JUNIOR WILDLIFE SCIENTIST

TEACHER'S GUIDE

AN ALABAMA OUTDOOR CLASSROOM PROGRAM

KINDERGARTEN

This Teacher's Guide Belongs To:

Junior Wildlife Scientist Teacher's Guide

The Junior Wildlife Scientist (JWS) Teacher's Guide provides the framework for the JWS program and suggestions on how to make the most of the JWS nature journals and badges for your students.

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JWS Nature Journal Activities' Lesson Plans Format

Each lesson plan includes:

- ☑ **Activity Goal** – the purpose of the activity
- ☑ **Activity Tips** – what time of year is best for conducting the activity, which learning station(s) in the outdoor classroom you should use to conduct the activity, and what materials you need for the students to complete the activity
- ☑ **Learning Objectives** – specific tasks and concepts students should understand after completing the activity
- ☑ **AL CoS Standards & Correlations** – specific Alabama Department of Education Course of Study Standards for math, science, social studies, and English language arts that the activity helps to teach
- ☑ **Background Information** – important educational information about the topic(s) covered in the activity and how it all relates to biology and being a biologist
- ☑ **Optional Educational Resources** – additional resources that can be used in conjunction with the activity including trade books, topical videos, educational sing-a-longs, and topic-specific webpages on the Alabama Wildlife Federation website called Student Exploration Links (See page 5 for more details)
- ☑ **Procedural Instructions** – step-by-step instructions for conducting the activity
- ☑ **Activity Page Answers** – answers for the questions asked on each activity page
- ☑ **Expansion Options** – additional activities and AWF Student Exploration Links relevant to the topic of the activity that can be used to expand the lesson into a full unit of activities

Alabama Department of Education Course of Study Standards

The Junior Wildlife Scientist Nature Journal activities help teach ALSDE standards for English Language Arts, Science, Social Studies and Math.

What Does a Biologist Do?

Science (2015): 3. Distinguish between living and nonliving things and verify what living things need to survive (e.g., animals needing food, water, and air; plants needing nutrients, water, sunlight, and air).

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 25, 26

Junior Wildlife Scientist Pledge *(REQUIRED)* Language Arts (2021): See ELA Chart (pg. 6): R1, R2, 34, 36

Explore Nature with Your Five Senses

Language Arts (2021): See ELA Chart (pg. 7) - R1, R2, R3, 25, 33

A Walk with Words in Nature

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 19, 25, 26, 34, 36

Mathematics (2019): 4. Connect counting to cardinality using a variety of concrete objects.
5. Count to answer "how many?" questions.

Alabama Ecology: Alabama's Native Wildlife *(REQUIRED for Alabama Wildlife Badge)*

Language Arts (2021): See ELA Chart (pg. 7) - R1, R2, R3, 19, 20, 25, 26, 29

Field Investigation: Living or Nonliving? *(Suggested for Alabama Wildlife Badge)*

Science (2015): 3. Distinguish between living and nonliving things and verify what living things need to survive (e.g., animals needing food, water, and air; plants needing nutrients, water, sunlight, and air).

Language Arts (2021): See ELA Chart (pg. 7) - R1, R2, R3, 19, 22, 25, 26

Wonders of Wildlife: Little Brown Bat *(Suggested for Alabama Wildlife Badge)*

Language Arts (2021): See ELA Chart (pg. 7) - R1, R2, R3, 19, 22, 25, 26, 29, 34, 36

STEAM Activity: Design a Butterfly or Moth Using Shapes

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 19, 20, 25, 26, 33

Mathematics (2019): 16. Identify and describe measurable attributes (length, weight, height) of a single object using vocabulary such as long/short, heavy/light, or tall/short.

17. Directly compare two objects with a measurable attribute in common to see which object has "more of" or "less of" the attribute and describe the difference.

22. Model shapes in the world by building them from sticks, clay balls, or other components and by drawing them.
23. Use simple shapes to compose larger shapes.

Dig Into Plants: Native Plants *(REQUIRED for Native Plants Badge)*

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 19, 20, 25, 26, 29

Match the Parts of a Plant *(Suggested for Native Plants Badge)*

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 19, 22, 25, 26

Field Investigation: Birds, Trees & Basic Needs *(Suggested for Native Plants Badge)*

Science (2015): 3. Distinguish between living and nonliving things and verify what living things need to survive (e.g., animals needing food, water, and air; plants needing nutrients, water, sunlight, and air).

