



# Statewide Curriculum



*Purdue Extension*

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**DNR**

Indiana Department of Natural Resources

# IMN

## Advisory Council

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This manual and the statewide curriculum has been reviewed and approved by the Indiana Master Naturalist Advisory Council:

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### Statewide Curriculum

The mission of the Junior Indiana Master Naturalist program is to bring together natural resource specialists with young people, age 9-12 years, to foster an understanding of Indiana's plants, water, soils and wildlife, and promote volunteer service in local communities.

*Let children walk with Nature, let them see the beautiful blendings and communions of death and life, their joyous inseparable unity, as taught in woods and meadows, plains and mountains and streams of our blessed star, and they will learn that death is stingless indeed, and as beautiful as life.*

*- John Muir*

# Junior IMN Program Overview

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## The Purpose

The Junior Indiana Master Naturalist (Jr. IMN) Program can provide our state's future environmental stewards with many hands-on opportunities to learn about our Hoosier natural resources. It also provides a way for them to share that knowledge through volunteer service to land trusts, soil and water conservation districts, state and local parks, or other natural resource and conservation agencies. The purpose of Jr. IMN includes:

- Provide an introduction to Hoosier natural resources through the eyes of resource professionals and experts in the field.
- Provide an educational opportunity to individuals 9 through 12 years of age.
- Provide an opportunity for course participants to establish a short or long-term partnership with a natural resources agency or local organization involved in natural resource management by volunteering **6 hours** as a part of the course.
- Provide a financially self-supporting program.

## The Mission

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## The Audience

The Jr. IMN host for your course can provide more detailed information, but in general, course participants are young people with a genuine love for the out-of-doors, but limited formal science/natural resources training. They take this course to expand their knowledge of plants, wildlife, soils and other natural resources in Indiana. Class sizes vary, but usually will not exceed 20 students with a ratio of 1 adult per 10 children.

It is very important for you to seek instructors who have experience working with youth and who will provide relevant examples and explanations of processes as well as hands-on activities that teach the objectives provided.

## Acknowledgement

The IMN Advisory Council would like to recognize, acknowledge, and offer sincere thanks to **Corrine Paul** and **Frank Rouse** for their dedication and valuable work in creating the original framework of the Junior Indiana Master Naturalist Program. It is through their efforts that Jr. IMN has become a reality.



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***Nature is man's teacher. She unfolds her treasures to his search, unseals his eye, illumines his mind, and purifies his heart; an influence breathes from all the sights and sounds of her existence.***

***- Alfred Billings Street***

# Required Topics

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The minimum number of 16 hours for an approved Junior Indiana Master Naturalist course are distributed among the following topic areas for the 8 required sessions:

**Botany** (2 two-hour sessions)

**Geology and Soils** (1 two-hour session)

**Miscellaneous Related Topic** (1 two-hour session)

**People and Natural Resources** (1 two-hour session)

**Water** (1 two-hour session)

**Zoology** (2 two-hour sessions)

## Advanced Junior IMN

Youth that have enjoyed and completed a Junior IMN course can choose to take as many Junior IMN courses as they want. They will need to show their past certificate to host to prove they have complete a previous Junior IMN course or host will need to contact the IMN state coordinator to verify name. Upon completion of each additional course they will achieve Advanced Junior IMN status. They will receive an Advanced Junior patch and certificate. When requesting patches from IMN state coordinator please be clear as to how many Junior IMN patches and Advanced IMN patches are needed. Please let your students know of this option.



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*Climb up on some hill at sunrise. Everybody needs perspective once in a while, and you'll find it there.*

*- Robb Sagendorph*

# Botany

## Area Objectives

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1. Understand the difference and meanings of endangered, threatened, rare, and extirpated.  
**Life Science [Standard Indicators: 8.4.1, 8.4.3]**
2. Discuss taxonomic principles, including the importance of Latin naming convention.  
**Life Science [Standard Indicators: 5.4.8, 7.4.1, 8.4.9]**
3. Explain what an invasive plant is and give some examples and Identify at least ten native plants and ten native trees of Indiana.  
**Life Science [Standard Indicators: 6.4.8, 6.4.9]**
4. Summarize the functions of fungi.  
**Life Science [Standard Indicators: 6.4.8, 6.4.9]**



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*Look at the trees, look at the birds, look at the clouds, look at the stars... and if you have eyes you will be able to see that the whole existence is joyful. Everything is simply happy. Trees are happy for no reason; they are not going to become prime ministers or presidents and they are not going to become rich and they will never have any bank balance. Look at the flowers - for no reason. It is simply unbelievable how happy flowers are.*

- Osho

# Geology and Soils Area Objectives

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1. Learn about the geologic history of Indiana and the important features of Indiana.  
**Life Science [Standard Indicators: 4.3.2, 4.3.5, 4.3.6, 4.3.7, 4.6.4, 5.3.5, 6.3.5, 6.3.9, 6.3.11, 7.3.7, 7.3.10]**
2. Discuss the hydrologic cycle and describe all possible sources of water.  
**Life Science [Standard Indicators: 5.3.4, 5.3.5, 6.3.9, 6.3.11, 7.3.5, 8.3.2, 8.3.3, 8.3.4]**
3. Explain the physical and chemical properties of soil and ways to prevent soil erosion.  
**Life Science [Standard Indicators: 4.3.7, 4.3.14, 6.3.7, 6.3.15, 6.4.8]**



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***Nature will bear the closest inspection. She invites us to lay our eye level with her smallest leaf, and take an insect view of its plain.***

***- Henry David Thoreau***

# Miscellaneous Related Topic Areas

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This is your elective class. Below is a list of potential topics for your consideration. You are not limited to this list:

- Wilderness Survival
- Meteorology
- Astronomy
- Environmental education/interpretation
- First aid
- Orienteering
- Folklore
- Volunteerism
- Photography
- Outdoor skills and hobbies
- Wildlife rehabilitation
- Local or regional topics of interest



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***There is not a sprig of  
grass that shoots  
uninteresting to me.***

***- Thomas Jefferson***

# People and Natural Resources Area Objectives

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1. Explain the differences and meanings of restoration, preservation, conservation and management of natural resources, including management tools (identifying indicator species, prescribed burns, timber stand improvements).

**Life Science [Standard Indicators: 4.4.2, 4.4.3, 4.4.4, 4.4.9]**

**The Nature of Science [Standard Indicators: 5.1.1, 5.2.8, 5.5.1, 5.5.7, 5.5.9, 5.5.10]**

2. Become familiar with natural resource jobs at the local, state and federal levels and their area of responsibility.

**The Nature of Technology [Standard Indicators: 4.1.3, 4.1.5, 4.1.6, 4.1.7]**

3. Discuss how people have benefited from and impacted natural resources in historical and modern times.

**Life Science [Standard Indicators: 5.1.3, 5.1.4, 5.1.5, 5.1.6, 5.1.7]**

**The Nature of Technology [Standard Indicators: 7.1.7, 7.1.8, 7.1.9, 7.1.10]**

4. Become familiar with Indiana's early naturalists and their accomplishments.

**Life Science [Standard Indicators: 7.1.5]**



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***Look deep into nature,  
and then you will  
understand everything  
better.***

***- Albert Einstein***



# Water

## Area Objectives

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1. Describe the hydrologic cycle and understand what makes up a watershed.  
**Earth and Space Science [Standard Indicators: 5.3.4, 5.3.5, 6.3.9, 6.3.11, 7.3.5]**
2. Contrast Indiana's aquatic systems (rivers, lakes, ponds, streams) and learn how land-use affects of water quality.  
**Earth and Space Science [Standard Indicators: 4.3.7, 4.3.14, 6.3.7, 6.3.15, 6.4.8]**
3. Summarize the threats to and management of Indiana's aquatic systems.  
**The Nature of Science [Standard Indicators: 4.1.1, 4.2.1, 5.1.1, 5.2.8, 5.5.1, 6.1.2, 6.2.1, 6.2.7, 6.5.2, 7.1.1, 7.2.7, 7.2.8, 8.1.1, 8.2.7, 8.5.6]**
4. Learn what a wetland is, the values and functions of wetlands, and compare the types of wetlands, both natural and constructed, found in Indiana.  
**Life Science [Standard Indicators: 3.4.4, 4.4.2, 4.4.3, 4.4.4, 4.4.9]**



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*I go to nature to be  
soothed and healed,  
and to have my senses  
put in order.*

*- John Burroughs*

# Zoology

## Area Objectives

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1. Describe the different characteristics of vertebrate and invertebrate animal groups.  
**Life Science [Standard Indicators: 5.4.1, 5.4.4, 5.4.5, 5.4.7, 5.4.8]**
2. Learn about the ecological niche and energy flow of animals (food chain, food web, and food pyramid).  
**Life Science [Standard Indicators: 4.4.2, 4.4.3, 4.4.4, 4.4.9, 6.4.1, 6.4.10, 7.4.5, 7.4.6]**
3. Understand habitats and habitat components (food, water, shelter, and space) and how changes in these components affect the ecosystem.  
**Life Science [Standard Indicators: 4.4.2, 4.4.3, 4.4.4, 4.4.9, 5.4.1, 5.4.4, 5.4.5, 5.4.7, 5.4.8, 6.4.8, 6.4.9, 8.4.1, 8.4.3]**  
**Earth and Space Science [Standard Indicators: 4.3.7, 4.3.14, 6.3.7, 6.3.15, 6.4.8]**
4. State animal behavior characteristics and their adaptations to environments and environmental changes (hibernation, migration, coexistence) and understand how animals hide from enemies and predators (camouflage).  
**Life Science [Standard Indicators: 5.4.1, 5.4.4, 5.4.5, 5.4.7, 5.4.8]**



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***Nature chose for a tool, not the earthquake or lightning to rend and split asunder, not the stormy torrent or eroding rain, but the tender snow-flowers noiselessly falling through unnumbered centuries.***

**- John Muir**

# The Junior IMN Course: Step-by-Step

## Before the Workshop Begins...

1. Review this manual to ensure that your natural resources agency is ready to sponsor a workshop.
2. Talk with local residents and other natural resources agencies to find out if a workshop is already in the planning stages in your area. Gauge how much interest there might be in a workshop if none has been sponsored. Check with the state coordinator (317) 232-4143 or [gmurphy@dnr.in.gov](mailto:gmurphy@dnr.in.gov) or check the website for other upcoming classes at [www.indianamasternaturalist.org](http://www.indianamasternaturalist.org).
3. Select a time frame. Most JrIMN classes are held during the summer like a week long day camp from 9am– 3pm. Each day can include 2 topics plus time for volunteer work. On the last day of camp, a graduation day can be held to pass out certificates and patches. However one evening class per week may be effective as well.
4. Select a convenient location for the workshop. Be sure to find out any meeting room usage fees so you can reflect those in your workshop cost.
5. Schedule speakers for the sessions, including any fees they may charge. These will impact your final course cost. Speaker topics should be within the framework established by the IMN Advisory Council and should include sessions as follows: 2 botany, 2 zoology, 1 geology/soils, 1 water, 1 people and natural resources and 1 miscellaneous related topic that you choose to fit your agency/location.
6. Establish a budget for the workshop. Be sure to include any building rental costs, speaker fees, funds for resource materials to be purchased, refreshments if appropriate, and the \$5/person administrative fee that is submitted after the workshop to the IMN state coordinator. See page 13 for more information about administrative fee.
7. Based on the total costs and the number of individuals you can manage in the class (generally no more than 20 for effective teaching), establish a course fee. This may vary with speaker/material costs, but usually ranges from \$50-80. It is recommended that you maintain a ratio of 1 adult per 10 children.
8. Submit a workshop application form and youth safety guidelines to state coordinator for IMN council approval. This should include your course cost, dates, topics for each session and speakers (if possible).
9. Publicize your workshop. The IMN state coordinator will ensure that your workshop is posted on the IMN website and can send an e-mail notification to all those who have contacted her about workshops in their area. Examples of Jr IMN brochures/registration forms can be obtain from the state coordinator.



