

The
NATURE OF
TEACHING



UNIT 6

Take-a-hike

This unit allows students to explore nature and understand the health benefits of being outside. Activities encompass 2 of the 3 signature programs of The Nature of Teaching (Wildlife and Health and Wellness) and include nature hikes and scavenger hunts, that can be conducted on school properties. These simple introductory lesson plans are designed to complement the wide variety of lesson plans already available through The Nature of Teaching program.

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ESTIMATED TIME

Estimated time for lesson plans in this unit are 45 to 60 minutes.

VOCABULARY

Wildlife

- Habitat
- Food
- Cover
- Water
- Free-standing water
- Preformed water
- Metabolic water
- Space
- Home range
- Habitat quality
- Habitat management
- Omnivore
- Herbivore
- Carnivore
- Deciduous
- Coniferous
- Predator
- Vernal pool

Health and Wellness

- Circulatory system
- Cardiovascular
- Physical activity
- Heart rate
- Meditation
- Centering
- Mindfulness

UNIT OBJECTIVES

Wildlife

- Describe the concept of habitat and how it relates to wildlife abundance and diversity.
- Consider the habitat needs of a wildlife species in order to determine the habitat quality of the school property.
- Relate information from this lesson plan to other wildlife lesson plans.

Health and Wellness

- Describe the relationship between physical activity and heart health.
- Demonstrate how to correctly take one's pulse.
- Demonstrate one centering or mindfulness technique.

TARGETED GRADE-LEVEL STANDARDS

LESSON 1

Next Generation Science

K-ESS3-1, K-LS1-1, 2-LS4-1

Math

1.MD.C.4

English/Language Arts

RF.K.3, W.K.8, SL.K.1, SL.K.2, SL.K.3, SL.K.6, RF.1.3, W.1.8, SL.1.1, SL.1.2, SL.1.3, SL.1.6, RF.2.3, W.2.8, SL.2.1, SL.2.2, SL.2.3, SL.2.6, RF.3.3, W.3.10, RF.4.3, W.4.10, SL.4.1, RF.5.3, W.5.10, SL.5.1

LESSON 2

Next Generation Science Standards

K-ESS3-1, K-LS1-1, 2-LS4-1, 3-LS4-3

Math

1.MD.C.4, 2.MD.D.10, 3.MD.B.3

English/Language Arts

W.K.8, SL.K.1, SL.K.2, SL.K.3, SL.K.6, W.1.8, SL.1.1, SL.1.2, SL.2.1, SL.2.2, SL.2.3, SL.2.6, SL.1.3, SL.1.6, W.2.8, W.3.10, SL.3.1, SL.3.3, W.4.10, SL.4.1, W.5.10, SL.5.1

LESSON 3

Next Generation Science Standards

HS-LS1-3

Math

1.MD.C.4, 2.MD.D.10, 3.MD.B.3

English/Language Arts

SL.K.1, SL.K.2, SL.K.3, SL.K.6, SL.1.1, SL.1.2, SL.1.3, SL.1.6, SL.2.1, SL.2.2, SL.2.3, SL.2.6, SL.3.1, SL.3.3, SL.4.1, SL.5.1

LESSON 4

English/Language Arts

W.K.8, SL.K.1, SL.K.2, SL.K.3, SL.K.6, W.1.8, SL.1.1, SL.1.2, SL.1.3, SL.1.6, W.2.8, SL.2.1, SL.2.2, SL.2.3, SL.2.6, W.3.10, SL.3.1, SL.3.3, W.4.10, SL.4.1, W.5.10, SL.5.1

REFERENCE MATERIALS

Wildlife

- Mammals of Indiana – Nature of Teaching website (https://edustore.purdue.edu/item.asp?Item_Number=FNR-413-W)
- National WHEP Manual – National Wildlife Habitat Education Program (<https://www.whep.org/national-whep-manual/>)

Health and Wellness

- American Heart Association Elementary Lesson Plans (http://www.heart.org/HEARTORG/Educator/ForthClassroom/ElementaryLessonPlans/Elementary-Lesson-Plans_UCM_001258_Article.jsp#.WmdxvpM-fBI)
- American Heart Association, All About Heart Rate (Pulse) (http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/GettheFactsAboutHighBloodPressure/All-About-Heart-Rate-Pulse_UCM_438850_Article.jsp#.Wl5ks66nGUK)
- Centers for Disease Control and Prevention, Physical Activity Facts (<https://www.cdc.gov/healthyschools/physicalactivity/facts.htm>)
- Department of Health & Human Services, Physical Activity Guidelines for Americans: Youth Physical Activity Recommendations (<https://health.gov/paguidelines/midcourse/youth-fact-sheet.pdf>)
- Kids Health in the Classroom Lesson Plans (K-2nd) (<https://classroom.kidshealth.org/prekto2/body/systems/cardiovascular.pdf>)
- Kids Health in the Classroom Lesson Plans (3rd-5th) (<https://classroom.kidshealth.org/3to5/body/systems/cardiovascular.pdf>)
- Mindful Schools – Starter lesson (<https://www.mindfulschools.org/wp/wp-content/uploads/2015/06/starter-lesson.pdf>)

REQUIRED MATERIALS

Wildlife

- Clipboard (optional)
- Pen or Pencil
- Wildlife Scavenger Hunt Worksheet
- Wildlife Habitat Venn Diagram
- Wildlife Trading Card

Health and Wellness

- Clipboard (optional)
- Pen or Pencil
- 1-2 of the suggested readings for each lesson
- Heart Rate Tracker Worksheet
- Centering Worksheet

- Mindful Schools – Explore Mindfulness resources (<https://www.mindfulschools.org/resources/exploremindful-resources/>)
- Mindfulness In Schools Research Summary (<https://mindfulnessinschools.org/wp-content/uploads/2013/02/MiSP-Research-Summary-2012.pdf>).

NOTE: More resources for Health and Wellness lessons can be found at the end of each lesson plan.

ACTIVITY ICONS

Use these icons — located at the top of each lesson plan — to indicate the disciplines to which certain activities belong. These disciplines include:



READING



WRITING



MATH



SCIENCE



STEM

(science, technology, engineering, math)



STEAM

(science, technology, engineering, art, math)

LESSON 1

Habitat is the collection of resources needed by a specific wildlife species to reproduce and survive. Although habitat differs between wildlife species, all habitat shares the same 4 components: food, water, cover, and space. Some species may have similar habitat needs (northern cardinals and American robins are often found in similar areas and consume similar foods), but no two wildlife species have the exact same habitat needs.

Food consists of the items that animals eat to meet their energetic needs. Food may include parts of plants (leaves, grass, bark, etc.); the fruit or seeds of plants (berries, nuts, etc.); insects; fungi; or other animals.

