

UNIT OVERVIEW

During the unit students are engaged in 7 high-interest lessons that include a teaching Power Point with vivid, real world photographs. Students identify different land and water habitats as well as ecosystems within habitats. They explain that plants and animals get what they need from their habitats and how they adapt to living in water and on land.

Students explain and compare habitat diversity. They explore why some habitats are more diverse than others and discover the interdependence of living things. Students learn why ecologists study habitats and ecosystems and how some habitats are being protected and restored.

As the unit progresses students apply science practices such asking questions, making observations, planning and carrying out investigations, and analyzing and interpreting data. Students are also asked to evaluate and communicate information.

Students practice the content learned in each lesson through 6 hands-on investigations that include making models, creating simulations, and designing and labeling diagrams of land and water habitats.

Students view videos on each lesson topic. They engage in *Talk About It* partner discussions after each lesson and *Write About It* response activities in their science journals.

Key science vocabulary is introduced in each lesson and defined in context. Students practice math and literacy skills with science center extension activities. The centers use science content to support math and reading skills as students work with science vocabulary, cause & effect, sorting and classifying, and reading and solving science related word problems.

Students are assessed after each lesson with *Quick Check* exit tickets in two differentiated formats. A final assessment that includes differentiated page options is given upon completion of the unit.

Additional materials and unit components including posters, learning target/objectives cards, and picture cards, offer lesson support and visual references for students throughout the unit.

TEACHING POWERPOINT



7 ENGAGING, CONTENT-RICH LESSONS:

- Identifying Habitats
- Exploring Land Habitats
- Adapting to Land
- Exploring Water Habitats
- Adapting to Water
- Habitat Diversity & Interdependence
- Protecting Habitats

EACH LESSON INCLUDES:

- Detailed, scripted lesson plan
- Power Point lesson
- Science journal activity
- Related investigation
- Exit tickets in 2 formats
- Vocabulary posters
- Objectives display cards
- Turn & talk partner questions
- Book & video links
- Science center activity

Lesson 2: Quick Check
Name _____
If in the blanks to complete each sentence.
tundra land rain desert
Forests and deserts are both _____ habitats.

EXPLORING ECOSYSTEMS & HABITATS
Videos
Lesson 2
Lesson 2

EXPLORING HABITATS & ECOSYSTEMS **TEACHER GUIDE**
Lesson 2 Exploring Land Habitats
OBJECTIVE/LEARNING TARGET:
I can identify land habitats.
I can evaluate the diversity of a habitat.
MATERIALS:
-Teaching Power Point
-Scientific Illustrations

Investigation 2: Habitat on a Plate Directions **TEACHER GUIDE**
Lesson 2
Name _____
Investigation 2
LAND HABITAT
On A Plate Project
Design & build a habitat
Habitat name _____
Draw in the habitat

LESSON 2 INVESTIGATE **Design a Land Habitat**
Design a land habitat on a plate
Make a diorama that shows a land animal and its habitat. Include the plants.

Land Habitats
There are many different kinds of habitats found on Earth. They each have special plants and animals that live there.

Forests
Forests grow all over the world. Tropical rainforests grow in warm areas near the equator where it rains often. Deciduous forests grow where the temperature changes each season. Forests are diverse.

Forests
Deserts, forests,

Rainforests
Rainforests are diverse of all s. Climate half of the

Rainforests
Rainforest habitats not only provide basic needs for the plants and animals that live

Deserts
Deserts plants like cacti require very little water to live. When it does rain cacti soak up water and

Deserts
Deserts are the driest areas on Earth. The hot

Grasslands
Grasslands are cold in the winter and warm in the summer. They receive more

Tundras
Tundras are very cold, flat habitats with long winters. They are found in arctic regions near the North Pole. A tundra has frozen soil called permafrost.

LESSON 2 TALK ABOUT IT **Exploring Land Habitats**
Choose a habitat and describe it to your partner.
What plants and animals

LESSON 2 JOURNAL **Write About It**
Complete Lesson 2 in your science journal about land habitats.

BIG IDEA **HABITATS**
Lesson 2
Plants and animals get what they need

GUIDING QUESTIONS
Lesson 2
Where do plants

Lesson 2
I can evaluate diversity of

Lesson 2
I can identify habitats.

