

BOWMAN GRADE 1 WINTER NATURE WALK
Animals and What They Need to Survive

OBJECTIVES:

- Observe seasonal changes in schoolyard since fall.
- Learn what happens in winter to animals typically found in the schoolyard. (Migrate, adapt, hibernate.)
- Develop an understanding of how birds and other animals survive cold weather.
- Discover resources available for animals that spend winter in the schoolyard, especially food, water, and shelter.
- Notice changes in resources from fall to winter.
- Explore for tracks, scat, and other signs of animals.

PREPARATION:

Room Parent

- **Logistics:**
 - **Time:** Allow 30 minutes. Don't stay out longer than the comfort level of the children.
 - **When:** Go out preferably after a new snow to help find animal tracks, but snow is **not** essential for this walk. Schedule walk for January or early February, before vacation. Do it first thing in the morning before other classes come out for recess.
 - **Groups:** 4-5
 - **Sites:** 1) Edge of schoolyard for 2 groups, 2) woods across bridge at back of school yard 3) woods across bridge by staff parking lot for 1-2 groups
 - Schedule parents. Copies of walk are in cabinet.
- Ensure no overlaps with other classes by checking the schedule outside the BBB cabinet. Update BBB schedule with class time by writing Time/Grade/Teacher in correct date.

Teacher

- Send note to have children dressed appropriately.
- Complete "Pre-Walk" activities.
- Complete "Post walk curriculum Integration Opportunities" after the walk.

Questions/Comments?

Questions: contact current Bowman PTA Big Backyard coordinator

MATERIALS:

- Clipboard and pencil, Winter Walk Observation Worksheet for walk leaders
- Large Track identification chart
- Winter supplement: Common Winter Birds
- Watch that measures seconds (provided by the parent)

- Hand lenses – approximately one for every 2 children.

ACTIVITIES

- Explore the two woods sites and edge of the schoolyard observing and identifying animals, and sources of food, warmth, and shelter.
- Observe animal tracks and scat if found.
- Learn about hibernation
- Walk leader fills out Winter Walk Observation Worksheet during walk.

Remember we are sharing with children the wonder and joy of exploring and discovering in the world around them.

PRE-WALK ACTIVITIES: TO BE LED BY THE TEACHER

1. Science connection: Investigating Light and Shadows.
If you are teaching the Investigating Light and Shadows unit, ask if the children have a longer or shorter time to play outside now after school compared to the beginning of the school year. Note that the sun, the source of warmth for the Earth, is lower in the sky and the days are shorter, so the air is cooler.
2. Encourage the children to think about their fall Big Backyard walk. Ask: *What did you discover in the fall? What was the weather like? How have these things changed? What do you expect to see now?*
3. Science connection: Organisms.
Review the basic needs of all animals. Ask children to help you to list the things animals need to survive. Post these on chart paper or the board.

Food
Water
Shelter

Warmth
Air

4. Ask: *What animal food sources and shelter did you find in the fall in your Big Backyard? (Berries, nuts, seeds, leaves including grass.) What do you expect to find now? Why might they be different now than in the fall? How have the woods, edge of the marsh, and wet meadow changed? (Water may be frozen; leaves have fallen and flowers have died, nuts and berries may have been eaten already.)*
5. Review the ways in which animals survive over the winter with its low temperatures and limited food and liquid water supplies:
 - a) Migrate.
Animals leave the area and return in the spring.
 - b) Lay eggs and die.
Insects and spiders may do this. (Remember, Charlotte the spider laid eggs and died!) Insects may also overwinter as pupae (cocoons or chrysalises), or even as adults.
 - c) Stay active.
 - d) Hibernate.
Animals' bodies slow down: their body temperature drops, they don't breath very often and their heart doesn't beat very often. In the fall, animals that hibernate get ready for winter by eating extra food and storing it as body fat. They use this fat for energy while hibernating. Ask the children: *Can you name some furry animals that hibernate?* (Many will say bears!) Scientists tell us that there are only three true hibernating mammals of New England: the woodchuck, jumping mouse, and brown bat. Bears, skunks, raccoons, and chipmunks become inactive and "sleep" for part of the winter, but they don't really hibernate. Insects, reptiles and amphibians, all "cold blooded," also live very slowly in the cold.

6. Say: *Think about the animals that are active near the school in the winter. Make a list of animals, including birds, you think are active.*
Possibilities include squirrels (red, gray, and flying), rabbits, deer, raccoons, skunks, opossums, foxes, rabbits, muskrats, Eastern coyote, and several species of mice. Then there are the birds: the seed-eaters such as chickadees, sparrows, juncos, blue jays, and cardinals, as well as crows, woodpeckers, hawks and owls. Sometimes even robins are seen in winter flocks. (Journey North wants reports of these in February: www.learner.org/jnorth/tm/robin/AboutSpring.html.)

