

VIRGINIA ANIMALS & THEIR HABITATS

Topic 1 What Makes Something Alive?

TABLE OF CONTENTS

<u>TOPIC 1 - WHAT MAKES SOMETHING ALIVE?</u>	<u>2</u>
<u>Topic 1: Overall Information</u>	<u>2</u>
<u>Overview</u>	<u>2</u>
<u>Topic 1 Virginia SOL</u>	<u>2</u>
<u>Teacher Background Knowledge</u>	<u>2</u>
<u>Student Learning Expectations</u>	<u>2</u>
<u>Procedure</u>	<u>2</u>
<u>Session 1.1 – Unit Introduction</u>	<u>3</u>
<u>Session 1.2 – Living vs. Nonliving</u>	<u>6</u>
<u>Observation Walk – Student Sorting Sheet</u>	<u>8</u>
<u>Session 1.3 – Real or Imaginary?</u>	<u>9</u>
<u>Fiction and Nonfiction T-Table – Student Sheet</u>	<u>10</u>
<u>Fiction / Nonfiction Venn Diagram – Student Sheet</u>	<u>11</u>
<u>Acknowledgments</u>	<u>i</u>
<u>Special Thank You for Permission to Use Items in Virginia Animals and their Habitats</u>	<u>iii</u>

TOPIC 1 - What Makes Something Alive?

Topic 1: Overall Information

Overview

In this group of lessons students will define what it means to be alive and what organisms need to survive.

Topic 1 Virginia SOL			
Science	English	Mathematics	History & Social Science
2.1a, b, c, d, g, h, i, j, k, m 2.4 a 2.5 a, b	2.1 c, d 2.2 2.3 a, b, c, d 2.7 c 2.8 c, e 2.9 2.11 2.12 a, b 2.13 a, b, c, d, e, f, g, h, j		2.5 b 2.6

Teacher Background Knowledge

- The purpose of this topic is to help students understand what it means to be alive and to identify the characteristics of living organisms.
- Living organisms are made of cells, obtain and use energy (eat), grow and develop (life cycle), have offspring, respond and adapt to their environment, and respire (breathe).
- Basic needs of living organisms are shelter, food, water, air, and living space.
- Living organisms live in a habitat that meets all of its needs.
- Students will identify simple map parts.
- Students will use a map to locate the home of several Virginia animals.
- Students will make a student journal which will then be used throughout the unit.

Student Learning Expectations

- Identify the parts of a map.
- Use a map to locate geographic features.
- Compare and contrast living and nonliving things.
- Identify the characteristics of living organisms include eating, breathing, reproducing, growing, responding and adapting to the surroundings.
- Recognize that for survival, living organisms need shelter, food, water, air and living space.
- Sort and classify data.

Procedure

NOTE: The procedures in the topic sessions may be divided into several different lesson periods. Each session may take more than one lesson period to complete.

Topic 1: Session 1.1 – Unit Introduction

Session Supplies:

- Map of Virginia – can be a road map, a classroom map, or any other type of map
- List of various familiar Virginia animals or pictures of the animals (e.g., gray squirrel, black bear, bluegill fish, eagle, blue crab, black snake) to use to play a game of “Who am I?” (A good source for lists of Virginia animals is the Virginia Department of Game and Inland Fisheries Web site (<http://www.dgif.virginia.gov/>). Click on the “Wildlife Information” link found on the left-hand side of the screen.)
- Student journals (See the *Student Journals* information at the beginning of the unit – Unit Introduction page v)
- Materials for students to decorate their personal journals

Session Virginia SOL

Science	English	Mathematics	History & Social Science
2.1 a, c, d, g, h, i, j, k	2.2 a, b, c, e 2.3 a 2.12 a, b 2.13 a, h, j		2.5 b 2.6

An excellent resource about making observations and using a field journal can be found on the New Hampshire Fish and Game Department (NHFGD) Web site at <http://www.wildnh.com/Kids/kids.htm>, *Wanted: Biologists!* Vol. 9, Issue 2 and *Exploring the Outdoor World* Vol. 2, Issue 2. *Wild Times for Kids* is published twice a year by the NHFGD. The magazine can be downloaded.

