



# **CAVOC**

**(Cedric A. Vig Outdoor Classroom)**

**Second Grade Curriculum**  
**School District of Rhineland**

# TABLE OF CONTENTS

Second Grade Schedule ..... 3

## Fall

Fall Background Information (Birds)  
& Pre Visit Activities ..... 5-6

CAVOC Activity #1 Goin' on a Bird Hunt ..... 7-9

CAVOC Activity #2 Bird Beaks ..... 10-12

CAVOC Activity #3 Birds vs. Worms ..... 13-14

CAVOC Activity #4 Make a Birdhouse (S.T.E.A.M.) ..... 15

CAVOC Activity #5 Fire Safety/Building a Campfire ..... 16

Rainy Day Activities ..... 17

Follow Up Activities ..... 18

## Winter

Winter Background Information (Animal Survival) ..... 20-21

CAVOC Activity #1 Snowshoeing ..... 22

CAVOC Activity #2 Some Animals are Camouflaged ..... 23-24

CAVOC Activity #3 Tubing ..... 25

CAVOC Activity #4 Museum Scavenger Hunt ..... 26-30

CAVOC Activity #5 STEAM Challenge ..... 31

Follow Up Activities ..... 32

**Spring**

Spring Background Information/ Pre-Visit Activities(Bog Habitat) . . . 34-35

CAVOC Activity #1 Critter Capture ..... 36-37

CAVOC Activity #2 Bog Life ..... 38-39

CAVOC Activity #3 Why Wetlands Why Forests? Why Prairie? ..... 40-41

CAVOC Activity #4 Wooden Bog Boats (S.T.E.A.M.) ..... 41-43

CAVOC Activity #5 The Great Boat Race ..... 44

Rainy Day Activities ..... 45

Follow Up Activities ..... 46

## SECOND GRADE SCHEDULE

- Make a fourth and fifth group with students from each of the three second grade classrooms (see chart).
- Each teacher chooses an activity to teach to each of the second grade groups. Each group of students will visit each teacher. Begin with your “homeroom”, then move the students (with the help of an adult chaperone) to the next alphabetical teacher. For example: Papa to Prom, Prom to Richter; Richter to Vannatter ; Vannatter back to Papa.

9:00-9:45 First Rotation (All teachers begin with their “homerooms”.)

9:45-10:30 Second Rotation

10:30-11:15 Third Rotation

11:15-11:45 Lunch

11:45-12:15 Recess (bring balls, frisbees, hula hoops, etc./see Joe)

12:15-1:00 Fourth Rotation

1:00-1:45 Fifth Rotation

1:50 Board Buses



# Fall

## CAVOC

(Cedric A. Vig Outdoor Classroom)

**Second Grade Curriculum**  
**School District of Rhineland**

# PRE CAVOC VISIT - BIRDS

## BACKGROUND INFORMATION/ACTIVITIES

**(Share one week before CAVOC experience):**

### Setting the Stage

-Second grade students will learn that many animals and plants live in a particular habitat. Animals' habitats provide them with cover (shelter), food, space, and water.

-Students will learn to properly use binoculars when observing wildlife.

-Students (like scientists) obtain information (observe), so they can communicate their findings (report), through writing and pictures.

-Second graders will also learn about man-made bird shelters. These are called bird houses. We will make a wren house to take home and hang outside for our feathered friends.

Animals need food, air, water, space to find these things, and shelter. Plants need air, water, nutrients, and light.

- 1) In order to help students understand that organisms have basic needs, and that organisms need to live in a particular environment to meet their needs, read aloud the following picture book:
- 2) Read Aloud: [Welcome Brown Bird](#)
- 3) Then, show students, [Bird Habitats Google Slides Presentation](#). The students observe the Google Slides to learn what birds need to survive. This helps visual learners to be more engaged.
- 4) After the presentation, ask students- *"What do birds need in order to survive?"* This question helps lead into our lesson on bird habitats. The student response should be that birds need food, water, space, and covering (shelter). Guide their understanding to realize that - "The

places where organisms live, that provide what they need to survive, are called the animal's **habitat**."

5) Now ask, "Do all birds need the same habitat?" The student response should be that all birds do not need the same habitat to survive. It depends on the type of bird. These questions & answers lead nicely into the video below:

6) Watch: Youtube video: [Birds - Educational Video](#)

### Interesting Bird Facts:

- Birds have feathers, wings, lay eggs, and are warm-blooded.
- There are around 10,000 different species of birds worldwide.
- The Ostrich is the largest bird in the world. It also lays the largest eggs and has the fastest maximum running speed (97 kph).
- Scientists believe that birds evolved from theropod dinosaurs.
- Birds have hollow bones which help them fly.
- Some bird species are intelligent enough to create and use tools.
- The chicken is the most common species of bird found in the world.
- Kiwis are endangered, flightless birds that live in New Zealand. They lay the largest eggs relative to their body size of any bird in the world.
- Hummingbirds can fly backwards.
- The Bee Hummingbird is the smallest living bird in the world, with a length of just 5 cm (2 in).
- Around 20% of bird species migrate long distances every year.
- Homing pigeons are bred to find their way home from long distances away and have been used for thousands of years to carry messages.

