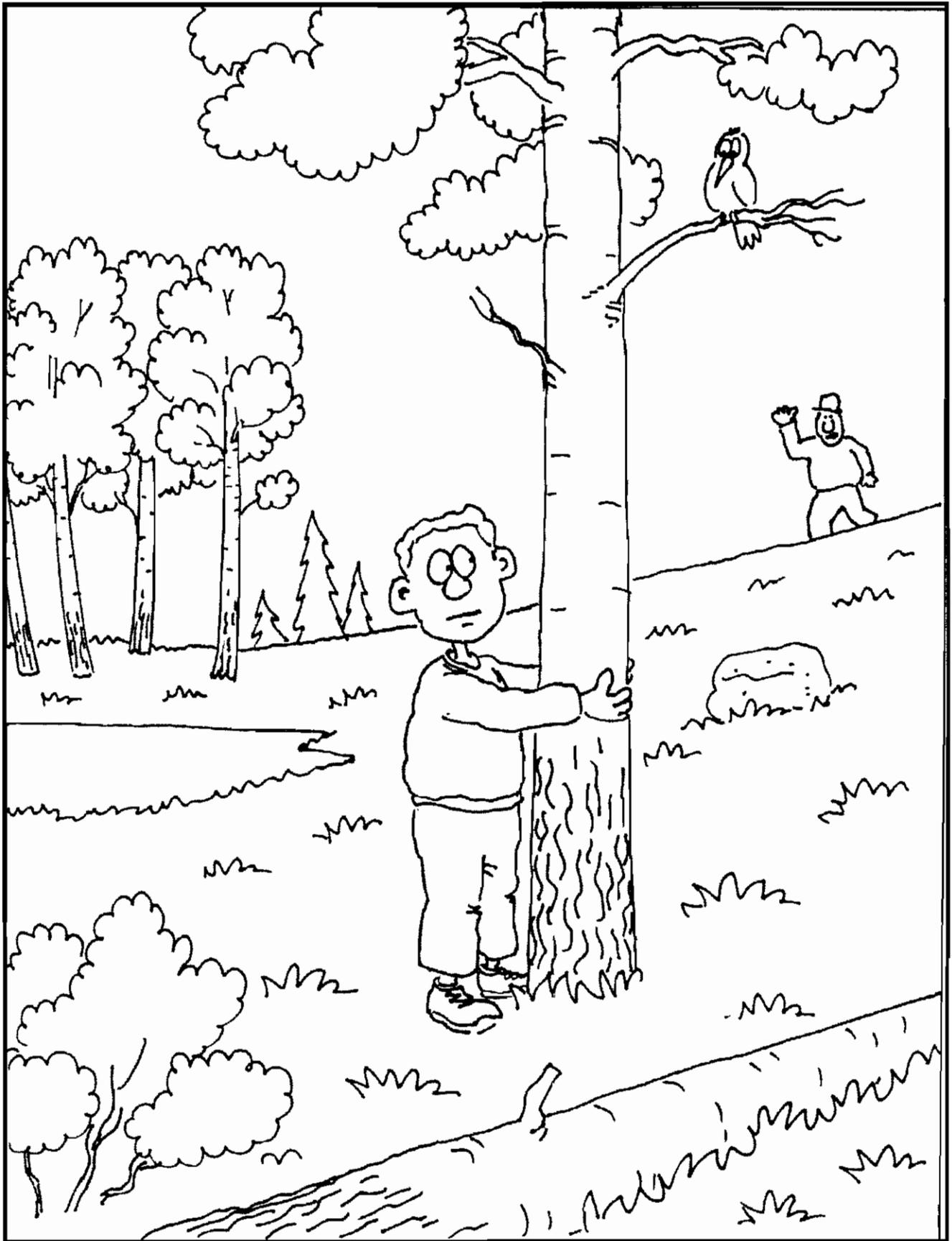
Did You Know? The shade and wind buffering provided by trees around your homes reduces annual heating and cooling costs by 2.1 billion dollars.





If you ever get lost in the woods, hug a tree and wait for help. Make a noise that others can hear. You won't get in trouble!

Color this page and share it with a friend.



Collect an Alphabet of Natural Objects

As you travel in the White Mountain National Forest look for plants, animals, trees, insects, birds, weather and other natural objects that begin with the letters in the upper left corner of each box. Draw the object you found in the appropriate box.

A	B	C	D
E	F	G	H
I	K	L	M
N	O	P	R
S	T	W	X/Y/Z



Disturbances such as wind, fire, disease and logging result in a variety of forest ages and habitat features that ensures the abundance and diversity of wildlife.