On your winter walk you will look not only for animals and signs of animals, but for food sources and shelter. Are some animals food for other animals? (Yes.) Do some animals have to hide while they search for food? (Yes, mice often tunnel under grass or snow as they look for food. This way hawks can't see them against the snow.)

7. Discuss proper clothing for a winter walk. Wearing thick layers helps. A hat keeps in heat from your head, (you can lose 1/3 of your body heat through your head and neck!), and mittens keep hands warm. Boots with an extra pair of socks can help too.

NATURE WALK: TO BE LED BY BIG BACKYARD VOLUNTEER

1. Observe changes since fall.

- Walk outside and look slowly around. Ask the children: *How has the schoolyard changed since last fall?* Possible answers include:
 - Air: colder.
 - Water: frozen.
 - Wildflowers: mostly covered by snow, a few seeds above the snow.
 - Trees: leaves gone.
 - Sun: low in sky, longer shadows, fewer hours of sunlight.
 - Ground: frozen hard and (may be) covered by snow.

Listen and look for birds throughout the walk.

2. While walking, discuss how animals spend the winter.

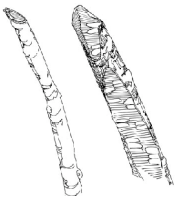
- **Migrate:** They travel to other places where the weather is warmer or they can find food. Many birds and some insects (notably monarchs) migrate in the fall.
- **Stay active:** Changes take place in their bodies or behavior. Growing thicker fur helps some animals stay warm. Animals that have fur are called mammals. They may gather extra food in the fall and store it, or eat different kinds of food.
- **Hibernate:** Their body slows down: their body temperature drops, they don't breath very often and their heart doesn't beat very often. In the fall, animals that hibernate get ready for winter by eating extra food and storing it as body fat. They use this fat for energy while hibernating. Ask the children: *What mammals hibernate?* (Many will say bears!) Scientists tell us that there are only three true hibernating mammals of New England: the woodchuck, jumping mouse, and brown bat. Bears, skunks, raccoons, and chipmunks become inactive and “sleep” for part of the winter, but they don't really hibernate.
- **Hibernation exercise:** Ask the children to breathe as they always do but to count silently every time they take a breath. Have them start when you say "go" and time them for a minute. Usually the count is 15 to 20, but accept whatever they come up with.
- Tell them that a woodchuck breathes normally about 30 times a minute, but when it is hibernating it breaths only once every 6 minutes!
- Ask children to see how long they can hold their breath. Again time them. Often the best they can do is 45 seconds. This helps them to understand what hibernating means--that an animal's body just slows down.

3. **While walking, discuss what mammals, insects, and birds, need to survive: Food, water, shelter, warmth, air.**

- Ask: *What animals are active here now that it is winter? Which have you seen?* (Mammals include squirrels--red, gray, and flying--rabbits, deer, raccoons, skunks, opossums, foxes, rabbits, muskrats, Eastern coyote, and several species of mice.)
- Ask: *What do all animals need in order to live?* (Food, water, shelter, warmth, air.)
- Ask: *How do the changes of winter affect the birds and other animals that live near the school?* (Make it harder to find food and liquid water, make it harder to stay warm.)
- Ask: *Where can active animals find these things, especially food, water, and shelter from winter's storms and cold?*
 - Ask: *What kinds of food might an animal find?* (Berries, nuts, seeds, larvae, dead animals, etc.)
 - Ask: *What kinds of shelter might an animal find?* (Burrows, holes in trees or in the ground, brush piles, nests, etc.) Note that some animals come out of their shelters at night to look for food.
- Ask: *What time of day do most of these animals (except birds and gray and red squirrels) come out of their shelter to hunt for food?* (At night, so we won't see them,) but we can look for the foods they eat and for their shelters.

4. **Explore the edge of the schoolyard and woods areas looking for food and water sources and shelter. Record discoveries.**

- Food sources:
 - Larvae in galls and tree bark are food for birds.
 - Oak branches and leaves often have galls. Woodpeckers make holes in trunks to eat larvae in tree bark
 - Dried berries, nuts, seeds, acorns and pine cones.
 - Break open a multiflora rose hip and show children that it is all hard seeds inside. Birds and other animals eat them in the winter when other food is not available. So they be starving if they eat them.
 - Look for twigs bitten off at a 45 degree angle by rabbits.
 - Ask: *Are some animals food for other animals?*
- Shelter:
 - Look into tree tops for bird nests and perhaps a squirrel nest.



Stems
bitten
by
rabbits

- Look for meadow mouse tunnels under the snow. Mice build tunnels and travel under the snow. Ask: *What might happen to them if they were on top of the snow?* (Many predators--hawks, owl, fox-- hunt meadow mice.)
- Look for woodpecker holes

5. Look for signs of animals: Tracks. (See Figure 1) Record discoveries.

- On a surface of fresh snow, ask children to make footprints of a person:
 - walking.
 - jumping.
 - running.