(Fun facts from [Science Kids](#) a fun Science & Technology site for kids)

# CAVOC Activity #1 Goin' on a Bird Hunt

Where? - Designated Nature Trails - 45 minutes  
(Can be conducted in the museum, if bad weather)

Standard 2-LS4-1 - Biological Evolution: There are many different kinds of living things in any given area, and they exist in different places on land and in the water.

Standard ESS2-E - Biogeology: Plants and animals can change their environment.

## Process

1. (Colored/Laminated bird posters are clasped, ahead of time, to posts along the below route.) **\*\*Hint: It is a good idea to install a birding app on your cell phone the day before hiking out on this CAVOC experience.** Students will definitely ask, "What was that? What kind of bird was that?"\*\*
2. Before heading out on the trail, be sure to instruct students in the **proper use & safety of the binoculars**. Mention also that the quieter they are able to stay, the more likely the group will see multiple birds.

-----



## **Binoculars for Kids - How to (from [Outsidemom.com](http://Outsidemom.com))**

- Make sure children keep the strap around their necks at all times! This rule has saved the life of many a binocular.
- Fit the binoculars to their eyes. Start with the binoculars rolled out to a place you know is slightly too big for their eye width. Ask children how many circles they see, if they're looking through the binoculars they should indicate that they see two circles. Slowly roll the binoculars smaller and smaller, ask children to tell you as soon as those two circles turn into one.
- Zero in on a specific object: Have children stare at a relatively close object (maybe 20 feet away) before putting the binoculars up to their eyes. Tell them to continue staring really hard at that object, they need to keep their eyes right on it! Have children bring the binoculars up to their eyes without looking away from the object. Do they still see it? Yes!
- Adjust the focus. While they are staring at the object put their finger on the focus wheel (the rolling knob on the top), explain that this is the wheel that focuses the picture. Ask them if the object they are looking at looks blurry, likely it will (if not unfocus the binoculars so they can practice). Have children roll the wheel until the object they are looking at becomes clear.
- Repeat Steps 1-3 until they have it down.
- **Don't walk with binocs up to your eyes!** You have no idea how tempting/dangerous this is, for EVERY child!
- Don't just look, listen too. If children are having a hard time finding anything, tell them to sit still for a few minutes and listen. Wait until they hear something, then sneak up on the sound.

-----

3. Utilize the [CAVOC Fall Science Journal - Second Grade](#) (Fall Section, Pages 3-13), binoculars, clipboards, & pencils
4. Students will head southeast on Flying Squirrel to Deer Ridge Trail. Travel South on Deer Ridge Trail, stopping to take note of Bird Posters, live birds, Den Trees/ Snags around marker #19, and any other potential bird habitat. We will locate areas that birds could be found. Discuss how different birds protect themselves in different Wisconsin habitats. Stop often to use the binoculars.
5. Sketch any habitat which might be good cover for a bird and, of course, any birds you might be fortunate to see. Notice water and food sources, remembering to sketch each and label them with what they are & which bird(s) might eat them/ use that source of water.
6. Remind students to label each diagram, so they make sense later. Scientists not only observe, but also record their observations as accurately as possible.

## CAVOC Activity #2 Bird Beaks - Specialization

**Where? - Outside under the picnic pavillion - 45 minutes**  
**(Can be conducted in the Great Room, if bad weather)**

Standard 2-LS2-2 - Structure and Function: The shape and stability of structures of natural and designed objects are related to their functions.

Standard LS1.D - Analyze and Interpret Data: Analyze data from tests of an object or tool to determine if it works as intended.

### Process

- Students will be studying the specific adaptation of birds' beaks and which beak shapes are best adapted to specific foods (or specific habitat). Break students into six groups to use: \*\*6 sets of tools (in stackable containers) to represent different bird beak shapes (ie: **pruning shears** - eagles/hawks, **regular pliers** - grosbeak/parrot, **skinny needle nose pliers** - woodpecker/ sandpiper, **tongs** - ducks/geese, **bulb syringe/pipette** - hummingbird, **chopsticks** - great blue heron/egret, etc.,)
- Inform the students that by looking at the mouth parts or beak of a bird, we can gather clues as to what and how they eat. There are six basic types of bird beaks: **Hooked** (birds of prey - eagles, hawks, owls), **Cracker** (seed crackers - blue jays, grosbeaks, cardinals), **Tweezer** (insect-eaters - woodpeckers, wrens, orioles), **Strainer** (water birds - ducks, spoonbills, **Probing** (nectar sippers - hummingbirds, spinebills, honeyeaters), and **Spear** (stabbing fish - herons, kingfishers, egrets). Students will simulate how each type of bird beak eats!
  - **Hooked** - Some birds, called raptors, have sharp hooked beaks that work like powerful scissors. Because birds have no teeth,

raptors use their strong jaws and sharp edges of their beaks to snap bones and tear apart their prey. Then they swallow the prey (or large parts of the prey) whole. Have students take turns using the pruning shears to snap twigs in half, the way an owl, hawk, or eagle would snap a mouse, gopher, or fish's bones.