Water is needed by all wildlife, but how species get water differs. Wildlife meet their water needs using 3 strategies. Some animals drink **free-standing water** found naturally in the environment. Free-standing water could be water in a stream, puddle, dew, or snow. Other species may meet water needs from **preformed water**, which is water gained by consuming foods high in water such as fleshy fruits or new growth on plants. Wildlife also create water in their bodies through the digestion process, which is called **metabolic water**.

Cover is vegetation or other land features that provide wildlife with a place to hide, sleep, find food, and/or reproduce. Cover could be provided by a forest, a wetland, a grassland or other types of vegetation, but it could also be provided by caves, individual trees, brush piles, rocks, leaf litter and/or logs on the ground.

The last component of habitat is space, which is the area needed by wildlife to find enough food, water, and cover to survive and reproduce. The space needs of wildlife species vary widely; the exact amount of space needed for wildlife to find enough resources is referred to as a **home range**.

LESSON 2

Habitat quality, or the ability of an area to provide the 4 components of habitat for a particular species, largely dictates the health of individual animals and the population size of a species. Habitat can range in quality from poor (i.e., providing all the resources for a species, but in low quantities) to excellent (i.e., providing an abundance of resources for a species).

When the habitat in a certain area is low quality, we can add food, water, or cover to the area to increase the habitat quality. Adding food, water, or cover to a given area to increase the habitat quality for wildlife is called **habitat management**.

The Wildlife Habitat Scavenger Hunts below provide students with a better understanding of wildlife and their habitats. They focus on (1) finding items that may provide food, water, or cover for various wildlife species and (2) evaluating habitat quality and identifying missing components.

VOCABULARY

Carnivore: an animal that feeds on other animals.

Coniferous: plants that have year-round, needle-like leaves and usually also have cones; examples are spruce, pine, fir.

Cover: vegetation and other land features that provide areas for wildlife to hide, sleep, feed and reproduce.

Deciduous: plants that lose their leaves during the fall; examples are maple, oak, hickory, beech.

Food: the items that animals consume. These could be parts of plants (leaves, bark, seeds, fruit, nuts, etc.); insects; fungi; or other animals.

Free-standing water: water gained from drinking, eating snow, and consuming dew. Some animals rely on free-standing water year-round, whereas others only need free-standing water in times of drought.

Habitat: the collection of resources needed by a specific wildlife species to reproduce and survive. Habitat consists of 4 components, which are food, water, cover, and space.

Habitat management: changing the resources (food, water, cover, or space) in an area to influence the quality of habitat for a given species.

Habitat quality: the ability of a given area to provide the 4 components of habitat for a specific wildlife species. Quality can range from poor to excellent.

Herbivore: an animal that feeds only on plant material.

Home range: the area travelled by the individual in its normal activities of food gathering, mating and caring for young.

Metabolic water: water created inside a living organism through their metabolism. Many desert species live with only metabolic water. Many migratory birds rely on metabolic water during non-stop flights.

Omnivore: an animal that feeds on both plant and animal matter.

Predator: any animal that lives by preying on other animals.

Preformed water: water gained from consuming food. Many species that consume vegetation and fruits get most of their water as preformed water.

Space: area required to find enough food, water, and cover to survive and reproduce. The amount of space required by an individual is often referred to as the animal's home range.

Vernal Pool: an area of shallow, standing water that typically forms in the spring from melting snow and other runoff. It dries out completely in summer and often fills back up with autumn rains. It does not support fish.

Water: water needs and how wildlife consume water differs between wildlife species. Wildlife fulfill their water needs via free-standing, preformed, or metabolic water.

LESSON 3

Getting the recommended amount of physical activity is crucial for a child's growth and development. According to the United States Department of Health and Human Services, youth ages 6-17 should get at least 60 minutes of physical activity every day. Youth benefit greatly from getting regular physical activity. Benefits include improved cardiorespiratory fitness, stronger bones and muscles, weight control, reduced symptoms of anxiety and depression, as well as a reduced risk for heart disease, cancer, type 2 diabetes, high blood pressure, osteoporosis, and obesity. This lesson will focus on the heart health benefits of physical activity by getting children outside and moving!

LESSON 4

Mindfulness activities have been shown to improve the mental, emotional, social, and physical wellbeing of the youth who participate. Mindfulness has also proven to reduce stress, anxiety, reactivity, and ADHD behaviors while improving sleep habits, self-esteem and empathy. Cognitive development, executive function, and academic performance are also enhanced through mindfulness.

Mindfulness and centering activities are inexpensive to implement, have quick outcomes, and can fit into a wide variety of classroom activities. This lesson will focus on enhancing students' understanding of how nature can improve their mental health through mindfulness and centering activities. Activities will incorporate the scientific method to help students draw and communicate meaningful conclusions.

VOCABULARY

Cardiovascular: of, relating to, or involving the heart and blood vessels.

Circulatory system: the system of blood, blood vessels, lymphatics, and heart concerned with the circulation of the blood and lymph.

Centering: a technique that helps keep a person in the present reality.

Heart rate or pulse: the rate at which the heart beats.

Heart: a hollow, muscular organ in vertebrate animals that acts as a force pump maintaining the circulation of the blood by its rhythmic contraction.

Meditation: the act or process of spending time in quiet thought.

Mindfulness: the practice of maintaining a nonjudgmental state of heightened or complete awareness of one's thoughts, emotions, or experiences on a moment-to-moment basis.

Physical activity: any bodily movement produced by skeletal muscles that requires energy expenditure.

Moderate activity: includes hiking, skateboarding, rollerblading, bicycle riding, and dancing. Allows you to talk but not sing.

Vigorous activity: includes running, soccer, and swimming. Allows you to only say a few words without catching your breath.

Resting heart rate: the rate at which your heart is pumping the lowest amount of blood you need because you are not exercising.

LESSON 1 WHAT IS HABITAT? SCAVENGER HUNT

Take-a-Hike
LESSON PLAN



Estimated Time

45 minutes

Procedure

1. Introduce the term **habitat** and explain to the students that habitat is made up of four components that animals need to survive and reproduce.
2. Explain the four components of habitat (**cover, food, water, and space**).
3. Provide the students with the Wildlife Habitat Scavenger Hunt Worksheet and provide them with 20-30 minutes to try to find the items on the worksheet in their outdoor space.
*Inform the students that items they find do not have to look exactly like the picture on the worksheet.
4. Once students have returned to the classroom, have them group the items on the Wildlife Habitat Scavenger Hunt Worksheet into food, water, or cover by placing an X in the appropriate box on the *Wildlife Habitat Components Worksheet*. Explain to the students that some items may provide more than one part of habitat for an animal. For example, a tree could provide food, water, and cover for a fox squirrel or a pond/wetland could provide food, water, and cover for an American bullfrog.
5. Have the students then regroup the items using the Venn diagram provided. Place the items in 1 of the 7 groups. Using the fox squirrel example above, a tree would be placed in the “food, water, and cover” circle of the Venn diagram.
6. You can provide the students with examples of wildlife species and their habitat and have the students regroup the items based on the needs of those species. For example, a northern cardinal needs shrub and/or tree cover, eats insects, seeds, and berries, and gets its water from the berries it eats and from free-standing water (bird bath, puddle, creek, etc.). An example Venn diagram for a northern cardinal is provided on page 12.
7. **Extension:** Give the students the blank scavenger hunt sheet (page 9) and have them find their own items and categorize them appropriately.