Language Arts (2021): See ELA Chart (pg. 7): R 1, R2, R3, 19, 25, 26

Imagine that Habitat

Science (2015): 5. Construct a model of a natural habitat (e.g., terrarium, ant farm, diorama) conducive to meeting the needs of plants and animals native to Alabama.

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 22, 25

Scavenger Hunt: Shapes in Nature

Language Arts (2021): See ELA Chart (pg. 7) - R1, R2, R3, 20, 25, 26, 33

Mathematics (2019): 19. Correctly name shapes regardless of their orientations or overall sizes.

Which Season Is It?

Science (2015): 9. Observe, record, and share findings of local weather patterns over a period of time (e.g., increase in daily temperature from morning to afternoon, typical rain and storm patterns from season to season).

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 25, 26, 33

Explore Outdoors: Visit a Local Park

Language Arts (2021): See ELA Chart (pg. 7): R1, R2, R3, 25, 26, 29

Social Studies: 8. Recognize maps, globes, and satellite images.

ALSDE Course of Study Standards Chart for English Language Arts

Kindergarten ELA Course of Study Standards Correlations for Junior Wildlife Naturalist Nature Journal Activities	What Does a Biologist Do?	Junior Wildlife Naturalist Pledge	Explore Nature with Your Five Senses	A Walk with Words in Nature	Alabama Ecology: AL Native Wildlife	Field Investigation: Living or Nonliving?	Wonders of Wildlife: Little Brown Bat	STEAM Activity: Design a Butterfly/ Moth	Dig Into Plants: Native Plants	Match the Parts of a Plant	Field Investigation: Birds, Trees, and Basic Needs	Imagine That Habitat	Scavenger Hunt: Shapes in Nature	Which Season Is It?	Explore Outdoors: Visit a Local Park
R1. Utilize active listening skills during discussion and conversation in pairs, small groups, or whole-class settings, following agreed-upon rules for participation.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R2. Use knowledge of phoneme-grapheme correspondences and word analysis skills to decode and encode words accurately.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R3. Expand background knowledge and build vocabulary through discussion, reading, and writing.	X		X	X	X	X	X	X	X	X	X	X	X	X	X
19.) Ask and answer questions about unfamiliar words in discussions & text.				X	X	X	X	X	X	X	X				
20.) Name and sort pictures of objects into categories based on common attributes while relating vocabulary to prior knowledge and building background knowledge.					X			X	X				X		
22.) Use content knowledge built during read-alouds of informational texts by participating in content-specific discussions with peers and/or through drawing or writing.						X	X			X		X			
25.) With prompting and support, identify the topic of texts, using titles, headings, illustrations, and text clues.	X		X	X	X	X	X	X	X	X	X	X	X	X	X
26.) With prompting and support, describe the relationship between illustrations and the text in which they appear.	X			X	X	X	X	X	X	X	X		X	X	X
29.) With prompting and support, identify the main topic and key details in an informational text.					X		X		X						X
33.) Express ideas orally and connect these ideas through drawing and emergent writing.			X					X					X	X	
34.) Print legibly, using proper pencil grip.		X		X			X								
36.) When speaking and writing, follow the rules of standard English grammar, punctuation, capitalization, and grade-appropriate spelling.		X		X			X								

What Does a Biologist Do?

(JWS Nature Journal pg. 2)

Activity Goal

The purpose of this lesson is to

- Introduce students to the field of biology
- Discuss what a biologist does
- Get students excited about becoming a JWS biologist

Activity Tips

- **When:** This should be the first JWS nature journal activity that you conduct with your students in August.
- **Where:** This is an indoor discussion.

Learning Objectives

- Students will be able to recognize the term biology as the study of living things.
- Students will be able to explain what a biologist is and the types of jobs a biologist might have.

AL COS Standards & Correlations

Science (2015)

3. Distinguish between living and nonliving things and verify what living things need to survive (e.g., animals needing food, water, and air; plants needing nutrients, water, sunlight, and air).