Session 1.1 – Unit Introduction

Teacher Questions & Notes	Procedures
	<p><i>To prepare for this introductory lesson to the entire unit, do the following:</i></p> <ol style="list-style-type: none"> <i>a. Read the information at the beginning of the unit for overall unit pedagogy and organization (pg. i-vii).</i> <i>b. Read the information found in Appendix A (pg. 234-242) at the end of the unit regarding the student projects.</i> <i>c. For use during the entire Virginia Animals and their Habitats unit, students will make and use a journal. Information about the purpose, use, setup, etc., of the journals can be found in “Student Journals” (pg. v) at the beginning of the unit.</i> <i>d. Determine which format for the student journals your students will use. Gather the materials needed for the format you select.</i>

Session 1.1 – Unit Introduction

Teacher Questions & Notes	Procedures
	<p>e. <i>Gather materials that your students can use to decorate the cover of their journals.</i></p> <p>f. <i>Locate and display a large map of Virginia.</i></p> <p>g. <i>Gather the names and/or pictures of several familiar Virginia animals.</i></p>
<p>-What is this? (map) -What do we use maps for? -What are some of the parts of the map? (e.g., title, map legend, compass rose) -What kind of a map is this particular map? (e.g., road map) -Describe some of the particular features we can find on this kind of map. (e.g., roads on a road map, mountains on a relief map, bodies of water, cities)</p>	<ol style="list-style-type: none"> 1. Display the Virginia map. Ask the students to describe what they see. Encourage them to discuss that it is a map, that it is a map of Virginia, and have them describe some of the features on the map. (It will depend on the kind of map you have as to what those features might be.) 2. Have students locate on the map the general area where the school is located. 3. Discuss some of the other locations on the map (e.g., other cities, bodies of water)
<p>-Name each of the animals. -Where in Virginia would each animal live?</p>	<ol style="list-style-type: none"> 4. Tell students that they are going to play a game called “Who Am I and Where do I Live?” Tell students that you are going to name a Virginia animal (or are going to show them a picture of a Virginia animal.) They need to help determine where they think the animal might live in Virginia. Let them know that the animal may live in only one part of Virginia or may live in many locations within the state.
<p>-If the animal does not live in every part of Virginia, explain why you think it doesn't.</p>	<ol style="list-style-type: none"> 5. Talk about why each animal lives where it does. (A good resource for this information is the Wildlife section of the Virginia Department of Game and Inland Fisheries' Web site http://www.dgif.virginia.gov/wildlife/. With the description of each animal at the Web site is a Virginia Distribution map.)
	<ol style="list-style-type: none"> 6. Explain to your students that you will be spending the next several weeks as a class studying many Virginia animals, where they live, what they eat, etc. 7. Explain to your students that they will study how to classify animals, what an animal's habitat is, animal life cycles, animal food chains, and how animals adapt to survive.

Session 1.1 – Unit Introduction

Teacher Questions & Notes	Procedures
	<p>8. Explain to your students that each student will be part of a “research team” that will select one Virginia animal to study in depth.</p> <p>9. Explain that each research team will gather information about their animal and will then give a class presentation, write a report, and make a display about their animals.</p> <p>10. Explain that during the unit, each student will keep a journal where they will be able keep information about what they learn during the unit.</p>
	<p>11. Use the information you found in the Unit Introduction at the beginning of the unit titled <i>Student Journals</i> on page v to tell students about the journal and the different parts of the journal.</p>
	<p>12. Help students to set up their journals initially based on the format and sections you have determined for them to use.</p>
	<p>13. Give students time to decorate the front of their journals.</p>
	<p>14. Explain that they will be using their journal daily during the unit.</p>
	<p>15. Have students write the title “Preparing for the Unit: Virginia Animals and their Habitats” on a page in their journals.</p> <p>16. Have them write the date on their page.</p> <p>17. Have them write at least three things that they hope to learn during the unit.</p>
	<p>18. As a class, have students share some of the items that they recorded.</p>

Topic 1: Session 1.2 – Living vs. Nonliving

Session Supplies:

- Collection of pictures/examples of living and nonliving things
- *Observation Walk* sorting sheet (pg. 8)
- Pencils
- Student scissors
- Glue
- Chart paper
- Markers
- Student journal

Session Virginia SOL

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2.1a, b, d, h, i, j, k, m	2.1 c, d 2.2 a, b, c, e 2.7 c 2.11 2.13 a, b, c, d, e, f, g, h, j		

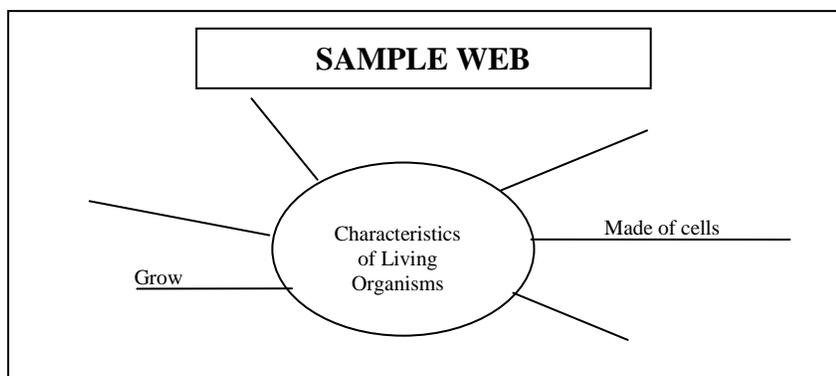
Project WILD activity "*Learning to Look, Looking to See*" (pg. 278) is a good activity for developing observation skills.

Session 1.2 – Living vs. Nonliving

Teacher Questions & Notes	Procedures
-What do you use to observe?	1. Have students take an <i>Observation Walk</i> student sorting sheet (pg. 8) and pencils with them on a short indoor/outdoor walk (~10 min). Ask them to draw and/or write down the things that they observe. Make sure that they put each item they observe in a separate box on the <i>Observation Walk</i> student sorting sheet.
	2. You also need to record your observations so that you have items for #6 of this session.
	3. When you return to the classroom, have students cut apart their <i>Observation Walk</i> student sorting sheet and work with a partner to sort the items they observed into different categories. Allow students to come up with their own categories for sorting and classification.

Session 1.2 – Living vs. Nonliving

Teacher Questions & Notes	Procedures
	<p>JOURNAL:</p> <p>4. On a blank page in their journal, have students put the title “My Observation Walk” and put the date. On the page, students need to complete the following prompt: “We sorted our items by _____ because _____.”</p>
<p>-How did you sort your items? -Why did you sort them that way? -What was the same/different about your items? -What is a characteristic?</p>	<p>5. As a class, discuss the way they sorted their objects. List some of the ideas on the board. Review the definition of a characteristic.</p>
<p>-What do these items have in common? -How are the objects in the first category different from those in the second category?</p>	<p>6. You will sort your own objects by living and nonliving things. (Do not tell the students what you used as your categories.) Ask the students if they can identify how your items were sorted.</p>
<p>-If students are unable to come up with the words “living” and “nonliving,” ask “What is the difference between the classmate sitting next to them and a desk?”</p>	<p>7. When the students identify the categories as living and nonliving things, have students sort their own items by living and nonliving things.</p>
	<p>JOURNAL:</p> <p>8. On the next blank page in the student journals, write the title “Living and Nonliving” and put the date. Create a “sorting page” and have the students glue their items in their journal. Have them write about the differences between living and nonliving.</p>
<p>-What makes something alive? -Why did you classify these things as alive? -Do living things depend on nonliving things in their environment to survive? How?</p>	<p>9. As a class, make a web of the characteristics of living organisms on chart paper. Put the title “Characteristics of Living Organisms” on the top of the chart paper. This web will be displayed in the classroom throughout the unit for student reference.</p>



Name: _____

Observation Walk – Student Sorting Sheet

Topic 1: Session 1.3 – Real or Imaginary?

Session Supplies:

- ‘Characteristics of Living Organisms’ web that was created for Topic 1, Session 1.2
- Project WILD, pg. 180: “*And the Wolf Wore Shoes*” (procedure steps 1-5 only)
- *Fiction vs. Nonfiction T-table* sheet (pg. 10)
- OPTIONAL: *Fiction vs. Nonfiction Venn Diagram* student sheet (pg. 11)
- At least one nonfiction book about animals and at least one fiction book about animals (a good source for these books would be your school library)
- One of the fiction books about animals selected to read aloud to class

Session Virginia SOL

Science	English	Mathematics	History & Social Science
2.1 a, b, c, d	2.1 c, d 2.2 a, b, c, e 2.3 a, b, c, d 2.8 c, e 2.9		

Session 1.3 – Real or Imaginary?