Lesson 2: Exploring Land Habitats

SAMPLE LESSON



Aligned to
**Next Generation
Science
Standards**
and
**Common Core
State Standards**
for 2nd Grade

STANDARDS BASED

TEACHER GUIDE

Scripted lesson plans
Lesson objectives
Performance tasks
Teacher's notes
Management tips
Lab procedures
Extension activities
Assessments

15-Day Pacing Guide

Investigation 1
Lesson 1 **WHAT LIVES AT SCHOOL?**
TEACHER GUIDE
Comparing microhabitats
QUESTION: What micro-habitats can be found near your school? What lives in them?
OBJECTIVE(S): Students observe how living and nonliving things interact in an area. Students will make observations and compare data they gather about plants and animals in areas of their school.
MATERIALS PER GROUP:
Per group of 4 students:
-hand lens
-collection bag, cup or jar
-ruler

Investigation 2
Lesson 2 **LAND HABITAT ON A PLATE**
TEACHER GUIDE
OBJECTIVE: Students will design a land habitat depicting plants and animals that live there.
MATERIALS:
-9" paper plate (white or green)
-white or colored construction paper for drawing
-crayons or colored pencils
-scissors
-glue

Investigation 2:2
Lesson 2 **Habitat on a Plate Directions**
TEACHER GUIDE

Investigation 3:3
Lesson 3 **Blubber Glove Directions**
TEACHER GUIDE
Fill a zipper bag with shortening about 2/3 full. Place your hand inside a second, empty zipper bag and carefully push it into the bag with the shortening. Holding the top edges of both bags together, roll the top edges

Investigation 3:3
Lesson 3 **Blubber Glove**
TEACHER GUIDE
QUESTION: How do some water animals stay warm in the winter?
OBJECTIVE: Students will investigate how blubber keeps some water animals warm by

Investigation 4:4
Lesson 4 **HOW DO FISH BREATHE UNDERWATER?**
TEACHER GUIDE
QUESTION: How do fish breathe underwater?
OBJECTIVE: Students will build a model of

Investigation 4:4
Lesson 4 **Gill Demonstration Directions**
TEACHER GUIDE
Gather materials. Kool-Aid or powdered drink mix of any color will work.

Investigation 5:5
Lesson 5 **BUILD A MODEL WATER PLANT**
TEACHER GUIDE
QUESTION: How do water plants adapt to their habitats?
OBJECTIVE: Students will design and build a model of a water plant. Students will explain that plants need certain adaptations to live in water.
MATERIALS:
Gather materials for students to choose from. Any of these can be used:
-clay
-gravel
-pipe cleaners
-straws
-hairs, yarn, or string for roots
-green foam craft sheets
-wax paper
-paper clips
-stapler
-craft glue
PROCEDURE:
1. Explain to students that they will build a model of a water plant. Review and discuss adaptations of water plants and remind students to include these when designing their models.

Read Alouds
TEACHER GUIDE
Next Generation Science Standards Alignment
Lesson 1: Lesson: Identifying Habitats 2-LS4-1 Make observations of plants and animals to compare the

Unit Materials
TEACHER GUIDE
The following materials are needed to do all five investigations. Please see the teacher notes for each lab as some of the materials are optional or can be replaced with items you may already have.
hand lenses
sandwich size bags
gallon size bags
rulers
scissors
paper clips
stapler
glue or glue sticks
glue sticks
large bowl
metal spoon
ice
coffee filters
clear plastic cups
packets of Kool-Aid
paper towels

Unit Overview
TEACHER GUIDE
During the unit students are engaged in 7 high-interest lessons that include a teaching Power Point with vivid, real world photographs. Students identify different land and water habitats as well as ecosystems within these habitats. They explain that plants and animals get what they need from their habitats and how they adapt to living in water and on land.
During the unit students compare habitats, and explain the importance of habitat diversity. They explore why some habitats are more diverse than others and explore the interdependence of living things in a habitat. Students learn how and why ecologists study habitats and ecosystems and ways they are being protected and restored.

DETAILED LESSON PLANS

RESPONSE JOURNAL ACTIVITIES INCLUDE:

Short written response
Writing to explain
Sequencing
Categorizing
Applying vocabulary



LESSON RESPONSE JOURNAL

7 HIGH-ENGAGEMENT LESSONS

**STUDENTS DISCUSS,
WRITE &
INVESTIGATE**

LESSON 4 INVESTIGATE
QUESTION:
How do gills help fish breathe underwater?