- **Cracker** - Some birds have beaks that are heavy-duty and can crack or crush the tough outer shells of seeds. These seed eaters use their thick beaks to crack open seeds and eat the nutritious nut or grain inside. Model using the regular pliers to gently pick up a sunflower seed. Then, squeeze the pliers a bit to crack the tough outer shell and pull out the food inside. Have students take turns trying this "beak", the way cardinals, grosbeaks, & chickadees eat.
- **Tweezer** - Another group of birds have beaks that can reach into tight places and pull out small prey from where they hide. The prey might be hiding in holes in the ground or in the bark of trees. The prey may be as tiny as ants, or as big and squirmy as a grub or caterpillar. Demonstrate by tucking a seed or fake grub into one of the holes in the half of a bark-covered log provided. Then, use the skinny needle-nosed pliers or tweezers to remove it again, the way a woodpecker, robin, or sandpiper does. Allow the students the opportunity to do the same.
- **Strainer** - Many water birds have mouthparts that sort or sift foods from the water they are floating in . Sprinkle marbles into a basin of water. Demonstrate how to use the tongs to dig up and strain the "food" from the water. Most ducks, geese, & swans have beaks like this. They use them to sift water plants and small sand dwelling creatures out of the water they live in.

- **Probing** - Another group of birds has mouth parts that work like a hypodermic needle or a straw. They use these to suck nectar from flowers. Ask the children to use the bulb syringe or pipette to draw up water from one cup and empty it into another cup, like hummingbirds, spinebills, & honeyeaters suck nectar from fragrant flowers.
- **Spear** - There are also water birds with sharp, spear-like beaks. Some of them dive in to spear the fish they eat, while others stand very still and wait for their prey to swim by. Float popped popcorn on the water in a basin. Demonstrate with the chopsticks how a heron, kingfisher, or egret might snap up a small fish as it swims by.

**If time:** Have students draw and /or write their observations /reflections in their CAVOC Nature Journal (pp. 9-11).

## **ACTIVITY #3 Birds vs. Worms**

**(Various outdoor locations) 45 minutes**

### Standard

- K- Use a model to represent the relationship between the  
ESS3- needs of different plants and animals (including humans)  
1. and the places they live.

### Process

- “Camouflage Helps Both Predator and Prey!” In this activity, [Birds & Worms](#), students will discover the value of camouflage as they pretend to be birds in search of colored worms on various surfaces. Each time the groups will enter data into bar graphs found in their CAVOC Science Journal - Second Grade (Fall Section, Pages 7-9).

### Activity

- Many animals are “color coordinated” with their surroundings. Any coloration, body shape, or behavior that helps an animal hide is called **camouflage**.
- Collect shreds of colored paper in equal amounts of at least three colors, that can be used to represent “worms” in an outdoor setting.

**Once outside:**

- Spread or hide your colored objects (“worms”) in a defined area
- Have children “fly” around as birds and try to find the “worms”
- Make a chart or graph to visually record children’s findings

If your first trial was on grass, try the same exercise again on asphalt, or within a forested area. If you are working with multiple children, construct a relay race to find the scattered “worms.” The winner of the race is the first team to get every child on the team at least one “worm.” Children will most likely find the least camouflaged objects first.

**After completing the activity, ask:**

- What color was easiest to find? What color was hardest to find?  
Why?
- Was there a pattern to the order in which the different colored “worms” were found?

## **ACTIVITY #4 Build a Birdhouse (S.T.E.A.M.)**

**45 Minutes**

### Standard

K-2- Develop a simple sketch, drawing, or **physical model** to  
ETS1-2. illustrate how the shape of an object helps it function as  
needed to solve a given problem.

### Standard

K-2-ETS1-2. The shape and stability of structures of natural and designed  
objects are related to their functions.

### Process

- We will observe and reflect on the differences between a birdhouse for a wren, a birdhouse for a bluebird, and a birdhouse for a wood duck
- Then, using pre-cut & pre-drilled wooden pieces, students will construct, as well as decorate, their own wren houses to take home and hang in their yards.
- Students will also take home information about best places to hang/attach their wren house in order to attract wrens.



**ACTIVITY #5 “Gimme S’More” Fire Safety**  
**Outside - Fire Ring - 45 Minutes**

## **RAINY DAY ACTIVITIES**

- **Activity #1 Goin' on a Bird Hunt**  
**(Can be held in the nature museum, if bad weather)** (45 minutes)
  
- **Activity #2 Bird Beaks - Specialization**  
**(Can be conducted in the Kitchen, if bad weather)** (45 minutes)
  
- **Activity #3 Birds vs. Worms**  
**(Can be conducted in the Great Room, if bad weather)** (45 minutes)
  
- **Activity #4 Build a Birdhouse**  
**(Same locale: Basement S.T.E.A.M Lab)** (45 minutes)

## **SUGGESTED FOLLOW UP ACTIVITIES (Reflection/Culmination)**

**(Share one week after CAVOC experience):**

- Students will finish these sentences:
  1. Birds are...
  2. Birds can...
  3. Birds have...
- Students will use the Bird Trading Cards to sort birds into herbivore, carnivore, and omnivore categories.
- Bird Bingo (Shuffle and use the Bird Trading Cards to call for birds to be covered by paper chips on Bird Bingo Boards)
- Teach song;

### ***This Is the Way We Scratch for Worms (This Is the Way)***

This is the way we scratch for worms,  
Scratch for worms, scratch for worms.  
This is the way we scratch for worms,  
Filling up our belly.

This is the way we peck for seeds,  
Peck for seeds, peck for seeds.  
This is the way we peck for seeds,  
Filling up our belly.

This is the way we sit on our eggs,  
Sit on our eggs, sit on our eggs.  
This is the way we sit on our eggs,  
To keep our babies growing.