Teacher Questions & Notes	Procedures
-If we want more information about living organisms, what types of books would we use? (Direct the students toward nonfiction text.)	1. Refer to the “Characteristics of Living Organisms” that was created in the previous session.
	2. In <u>Project WILD</u> , pg. 180, complete the activity “ <i>And the Wolf Wore Shoes</i> ” steps 1-5 only.
-What do you notice about these books?	3. Have the groups examine one fiction and one nonfiction book. Have students use the <i>Fiction vs. Nonfiction T-table</i> sheet (pg. 10) and put it in their journal or have them draw a T-table in their journal and title it “Fiction vs. Nonfiction.” On the T-table, list the characteristics of fiction and nonfiction selections.
	4. As a class, create a Venn diagram comparing the conventions of nonfiction and fiction selections. (You may choose to have students record answers on their own Venn diagram or make an overhead and do this as a class. A <i>Fiction vs. Nonfiction Venn Diagram</i> sheet is provided on pg. 11.)
-Is the book that you listened to fiction or nonfiction? -How do you know?	5. Select a fiction book about animals to read aloud to the class. Discuss where the book fits on the Venn diagram and why.

For additional content information, you can read the activity background in Project WILD “*Saturday Morning Wildlife Watching*” (pg. 184) and “*First Impressions*” (pg. 178)

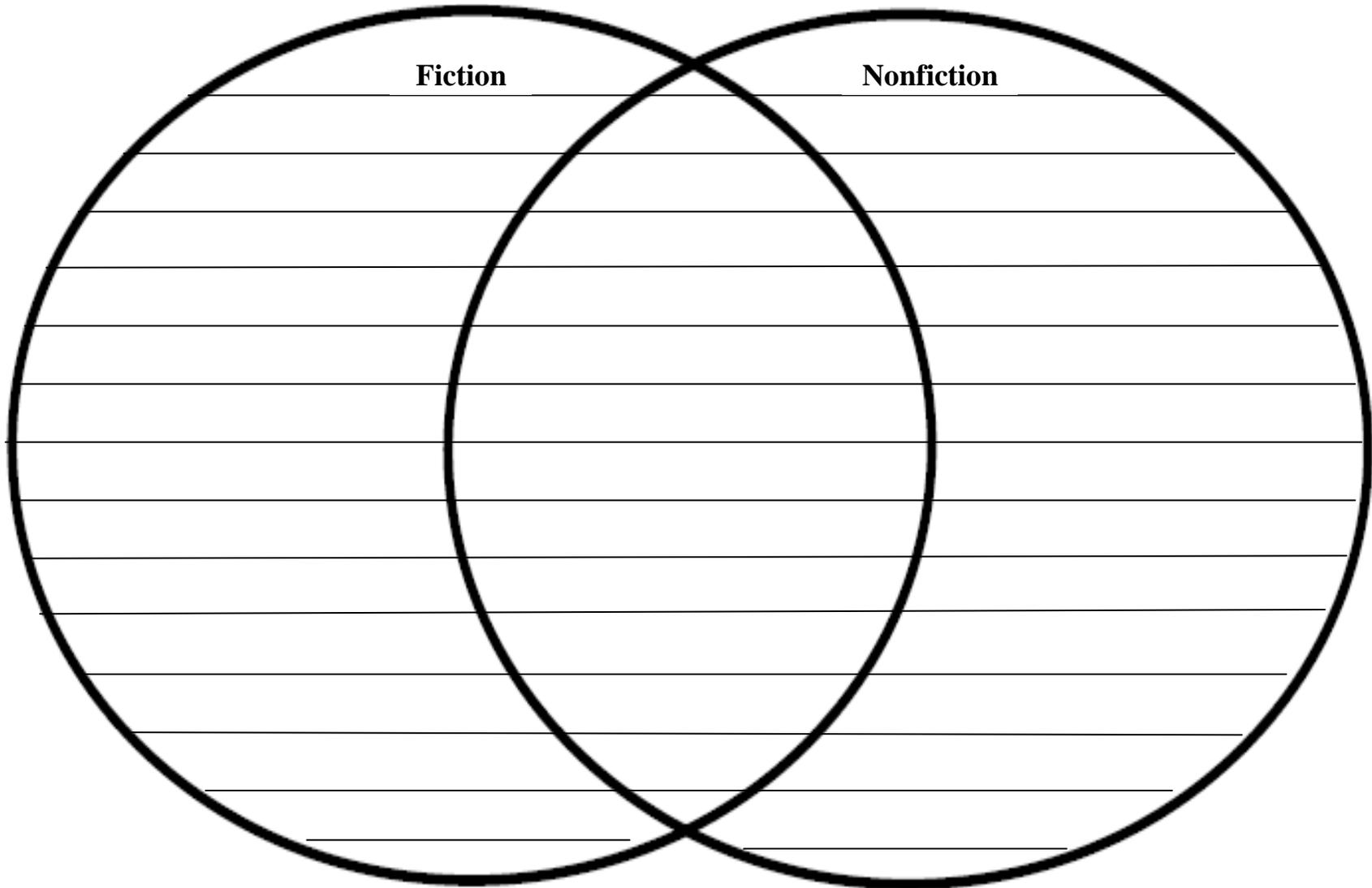
Name: _____

Fiction and Nonfiction T-Table – Student Sheet

Fiction	Nonfiction

Name: _____

Fiction / Nonfiction Venn Diagram – Student Sheet



Acknowledgments

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Great Sand Dunes National Park and Preserve
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Roo-Rats Elementary Teachers Lesson Plans