LESSON 1 JOURNAL Write About It

LESSON 2 TALK ABOUT IT Exploring Land Habitats

LESSON 3 TALK ABOUT IT Adapting to Land Habitats

LESSON 2 JOURNAL Write About It

LESSON 3 JOURNAL Write About It

LESSON 4 TALK ABOUT IT Talk with  Design a Water Habitat **LESSON 6 INVESTIGATE** Design a Water Habitat Complete Lesson 3


LESSON 4 JOURNAL Write About It **LESSON 1 TALK ABOUT IT** Identifying Habitats

LESSON 7 Write About It Talk with your partner about things you see in your neighborhood.

LESSON 5 TALK ABOUT IT Adapting to Water **LESSON 7 TALK ABOUT IT** Protecting Habitats

LESSON 5 JOURNAL Write About It **LESSON 6 JOURNAL Write About It**

LESSON 5 INVESTIGATE Build a 3-D Plant Model
QUESTION:
How do plants survive in water?
Design and build a model water plant to show adaptations that help a plant survive in water.


LESSON 3 INVESTIGATE Make a Blubber Glove
QUESTION:
How does blubber keep an animal warm?
Make a replica to demonstrate how blubber keeps an animal warm. Test it in cold water.


LESSON 6 TALK ABOUT IT Habitat Diversity
Talk with your partner about why habitat diversity is important.

What are some examples of plants and animals that live in habitats near your school?

LESSON 1 INVESTIGATE Exploring A Micro-habitat
QUESTION:
What plants and animals live in micro-habitats near your school?
Collect samples and data about living things in habitats near your school.


6 HANDS-ON, HIGH INTEREST LABS



During the unit students explore:

- Land & water habitats
- Ecosystems within habitats
- How living things adapt
- Comparing habitat diversity
- Interdependence of living things
- Science & engineering practices
- Collecting data
- Building models
- Planning investigations

STEP-BY-STEP GUIDES

With teacher tips, materials list, procedures, & pictures

Lesson 3 Investigation 3: **Blubber Glove** **TEACHER GUIDE**

QUESTION: How do some water animals stay warm in the winter?

OBJECTIVE: Students will investigate how blubber keeps making a repl



MATERIALS:
 can of shortening
 3 plastic bags
 strong tape
 spoon
 large bowl
 water
 ice
 lab sheet

PROCEDURE:
 1. Show students how to make the blubber glove. Discuss how it simulates a water animal's blubber.
 2. Place students' blubber gloves in a bowl of ice water.
 3. Have students feel the glove and compare it to their hand.
 4. Students complete their lab sheet.

Lesson 3 Investigation 3: **Blubber Glove Directions** **TEACHER GUIDE**



Gather supplies needed.

Fill a zipper bag with shortening about 2/3 full. Place your hand inside a second, empty zipper bag and carefully push it into the bag with the shortening. Holding the top edges of both bags together, roll the top edges of both bags over about an inch, and tape down with duct tape. This seals the shortening inside forming a "glove".



With your hand inside the glove, press and smooth the shortening to evenly fill in the bag on all sides. The inner bag should be surrounded by shortening



Conduct the test by first having students place their hand inside the third, empty bag and dipping it into the bowl of ice water.




Next, students place their hand inside the "blubber glove" and into the ice water. Students compare which feels warmer and complete their lab sheet.

Lesson 1 Investigation 1 **WHAT LIVES AT SCHOOL?** **TEACHER GUIDE**
 Comparing microhabitats


QUESTION: What micro-habitats can be found near your school? What lives in them?

OBJECTIVE(S): Students observe how living and nonliving things interact in an area. Students will make observations and compare data they gather about plants and animals in areas of their school.

MATERIALS PER GROUP:
 Per group of 4 students:
 -hand lens
 -collection box
 -plastic cups



Lesson 2 Investigation 2: **Habitat on a Plate Directions** **TEACHER GUIDE**




Lesson 4 Investigation 4 **HOW DO FISH BREATHE UNDERWATER?** **TEACHER GUIDE**

QUESTION: How do fish breathe underwater?