Interview a Forest Ranger



Name of ranger: _____

The ranger works on the: _____

How many years has the ranger worked in his/her field? _____

What does the ranger like about his/her job?

What is one thing that ranger does regularly?

What is the most rewarding thing about being a Forest Ranger?

What is the hardest part of their job?

What is the ranger's most favorite place on the forest?

What is one thing the ranger would like you to learn today?



.....
: Did you know? Forest rangers are responsible for caring for the 192
: million acres of forests and grasslands of the United States
:



Habits and Habitats: Forest Animal Survey

Observe a living creature in the forest and answer the following questions. (If you weren't able to find one then invent one). Think about how your creature moves, eats and protects itself.

My forest creature is a _____

My creature looks like this:

My creature likes to eat _____

My creature finds food in this part of the forest (openings, mature forest, ground, shrub layer, canopy, etc.)

My creature makes its home in this part of the forest (openings, mature forest, ground, shrub layer, canopy, etc.)

Other creatures that prey on (hunt and eat) my creature include:

In winter, my creature (migrates, remains active in the forest, hibernates)

Here are signs that my creature has been around (nest, tracks, nibblings, resting spots, rub marks, holes in trees, scat, hair, feathers, other)



Did You Know? There are over 16,000 living creatures that live in the White Mountain National Forest. Mammals, birds, fish, reptiles, amphibians, and insects all find food, water, and shelter in the forest.



Hike Safe

THERE AND BACK

To have a safe, enjoyable outdoor experience, and help reduce search and rescue efforts, you need to be prepared. The **hikeSafe** program was created to educate hikers of all ages, from first-timers to experienced trekkers.



Expect the unexpected! No hiker should hit the trail without packing the **Ten Essentials**—things that you should always bring with you when you go for a hike!

Put a check mark next to what you think are the ten essentials from the items listed below:

- | | |
|---|---|
| <input type="checkbox"/> Ball | <input type="checkbox"/> Makeup |
| <input type="checkbox"/> Binoculars | <input type="checkbox"/> Map |
| <input type="checkbox"/> Camera | <input type="checkbox"/> Matches/firestarters |
| <input type="checkbox"/> Cards | <input type="checkbox"/> Measuring tape |
| <input type="checkbox"/> CD player | <input type="checkbox"/> Pocket knife |
| <input type="checkbox"/> Cellphone | <input type="checkbox"/> Rain/wind gear |
| <input type="checkbox"/> Compass | <input type="checkbox"/> Rope |
| <input type="checkbox"/> Extra food and water | <input type="checkbox"/> Stuffed animal |
| <input type="checkbox"/> First aid kit | <input type="checkbox"/> TV remote control |
| <input type="checkbox"/> Flashlight or headlamp | <input type="checkbox"/> Warm clothing |
| <input type="checkbox"/> Frisbee | <input type="checkbox"/> Water pistol |
| <input type="checkbox"/> Garbage Bag | <input type="checkbox"/> Weights |
| <input type="checkbox"/> Hair dryer | <input type="checkbox"/> Whistle |
| <input type="checkbox"/> iPod | |

Find a ranger or a hikeSafe display to check your answers. Do you have a favorite item you like to bring with you when you go for a hike? Share that with a ranger and get a Smokey Sticker!

(source: www.hikesafe.com)



.....
: **Did You Know?** Thirst signals that you are dehydrated (you
: don't have enough water in your body). Dehydration can drain
: your energy and ruin your outing. Remember to drink lots of
: water and eat salty snacks to replace what you lost through
: sweating and exercise.
:



WOOD you believe; We get so much from trees!

J S N T K E I I G T B N C N R
P O K S E T U Z C V E L S E S
X A E C K S S B L E O P B S E
B O I I I A T Y V T C B R R W
A J S N Z P K V H Z U R U A J
N S Y O T H H E Y R E T E G C
D T K K C T S T T U I H V A Z
A M J G Y O Y F O N G P J Z M
I X X X F O I F R O V V Q Q I
D P H S D T U U U B T Z T V R
S A P W U E F M E D I C I N E
X P K T L S R S L I C N E P B
N E C F R U I T P I O C M F M
O R K Z S K D I K K C P L F U
K B F Q D A F H K Q F Z R G L

Many of the things we use everyday come from trees. You might be surprised by some of the things made from wood or by-products of trees.

Find the words from the list below in the word search. Look across, up, down, diagonal, and backwards.

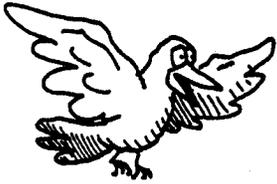
- | | | |
|-----------|-----------|------------|
| Band aids | Furniture | Paper |
| Carpet | Ice Cream | Pencils |
| Clothes | Lumber | Rubber |
| Fruit | Medicine | Toothpicks |
| Fuel | Paint | Toothpaste |
| | | Toys |

Can you think of more products you use that come from trees? Make a list of the products and make your own word search to share with others.



Did You Know? Each person uses the equivalent of one 100 foot tall, 16 inch diameter tree every year for their paper, wood products, and daily life needs





Nature Riddles

Write in the answer to all the nature riddles below.
We started you off by answering the first riddle!

1. What tree name does everyone carry in his/her hand? *Palm*
2. What arachnids name is like the sound of a clock?
3. What tree name sounds like what you call lots of sand at the edge of water?
4. What insect's name is a letter?
5. What tree name sounds like what keeps animals warm?
6. What insect name is like your father's sister?
7. What bird's name is a church official?
8. What insect's name can help you climb a mountain?
9. What tree name sounds like what you find after a fire?
10. What fruit tree name always has a partner?
11. What bird is a royal angler?
12. What bird's name is a letter?

Make up your own riddle and share it with the ranger to get a Smokey Bear sticker!



.....

- **Did You Know?** Insects are so important in the breakdown of plant and
- animal matter, that without them, we would have a world covered with
- dead plants and animals!

.....



Tree Trunk Trivia

How do trees grow, get food, and do what they need to survive? Every part of a tree has a function that helps it to live. There's more to a tree's trunk than just wood:

_____ **Bark** protects the tree from injury caused by insects and other animals, by other plants, by disease, and by fire. It may be thin, thick, spongy, rough, smooth, covered with spines, and so on, depending on the type of tree).

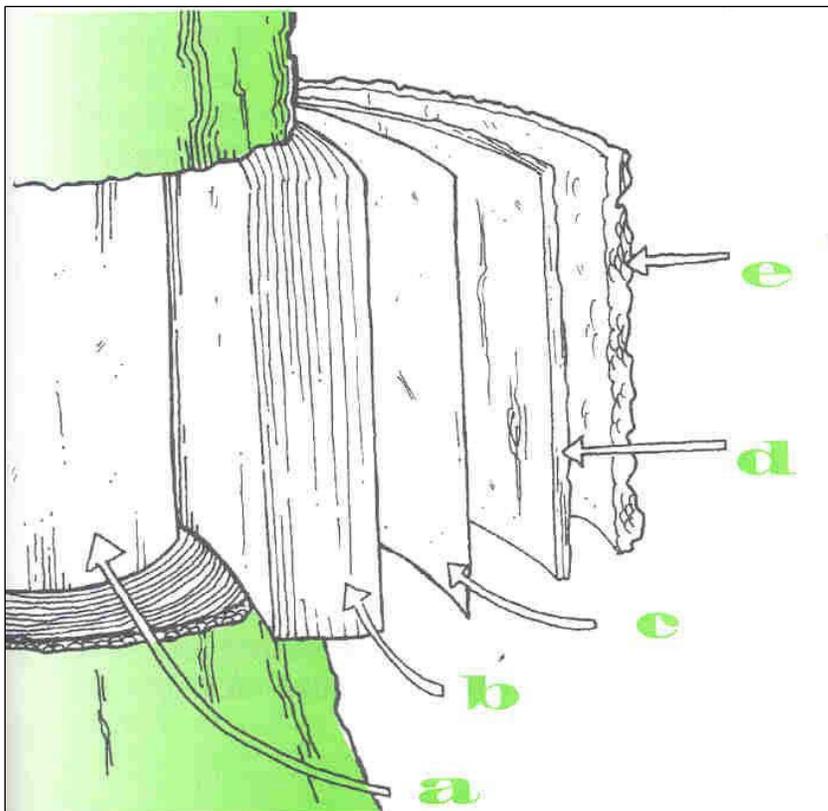
_____ **Cambium** (KAM-bee-uhm), a very thin layer of growing tissue, makes cells that become new xylem, phloem, or cambium. It is where the tree's growth occurs.

_____ **Heartwood** forms the central core of the tree, is made up of dense dead wood, and provides strength for the tree.

_____ **Phloem** (FLOW-uhm), also called the inner bark, carries sap (sugar and nutrients dissolved in water) from the leaves to the rest of the tree. .

_____ **Xylem** (ZEYE-luhm), also called sapwood, brings water and nutrients up from the roots to the leaves. Older xylem cells become part of the heartwood.

(adapted from Project Learning Tree)



Directions: Match the tree trunk parts labeled with the descriptions on the top of the page.

- **Did You Know?** New Hampshire, Maine and many other states take part in the Big Tree program. The largest tree of a particular species is identified and listed for all to enjoy.
- Check out the list to see if you have a big tree near you!



A Mountain Travel Puzzler



To uncover the secret ending to the message below you will need to work with both the message box and the puzzle box.

Below each letter in the message box you will find two numbers. Find the first number of each set along the left side of the puzzle box. Find the second number along the bottom of the puzzle box.

If you move your left finger from the first number toward the right along the grid line, and you move your right finger toward the top along the grid line, you will end up with both fingers in the same square. The letter you find in that square can now be put on the line below the pair of numbers.

Two letters have already been filled in to help you get started. Can you retrace how we found them?

Fill in the rest of the letters and finish the message to discover the most important thing you should do when traveling in the mountains.

Message: To have a safe, enjoyable outdoor experience, and help reduce search and rescue efforts, you need to

Message Box

2/6 1/8 2/7 4/10 2/7 4/6 1/6 2/7 2/9 2/7 4/10 2/9 2/6 2/8 1/6 2/6 2/7 2/8 1/6
 P _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ E

1	E	G	L	W	J
2	P	A	R	D	T
3	B	M	O	X	F
4	H	C	Q	U	N
5	V	S	K	Y	I
	6	7	8	9	10





BIOMASS



Fill in the blanks with the words in the box at the bottom of the page. Use each word only once.

1. Biomass is any _____ that was alive a short time ago.
2. Biomass is a _____ energy source, because we can always grow more plants.
3. We _____ most biomass to make heat.
4. We burn garbage in a _____ plant to make _____.
5. When biomass rots, it forms a _____ called _____ that we can use for energy.
6. Biomass can be turned into a liquid fuel like gasoline called _____.
7. Most of the biomass we use is _____.
8. Plants _____ energy from the sun in their roots and leaves.

renewable
electricity

ethanol
material

methane
burn gas

wood store
waste-to-energy

Forest Facts

Search through the Forest visitor centers, information handouts, and ask your local ranger to find the answers to the following fascinating forest facts questions:



1. The 192 million acres of Nation's forests and grasslands provide clean water, scenic beauty, biodiversity, outdoor recreation, natural resource-based jobs, forest products, renewable energy, carbon sequestration and trips to the moon. (Circle the one that is not true)
2. Name the two National Forests in New England. _____
3. Name three of the 48 4,000 foot mountains in the White Mountains:

4. In what two states is the White Mountain National Forest (WMNF) located ?

5. Name the scenic byway highway that follows a Native American footpath named for the last chief of the Penacook Confederacy, a union of 17 tribes in New England.

6. What is the elevation at the highest point on the Kancamagus Highway? _____
7. Name the two National Historic Sites on the White Mountain National Forest, both are located on the Saco Ranger District.

8. Mount Washington, the highest point in the northeastern United States, is _____ feet in elevation.
9. U.S. Forest Service Snow Rangers of the Mount Washington Avalanche Center are the only Forest Service avalanche forecasters and educators _____ of the Rocky Mountains.
10. The Great Gulf Wilderness was the first federal Wilderness designated on the WMNF. It is located on the _____ Ranger District.
11. The Pemigewasset District has 10, 50 or 100 miles of old railroad tracks in the Pemigewasset Wilderness? _____
12. What is the Abenaki Native American word for this river near Loon Ski Mountain that means "rapidly moving" ? _____
13. What is the name of the world class rock climbing area in the Pemigewasset District?



A World of Difference



National Forests provide are important for wood products, wildlife, and clean air and water. The Forest Service works to keep our forests healthy so that they can help keep the Earth healthy. Science teaches us that we can make many choices each day that will also help keep the earth healthy.



How can I save money AND help the Planet?

Put a check next to each action that you will do to make the Earth a more safe, sustainable, And fair home for everyone!

- Turn off the water while I'm brushing my teeth.
- Write and color on both sides of my paper
- Use a sponge or cloth napkin to clean up my messes
- Help recycle cans, bottles, paper, and electronics
- Turn off the lights and t.v. when I leave a room
- Pack lunches/snacks in reusable containers
- Give old toys/clothes to charity
- Tell my friends and teachers how I am being "Green"
- Can you think of one more?

The White Mountain National Forest employees are making choices to reduce their environmental impact, too. Draw a line from the choice on the left, to its impact on the right. Some choices may have more than one impact.

▲ Recycle batteries

▲ Reduces the amount of trash going into landfills

▲ Buy in Bulk quantities

▲ Keeps heavy metals like mercury and cadmium out of our watersheds

▲ Choose recycled paper with post consumer content

▲ Keeps toxic fumes out of our homes/offices

▲ Purchase non-toxic cleaning supplies and paints

▲ Reduces the amount of energy needed to create products from new materials

Oh the Places You'll Go!

Preparing and planning for a trip includes researching where to go and possible routes, bringing the necessary equipment and knowing how to use it, checking the weather and avalanche forecast, and telling someone where you're going and when you're expected back.

Fill out a trip plan for your next trip in the outdoors and share it with your family:

Start (day of week, date, time) _____

Intended Return (day of week, date, time) _____

Purpose of trip (Day Hike, Overnight hike, skiing, etc.) _____

Destination: _____

Route Plan A—Intended route in (be specific) _____ _____ Intended Route out (be specific) _____ _____	Route Plan B—Alternative route in _____ _____ Intended Route out (specific) _____ _____
--	--

Weather forecasted _____

Equipment/supplies taken (including cell phone number) _____ _____ _____	Number in group and who _____ _____ _____ _____
---	---

Vehicle, license #, make/model _____

Trip plan given to _____

Note: Cell phones and radios can be useful in some areas but never rely on them as they often don't work in the mountains. Always be prepared to take care of yourself!.

Answer Page

Pg 9 A Forest Provides These!

Clean Air
Scenery
Jobs
Food
Wildlife Habitat
Recreation
Forest Products
Clean Water
Lumber
Paper
Firewood

Pg 18 A Mountain Travel Puzzler PLAN AHEAD AND PREPARE

Pg 19 Biomass

1. material
2. Renewable
3. Burn
4. Waste-to-energy
5. Gas, methane
6. Ethanol
7. Wood
8. store

Pg 14 HikeSafe

Compass, extra food and water, first aid kit, flashlight, map, matches, pocket kniferain/wind gear, warm clothing, whistle

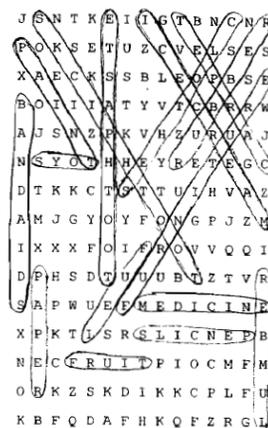
Pg 20 Forest Facts

1. trips to the moon
2. Green Mountain and White Mountain National Forest
3. Mt Adams, Mt Washington, Mt Lafayette
4. New Hampshire and Maine
5. Kancamagus
6. 2,875 feet
7. Russell Colbath House, Brickett Place
8. 6,288 feet
9. East
10. Androscoggin
11. 50
12. Pemigewasset
13. Rumney Rocks

Pg 16 Nature Riddles

1. Palm
2. Tick
3. Beech
4. Bee
5. Fir
6. Ant
7. Cardinal
8. Walking Stick
9. Ash
10. Pear
11. King Fisher
12. Jay

Pg 15 Wood You Believe?



Pg 17 Tree Trunk Trivia

E—Bark
C—Cambium
A—Heartwood
D—Phloem
B—Xylem

The United States Department of Agriculture Forest Service is an equal opportunity provider and employer.





Junior Ranger Certificate



Name: _____ Age: _____

City and State: _____

I certify that the above person has completed all the requirements to be a White Mountain National Forest Junior Ranger.

Forest Ranger Name

Date

Junior Ranger Book Evaluation Form

Please take a few moments to fill out this form and give it to a Ranger or US Forest Service Volunteer. Or mail it in to: Clare Long, 719 Main Street, Laconia, NH 03246, email :cclong@fs.fed.us

My favorite page was: _____
because _____.

In the new Booklet I would like to see more pages with: (circle all that apply)
Coloring Word Search Riddles Dot-to-Dot Puzzle Boxes
Other _____

The thing that I liked most about this booklet is: _____

The thing that I liked least about this booklet is: _____

Write down your ideas for other topics and activities we should add in next year's booklet.

Come back next year and look for the new Junior Ranger version!