NOTE: Information about the habitat needs of many common species can be found in the *Mammals of Indiana* publication on the Nature of Teaching website and in the *National Wildlife Habitat Education Program* manual (see page 3) or from other selected references.

Required Materials

- Clipboard
- Pen or pencil
- Wildlife Habitat Worksheet
- Wildlife Habitat Venn Diagram

Questions to ask students after participating in activity

1. What items did you find?
2. What category do the items you found represent (food, water, cover)?
3. Do any of the items you found provide multiple components of habitat (i.e. both food and cover or food and water, etc.)?
4. If we look at the items you found and compare it to a particular species' needs, does this area provide habitat for that species (i.e., are food, water, and cover present for that animal)?

LESSON 2 THE GOOD, THE POOR, AND THE EXCELLENT. WILDLIFE HABITAT QUALITY SCAVENGER HUNT

Take-a-Hike
LESSON PLAN



Estimated Time

60 minutes

Procedure

1. Introduce the term **habitat** and explain to the students that habitat is made up of four components that animals need to survive and reproduce.
2. Explain the four components of habitat (cover, food, water, and space).
3. Introduce the concept of **habitat quality**. The more resources (food, cover, water, space) an area provides for a given species the higher the quality of habitat. Wildlife health and population sizes are dependent on the quality of habitat.
4. Using the *Wildlife Trading Cards* available below, have the students review the checklist for a particular species and then go outside and search for all of the habitat components for the selected species.
5. Once students have returned to the classroom, have them discuss which habitat components are available on the school grounds, which components might be available nearby, and which components are missing.
6. Have the students create a bar graph (page 10) to determine the quality of habitat provided by your outdoor space and nearby area. The more resources available, the higher the quality of habitat for a specific wildlife species.
7. Explain to students that if resources are missing from an area or it does not provide good quality habitat we can use **habitat management** to create habitat or increase the quality of existing habitat.
8. **Extension:** Have students choose their own species, research those species' habitat needs, fill out the *Wildlife Trading Card*, draw a picture of the wildlife species, and then go outside to determine the habitat quality for those species.

NOTE: Information about the habitat needs of many common species can be found in the *Mammals of Indiana* publication on the Nature of Teaching website and in the *National Wildlife Habitat Education Program* manual or from other selected references.

Required Materials

- Clipboard
- Pen or pencil
- Wildlife Habitat Quality Worksheet
- Wildlife Habitat Quality Graph

Questions to ask students after participating in the activity

1. For a particular species, what items were you able to find and what items were missing?
2. Does this area provide habitat for a particular species?
3. If it does provide habitat, was the quality poor, good, or excellent, based on the number of resources available?
4. What items do we need to add to the area to increase the quality of habitat for a particular species?
5. When someone changes the resources available in an area (e.g., plant trees or shrubs or adds a water bath) to increase the habitat quality for a given species, what is the term used?

COMPONENTS OF WILDLIFE HABITAT – CAN YOU FIND THESE ITEMS?
(Circle each item when you find it)

			
Bird bath	Tree	Pine cone	Mushroom
			
Rock	Squirrel	Creek	Shrub
			
Grass	Log	Wild berries	Acorn or nut
			
Tree bark	Insect	Wild flower	Tree leaf
			
Puddle/Snow	Seed	Pond/Wetland	Burrow
Your Discovery	Your Discovery	Your Discovery	Your Discovery

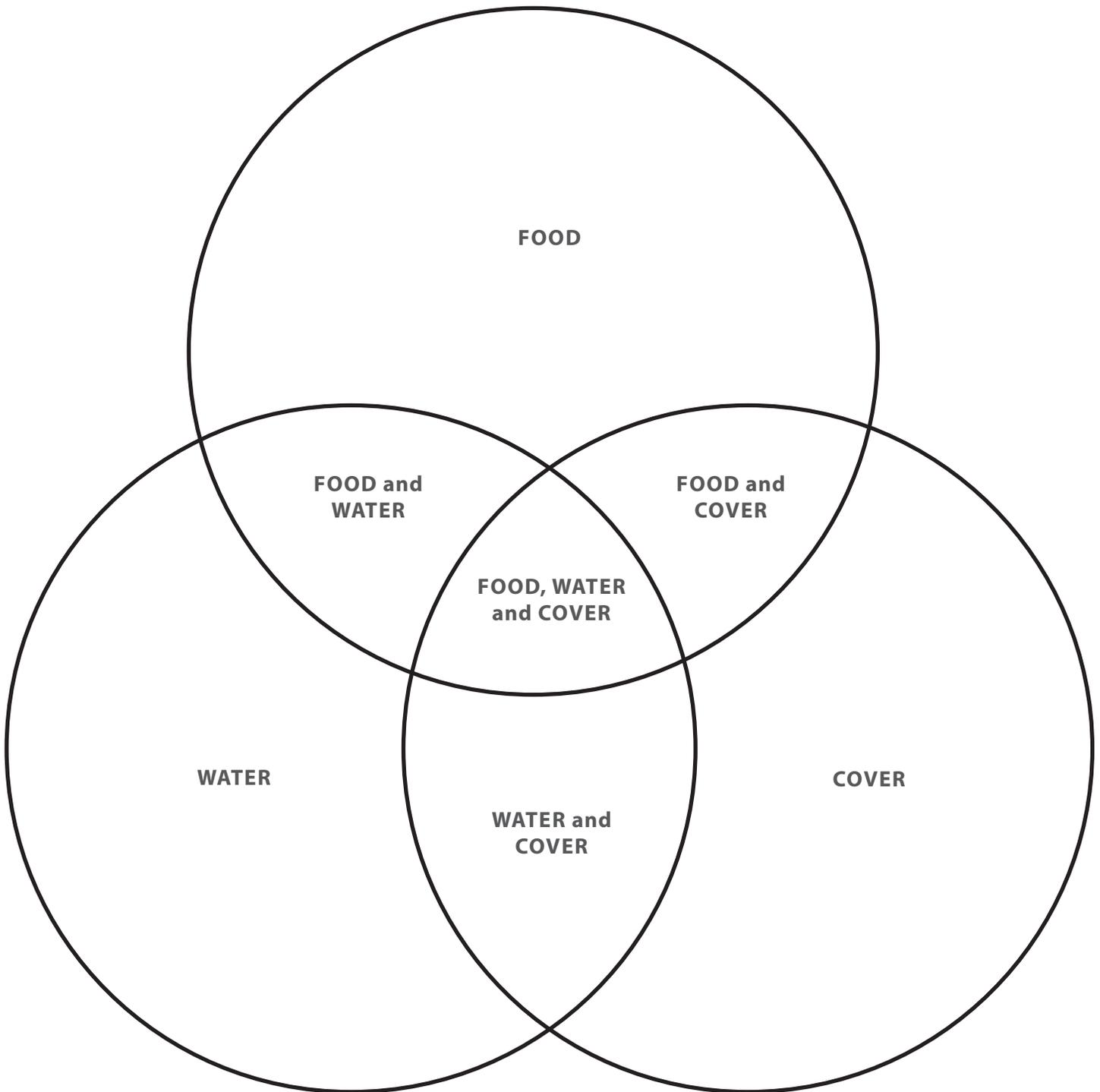
COMPONENTS OF WILDLIFE HABITAT – FIND YOUR OWN ITEMS THAT PROVIDE FOOD, WATER, AND COVER FOR WILDLIFE