OBJECTIVE: Students will build a model gill to demonstrate and explain how a fish breathes underwater.

MATERIALS PER GROUP:
 -coffee filter
 -2 clear plastic cups
 -bucket of Kool-Aid or any colored drink powder
 -paper towels
 -water
 -rubber band
 -lab sheet



Lesson 2 Investigation 2 **LAND HABITAT ON A PLATE** **TEACHER GUIDE**

OBJECTIVE: Students will design a land habitat depicting plants and animals that live there.

MATERIALS:



Lesson 6 Investigation **WATER HABITAT ON A PLATE** **TEACHER GUIDE**

OBJECTIVE: Students will design a water habitat depicting plants and animals that live there.

This is an optional extension or add-on to the Lesson 2 project.

MATERIALS:
 -9" paper plate (white or blue)
 -white or colored construction paper for drawing
 -crayons or colored pencils
 -scissors
 -glue
 -lab sheet
 optional: animal coloring pages

COMPARE HABITATS:
 You may wish to have students make a water habitat on a plate as your last project after teaching Lesson 6 on habitat diversity. Students would then staple it to the land habitat from Lesson 2 at the sides to make a circular, double-sided scene. Students compare the water habitat to the land habitat considering diversity, food sources, shelter etc.

***See Lesson 2 for directions.**



Lesson 6 Investigation 5 **BUILD A MODEL WATER PLANT** **TEACHER GUIDE**


QUESTION: How do water plants adapt to their habitats?

OBJECTIVE: Students will design and build a model of a water plant. Students will explain that plants need certain adaptations to live in water.

MATERIALS:
 Gather materials for students to choose from. Any of these can be used:
 -clay
 -gravel
 -pipe cleaners
 -straws
 -string, yarn, or string for roots
 -green foam craft sheets
 -wax paper
 -paper clips
 -stapler
 -craft glue

PROCEDURE:
 1. Explain to students that they will build a model of a water plant. Review and discuss adaptations of water plants and remind students to include these when designing their models.
 2. Students choose a water plant, identify the adaptations they wish to show and draw a design on their lab sheet labeling the parts.
 3. Next students choose the materials they wish to use. Have students show you their design and explain the materials they will use for each part.
 4. Students make their models using paperclips, staples or punching holes and tying or twisting their plant parts together. After completing their models students should complete their lab sheet. Depending on the plant, models should show flat leaves that float, roots that either float or anchor in bottom of water, tall stems, or extra long roots. (I twisted 5 pipe cleaners together for this example but you could also twist pipe cleaners around a straw for the stem. Leaves are stapled on with the end of a pipe cleaner in the middle. Jute twine is tied on for the roots.)

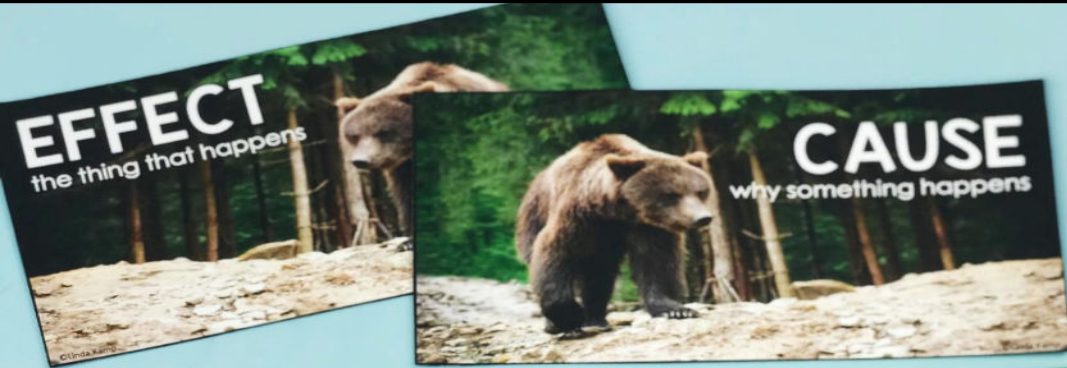
OPTIONAL:
 You may wish to fill a container or classroom sink with water and allow students to test their models and adaptations. (Floating leaves, long exposed roots, long stems with leaves that grow above the water line, etc.) If testing models use page 2 of the lab sheet.