Language Arts (2021)

See ELA Chart (pg. 7): R1, R2, R3, 25, 26

Background Information

Biology is the study of life or living things. A biologist (bi.ol.o.gist) is a scientist who studies living things including plants and animals and the environments (surroundings) in which they live. They examine what living things need to survive and how their body structures and behaviors help them survive. Biologists can study small organisms like bacteria and yeast, or they can study larger organisms like plants and animals.

Biologists are curious. They explore, investigate, discover new things, and solve problems. Some biologists explore how animals of one species (or type) interact with one another, while others investigate why a plant or animal species' population numbers change over time. Biologists may conduct experiments indoors in a lab and/or work outdoors in nature as they research how different species interact with one another within their environment.

Optional Educational Resources

- Use *The Animal Book* by Steve Jenkins (ISBN-13: 978-0547557991) to pick an interesting animal to read about to the students. Ask them if they have ever heard of this animal or if they know of an animal that has similar characteristics.
- Use the YouTube video "Biologists! Scientists Who Love Life!" by SciShow Kids (3:47 min) (www.youtube.com/watch?v=ev8J-qO1jgg) to help introduce the concept of biology.
- Use the YouTube video "Marine Biologist: David Gruber I Best Job Ever" by NatGeo Kids (2:45) (www.youtube.com/watch?v=rThDFJFaRow) to show students an example of one of the types of jobs a biologist can have.

Biologists! Scientists Who Love Life!

Marine Biologist

Procedural Instructions

Possible Questions to Start Discussion for Indoor Discussion

- What is the craziest, silliest, or coolest animal or plant you have ever heard about or seen?
- Where does this animal live?
- Do you have a favorite plant or animal?

Indoor Discussion

1. Biologists help protect endangered and threatened plants and animals in Alabama like the ones listed in the journal and below.
    - ➢ Discuss the concept of endangered animals and plants using this SciShow Kids' Endangered Animals YouTube Video @ www.youtube.com/watch?v=7k8CcAU2Lt0&t=1s&ab_channel=SciShowKids
    - Alabama Leather Flower: A flower in the Buttercup family that is endangered and only found at 4 sites in Alabama and 1 in Georgia. For more information, visit www.encyclopediaofalabama.org/article/h-3662
    - Green Pitcher Plant: An endangered carnivorous plant (eats animals) that is only found in 5 counties in Alabama as well as a few sites in Georgia and South Carolina. For more information, visit www.encyclopediaofalabama.org/article/h-3784
    - Red-cockaded Woodpecker: A small endangered woodpecker that lives in a few old pine forests in Alabama where it makes nests in living pine trees. For more information, visit www.outdooralabama.com/woodpeckers/red-cockaded-woodpecker
    - Alabama Red-bellied Turtle: Alabama's state reptile. A large, endangered turtle that is found in brackish or freshwater systems in south Alabama. For more information, visit www.encyclopediaofalabama.org/article/h-3834

Endangered Animals | Green Pitcher Plant | Alabama Leather Flower | Red-cockaded Woodpecker | Alabama Red-bellied Turtle

2. Review the "Did You Know" Box content.
    - **Botanist** (studies plants)
    - **Ecologist** (manages ecosystems)
    - **Entomologist** (researches insects)
    - **Forester** (manages trees & forests)
    - **Herpetologist** (researches reptiles & amphibians)
    - **Ornithologist** (researches birds)
    - **Veterinarian** (takes care of domesticated animals)
    - **Zoologist** (studies wildlife)

Explain to your students that through the Junior Wildlife Scientist Program, they will become a…

- ☑ Kindergarten – JWS Biologist
- ☑ 1st Grade – JWS Zoologist
- ☑ 2nd Grade – JWS Entomologist
- ☑ 3rd Grade – JWS Herpetologist
- ☑ 4th Grade – JWS Ornithologist
- ☑ 5th Grade – JWS Ecologist

Possible Closing Discussion Questions

- Which animal or plant on the journal page was the most interesting?
- Do you know anyone that has a job in the biology-related fields mentioned above?
- In which type of biology-related career would you be most interested?

Expansion Options

The activities in this journal serve as expansions on this topic. Each one will cover a different topic related to biology and what a biologist does. The background information in the Teacher's Guide for each activity will include tips for helping your students connect the dots between what they are learning and how it relates to biology.

Field Investigation: Living or Nonliving?

(JWS Nature Journal pgs. 7-8)

Activity Goal

The purpose of this lesson is

- To use discussion to highlight the differences between living things and nonliving objects
- To introduce the basic needs of living things

Activity Tips

- **When:** This activity can be conducted year-round.
- **Where:** Use any area in your outdoor classroom or indoors.
- **What:** Bring pencils or crayons for students to draw and write their observations.

Learning Objectives

- Students will be able to distinguish between living and non-living things.
- Students will be able to define the needs of living things – food, water, and air.
- Students will be able to recognize that all living things have similar needs.

AL COS Standards & Correlations

Science (2015)

3. Distinguish between living and nonliving things and verify what living things need to survive (e.g., animals needing food, water, and air; plants needing nutrients, water, sunlight, and air).

Language Arts (2021)

See ELA Chart (pg. 7): R1, R2, R3, 19, 22, 25, 26

Background Information

Biologists study living things, so it is important for them to be able to distinguish between what is living and non-living as well as understand what it is that living things need to survive.

A living thing is classified as alive because it needs energy to move, grow, and change over time. Examples are plants (like grass, flowers, and trees) and animals (like birds, insects, and humans). Both plants and animals need food, water, and air in order to survive. They must eat, drink, and breathe to survive.

Plants can make their own food using sunlight, water, and air, and they can get nutrients (food) from the soil through their roots. Animals obtain their food from plants and other animals. Most animals eat, drink, and breathe using their mouths, while plants "drink" water and food through their roots, and they breathe through tiny holes on the underside of their leaves.

If something that was living dies, it is referred to as "dead" or as "nonliving". Examples include a dead tree limb or a dead insect on the ground. A nonliving thing does not move, grow, or change over time by itself. It does not require food, water, or air because it is not alive. If it does change, the change takes place due to outside forces such as rain causing a chair to rust or a student sharpening their pencil. Examples of nonliving things include natural resources like water, rocks, or air and manmade products such as furniture, peanut butter, or clothing.

Optional Educational Resources

- *What's Alive?* (Let's Read & Find Out Science Series: Level 1) by Kathleen Weidner Zoehfeld (ISBN: 978-0064451321)
- "Who's Alive?" by Sesame Street (3:15 min.) @ www.youtube.com/watch?v=giWqEPNLtBo

"Who's Alive?"

Procedural Instructions

Possible Questions to Start Discussion (can be done indoors or outside)

- Are you alive? Is a bird alive? How do you know?
- Is a plant alive? What makes you think this?
- Is a rock alive? How do you know?
- How are humans and birds similar to each other? How are humans similar to plants?
- What types of things do you need to survive?

Outdoor Discovery

1. Take your students to the outdoor classroom. Have them look for living things.

2. As a class or individually, have the students select a living thing. They should draw that thing and answer the questions about it on page 7.

3. Have them look for non-living things. As a class or individually, have the students select a non-living thing. They should draw that thing and answer the questions about it on page 8.

Indoor Discovery

4. Return to your classroom to discuss the living and non-living things your students found. Prompt them to think about the traits and needs that all living things share and answer the questions at the bottom of page 8.

Activity Page Answers

Drawings will vary based on what is seen and selected. Answers to all questions on page 7 are "yes" and answers to all unnumbered questions on page 8 are "no". The answers to both questions at the bottom of page 8 are "yes".

Expansion Options

- Teach your students the "Living or Non-living" song and have them sing it together as a class. www.alabamawildlife.org/uploadedFiles/File/OC_Field_Journal-Living_or_NonLiving_Song.pdf
- Use the AWF's Wonders of Wildlife webpages to review the various life cycle stages of different types of animals to demonstrate how animals grow and change. www.alabamawildlife.org/oc-wonders-of-wildlife/
- Conduct a Living or Non-living Scavenger Hunt in your outdoor classroom. www.alabamawildlife.org/uploadedFiles/File/OC_Field_Journal-Living_or_Nonliving_Scavenger_Hunt_K.pdf

Living or Nonliving Song

Wonders of Wildlife

Scavenger Hunt