This is the way we flap our wings,  
flap our wings, flap our wings.  
This is the way we flap our wings,  
Soaring through the sky.

This is the way we fly away,  
fly away, fly away.  
This is the way we fly away,  
Escaping from a predator.



# Winter

## CAVOC

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# WINTER BACKGROUND INFORMATION

## ANIMAL ADAPTATIONS

Animals are adapted to their environment in order to survive. Animals may be adapted to changes in their habitats. For example, snowshoe rabbits have a white winter coat to blend with a snowy environment and a tan summer coat to blend with summer ground and vegetation colors. Chameleons change color to blend with their surroundings. The walking-stick insect can look like a twig or stick. Fawns have spotted hair that resembles dappled light on the forest floor.

The students will understand the importance of adaptation to animals. They will be looking at pictures of animals (snowshoe hare, long-tailed weasel, chameleon, walking stick, fawn, toad, tree frog, garter snake) that have adapted to their environment to survive.

They will learn that some animals in the winter change color to survive. For example, the snowshoe hare and the long-tailed weasel change colors to help them hide from their enemies.

The students will learn the importance of animals being camouflaged by participating in an outdoor/indoor scavenger hunt. Outdoors in the snow, students will locate and list a variety of white objects (kleenex, cotton ball, white stuffed animal, white towel, white paper). If indoors in the animal museum, students will locate a variety of animals, parts of habitat, or other objects from a prepared CAVOC Animal Museum scavenger hunt.

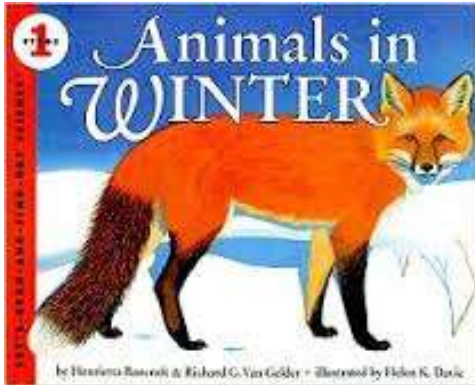
In another activity, the students will play [\*The Thicket Game\*](#). The students will become “predator” and “prey” in a version of “hide and seek” while they learn the importance of adaptation to animals.

The students will also participate in snowshoeing, sledding and a STEAM Challenge while visiting CAVOC in the winter.

## Pre Visit Activities

- Teacher will read *Animals in the Winter* by Richard Van Gelder

<https://www.youtube.com/watch?v=zU1DP8GPghE>



- Begin a KWL chart to see what the students know about how animals survive in the winter. Refer back to the chart after the winter visit to CAVOC.
- Watch this introductory video on how the Inuit People build an igloo to survive the cold. <https://youtu.be/R-x5QOSqP3E>

# ACTIVITY #1 SNOWSHOEING

45 Minutes



## ACTIVITY #2 Some Animals Are Camouflaged

45 Minutes

Standard LS.A-Structure and Function: All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air.

Standard LS1.D-Information Processing: Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive.