CCCA Systems and System Models: Students understand that systems in the natural and designed world have parts that work together. DCLL 54.0 Biodiversity and Humans: Students recognize that there are many different levels of living things in any area and they exist in different places on land and in water. W.2.8 Recall information from experiences or gather information from organized sources to answer a question.

SEP 3: Developing and Using Models: Complete models to identify common features and differences. Make observations to identify elements (structure or function) and/or measurements. SEP 3: Planning and Carrying Out Investigations: Make observations (structure or function) and/or measurements.

4 SCIENCE CENTERS



Name _____

Draw lines to match the causes to the effects.

CAUSE & EFFECT MATCH

CAUSE is why something happens

EFFECT is the thing that happened

The garden attracted birds to living nearby.

Tropical rainforests get high amounts of rain and have warm climates.

Plants and trees get plenty of water and can easily grow.

An insect landed on the leaf hairs of a Venus Fly Trap.

Literacy based **EXTENSION ACTIVITIES**

HABITATS VOCABULARY STATION

Directions:
1 Read each card.
2 Choose the correct

A diverse habitat has many different _____

- A. climates
- B. animal homes
- C. rivers
- D. plants and animals

Name _____

HABITATS VOCABULARY STATION

Write the letter of the correct answer in each box.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

A _____ is an underwater ecosystem.