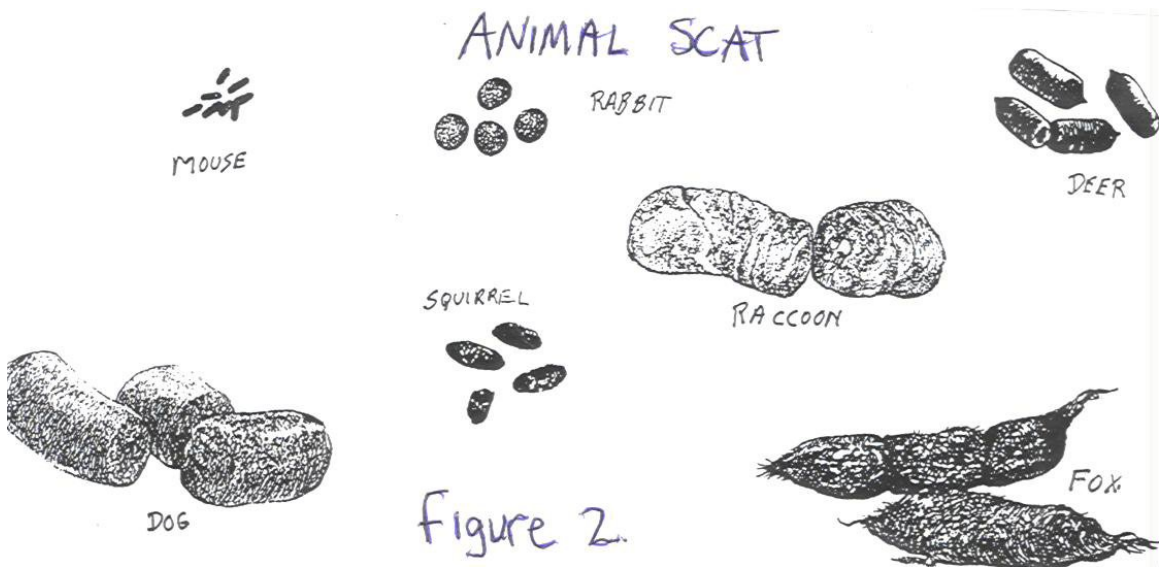
Ask: *If you didn't see the person making the tracks, what could you tell about the person and how they were moving?* (Size of the person from the size and depth of track, type of boots from the pattern of track, type of movement from spacing of tracks.)
- If you find animal tracks in the snow, draw a circle in the snow around interesting tracks and ask children not to go inside your circle. Ask: *What animal might have made the tracks? What makes you think so?* (Ask children to support their ideas with evidence, rather than accept wild guesses.) *Was the animal running, leaping or hopping, or walking? How do you know? Which way was it going? What makes you think that?* (Look for toes or toenails on the front of the paw print—this is not always clear, however.) Follow the tracks. What was the animal doing?
- Rabbits and squirrels put their front feet down and then place their rear feet ahead of them as they leap. The front feet make smaller tracks than the back feet in these animals. It can be hard to tell which way these animals are going unless you see their toe prints!
 - Rabbits: Ground leapers put front feet down one at a time. (A rabbit's front feet are usually placed one ahead of the other, diagonally.)
 - Squirrels: Tree leapers put front feet down side by side together. (A squirrel's front feet are usually placed side by side.) Their track pattern looks like two exclamation points.
- Mice: Mouse tracks look like tiny versions of squirrel “exclamation point” tracks, and may have a tail drag line between the tracks.
- Show children pictures of common tracks. Ask them to bend over on all fours and hop or leap like a bunny or squirrel. Challenge them to move their “back” legs around and in front of their “front” (arms) legs as they hop like a rabbit .



Taken from *How To be a Nature Detective*
Illustrated by Marlene Hill Donnelly

6. Look for signs of animals and record discoveries: Scat (figure 2) and owl pellets.

- Look for animal scat. Common scat can be found from rabbit, fox, dog, deer, squirrel, mouse (in grass tunnels), raccoon*, and coyote,. Children should not touch scat. You may use a stick to see if there are bones or fur in scat (fox and coyote scat have bones and fur). *Don't do this if raccoon scat is very powdery, as it may contain parasites that can be breathed in.
- Occasionally an owl pellet may be found under a tree. This is usually an oval shaped ball of fur and bones from mice or other small animals. It has been regurgitated from an owl's mouth, so it is not considered scat.