Your Discovery	Your Discovery	Your Discovery	Your Discovery
Your Discovery	Your Discovery	Your Discovery	Your Discovery
Your Discovery	Your Discovery	Your Discovery	Your Discovery
Your Discovery	Your Discovery	Your Discovery	Your Discovery
Your Discovery	Your Discovery	Your Discovery	Your Discovery
Your Discovery	Your Discovery	Your Discovery	Your Discovery
Your Discovery	Your Discovery	Your Discovery	Your Discovery

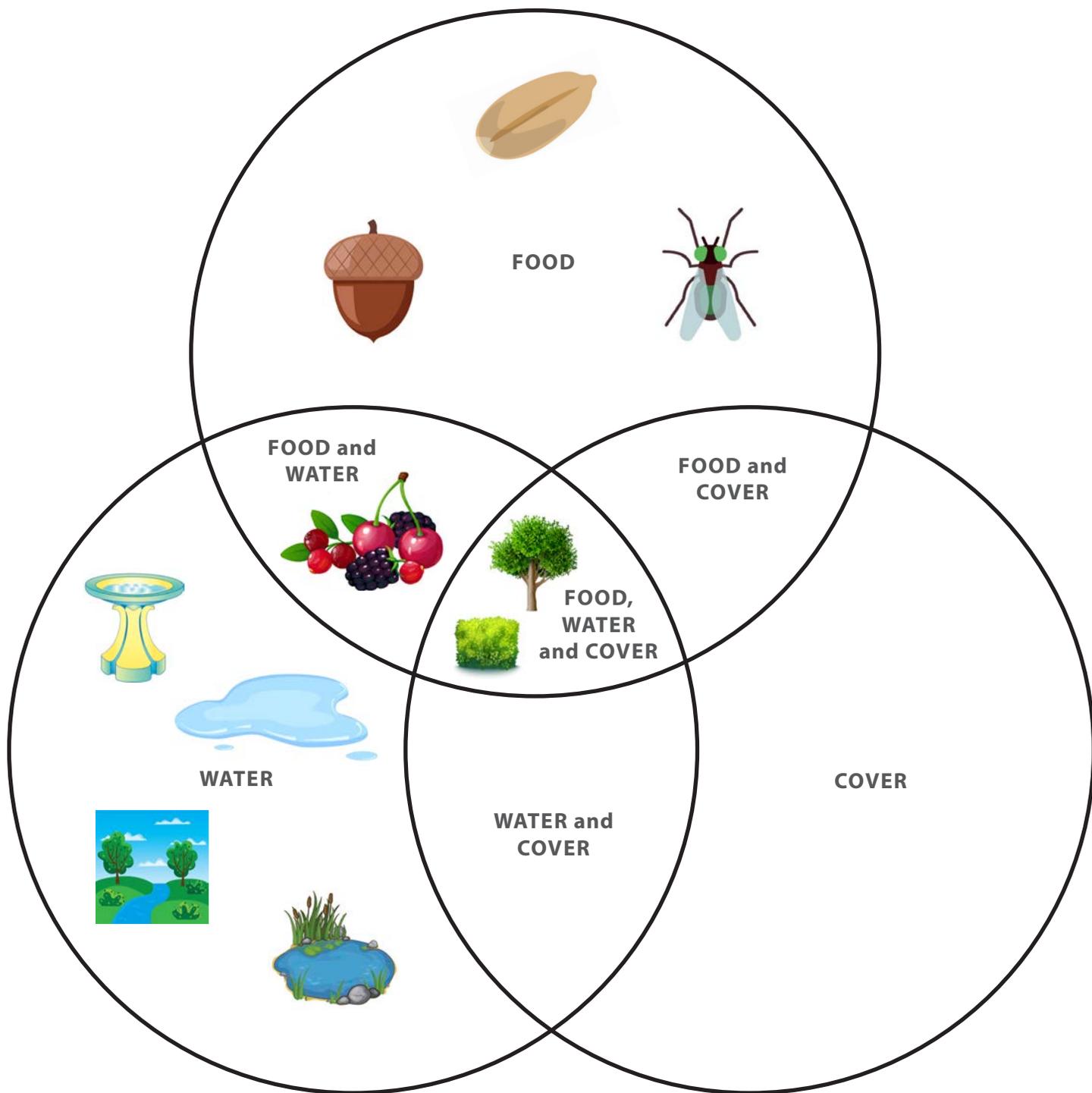
WILDLIFE HABITAT COMPONENTS CATEGORIES

*Place an X in each box for each component of habitat (food, water, or cover) that the item provides