- A. desert
- B. coral reef
- C. forest
- D. grassland

Integrate science in your reading centers

Reinforce SCIENCE CONTENT



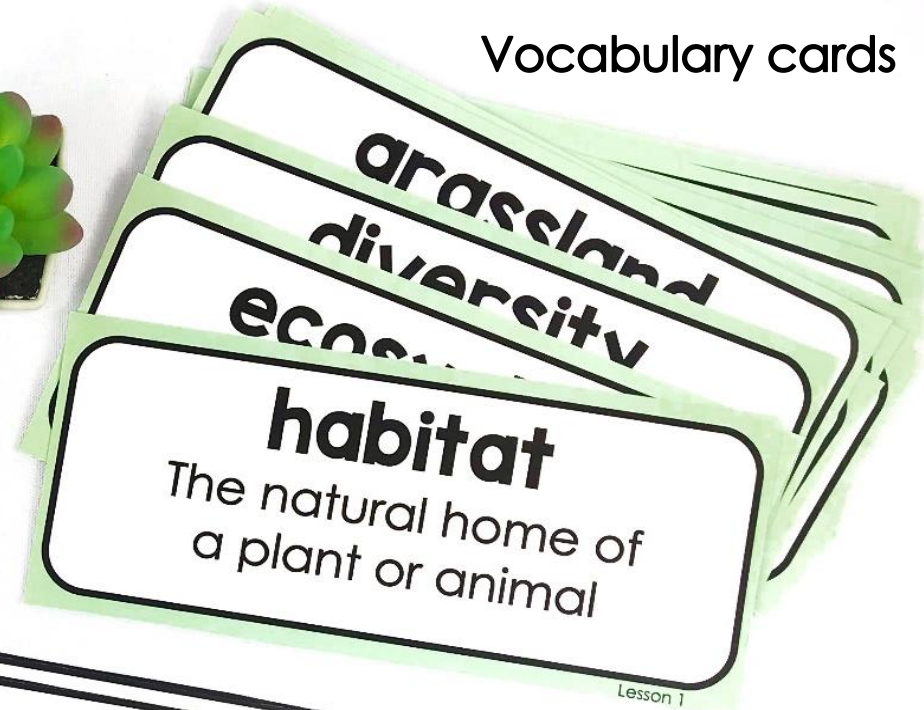
Practice MATH & LITERACY SKILLS



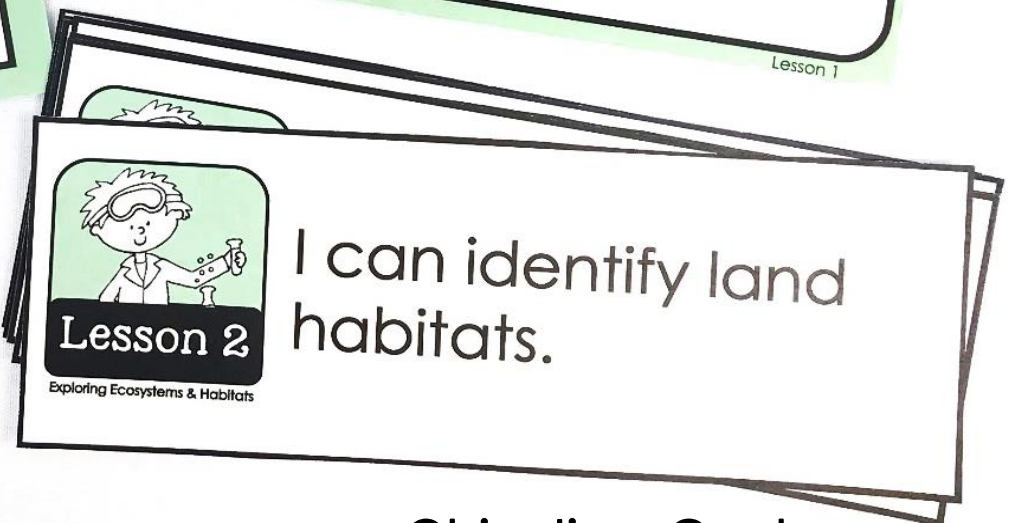
Centers included in color and black & white