7. Identify common mammals, birds, and insects seen on the walk and record discoveries.

- Common mammals may include: Squirrels, dogs, and rabbits.
- Common winter birds may include: Chickadees, blue jays, sparrows, Downy woodpeckers, crows, Canada geese, red-tailed hawks, juncos, starlings, and cardinals.
- On a warm winter day, you may even see flying insects or "snow fleas," an insect-like animal jumping on the snow surface.)



Snow Fleas are not fleas at all, but a type of insect called a springtail. They do jump like fleas, thus the name. Snow Fleas are dark blue and about 1/16 inch long. On warm winter days, Snow Fleas will become active and

look for food. They may be seen in large numbers, like black pepper, on the snow surface. (www.fcps.edu/islandcreekes/ecology/snow_flea.htm.)

8. Wrap up.

- Gather the group together and read over their list of discoveries. Ask: *What was the most interesting or exciting thing they found? Did they find anything that surprised them?*
- Ask: *Is it hard work for wild animals to find food in winter? If your family or school start putting out seed for birds early in the winter, can you stop in the middle of winter because you get tired of doing it or because you are going away for February vacation? Why not? (Birds are counting on you for food)*
- Walk back to the school.
- Give the Winter Walk Observation Worksheet to the teacher.
- Return all materials to the Big Backyard room.
- Fill out a Nature Walk Evaluation and leave it in the Big Backyard cabinet

**POST-WALK CURRICULUM INTEGRATION OPPORTUNITIES: TO
BE CHOSEN AND LED BY THE TEACHER**

1. Language Arts connection: Non-fiction writing.
Encourage children to talk about how difficult it is for birds and other animals to manage to find food, shelter and warmth in the winter in Lexington. Make a class list of food sources, shelters, and signs of animals they found on their Big Backyard walk. Ask children to write an illustrated account of what they saw on their walk. Have them use words on the list.

2. Art and Science connection.
Collect pictures of local animals in winter from magazines, or use children's artwork, to make a mural of the schoolyard. Have children draw the habitats near the school. Be sure that the habitat includes food sources and shelters. Ask children to put the pictures of the animals on the mural in the correct habitat.

3. Language Arts connection: Non-fiction reading.
Go to the library and read books about animals in winter. Some good selections:
 - a) Arnosky, Jim. Mousekin's Woodland Home.
 - b) Bancroft, Henrietta. Animals in Winter. (Let's-Read-and-Find-Out Science 1) (Paperback).
 - c) Brett, Kam. The Mitten. (Putnam, 1989 ISBN 039921920X. Grades PreK and up.)
 - d) Bunting, Eve. Red Fox Running. (Clarion, 1993 ISBN 0395797233. Grades PreK and up.)
 - e) Dendy, Leslie A. Tracks, Scats and Signs.
 - f) Every Autumn Comes the Bear. (Putnam, 1993 ISBN 0399225080. Grades PreK and up.)
 - g) Johnson, Jinny. Animal Tracks and Signs: Over 400 Animals from Big Cats to Backyard Birds.
 - h) Lewis, Rob. Henrietta's First Winter. (Farrar, 1990 ISBN 0374329516. Grades Pre K and up.)
 - i) Miller, Edna, Mousekin's Woodland Sleepers.
 - j) San Souci, Daniel. North Country Night. (Doubleday, 1990 ISBN 038541319X. Grades PreK and up.)
 - k) Selsam, Millicent Ellis. Big Tracks, Little Tracks: Following Animal Prints (Revised).
 - l) Yolen, Jane. Owl Moon. (Philomel, 1987 ISBN 0399214577. Grades K and up.)

Walk Leaders—Winter Walk Observation Worksheet
(Please give to teacher after walk.)

ANIMALS SEEN (including birds and insects)/ACTIVITIES OF ANIMALS:

SIGNS OF BIRDS AND OTHER ANIMALS:

HABITAT: FOOD SOURCES:

HABITAT: SHELTER:

Things that interested the children and questions they asked:

NATURE WALK EVALUATION
(Please leave in Big Backyard Room)

Walk Leader: _____

Grade and Teacher: _____ **Date:** _____

Children in Group: _____

1. What parts of the walk interested the children the most? (check all that apply)

Animal tracks	Animal signs	The woods
Scat	Holes in ground or trees	
Seeds and nuts	Seeing animals	Edge area
Galls	Identifying birds	Nests

Other: _____

2. What parts were not successful? (check all that apply)

Animal tracks	Animal signs	The woods
Scat	Holes in ground or trees	
Seeds and nuts	Seeing animals	Edge area
Galls	Identifying birds	Nests

Other: _____

3. This walk was: (circle one) TOO LONG JUST RIGHT TOO SHORT

4. The children seemed adequately prepared: (circle one) YES NO

5. This was a good working group: (circle one) YES NO

6. I felt adequately prepared to lead this walk: (circle one) YES NO

Other comments or suggestions: