Down the Duck Lesson Plan Grade 4

Science (Grade 4)

Strong Alignment

4.LS2.2

Using information about the roles of organisms in an ecosystem, evaluate how those roles are interconnected in a food web and communicate how organisms meet their needs. [instructure.com], [tn.gov]

Evidence from lesson:

- Biodiversity Investigation
- Classification of fish, birds, plants, mammals, amphibians, reptiles, and invertebrates
- Discussions about ecosystem roles and habitat requirements
- Group presentations on species and ecosystem importance [4th Grade...lesson plan | PDF]

4.LS2.4

Analyze and interpret data about environmental changes and explain how organisms respond. [instructure.com], [tn.gov]

Evidence from lesson:

- Human impacts on water quality
- Pollution and conservation activities
- Discussions of protecting habitats and river ecosystems
- Conservation sorting activity [4th Grade...esson plan | PDF]

Science and Engineering Practice: INFO

Obtaining, evaluating, and communicating information from scientific texts. [tn.gov], [tn.gov]

Evidence from lesson:

- Guided reading of informational texts
- Research activities
- Group presentations
- Stewardship poster project [4th Grade...esson plan | PDF]

Social Studies (Grade 4 Tennessee History)

Strong Alignment

Tennessee History and Geography

Students examine Tennessee's physical geography, waterways, natural resources, and how geography influences settlement and development. [tn.gov], [tn.gov]

Evidence from lesson:

- Locating the Duck River watershed
- Tennessee map activities
- River as a natural resource
- Water supply discussions
- Geographic importance of the Duck River [4th Grade...esson plan | PDF]

Tennessee Native American History

Students learn about Indigenous peoples and their relationship to Tennessee's natural environment. [tn.gov], [tn.gov]

Evidence from lesson:

- Native American history
- Duck River Temple Mounds
- Old Stone Fort
- Timeline project highlighting early inhabitants [4th Grade...esson plan | PDF]

Settlement and Economic Development

Students examine why communities developed in particular locations and how natural resources affected settlement patterns. [tn.gov], [tn.gov]

Evidence from lesson:

- Early settlements along rivers
- Mills and commerce
- Discussion: "Why did people choose to live near rivers?

4th Grade Tennessee Lesson Plan: *Discovering the Duck River*

Grade Level: 4th Grade
Subject Areas: Science, Social Studies, Reading, Environmental Education
Time: 3-5 class periods (45-60 minutes each)
Resource: *Discovering the Duck River* booklet (uploaded PDF) [1]

Tennessee Academic Standards Alignment

Science

- Understand how plants and animals interact with their environments.
- Examine biodiversity and ecosystems.
- Explain how human activities impact natural resources and habitats.

Social Studies

- Explore Tennessee geography and natural resources.
- Examine the role rivers have played in Tennessee history and settlement.

ELA

- Read informational texts to identify main ideas and supporting details.
- Participate in collaborative discussions.
- Write informative paragraphs using evidence from text.

Unit Essential Questions

1. Why is the Duck River important to Tennessee?
2. How does the Duck River support wildlife and people?
3. What can we do to protect our water resources?

Learning Objectives

Students will be able to:

- Locate the Duck River watershed on a map.
- Explain why the Duck River is unique.
- Identify at least three groups of organisms living in the Duck River ecosystem.

- Describe how the river provides water and recreation opportunities.
- Explain actions citizens can take to protect water quality.

Materials

- *Discovering the Duck River* booklet
- Tennessee map
- Colored pencils/crayons
- Chart paper
- Science journals
- Exit tickets
- Sticky notes

Lesson 1: Introduction to the Duck River

Focus Question

Why is the Duck River special?

Hook (10 minutes)

Display the question:

> "What do you think makes a river important?"

Record student responses.

Share these facts from the booklet:

- The Duck River contains more than 650 freshwater animal species. [2]

It is considered the most biologically diverse river in North America. [3]

- More than 300,000 people depend on it for drinking water. [4]

Guided Reading (15 minutes)

Read pages 2-3 together.

Discuss:

- Biodiversity
- Habitat
- Watershed
- Aquatic

Activity (15 minutes)

Students complete a "Why Is the Duck River Special?" graphic organizer.

Three Things I Learned

Exit Ticket (5 minutes)

"What is one fact that makes the Duck River unique?"

Lesson 2: Geography and History of the Duck River

Focus Question

How has the Duck River shaped Tennessee?

Warm-Up (5 minutes)

Locate the Duck River watershed on a Tennessee map. [5]

Mini-Lesson (15 minutes)

Review pages 4-7:

- Native American history
- Duck River Temple Mounds
- *Old Stone Fort*
- Early mills and settlements along the river [6]

Activity (20 minutes)

Duck River Timeline

Students create a timeline including:

- Ancient Native Americans
- Temple Mounds
- Early settlements

- Mills
- Scenic River designation

Closure (5 minutes)

Pair-share:

"Why did people choose to live near rivers?"