LESSON SUPPORT

Vocabulary cards



Focus Wall Cards



Objectives Cards

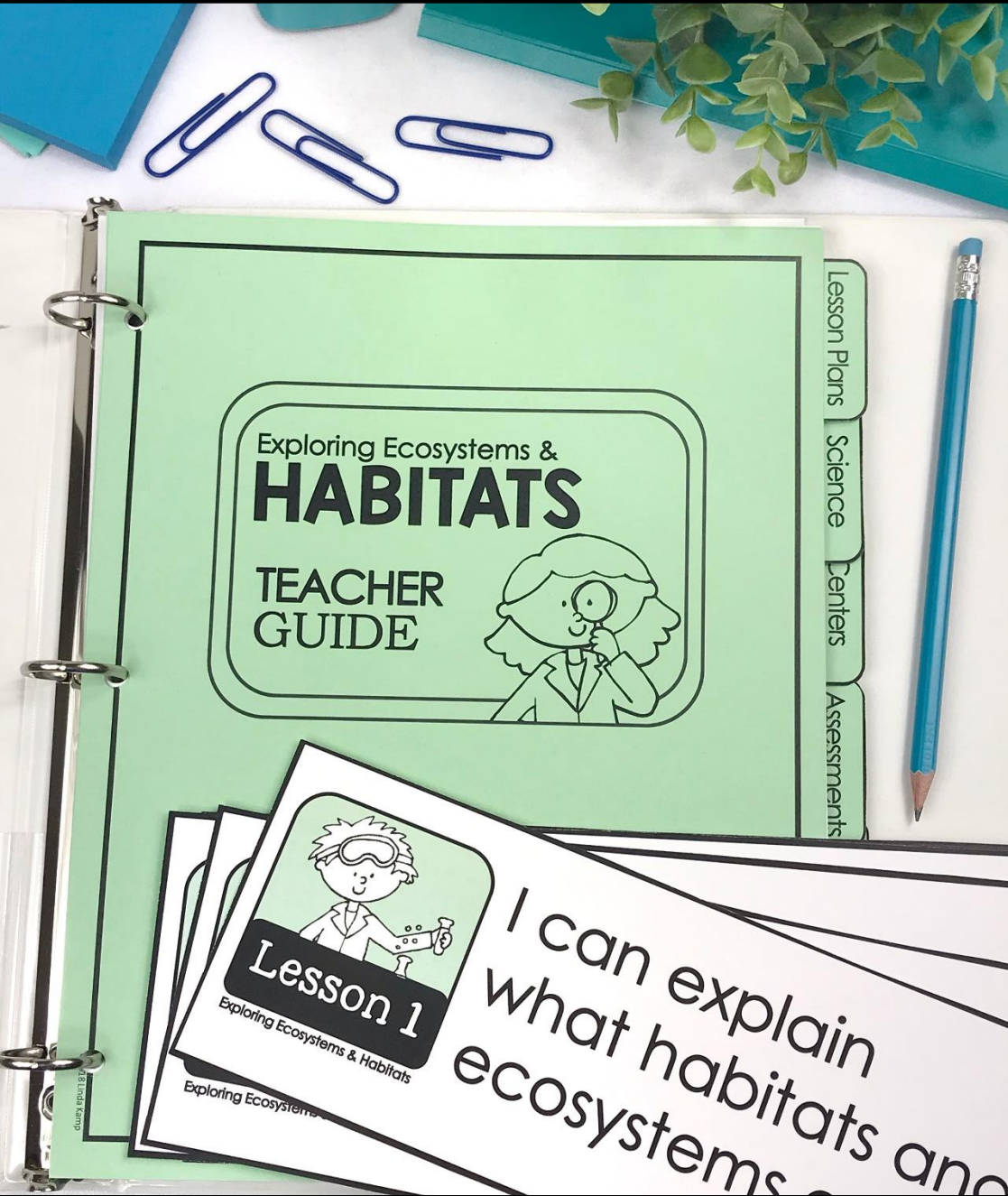


LESSON SUPPORT



Full Page Vocabulary Posters

UNIT PLANNING BINDER



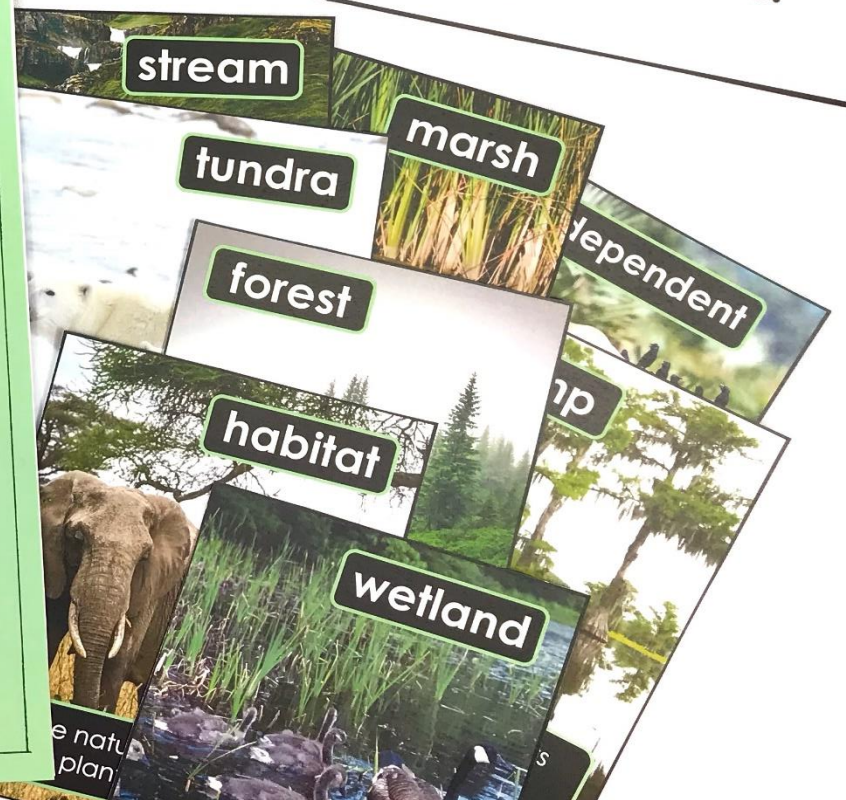
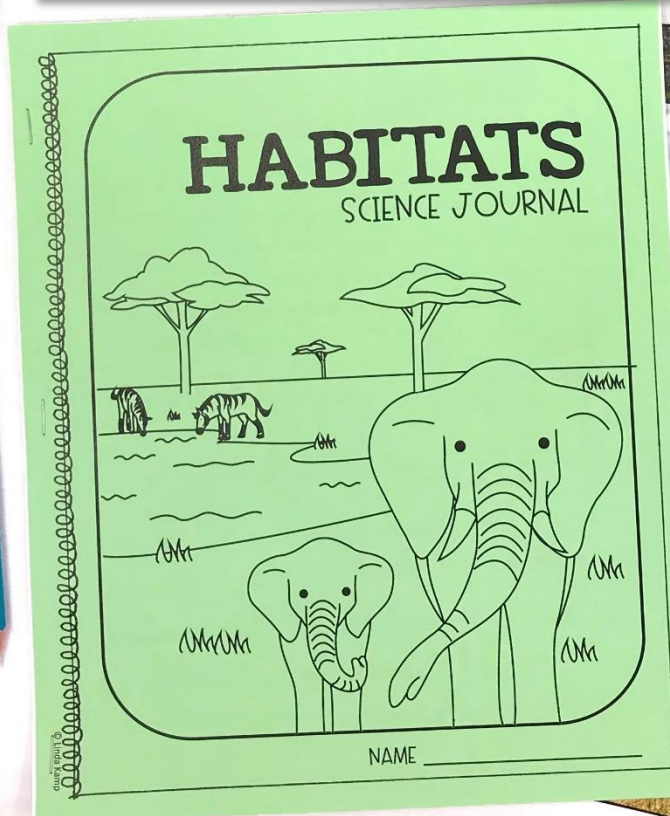
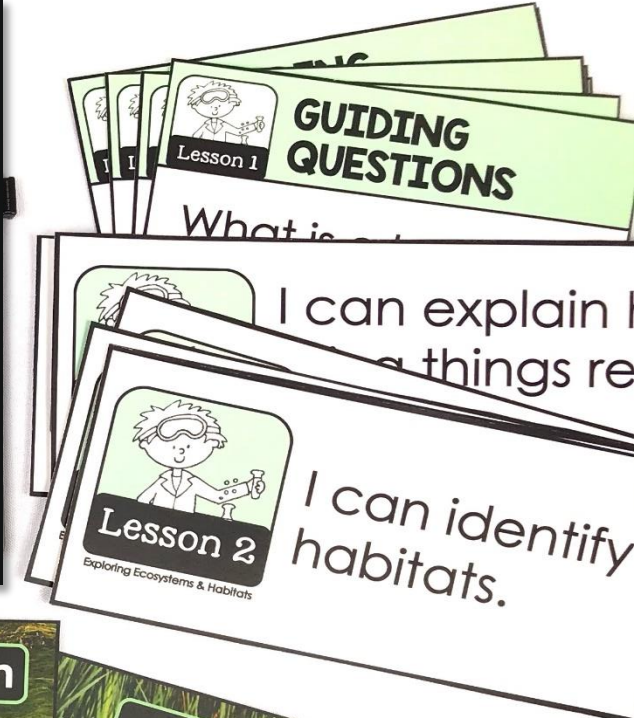
Organize your unit
in a handy
planning binder