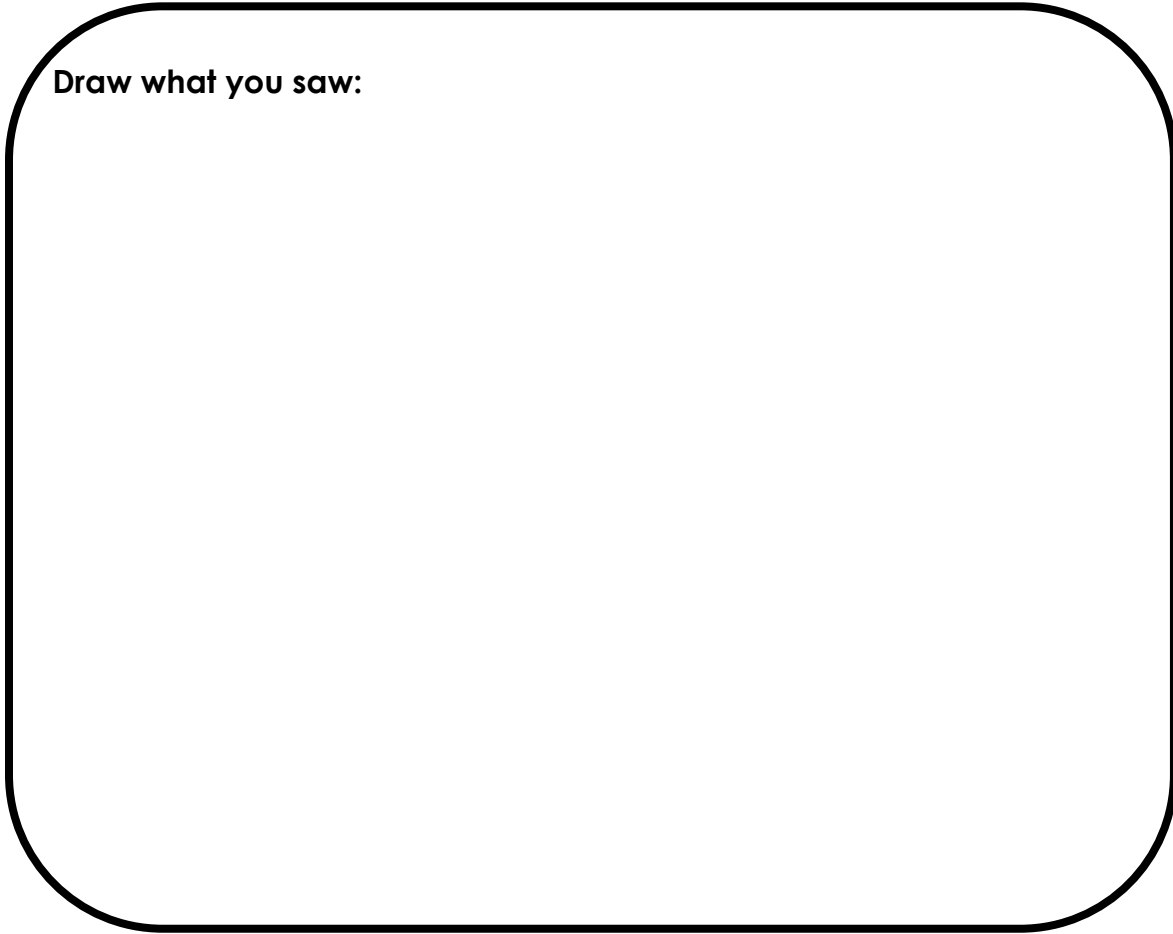
### Process

- Remind the students of the snowshoe hare, the Arctic fox, and the long-tailed weasel. Their fur turns white in the winter to help them hide from enemies or their prey. Give students clipboards and **Hidden White Items** worksheet. The students will write white items (kleenex, white stuffed animal, cotton ball, white paper, etc.) that they find on an outdoor, snowy scavenger hunt. (10 minutes)
- Bring students together to discuss the white items that they found. Remind students that animals that blend in with their environment are difficult for their enemies to see. They are adapted to their environment in order to survive. (5 minutes)
- In [The Thicket Game](#), the students become “predator” and “prey” in a version of “hide and seek.” Take the class to a “thicket.” Choose one predator to cover his/her eyes and to count to 15 slowly. The other students are the prey. The prey hides. The students hiding must be able to see the predator with at least one eye at all times. After counting, the predator must look for the prey, but can not walk or change location. He/she must only squat, turn around or stand on his/her tiptoes. The predator calls out the preys’ names. This means that they are eaten. A new predator is chosen. (15 minutes)
- Discuss what would have made it easier to not get eaten. Some ideas that may come out are: changing colors (clothes); wearing clothing that doesn’t stick to plants; being of smaller size; and climbing a tree. (5 minutes)



## Hidden White Items

Draw what you saw:



List the hidden things as you saw them.

1). \_\_\_\_\_ 2). \_\_\_\_\_

3). \_\_\_\_\_ 4). \_\_\_\_\_

5). \_\_\_\_\_ 6). \_\_\_\_\_

What made the first thing you found the easiest to find?

\_\_\_\_\_

What made the last thing you found the most difficult?

\_\_\_\_\_

## ACTIVITY #3 TUBING

45 Minutes



## ACTIVITY #4 Museum Scavenger Hunt

- Teacher will read *Camouflage* by Terry Jennings **or** *A Home for the Winter* by Mr. O'Beirne's Second Grade Students at Stoddert Elementary School in Washington, D.C. (10 minutes)
- Give students a moment to think about the book you read. Have students turn and talk to someone next to them about animals around the world and their adaptations (speed, strong senses like hearing or smell, camouflage, hibernation/migration, body temp regulators like blubber or extra large ears). Now discuss and infer the reasons these animals may develop their adaptations. (15 minutes)
- Give students clipboards and **Museum Scavenger Hunt** worksheet (below). The students will read clues and look through the museum exhibits to find the answers. (15 minutes)

# Museum Scavenger Hunt

Name\_\_\_\_\_

How many fish are hanging on the wall?\_\_\_\_\_

How many points are on the buck to your left?\_\_\_\_\_

How many points are on the buck to your right?\_\_\_\_\_

What is covering the buck's (to your right) antlers?\_\_\_\_\_

How many pine cones are next to the wolf?\_\_\_\_\_

How many traps are on the wall?\_\_\_\_\_

What is the fish on the wall jumping out of the water at?\_\_\_\_\_

What chewed on the wood that is located next to the coyote and the rabbit?\_\_\_\_\_

Why is the coyote chasing the rabbit?\_\_\_\_\_

What season is the coyote chasing the rabbit?\_\_\_\_\_

What kind of rabbit is the coyote chasing?\_\_\_\_\_

What animal did the owl that is hanging on the wall catch? \_\_\_\_\_

What is the small animal that has dark brown fur and has a long tail? \_\_\_\_\_

Name the fish in the glass case that has the most spots. \_\_\_\_\_

What is the raccoon holding in its paws? \_\_\_\_\_

Name the bird that is sitting on the large nest? \_\_\_\_\_

Besides size, how are the muskrat and beaver different? \_\_\_\_\_

How many raccoons do you see? \_\_\_\_\_

In the fish exhibit, what animal is sitting on the rocks? \_\_\_\_\_

In the pelt case, what animal does the biggest pelt belong to? \_\_\_\_\_

How many gray squirrel pelts are located in the glass case? \_\_\_\_\_

Name the animals that belong to the pelts located in the glass case. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What color are the leaves on the branch that the owl sits upon? \_\_\_\_\_

Why do you think that the ring necked pheasant is called the ring necked pheasant? \_\_\_\_\_

How many mushrooms are under the wolf? \_\_\_\_\_

How many stumps are connected by the rope? \_\_\_\_\_

How many bird nests are located in the museum? \_\_\_\_\_

How many different kinds of twigs are displayed? \_\_\_\_\_

## **Museum Scavenger Hunt/Answers**

How many fish are hanging on the wall? 13

How many points are on the buck to your left? 16

How many points are on the buck to your right? 10

What is covering the buck's (to your right) antlers? velvet

How many pine cones are next to the wolf? 14

How many traps are on the wall? 12

What is the fish on the wall jumping out of the water at? dragonfly

What chewed on the wood that is located next to the coyote and the rabbit?  
beaver

Why is the coyote chasing the rabbit? to catch and eat

What season is the coyote chasing the rabbit? winter

What kind of rabbit is the coyote chasing? snowshoe

What animal did the owl that is hanging on the wall catch? red squirrel

What is the small animal that has dark brown fur and has a long tail? a mink

Name the fish in the glass case that has the most spots. northern pike

What is the raccoon holding in its paws? a clam

Name the bird that is sitting on the large nest? a loon

Besides size, how are the muskrat and beaver different? their tails are different from each other

How many raccoons do you see? 2

In the fish exhibit, what animal is sitting on the rocks? crayfish

In the pelt case, what animal does the biggest pelt belong to? deer

How many gray squirrel pelts are located in the glass case? 3

Name the animals that belong to the pelts located in the glass case.

Gray squirrel, raccoon, fox, deer, beaver, bobcat, fisher, red squirrel, muskrat, rabbit

What color are the leaves on the branch that the owl sits upon? orange

Why do you think that the ring necked pheasant is called the ring necked pheasant? it has a bright, white ring around its neck

How many mushrooms are under the wolf? 3

How many stumps are connected by the rope? 10

How many bird nests are located in the museum? 6

How many different kinds of twigs are displayed? 20



# ACTIVITY #5 STEAM Challenge

45 Minutes

Standard K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

Standard K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Standard K-2-ETS1-3: Analyze data from tests of two objects (or more) designed to solve the same problem to compare the strengths and weaknesses of how each performs.

- Students will be put in teams of 2-4 students. Teams will be given a paper bag of supplies (30 craft sticks and 20 rubber bands). (3 min.)
- Students will **work collaboratively** in groups of 2-4 to pick a challenge from a deck of challenge cards, talk about ways to solve the challenge, draw their suggested solutions in their STEAM Journals, choose one design as a team, then create it. All of this must be done in a set amount of time. (10 min.)
- Each team tells about/demonstrates their creation, mentioning & **writing down** in Journals, what worked well, as well as what could be tried next time to make it better. (9 min.)
- Teams choose a new challenge card, or choose the catapult or exploding sticks challenges mentioned in their journals. Again teams work collaboratively, talk about ways to solve the challenge, draw their suggested solutions in their STEAM Journals, choose one design as a team, then create it. All of this must again be done in a set amount of time. (10 min.)
- Each team tells about/demonstrates their creation, mentioning & **writing down** in Journals, what worked well, as well as what could be tried next time to make it better. (9 min.)
- Clean up. Take creations apart. Put all supplies back into bags the way they were given out.

## **FOLLOW UP ACTIVITIES**

- Add more information to the KWL chart
- Writing activity: Describe the importance of adaptation to animals. The students can include examples of animal adaptation.



# Spring

## CAVOC

(Cedric A. Vig Outdoor Classroom)

**Second Grade Curriculum**  
**School District of Rhineland**

# **PRE CAVOC VISIT - BOG HABITAT**

## **Spring Background Information/Activities**

**(Share one week before CAVOC experience):**

### Setting the Stage

-Second grade students will learn that many animals and plants live in a particular habitat. Animals' habitats provide them with cover (shelter), food, space, and water.

-Students will learn to properly use magnifying glasses/simple microscopes when observing macroscopic wildlife.

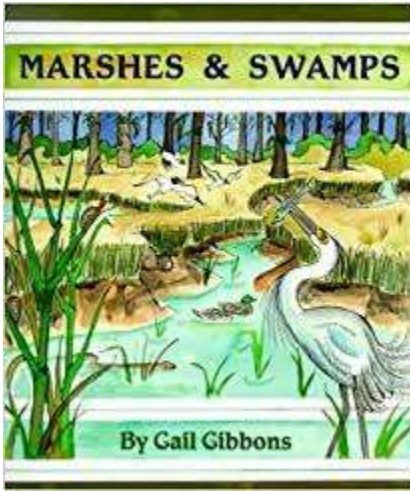
-Students (like scientists) obtain information (observe), so they can communicate their findings (report), through writing and pictures.

-Second graders will also learn about food webs. All living things depend upon one another. Students will use inference skills to predict the results of one or more breaks in the wetland food web.

Animals need food, air, water, space to find these things, and shelter. Plants need air, water, nutrients, and light.

- 1) In order to help students understand that organisms have basic needs, and that organisms need all of the creatures that live in a particular environment in order to meet their needs, read aloud the following picture book:

2) Read Aloud: Marshes & Swamps by Gail Gibbons



, [Wetlands](#) on Pebblego.com, and/or [Be a Pond Detective : Solving the Mysteries of Lakes, Swamps, and Pools](#), by Peggy Kochanoff, 1943

- 3) Then, show students, [Ecosystems: Living Things, Where They Live, & Their Survival Webs](#). The students observe the Google Slides to learn about some Wisconsin ecosystems. This helps visual learners to be more engaged.
- 4) After the presentation, ask students- *“What ecosystems have you seen?”* Guide their understanding to realize that - *“The places where organisms live, that provide what they need to survive, are called the animal’s **habitat**. The **ecosystem** is all the living things in the habitat as well as the habitat itself. ”*
- 5) *Now ask, “Do all living things need the same habitat?”* The student response should be that all living things do not need the same habitat to survive. It depends on the type of living thing and its adaptations. These questions & answers lead nicely into the video below:
- 6) Watch: Youtube video: [Ecosystems for Kids video](#)

# CAVOC Activity #1

## Critter Capture

**Where? - Designated Nature Trails - 45 minutes**

Standard 2-LS4-1 - Biological Evolution: There are many different kinds of living things in any given area, and they exist in different places on land and in the water.

Standard ESS2-E - Biogeology: Plants and animals can change their environment.

### Process

1. Utilize the [CAVOC Spring Science Journal - Second Grade](#) (Pages 3-19), clipboards, & pencils.
2. Discuss the importance of safety around water, the wisdom of being as quiet as possible (more likely to see/hear/encounter multiple kinds of wildlife), and our policy to return everything even better than we found it at CAVOC.
3. Students will head southeast on Flying Squirrel to Wetland Trail. Continue east on Wetland trail to Bog Walk. Instruct students to use all five senses, as well as our imaginations, to observe and record the wetland/bog habitat and the living things that call it home.
4. Instruct students to sketch any portion of habitat which might be good cover for wildlife and, of course, any wildlife you might be fortunate to see. Notice water and food sources, remembering to sketch each and label them with what they are & which wildlife might eat it/ use that source of water.

5. Remind students to label each diagram, so they make sense later. Scientists not only observe, but also record their observations as accurately as possible.
  
6. After about 30 minutes has passed, instruct students in safely gathering a water sample for the next station to observe and record. Model the way this should look. Remind students that those not following safety rules will be required to hand back their cup and they will not bring a sample back to the next station. Hand out cups. Collect samples. Encourage students to observe their water sample with their eyes and then record what they see, for the next 5-8 minutes.
  
7. Return to CAVOC main lodge, Lou Behrndt Center, with samples.

## CAVOC Activity #2

### Bog Life

Where? - Lou Behrndt Center - 45 minutes

Standard 2-LS2-2 - Structure and Function: The shape and stability of structures of natural and designed objects are related to their functions.

Standard LS1.D - Analyze and Interpret Data: Analyze data from tests of an object or tool to determine if it works as intended.

#### Process

1. Utilize the [CAVOC Spring Science Journal - Second Grade](#) (Pages 3-19), clipboards, & pencils.
2. Before beginning to observe water samples with each group, be sure to instruct students in the **proper use & safety of the hand lenses (magnifying glasses) and simple microscopes (red ones)**. Mention also that the better they are able to follow directions, the more time they will have observing water creatures.



## Introduction to the Light Microscope

1. Examine your microscope. Familiarize yourself with the parts of the microscope.

The magnification written on the ocular lens (eyepiece) is \_\_\_\_\_

The magnification written on: the scanning objective \_\_\_\_\_ x

the low power objective is \_\_\_\_\_ x the high power objective is \_\_\_\_\_ x

2. The total magnification using the lenses can be determined by multiplying the objective lens with the ocular lens. What is the total magnification of an item viewed with the:

LOW power objective. \_\_\_\_\_ The HIGH POWER \_\_\_\_\_ The SCANNING \_\_\_\_\_

3. Examine the diaphragm (underneath the stage).

The numbers on the edge of it range from ONE to \_\_\_\_\_

4. Look into the eyepiece, twist it left and right. Notice the line inside that moves as you twist. (Some microscopes do not have this, see if you can find one that does in the room).

What do you think this is for? \_\_\_\_\_

5. Place the slide of the "letter e" on the stage so that the letter is over the hole and is right side up.

A) Use the **scanning objective** to view the letter and use the **coarse knob** to focus.

B) Repeat on the **low power objective**, also using the **coarse knob** to focus. You may need to recenter your e.

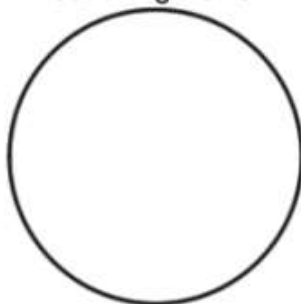
C) Finally, switch to **high power**. Remember at this point, you should only use the **FINE adjustment knob**.



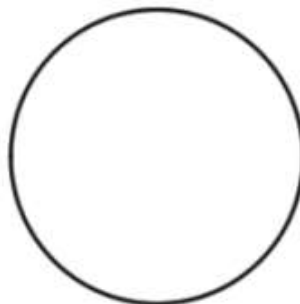
**\*\*If you do steps above correctly, you should only part of the "e" on high power\*\***

Draw the "e" as it appears at each magnification. Drawings should be drawn to scale and you should note the orientation of the e in the viewing field (is it upside down or right side up?)