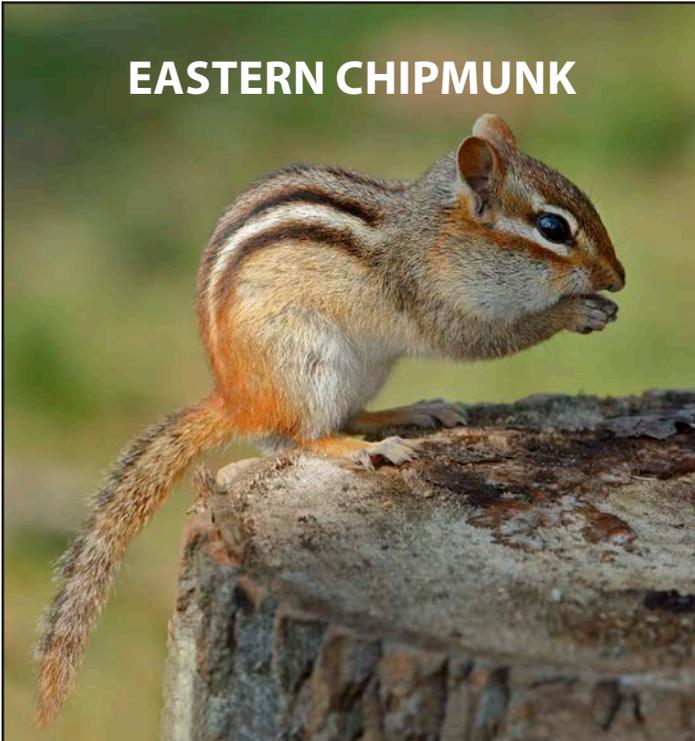
	FOOD	WATER	COVER
Bird bath			
Tree			
Pine Cone			
Mushroom			
Rock			
Squirrel			
Creek			
Shrub			
Grass			
Log			
Wild Berries			
Acorn or Nut			
Tree bark			
Insects			
Wildflower			
Tree leaf			
Puddle/snow			
Seed			
Pond			
Burrow			
Your discovery			
Your discovery			
Your discovery			



EXAMPLE VENN DIAGRAM FOR NORTHERN CARDINAL



EASTERN CHIPMUNK



Habitat Requirements

Food: acorns, maple seeds, beechnut, berries, mushrooms, earthworms, insects

Water: drinks free-standing water

Cover: open deciduous woods and brushy areas with downed woody debris, rock and wood piles, and stone fences

Space: home range is 1000 sq. ft. to 2.5 acres (~2.5 football fields)

Habitat Stats

Check the boxes as you find the items.

Place the number of each item you find next to the item.

Food

- | | | | |
|--------------------------------------|-------|-------------------------------------|-------|
| <input type="checkbox"/> Acorns | _____ | <input type="checkbox"/> Mushrooms | _____ |
| <input type="checkbox"/> Maple seeds | _____ | <input type="checkbox"/> Earthworms | _____ |
| <input type="checkbox"/> Beech nuts | _____ | <input type="checkbox"/> Insects | _____ |

Water

- | | | | |
|--------------------------------------|-------|------------------------------------|-------|
| <input type="checkbox"/> Mud puddle | _____ | <input type="checkbox"/> Pond | _____ |
| <input type="checkbox"/> Vernal pool | _____ | <input type="checkbox"/> River | _____ |
| <input type="checkbox"/> Stream | _____ | <input type="checkbox"/> Bird bath | _____ |

Cover

- | | | | |
|-------------------------------------|-------|-------------------------------------|-------|
| <input type="checkbox"/> Stone wall | _____ | <input type="checkbox"/> Oak tree | _____ |
| <input type="checkbox"/> Rock pile | _____ | <input type="checkbox"/> Beech tree | _____ |
| <input type="checkbox"/> Fallen log | _____ | <input type="checkbox"/> Maple tree | _____ |

Space

- | | |
|---|--|
| <input type="checkbox"/> Not enough space for 1 individual | <input type="checkbox"/> Enough space for multiple individuals |
| <input type="checkbox"/> Enough space for a few individuals | |

Habitat Quality

- Not Habitat** – at least 1 component missing
- Low Quality Habitat** – all components found, but in low supply
- Good Habitat** - all components found in good supply
- High Quality Habitat** – all components were found in good supply



RED FOX

Habitat Requirements

Food: rodents, rabbits, nesting birds, eggs, insects, seeds, fruit, and dead animals

Water: drinks free-standing water and preformed water

Cover: found in many areas including woodlands, grasslands, and shrublands

Space: home range is 1.9 – 19.3 mi²

Habitat Stats

Check the boxes as you find the items.

Place the number of each item you find next to the item.

Food

- | | | | |
|--|-------|--------------------------------------|-------|
| <input type="checkbox"/> Rabbit scat | _____ | <input type="checkbox"/> Caterpillar | _____ |
| <input type="checkbox"/> Mouse next | _____ | <input type="checkbox"/> Beetle | _____ |
| <input type="checkbox"/> Bird nest /eggs | _____ | <input type="checkbox"/> Berries | _____ |

Water

- | | | | |
|--------------------------------------|-------|------------------------------------|-------|
| <input type="checkbox"/> Mud puddle | _____ | <input type="checkbox"/> Pond | _____ |
| <input type="checkbox"/> Vernal pool | _____ | <input type="checkbox"/> River | _____ |
| <input type="checkbox"/> Stream | _____ | <input type="checkbox"/> Bird bath | _____ |

Cover

- | | | | |
|---|-------|-------------------------------------|-------|
| <input type="checkbox"/> Underground burrow | _____ | <input type="checkbox"/> Brush pile | _____ |
| <input type="checkbox"/> Grassy area | _____ | <input type="checkbox"/> Woodland | _____ |

Space

- | | |
|---|--|
| <input type="checkbox"/> Not enough space for 1 individual | <input type="checkbox"/> Enough space for multiple individuals |
| <input type="checkbox"/> Enough space for a few individuals | |

Habitat Quality

- Not Habitat** – at least 1 component missing
- Low Quality Habitat** – all components found, but in low supply
- Good Habitat** - all components found in good supply
- High Quality Habitat** – all components were found in good supply

WOOD FROG



Habitat Requirements

Food: insects, spiders, worms, slugs, snails

Water: lives in fresh water

Cover: lives in forested wetlands without fish, needs wet soils, leaves, and logs as cover

Space: minimum home range size is 1000 square feet (10 yards x 10 yards)

Habitat Stats

Check the boxes as you find the items.

Place the number of each item you find next to the item.

Food

- | | | | |
|--------------------------------------|-------|------------------------------------|-------|
| <input type="checkbox"/> Cricket | _____ | <input type="checkbox"/> Earthworm | _____ |
| <input type="checkbox"/> Grasshopper | _____ | <input type="checkbox"/> Slug | _____ |
| <input type="checkbox"/> Spider | _____ | <input type="checkbox"/> Snail | _____ |

Water

- | | |
|--------------------------------------|-------|
| <input type="checkbox"/> Mud puddle | _____ |
| <input type="checkbox"/> Vernal pool | _____ |