Lesson 3: Biodiversity Investigation

Focus Question

What lives in the Duck River ecosystem?

Introduction (10 minutes)

Display the categories from the booklet:

- Fish
- Invertebrates
- Amphibians
- Reptiles
- Mammals
- Plants
- Birds [7]

Small Group Research (25 minutes)

Assign each group one category.

Students find:

- Examples
- Adaptations
- Importance to the ecosystem

Group Presentations (15 minutes)

Each group presents findings.

Extension

Have students complete the page 11 drawing activity from the booklet. [8]

Lesson 4: Water Resources and Conservation

Focus Question

How does the Duck River help people?

Engage (5 minutes)

Ask:

"Where does the water from your faucet come from?"

Read and Discuss (15 minutes)

Pages 18-20:

- Water supply
- Water treatment
- Pollution
- Conservation practices [9]

Conservation Sort Activity (20 minutes)

Create cards:

Protects the River

- Pick up litter
- Recycle
- Conserve water
- Pick up pet waste

Hurts the River

- Dumping chemicals
- Littering
- Wasting water

Students sort and justify choices.

Exit Ticket (5 minutes)

"One way I can help protect the Duck River is _____."

Lesson 5: Culminating Project

"Duck River Steward" Poster

Students create posters including:

Required Components

✓ Map of Tennessee with Duck River

✓ Three facts about the Duck River

✓ Four plants or animals that live there

✓ One historical fact

✓ Three ways to protect the river

✓ Illustration

Writing Component

Students write one informational paragraph:

> "The Duck River is important because..."

Assessment

Formative

- Class discussions
- Exit tickets
- Graphic organizers
- Group presentations

Summative

Duck River Steward Poster Rubric

Criteria	4	3	2	1
Content Accuracy	Excellent	Good	Developing	Limited
Facts Included	All	Most	Some	Few
Organization	Excellent	Good	Fair	Poor
Creativity	Excellent	Good	Fair	Minimal
Conservation Understanding	Excellent	Good	Fair	Limited

Differentiation

Support

- Partner reading
- Vocabulary cards
- Sentence stems
- Teacher-guided groups

Enrichment

- Research endangered species found in the Duck River.
- Compare the Duck River with another Tennessee river.
- Create a public service announcement about water conservation.

Vocabulary

- Biodiversity
- Watershed
- Habitat
- Ecosystem
- Aquatic
- Conservation
- Pollution
- Recreation
- Invertebrate
- Species [10]

Culminating Essential Understanding

By the end of the unit, students should understand that the Duck River is one of Tennessee's most valuable natural resources because it supports exceptional biodiversity, provides drinking water for thousands of people, has a rich history, and depends on responsible stewardship from all citizens. [11]

Here's a **4th Grade Duck River Vocabulary Quiz** that aligns with the booklet and Tennessee standards. The quiz can be used as a pre-assessment, review activity, or graded vocabulary check. [12]

Discovering the Duck River

Vocabulary Quiz

Name: _____

Date: _____

Part A: Matching (10 points)

Match each vocabulary word to its correct definition. Write the letter on the line.

Vocabulary Word	Definition
___ **1. Biodiversity**	A. A place where an animal or plant lives
___ **2. Habitat**	B. A living thing's surroundings, including plants, animals, and nonliving things
___ **3. Watershed**	C. The variety of living things in an area
___ **4. Aquatic**	D. The protection and careful use of natural resources
___ **5. Conservation**	E. Living or growing in water
___ **6. Pollution**	F. Land area where water drains into a river or stream
___ **7. Species**	G. Harmful materials that make air, land, or water dirty
___ **8. Ecosystem**	H. A group of similar living things
___ **9. Recreation**	I. Activities done for fun outdoors
___ **10. Invertebrate**	J. An animal without a backbone

Part B: Multiple Choice (5 points)

Circle the best answer.

1. Which word describes animals and plants that live in water?
   - A. Habitat
   - B. Aquatic
   - C. Conservation
   - D. Pollution
2. Which of these is an invertebrate found in the Duck River?
   - A. Deer
   - B. Turtle
   - C. Mussel
   - D. Otter

_____

3. Biodiversity means:
    - A. Dirty water
    - B. Different kinds of living things
    - C. A water source
    - D. Outdoor recreation
4. Which action helps protect the Duck River?
    - A. Littering
    - B. Dumping chemicals
    - C. Wasting water
    - D. Recycling
5. A habitat is:
    - A. Where a plant or animal lives
    - B. A type of fish
    - C. A recreation area
    - D. A watershed

Part C: Short Answer (5 points)

1. Explain what conservation means in your own words.

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1. Name one animal that lives in or around the Duck River.

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1. Give one way you can help protect the Duck River.

