Lesson Plan: Wetland Mystery

Grades: Recommended for Grades 2-9 *(can be adapted for other grades)*
Duration: 35-45 minutes *(depending on number of stations and age group)*
Setting: Indoor or outdoor

Learning objectives

- Investigate and identify animals from their physical characteristics and behaviours.
- Describe interactions between animals sharing the same ecosystem.
- Identify examples of how animals depend on each other and their environment for survival.
- Recognize that wetlands are important habitats for many local animals.

Background

Students learn about wetland animals and some of their characteristics with a tactile mystery game. After hearing about a "wetland mystery", students investigate clues to identify which animals were involved and what their role was *(e.g. predator, prey, witness)*.

Materials

- Animal clues (real or replicas) *(e.g. track and scat replicas, furs, skulls, eggs, nests)*
- Printed or written station numbers and instructions
- Track/scat guide or ID sheet *(optional but recommended)*
- Plastic boxes with covers *(optional but recommended if playing this activity outside to identify the stations and protect the clues)*
- One student answer sheet per group, paper or laminated
- Pencils, or dry-erase marker and eraser if using laminated student answer sheets

Pre-Activity

Set-up:

1. Choose the wetland animals you want your students to learn about. We recommend choosing animals that are locally relevant to you. Assign a role to each animal and decide what clues you will include for each animal *(see suggestion below – you don't need all the clues suggested here; use what is available to you and what is appropriate for your age group)*.

	Role	Animal	Clues
Station 1	Victim	Duck	Scat, track, skull, feathers, nest, egg
Station 2	Predator	Red fox	Scat, track, fur
Station 3	Witness	Porcupine	Scat, track, quills
Station 4	Hero	Beaver	Scat, track, chewed tree
Station 5	Survivor	Snowshoe hare	Scat, track, fur
Station 6	Partner in crime	Raccoon	Scat, track, fur
Station 7	Escapee	Deer	Scat, track, antler

2. Prepare the stations or boxes. Each station or box will represent one animal and will contain clues to help students identify it. Clues can be replicas *(e.g. scat and tracks)*, or real feathers, furs, quills, nests, etc. Include pictures if you can't find physical objects. Write or print station numbers and if necessary, instructions for each station that will guide the students in their identification.

3. Print the following:
   - Station number/instructions. If using plastic boxes with covers for each station, tape the printed sheet on the box's cover.
   - Student answer sheets *(one per group)*. If you want to reuse the same answer sheets, you can have them laminated so the students can write their answers with dry-erase markers and erase them at the end of the activity.

4. Include a track/scat ID guide or sheet *(if using)* for each station or box.

5. Set up the boxes around the space/room.

Warm-Up

We recommend discussing the following questions with your students to get the most out of this activity.

1. *What is a wetland and why are wetlands important ecosystems?*
   - Wetlands are wet areas of land that have poorly drained soils and aquatic vegetation. They can be found across the country in cities, in the prairies, in the boreal forest, along coastlines and in the tundra. The different types of wetlands are bogs, fens, marshes, swamps and shallow open-water wetlands.
   - Wetlands are important ecosystems because they are home to millions of animals and plants including at-risk species, they filter and clean water, they help protect against floods and droughts, they help mitigate the effects of climate change, they protect coasts, and are a great place to visit to enjoy the outdoors and connect with nature.

2. *What animals live in a wetland?*
   - Wetlands are biodiversity hotspots, meaning they are home to many animals, like invertebrates that live in the water *(e.g. dragonfly nymphs, mosquito larvae, leeches and snails)*. For vertebrates, wetlands make a great habitat for many birds *(e.g. marsh wren, mallard, Canada goose)*, amphibians *(e.g. frogs, salamanders)*, reptiles *(e.g. turtles)*, mammals *(e.g. red fox, white-tailed deer, beaver)*, and fish *(e.g. northern pike, minnows)*.

3. *What is a predator-prey relationship?*
   - A predator is an animal who hunts and eats another animal (prey). The prey is the animal being hunted and eaten by the predator.

4. *What is scat and why is it interesting?*
   - Scat is another word for poop! All animals leave droppings (scat) because they eat and must eliminate their waste. Different kinds of animals leave different kinds of scat, so knowing how to tell which is which can help us track or identify them. Also, an animal's scat can tell us what they eat, if they're sick and where they spend most of their time.

5. *What are tracks and why are they interesting?*
   - Tracks are prints left by animals on the move. They're easiest to find in snow, mud, soft soil and sand. Tracks, like scat, are useful when trying to track or identify animals. Tracks also help us figure out where the animal came from, where it went, what it was doing and when it passed by. The shape and size of the track, toes and nails are important clues to look for.

6. *How are track and scat replicas made?*
   - Real tracks and scats are used to make molds. The molds are then used to pour vinyl material in them, which takes the shape of the mold.

Program

Introduction *(5 minutes)*

1. Tell a story to set the context of the game. Here's an example: *It was early in the morning and the wetland was quiet. The sun had come up and there was a bit of mist coming off the water. Suddenly, there was a big splash that was a warning sign to all the animals in the wetland – there was a predator nearby! And it had attacked a nest! Everyone scurried and swam away to escape the crime scene. Who was the predator, and who was the prey? We have a wetland mystery on our hands!*

2. Explain that there are stations containing evidence that students will analyze to solve the wetland mystery. Ask students to read the instructions at each station before analyzing the clues. Remind students that this is a crime scene, so we want to be gentle with the clues to prevent damaging them.

3. If using a scat/track guide or ID sheet, demonstrate how to use it.

4. Divide students into groups, one group per station. Give each group a printed or laminated Student answer sheet and a pencil or whiteboard marker and eraser. Start each group at a different station. It doesn't matter where the students start, as long as they follow the clues in the same order *(e.g. rotate clockwise)*.

Tips for younger groups:
For younger classes, teachers can hold up the clues and get students to ask questions and brainstorm the answers. This can prevent damaging the clues, and students can give their answers in discussion form rather than writing them down.

Playing the game *(20-30 minutes)*

1. Decide how much time to allow each group per station *(we recommend 3-5 minutes)*. Have a timer ready so the students know when to change stations. Remind students to write their guesses on the Student Answer Sheet before changing stations.

Discussion *(5-10 minutes)*

After each group has rotated through all of the stations, gather the clues so they can be demonstrated when discussing the answers.

1. Reveal the answer to each station one at a time. We recommend showing the clues and photos of the animals to reveal their identities. Starting with Station 1, ask the groups what they had for answers. This is a good opportunity to relate animal structures or characteristics to their functions and discuss how these adaptations help the animals survive.

2. After the answers are revealed, review together the animals that live in wetlands and how to identify them *(tracks, scats, feathers, etc.)*. Identify any examples of how animals depend on each other for survival, like predator-prey interactions. Lastly, review how wetlands are important habitats for many local animals.

If you would like sample clues and Student Answer Sheets, please contact us at **education@ducks.ca**

You can find other resources for educators at **ducks.ca/resources/educators**

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