**Insect Workbook*

Ohio Department of Natural Resources – Division of Wildlife
Columbus, Ohio

Twenty/Twenty-Projects and Activities for WILD School Sites

**Insect Safari*

Pennsylvania State University – Department of Entomology
State College, Pennsylvania

Insect Image Gallery

**Tailed Jay Butterfly (Jon Lelito, photographer)*

**Postman Butterfly (Jon Lelito, photographer)*

**Julia Butterfly (Jon Lelito, photographer)*

**Isabella Butterfly (Jon Lelito, photographer)*

**Leopard Moth (Maryann Frazier, photographer)*

**Imperial Moth (Maryann Frazier, photographer)*

**Io Moth (Maryann Frazier, photographer)*

**Giant Swallowtail Butterfly Caterpillar (Maryann Frazier, photographer)*

**Pandora Sphinx Moth Caterpillar (Maryann Frazier, photographer)*

Smithsonian National Zoological Park
Washington, DC

Animals – Backyard Biology

**Black Swallowtail Butterfly*

**American Painted Lady Butterfly*

**Great Spangled Fritillary*

**Monarch Butterfly*

**Tiger Swallowtail Butterfly*

University of Kentucky – Extension Entomology
Lexington, Kentucky

University of Kentucky Entomology Kentucky Critters

- **Waved Sphinx Moth* (Blake Newton, photographer)
- **Clearwing Sphinx Moth* (Blake Newton, photographer)
- **Pipevine Swallowtail Caterpillar* (Ric Bessin, photographer)
- **Spicebush Butterfly Caterpillar* (Ric Bessin, photographer)
- **Fritillary Caterpillar* (Ric Bessin, photographer)
- **Monarch Caterpillar* (Ric Bessin, photographer)

USDA Forest Service
Washington, DC

*The NatureWatch, Wildlife, Fish, and Threatened and Endangered
Species Program's Photograph Library*

- **Prince Baskettail* (David Arboux, photographer)
- **Argiope Spider* (David Arboux, photographer)

Virginia Department of Forestry
Charlottesville, Virginia

- **Measuring Tree Height*

Virginia Department of Game and Inland Fisheries
Richmond, Virginia

Wildlife Information

- **Eastern Gray Fox* (Dave Schaffer, USFWS, photographer)
- **Virginia Opossum* (John White, photographer)
- **White-tailed Deer* (Lee Walker, photographer)
- **White-tailed Deer Fawn* (WJ Berg, USFWS, photographer)
- **Black Bear* (Steven Ferguson, photographer)
- **Eastern Gartersnake* (John White, photographer)
- **Black Vulture*
- **Gray Squirrel* (Jeff Trollinger, photographer)
- **Eastern Box Turtle* (John White, photographer)
- **Osprey*
- **American Toad* (John White, photographer)
- **Largemouth Bass*
- **Bullfrog* (Bob Greenlee, photographer)
- **Little Grass Frog* (Paul Sattler, photographer)
- **Mountain Chorus Frog* (Paul Sattler, photographer)
- **Northern Green Frog* (Paul Sattler, photographer)
- **Pickerel Frog* (John White, photographer)
- **Insects student sheet*
- **A Look Outside DVD*

- *Compare Yourself to a Black Bear student sheet*
- *Virginia map with no labels*
- *Tundra Swan 888 Migration Path*
- *Tundra Swan 893 Migration Path*
- *Tundra Swan 894 Migration Path*

Virginia Tech – Department of Entomology
Blacksburg, Virginia

Insect Identification Lab

- *Gypsy Moth (E.A. Roberts, Senior Research Associate, Department of Entomology; Virginia Tech)*
- *Tent Caterpillar*
- *Green-striped Mapleworm*
- *Gypsy Moth Caterpillar (E.A. Roberts, Senior Research Associate, Department of Entomology; Virginia Tech)*
- *Hickory-Horned Devil*
- *Saddleback Caterpillar*
- *Fall Webworm Caterpillars*