Answer Key

Part A

1. C
2. A
3. F
4. E
5. D
6. G
7. H
8. B
9. I
10. J

Part B

1. B
2. C
3. B
4. D
5. A

Part C (Sample Responses)

1. Taking care of natural resources so they stay healthy.
2. Answers may include: fish, river otter, mussel, heron, turtle, bat, deer, frog, etc.
3. Recycle, pick up litter, conserve water, pick up pet waste, and similar responses. [13]

Scoring Guide

- Part A: 10 points
- Part B: 5 points
- Part C: 5 points

Total: 20 points

18-20: Advanced
15-17: Proficient
12-14: Developing
0-11: Needs Additional Support

This is a strong interdisciplinary lesson that already includes reading, science, social studies, and conservation. To deepen understanding and provide more hands-on learning, here are supplemental reinforcement activities aligned to the unit's essential questions and Tennessee standards.

Supplemental Activities for the Duck River Unit (Grade 4)

1. Build a Duck River Food Web

Standards: 4.LS2.2

Objective

Students demonstrate how organisms depend on one another within an ecosystem

Materials

- Index cards
- Yarn/string
- Pictures of Duck River organisms

Activity

1. Assign each student a plant or animal from the Duck River.
2. Students research what their organism eats and what eats it.
3. Connect organisms with yarn to create a classroom food web.
4. Remove one species (such as freshwater mussels) and discuss how the ecosystem changes.

Discussion Question

- What happens when one organism disappears?
- Which organisms seem most important to the ecosystem?

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2. Watershed in a Tray Investigation

Standards: 4.LS2.4

Objective

Students observe how pollution travels through a watershed.

Materials

- Aluminum baking tray
- Spray bottle
- Dirt
- Small rocks
- Cocoa powder or drink mix

Activity

1. Create hills and valleys in the tray.
2. Spray water to represent rain.
3. Sprinkle cocoa powder as "pollution."
4. Observe how contaminants move into the river.

Reflection

Students write: *"What surprised me most about how pollution travels?"*

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3. Duck River Species Trading Cards

Objective

Reinforce biodiversity concepts.

Activity

Students create collectible cards featuring:

- Species name
- Classification group
- Habitat
- Adaptations
- Ecosystem role
- Interesting fact

Extension

Host a "Species Showcase" where students trade cards and share facts.

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4. River Engineers Challenge

Objective

Explore how rivers shape communities.

Materials

- Craft sticks
- Cardboard
- Modeling clay
- Paper

Activity

Teams design a riverfront community that includes:

- Homes
- Bridge
- Recreation areas
- Water access
- Wildlife habitat

Students explain how they protected both people and nature.

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5. Biodiversity Scavenger Hunt

Objective

Practice identifying living things and classification.

Activity

Provide picture cards or photographs of Duck River wildlife.

Students sort organisms into:

- Fish
- Birds
- Mammals
- Reptiles
- Amphibians
- Invertebrates
- Plants

Challenge

Create a graph showing which group has the most species.

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6. Water Conservation Math Challenge

Cross-Curricular Connection (Math)

Activity

Present scenarios:

- A faucet drips 10 drops per minute.
- A student leaves water running while brushing teeth.
- A family saves water by shortening showers.

Students estimate:

- Water wasted
- Water saved
- Total monthly impact

Writing Prompt

"Why is conserving water important for communities that depend on the Duck River?"

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7. Adopt-a-Species Conservation Campaign

Objective

Connect conservation with persuasive communication.

Activity

Each student chooses a Duck River species.
Create:

- "Save Our Species" poster
- Habitat description
- Threats to survival
- Conservation solutions

Presentation

Students give a one-minute conservation speech.

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8. Living Timeline Walk

Objective

Reinforce Tennessee history connections.

Activity

Give students event cards:

- Ancient Native Americans
- Temple Mounds
- Old Stone Fort
- Early Settlements
- Mills
- Scenic River Designation

Students arrange themselves chronologically and explain their event.

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9. Water Testing Simulation

Objective

Introduce environmental science practices.

Materials

Color cards representing:

- Clear water
- Cloudy water
- Polluted water

Activity

Students analyze "sample data" and determine:

- Healthy habitat
- Unhealthy habitat
- Possible causes

Extension

Students recommend solutions.

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10. Duck River News Broadcast

ELA Extension

Activity

Small groups create a 2-minute news report including:

- River facts
- Wildlife report
- Weather conditions
- Conservation message

Students can perform live or record videos.

Fast Reinforcement Centers

Vocabulary Match Center

Match terms and definitions:

- Biodiversity
- Habitat
- Watershed
- Conservation
- Ecosystem

Map Center

Label:

- Tennessee
- Duck River
- Watershed
- Major towns along the river

Reading Center

Read a short article about freshwater mussels and answer comprehension questions.

Art Center

Create a mural showing:

- Wildlife
- Recreation
- Conservation actions

Culminating STEM Activity: Design a Healthy River

Students design an ideal Duck River ecosystem that must include:

- ✅ At least 5 species
- ✅ A food web
- ✅ Clean water source
- ✅ Human recreation area
- ✅ Conservation practices
- ✅ Labels and explanations

Students present how their design supports both wildlife and people.

This activity serves as an excellent final assessment because it integrates science, social studies, engineering, art, and communication skills from the entire unit.