Cover

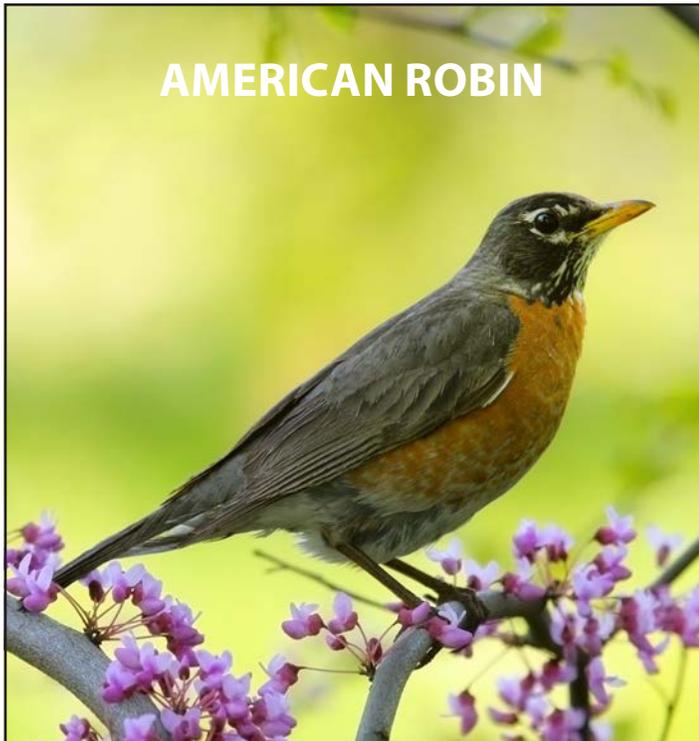
- | | | | |
|--|-------|-------------------------------------|-------|
| <input type="checkbox"/> Deciduous tree | _____ | <input type="checkbox"/> Shrub | _____ |
| <input type="checkbox"/> Coniferous tree | _____ | <input type="checkbox"/> Apple tree | _____ |
| <input type="checkbox"/> Short grass | _____ | | |

Space

- | | |
|---|--|
| <input type="checkbox"/> Not enough space for 1 individual | <input type="checkbox"/> Enough space for multiple individuals |
| <input type="checkbox"/> Enough space for a few individuals | |

Habitat Quality

- Not Habitat** – at least 1 component missing
- Low Quality Habitat** – all components found, but in low supply
- Good Habitat** - all components found in good supply
- High Quality Habitat** – all components were found in good supply



AMERICAN ROBIN

Habitat Requirements

Food: insects, earthworms, berries

Water: drinks free-standing water

Cover: forests, woodlands, areas where lawns are mixed with shrubs and trees

Space: home range is minimum of 4,000 ft²

Habitat Stats

Check the boxes as you find the items.
Place the number of each item you find next to the item.

Food

- | | | | |
|------------------------------------|-------|--------------------------------------|-------|
| <input type="checkbox"/> Earthworm | _____ | <input type="checkbox"/> Caterpillar | _____ |
| <input type="checkbox"/> Beetle | _____ | <input type="checkbox"/> Spider | _____ |
| <input type="checkbox"/> Grub | _____ | <input type="checkbox"/> Berries | _____ |

Water

- | | | | |
|--------------------------------------|-------|------------------------------------|-------|
| <input type="checkbox"/> Mud puddle | _____ | <input type="checkbox"/> Pond | _____ |
| <input type="checkbox"/> Vernal pool | _____ | <input type="checkbox"/> River | _____ |
| <input type="checkbox"/> Stream | _____ | <input type="checkbox"/> Bird bath | _____ |

Cover

- | | | | |
|--|-------|-------------------------------------|-------|
| <input type="checkbox"/> Deciduous tree | _____ | <input type="checkbox"/> Shrub | _____ |
| <input type="checkbox"/> Coniferous tree | _____ | <input type="checkbox"/> Apple tree | _____ |
| <input type="checkbox"/> Short grass | _____ | | |

Space

- | | |
|---|--|
| <input type="checkbox"/> Not enough space for 1 individual | <input type="checkbox"/> Enough space for multiple individuals |
| <input type="checkbox"/> Enough space for a few individuals | |

Habitat Quality

- Not Habitat** – at least 1 component missing
- Low Quality Habitat** – all components found, but in low supply
- Good Habitat** - all components found in good supply
- High Quality Habitat** – all components were found in good supply

SPECIES:

Picture or Illustration

Habitat Requirements

Food:

Water:

Cover:

Space:

Habitat Stats

Check the boxes as you find the items.
Place the number of each item you find next to the item.

Food

Water

Cover

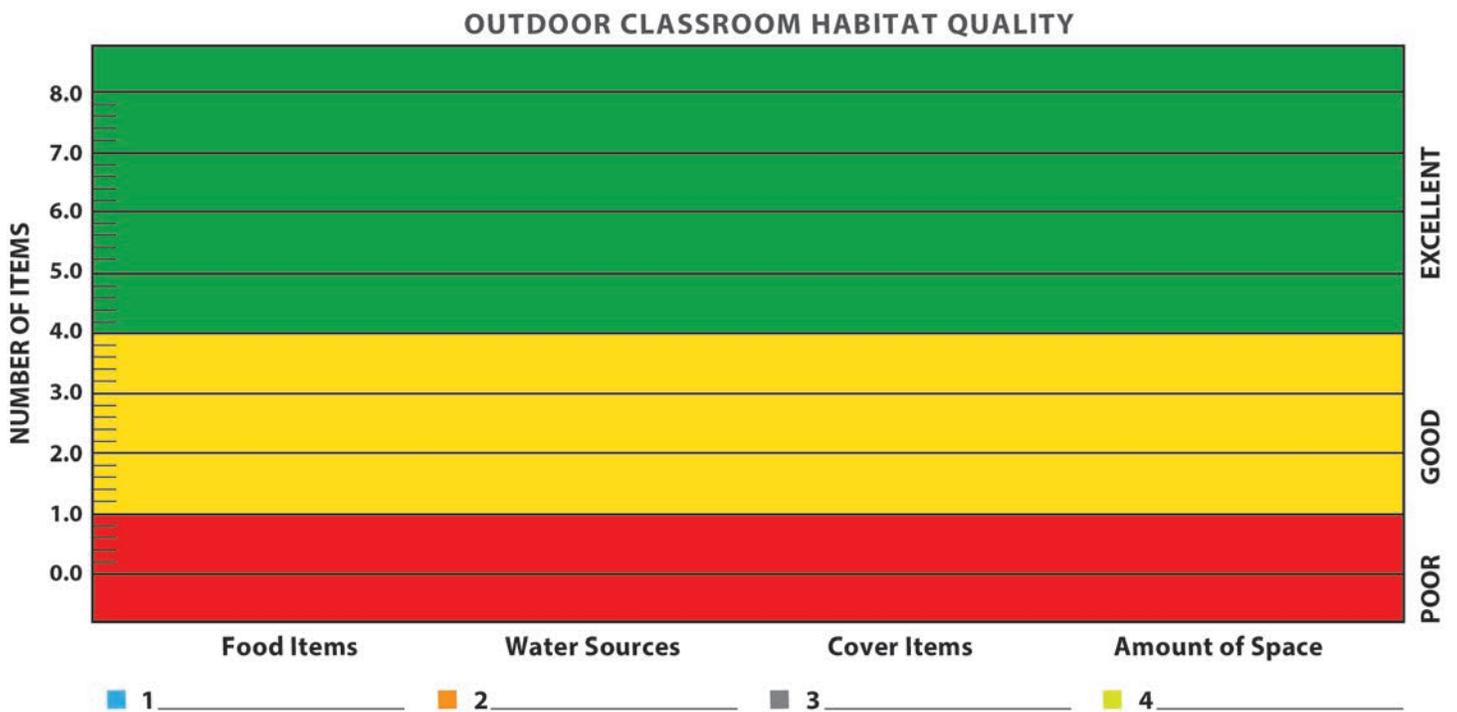
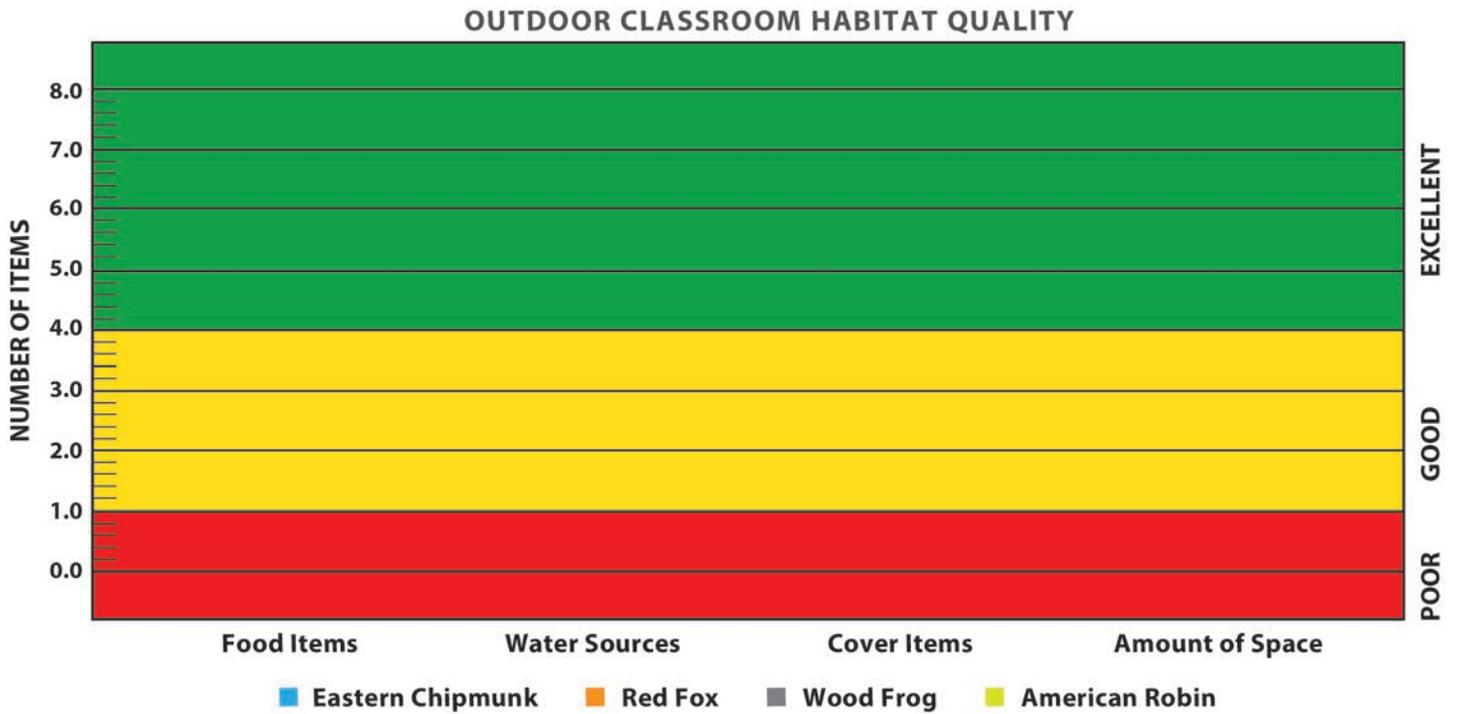
Space

Habitat Quality

- Not Habitat** – at least 1 component missing
- Low Quality Habitat** – all components found, but in low supply
- Good Habitat** - all components found in good supply
- High Quality Habitat** – all components were found in good supply

ACTIVITY GRAPHING OUTDOOR CLASSROOM HABITAT QUALITY

Take-a-Hike



LESSON 3 HIKING FOR A HEALTHY HEART

Take –a–Hike LESSON PLAN



Estimated Time

45 minutes

Procedure

1. Read 1 or 2 of the recommended readings to the class (page 16). Review this lesson's vocabulary words with the students (all definitions are from Merriam-Webster, unless otherwise noted): **Cardiovascular, circulatory system, heart rate or pulse, heart, physical activity, and resting heart rate.**
2. Discuss the reading(s) with the students. Focus on the importance of physical activity to heart health. Discussion questions:
 - a. Why is it important to keep our hearts healthy?
 - b. How can we keep our hearts healthy?
 - c. Why is physical activity/exercise important to keep our hearts healthy?
 - d. What are some things you like to do to stay active?
 - e. What types of physical activity can be done outside?
2. Pass out the Heart Rate Tracker Worksheet (page 18) to students. Provide students with a clipboard, if desired, so they have a surface to write on while on the hike.
3. Teach students how to take their heart rate.
 - a. The best places to take your heart rate or pulse are the inside of the wrist, inside of your elbow, side of your neck, and on the top of your foot.
 - b. Have students find their pulse either on the inside of their wrist or the side of their neck.
4. Students should only use their pointer and middle fingers to feel their pulse. Once students have found their pulse, and while they are still sitting at their desks, have them take their resting heart rate and record it on their worksheets. (Note: A resting heart rate is usually between 60-100 beats per minute.)
5. Have students hypothesize what will happen to their heart rate after engaging in physical activity. For example, ask "What do you think will happen to our heart rate after we walk for 5 minutes?" or "Do you think your heart rate will be faster or slower after doing jumping jacks?" Also, ask why they think their hypotheses will occur.
6. Next, the students will go outside for a hike. (Note: If there is inclement weather, this activity can also be completed either school hallways or the gymnasium.)
 - a. After walking for 5 minutes, have students stop and take their heart rate again. Have them record this number on their worksheets.
 - b. Continue hiking/walking. Make two more stops to do 30

Required Materials

- 1-2 of the suggested readings
- 1 Heart Rate Tracker Worksheet per student
- Writing utensils
- 1 clipboard per student (optional)
- 1 sheet of graph paper per student (optional)

jumping jacks and run in place for 30 seconds. After each of these activities, have the students take and record their heart rate.