## Host Manual

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***Climb the mountains  
and get their good  
tidings. Nature's  
peace will flow into  
you as sunshine flows  
into trees. The winds  
will blow their own  
freshness into you,  
and the storms their  
energy, while cares will  
drop off like autumn  
leaves.***

**- John Muir**

# The Junior IMN Course: Step-by-Step

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10. Ensure that staff are informed about the program and are available to handle workshop registrations. General information about the program is available on the website.

11. When the class is full, establish a waiting list for future workshops and contact the IMN state coordinator, who will post a notice on the website that the class is full.

12. Provide speakers with a copy of the “IMN Program Guidelines for Speakers,” available on the website. Ensure that each speaker knows the meeting date, time, location, expected topic and can interact well with the youth. Ensure that each speaker will provide appropriate handouts or will give you a single copy so you can provide handouts. Be sure to ask speakers about their audiovisual equipment and space needs for their sessions. Obtain and complete parent permission forms and any agency required criminal background checks on adult chaperones.

13. Put together participant notebooks with handouts and good resource materials. Purchase field guides or other resource books as budgeted. The Jr. IMN logo is on the website for your use as needed.

14. Plan for room setup to provide convenience for speakers and comfort/friendly atmosphere for participants. Parking, easy access to restrooms, comfortable chairs and tables to write on, ease of visibility of visuals such as slides, flip charts, PowerPoint® presentations, etc. are some things to consider. Don't forget to use nametags or name “tents” on tables at each session—remember, each speaker is new even if the students aren't!

15. Plan an icebreaker/get acquainted activity for the first session to help participants learn about each other and prepare for working together.

16. Plan for refreshments and breaks during each session.

17. Ensure that someone from your agency will be on hand throughout each session to serve as the host, timekeeper and speaker assistant. This individual should also keep track of attendance, since participants must complete at least 80% of the classes. After each session, ask participants to complete a speaker evaluation form. You will keep these on file and provide copies to each speaker if they request them. This will help you evaluate speakers for future workshops.

18. Make sure to have parent/guardian sign photo release or you will not be able to use photo of the child in future advertisements for workshops. (If there is not a photo release the pictures can not be legally used for advertisement or publishing.)



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***In wilderness I sense  
the miracle of life, and  
behind it our scientific  
accomplishments fade  
to trivia.***

***- Charles A. Lindbergh,  
Life, 22 December 1967***

# The Junior IMN Course: Step-by-Step

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## During the Workshop...

1. At the first session, provide a quick overview of the program. Remind participants about what is required to receive a Jr. IMN patch and certificate.
2. Administer a Pre and Post course survey to demonstrate effectiveness of the learning experience. The master survey document is available on the [www.indianamasternaturalist.org](http://www.indianamasternaturalist.org) website under the forms section.

## After the Workshop Ends...

1. After the workshop, complete the workshop report form and return it to the IMN state coordinator with the total administrative fee (\$5/ participant). You will receive a receipt letter. If your agency requires an invoice for submission of payment, please let the IMN state coordinator know that.
2. Enter names and addresses of all course participants in a locally maintained database so they might be contacted in the event we develop advanced courses or other materials in the future.
3. As course participants complete volunteer service, notify the IMN state coordinator and provide a copy of volunteer service records for the individual (to include name and address ). The IMN state coordinator will then send a Jr. IMN patch and certificate to you for signature. You will then issue the materials to the new Junior Indiana Master Naturalist!
4. Provide local media with the opportunity to photograph presentations of pins & certificates—this will be good publicity for future workshops that you might host! **(Photo release needed for this!)**
5. Send thank you notes to each of your speakers.