Binder includes:

- cover & spines
- section dividers
- divider tabs

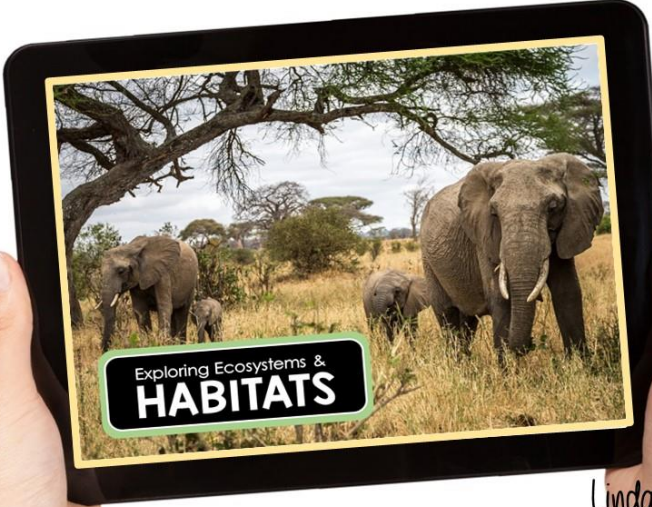
**PLAN, TEACH &
ASSESS** an in-depth
and effective unit

Science for Second Grade



ALSO AVAILABLE SEPARATELY

Exploring Ecosystems &
HABITATS **GRADE 2**




Linda Kamp
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Build a science foundation

Exploring Ecosystems &

HABITATS

GRADE
2



Students gain an understanding of:

- Habitats & ecosystems
- Habitat diversity
- Interdependence of living things
- Building models
- Planning & conducting investigations
- Analyzing data
- Science & engineering practices
- Constructing explanations
- Using evidence to support claims