- c. Once you return to the classroom, have the students rest for two minutes before taking their heart rates one last time. Have them record this number on their worksheets.
7. When all of the students have finished entering their heart rate data into their worksheets, graph their results. This can be done either individually on graph paper or as a class on the board. Discussion questions for graph:
 - a. Does the graph support your original hypotheses? If not, what does the graph show?
 - b. Do different people have different heart rates?
 - c. Why may people have different heart rates?
 - 8 Conclusion:
 - a. All physical activity is good for our hearts. We want to try to get 60 minutes every day.
 - b. Different types of physical activity have different effects on our heart rate. Vigorous physical activity raises our heart rate more than moderate physical activity.
 - c. You can add more physical activity to your day by doing simple things like walking more or going for a hike.
 - d. Doing physical activity outside has added benefits for our mental health.

Suggested Readings

Lesson 3 – Hiking for a Healthy Heart

K-2/3

- *My Amazing Body: A First Look at Health and Fitness* by Pat Thomas
- *The Busy Body Book: A Kid's Guide to Fitness* by Lizzy Rockwell
- *Henry's Heart: A Boy, His Heart, and a New Best Friend* by Charise Mericle Harper

K-5

- *Hear Your Heart* by Paul Showers

2/3-5

- *The Heart: All about Our Circulatory System and More!* By Seymour Simon
- *Look Inside: Your Heart and Lungs* by Ben Williams



Estimated Time

45 minutes

Procedure

- Review the following lesson vocabulary words with the students (all definitions are from Merriam-Webster, unless otherwise noted): **Centering, meditation, and mindfulness.**
- Read 1 or 2 of the suggested readings to the class.
- Discuss the readings with the students. Focus on the character's feelings and emotions. Potential discussion questions:
 - How did the character in the story feel?
 - Are our feelings and emotions part of being healthy?
 - Did the characters do anything to change the way they were feeling?
 - Do you think you could meditate (or try mindfulness or centering) when you are feeling angry, sad, frustrated, or anxious?
 - The above emotion vocabulary words can be found and explored in the Nature of Teaching: Health & Wellness Downloadable here: <https://ag.purdue.edu/extension/nature/Pages/Health-Lesson-Plans.aspx>
- Introduce the concept of the experiment design. Explain to students that they can be scientists and use experiments to explain things that happen to them in everyday life. Review the steps and terms associated with the experiment design:
 - Ask a question.
 - Make a hypothesis.
 - Test the hypothesis with an experiment.
 - Analyze the results of the experiment.
 - Draw a conclusion.
 - Communicate results.
- Distribute 1 Centering worksheet per student. Explain that they will be using the steps of the experiment design to learn about how nature and centering can affect their feelings and emotions.
- Instruct students to complete only the first two questions of the Centering Worksheet.
- Using the Centering Worksheet.
 - Ask students to record how they are feeling right now.
 - Have students hypothesize how they will feel after completing the centering activity outdoors and record that.
 - Take students outdoors on a nature hike and instruct them to find and record on the worksheet: 5 things they can see, 4 things they can hear, 3 things they can touch, 2

Required Materials

- 1-2 of the suggested readings
- 1 Experiment Worksheet per student
- 1 Centering Worksheet per student
- Writing utensils
- 1 clipboard per student (optional)

things they can smell, and 1 thing they could (but should not) taste.

- Have students reflect and record their feelings and emotions after completing the centering activity.
- Return to the classroom and have students complete the last two steps of the worksheet.
 - Analyze the results of Centering Worksheet.
 - Have students reflect and record their feelings and emotions after completing the centering activity.
 - Draw a conclusion from the results of the experiment.
 - Communicate the results in written form and/or by reporting out loud to the class.

Suggested Readings

Lesson 4 – Hiking for a Healthy Mind

K-3

- *My Five Senses* by Aliko
- *The Listening Walk* by Paul Showers
- *Look, Listen, Taste, Touch, and Smell: Learning About Your Five Senses* by Pamela Hill Nettleton
- *On a Magical Do-Nothing Day* by Beatrice Alemagna
- *Steps and Stones: An Anh's Anger Story* by Gail Silver

3-7

- *How to Get Unstuck From the Negative Muck: A Kid's Guide to Getting Rid of Negative Thinking* by Lake Sullivan
- *Mindful Mantras Books 1-3* by Laurie Wright
- *A Pebble for Your Pocket: Mindful Stories for Children and Grown-Ups* by Thich Nhat Hanh
- *Charlotte and the Quiet Place* by Deborah Sosin

K-5

- *Listening to My Body* by Gabi Garcia
- *Mind Bubbles: Exploring Mindfulness With Kids* by Heather Krantz
- *A Handful of Quiet* by Thich Nhat Hanh
- *Breathe Like a Bear: 30 Mindful Moments for Kids to Feel Calm Anytime Anywhere* by Kira Willey

Any grade

- *I Am Peace: A Book of Mindfulness* by Susan Verde
- *Silence* by Lemniscates

Name: _____

- Find your pulse on the inside of your wrist or the side of your neck.
- Use your pointer and middle fingers to feel your pulse.
- Once you have found your pulse, count the number of heartbeats you feel for 30 seconds.
- Record this number as your resting heart rate on the worksheet.

ACTIVITY	HEART RATE
1. Resting (before the hike)	
2. Walking	
3. Jumping Jacks	
4. Running in place	
5. Resting (2 minutes after the hike)	

Name: _____

- Find your pulse on the inside of your wrist or the side of your neck.
- Use your pointer and middle fingers to feel your pulse.
- Once you have found your pulse, count the number of heartbeats you feel for 30 seconds.
- Record this number as your resting heart rate on the worksheet.

ACTIVITY	HEART RATE
1. Resting (before the hike)	
2. Walking	
3. Jumping Jacks	
4. Running in place	
5. Resting (2 minutes after the hike)	

Name: _____

- Find your pulse on the inside of your wrist or the side of your neck.
- Use your pointer and middle fingers to feel your pulse.
- Once you have found your pulse, count the number of heartbeats you feel for 30 seconds.
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Name: _____

- Find your pulse on the inside of your wrist or the side of your neck.
- Use your pointer and middle fingers to feel your pulse.
- Once you have found your pulse, count the number of heartbeats you feel for 30 seconds.
- Record this number as your resting heart rate on the worksheet.

ACTIVITY	HEART RATE
1. Resting (before the hike)	
2. Walking	
3. Jumping Jacks	
4. Running in place	
5. Resting (2 minutes after the hike)	

Name _____

Ask a question: What am I feeling right now?

Hypothesize how you will feel after completing the centering activity

Make a plan and find the 5, 4, 3, 2, 1 things in nature (outdoors):

5 things you can see

4 things you can hear

3 things you can touch

2 things you can smell

1 thing you could (but should not) taste

Observe how you felt after completing the 5, 4, 3, 2, 1 activity:

Draw a conclusion: Compare your hypothesis of how you felt before the activity to how you felt after the activity