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***In June as many as a dozen species may burst their buds on a single day. No man can heed all of these anniversaries; no man can ignore all of them.***

**- Aldo Leopold**

# The Junior IMN Course: Step-by-Step

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## Tips, Tricks and Good Suggestions/Ideas...

1. Graduation dates/parties etc can be listed as an optional event.
2. Practice "Leave No Trace" Hiking rules.
3. Nature Journal-what is a nature journal, how to make a nature journal, creating contents, nature do's and don'ts, how to watch wildlife, how to start drawing, how to enjoy nature.
4. Backpacks-nature journal, insect net, binoculars, magnifying glass, field guides, handbooks, bug spray, throw away camera (cardboard box camera), sun block, gloves, hat, rain gear, trash bag, extra socks.
5. Sit upons -These are great when you need to sit on the ground.
6. How to catch wildlife to study-plastic jars with lids to catch and release insects.
7. Provide throw away cameras (card board box cameras) and go for a hike. Write the date and student name on each camera. Let them take photos of wildlife, plants, trees, other students, group photos, etc. Develop film and make a memory books as a graduation book for each student and one for yourself and your helpers.
8. Name Tags - Buy clear plastic reusable name tag covers and allow each student create their own name tag. Have stickers on hand to decorate each one. Sit a name tag box by the Sign In sheet and make sure each student return their name tag at the end of each class. Let them take them home on the last day of class.
9. Have a 3 ring hole punch on hand during each workshop so that handouts can be added to the 3 ring binders during or after each class.
10. Take at least 3-5 pictures during each class and make a Jr IMN photo album for your agency's files. Don't forget the group photo. The albums make great promotional tools. Make sure to have photo releases signed by parents.

**Send other ideas that can be shared to the IMN State Coordinator with completed paper work at the end of the workshop.**



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***Nature always tends to act in the simplest way.***

**- Bernoulli**

# Forms Page

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The latest version of all forms can be downloaded from the “Sponsor a Class” link on the IMN Website at [www.indianamasternaturalist.org](http://www.indianamasternaturalist.org).

These forms include:

- Workshop Application—to be completed for approval by the IMN Advisory Council if your agency wishes to host a Junior IMN workshop.
- Workshop Roster—to be completed at the end of the class with names, addresses and other contact information for all participants and sent to the IMN Coordinator
- Student Pre and Post Survey—a short and simple survey to be completed by each student both before and after the course. Some standard questions are required; you may add additional questions specific to your course or region of the state. (Currently under development.)
- Student Workshop Evaluation—to be completed by each student at the end of the workshop. Copies should be provided to the IMN Coordinator.
- Instructor Evaluation—to be completed by each student after each session. Copies can be kept in your local files for future reference.
- Workshop Review Form—to be completed by the class host and submitted to the IMN Coordinator. This is your review of the overall class and planning process.
- Volunteer Hours Record—have your students use this form to document their volunteer hours and submit it for certification when hours are complete.
- Instructor Guidelines—provide each speaker with a copy of these guidelines to help them tailor their presentation for your group.

If you have questions or need additional information, please contact:

**Indiana Master Naturalist Program**  
**Division of State Parks and Reservoirs**  
**402 W. Washington Room W296**  
**Indianapolis, IN 46204**

**Phone: 317-232-4143**  
**Email: [gmurphy@dnr.IN.gov](mailto:gmurphy@dnr.IN.gov)**  
**Website: [indianamasternaturalist.org](http://indianamasternaturalist.org)**



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