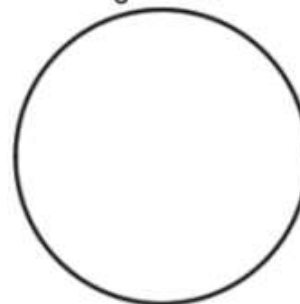
Scanning Power



Low Power



High Power



Have your partner push the slide to the left while you view it through the lens.

Which direction does the **E** appear to move? \_\_\_\_\_

6. Random Specimens

Choose 2 specimens from the box of "common things". Use the circles below to sketch your specimens under SCANNING and LOW power. You may practice focusing with the high power, but you do not need to sketch it on high power. Exercise caution, some slides say that high power is not possible because the slide is too thick. Label your specimens from the name written on the slide.

3. Make sure to show students the Macro Organisms chart in their Spring Science Journals, as an aid in identifying what they might be seeing.
4. Have students collect an inch or so of bog water, from the large basin, in the bottom of a clear plastic vessel. Instruct them to use their eyes to notice living and non-living things in the water. Draw and describe in journal.
5. Next have students observe using hand lenses. Instruct them again to use their eyes with the hand lenses to notice living and non-living things in the water. Draw and describe in journal.
6. Finally, have students observe using light microscopes. Instruct them again to use their eyes with the microscopes to notice living and non-living things in the water. Draw and describe in journal.
7. If time, students can add color to their drawings.

# CAVOC Activity #3

## Why Wetlands? Why Forests? Why Prairies?

### Where? - Designated Nature Trails - 45 minutes

Standard 2-LS4-1 - Biological Evolution: There are many different kinds of living things in any given area, and they exist in different places on land and in the water.

Standard ESS2-E - Biogeology: Plants and animals can change their environment.

#### Process

1. Utilize the [CAVOC Spring Science Journal - Second Grade](#) (Pages 3-19), (especially the [Nature Walk](#) pages) clipboards, & pencils.
2. Take students on a nature walk. Instruct students in using all 5 senses to notice different habitats and all the living things making each habitat their home(both plants & animals).
3. Instruct students to sketch any portion of each habitat which might be good cover for wildlife and, of course, any wildlife you might be fortunate to see. Notice water and food sources, remembering to sketch each and label them with what they are & which wildlife might eat it/use that source of water.
4. Remind students to label each diagram, with not only the type of habitat/ecosystem, but also all the parts (living and non living) they noticed, so they make sense later. Scientists not only observe, but also record their observations as accurately as possible.
5. Turn and talk with a neighbor about what adaptations animals/plants need in order to thrive in their environment. Add these points to journals.

## CAVOC Activity #4

### Wooden Bog Boats (S.T.E.A.M.)

Where? - Main lodge, Basement STEAM area - 45 minutes

#### Standard

K-2- Develop a simple sketch, drawing, or **physical model** to  
ETS1-2. illustrate how the shape of an object helps it function as  
needed to solve a given problem.

#### Standard

K-2-ETS1-2. The shape and stability of structures of natural and designed  
objects are related to their functions.

#### Process

- We will observe and reflect on the shapes of wetland animals versus forest animals (a river otter vs. a coyote OR a mallard vs. a woodpecker). (How are aquatic creatures better adapted to their water environment than forest creatures?)
- Then, using pre-cut & pre-drilled wooden pieces, students will construct, as well as decorate, their own bog boat to race and then to take home.
- If time, students draw and label boats, in their CAVOC SPRING SCIENCE JOURNALS (notes page), to show what parts/shapes help the boat travel through the water efficiently.



River Otter



Coyote



Mallard Ducks





Pileated Woodpecker

# **CAVOC Activity #5**

## **The Great Boat Race**

**45 minutes**

Your challenge, should you choose to accept it, is to race two team-chosen boats in rain gutters. Think of as many ways to propel the boats as possible. Keep accurate records of which ways worked the best.

- 1. Form teams.**
- 2. With your teammates, think of 2-3 different ways to make your boat move, without touching it.**
- 3. Write your team's different ideas down on your chart.**
- 4. Place a boat from each of two teams in separate troughs.**
- 5. To try the ideas. . .**
- 6. Race the two team-chosen boats.**
- 7. Answer the questions in the CAVOC Spring Science Journal, to tell how well each idea worked.**



## **Rainy Day Activities**

- **Activity #1 Critter Capture**  
**(Can be held in the kitchen - with the smartboard showing video of wetlands, if bad weather)** (45 minutes)
  
- **Activity #2 Bog Life**  
**(Same locale: Lou Behrndt Center, with pre-gathered specimens)** (45 minutes)
  
- **Activity #3 Why Wetlands? Why Forests? Why Prairies?**  
**(Can be conducted in the Great Room - with the smartboard showing videos of Wisconsin ecosystems, if bad weather)** (45 minutes)
  
- **Activity #4 Build Wooden Bog Boats**  
**(Same locale: Basement S.T.E.A.M Lab)** (45 minutes)
  
- **Activity #5 The Great Boat Race**  
**(Can be moved under the picnic pavillion, if bad weather)** (45 minutes)

## **SUGGESTED FOLLOW UP ACTIVITIES (Reflection/Culmination)**

**(Share one week after CAVOC experience):**

- Students will finish these sentences:
  1. Habitats are...
  2. Habitats can...
  3. Habitats have...
- Students will use the [Animal Cards](#) & [Biome Heading posters](#) to sort animals into their usual environments.
- Play [“Survival of the Fittest”](#) game.
- Teach song;

### **[The Habitat Song](#)**