

# ANIMALS IN WINTER

We will discuss how animals survive during the winter and ways that we can help them in our own back yards.

Learning Profile of Students:

Students should be in grades Pre-K to 4th grade.

PA Core Standards:

Standard - CC.2.1.PREK.A.2

Count to tell the number of objects.

Standard - CC.2.1.PREK.A.3

Compare numbers.

Standard - CC.2.1.K.A.2

Apply one-to-one correspondence to count the number of objects.

Standard - CC.2.1.1.B.3

Use place value concepts and properties of operations to add and subtract within 100.

Standard - CC.2.4.1.A.4

Represent and interpret data using tables/charts

Standard - 3.1.PK.A2

Identify basic needs of plants (water and light) and animals (food, air, water).

Standard - 3.1.PK.A9

• Ask questions about objects, organisms, and events. • Participate in simple investigations to answer a question or to test a prediction. • Use the five senses and simple equipment to gather data.

Standard - 3.1.1.C3

CONSTANCY AND CHANGE Describe changes that occur as a result of habitat.

Materials Needed:

- Rabbit
- Puppets
- Animal Pelts
- Water bottle with ice water and batteries

Introduction:

1. Before we begin, I would like you to stand up and raise your right hand for our hand wash pledge. I promise to wash my hands after this program.

Body:

1. What problems do animals have during the winter?
  - a. Cold
  - b. Lack of food
  - c. Need shelter
  - d. Water freezes
  - e. WIND
  - f. Predators
2. How are animals adapted to the winter, what strategies do they use to survive? How do they function when it's so cold, how do they manage to stay alive? We will discuss each of these answers.
  - a. Hibernation
  - b. Migration
  - c. Camouflage
  - d. Lay eggs and die
  - e. Stay active
3. This rabbit (take out Clover), if it were outside last night in the ( ) degree windy weather, how did it manage to stay alive? How do other animals survive?
  - a. Shelter
    - i. They have burrows, holes in the ground or they seek shelter under vegetation
  - b. Fur or feathers
    - i. Warm fur keeps them very warm
      1. Get out FURS, have one bare arm and place a fur over your other arm. I will come around and spray you with cold rain and wind. You need to make a hypothesis on whether your bare arm or the arm covered in fur will stay warmer.
      2. When finished I record how many students believed their bare arm stayed warmer than the arm with fur.
      3. You are a scientist, you made a hypothesis AND tested it!
  - c. Staying active
    - i. They continue to eat, drink, and move around to stay warm
4. My friends, bunny and frog want to talk to you about another way to survive the winter, HYBERNATION!
  - a. Frog and bunny puppet show:
    - i. What's up frog? Just chillin'.
    - ii. Why are you so cold? Because it's winter, I can't make my own heat so I'm getting ready to hibernate!
    - iii. Hiber what? Hibernate!
    - iv. Well, how do you hibernate? I dig way down into the mud by my wetland, or inside my wetland.

- v. But how do you breathe!? When my body starts to get cold, my breathing slows down so much that I can just breathe a little through my skin.
  - vi. But what do you eat? I don't eat, when my body slows down, so does my digestive system. I don't need to eat because I'm not using much energy.
  - vii. How don't you freeze to death!? Good question, frogs have adapted by having a type of antifreeze in our blood, that prevents our body tissues from completely freezing solid, expanding, and killing us.
  - viii. Well Rabbit... I'm getting really cold, and I've got to go find a good place to hibernate. I'll see you in the spring when it gets warm again!
  - ix. Bunny: can you believe that guy? He doesn't need to eat, or poop and he barely breathes all winter! I'm so happy I am a rabbit! Oh no... a predator! (Hops away)
- b. Let's talk a little more about hibernation. Not all animals hibernate like frog does. Their bodies slow down but don't shut down as completely. What are some other animals that you can think of that hibernate?
- i. Ground hog
  - ii. Bear (do not truly hibernate, they go into a deep sleep called torpor. Their heart rate slows down but their body stays warm, and they are easily awoken)
- c. We are going to play the hibernation game. You will hibernate like our friend Franklin! I am MOTHER NATURE. You are all animals. I will drape cloth over desks and chairs. When it is winter, you must find a place to hibernate. If you can't find a spot, you will not survive and must go over here (point to an open spot). Are you ready?
- i. Turn the lights off and on, the days are shorter, and the nights are getting longer. It's getting colder. Animals, slowly and quietly find a place to hibernate.
  - ii. It is now winter. You are going to curl into a ball, this reduces the surface area to mass ratio. You will start to breathe slowly, let's inhale and exhale together. Your heartbeat slows, try to feel it. (Make heart sound slower). You will start to feel colder as your body temperature drops.
  - iii. If in wetland you must be completely under. If not, you die. Mother nature isn't fair!
  - iv. It is now getting warmer, turn lights on and off, the days are getting longer! Furry animals, you will come out from hibernation first! First you will shiver, start moving around, the brown fat you stored up will kick in and give you energy to move around. Reptiles

- and amphibians, you will come out VERY slowly. Find a spot and bask in the sun to warm your body, you don't make your own heat you get it from your surroundings.
- v. How many of you were unable to find a proper habitat to hibernate? One of the main problems animals have in winter is finding a proper habitat to stay alive. Habitat destruction is a reason many animals die in winter.
  - vi. If you go to a wetland to hibernate in the mud and it has been destroyed, what happens to you? You die!
  - vii. Bats hibernate in caves. A fungal infection has been spreading to bats called white nose syndrome. They get little white spots of fungus on their noses, it makes them itchy, they move too much and use up too much energy during hibernation and they die.
  - viii. If there are too many bears, and they can't find a proper den, they can die.
5. We just discussed hibernation as a way animals can survive the winter. In the fall, you see geese and ducks flying in V formations. Do you know what that's called? MIGRATION!
- a. Many birds will migrate. If you are familiar with bald eagle ridge, it is used for eagles to migrate. Let's try being eagles migrating, don't hit your neighbor. But keep your arms up to soar over eagle ridge while you are migrating south. How is it so hard for us but so easy for them? They use the wind that blows over the ridge to help them soar and be propelled.
6. And the last way animals survive the winter that we will talk about is to lay eggs and die.
- a. An example is the gall fly. They will lay their eggs on the golden rod plant. The parents then die. Those eggs turn into maggots in the gall and eat from the plant over winter. Once it is spring, they will hatch into new gall flies! And the cycle of life can continue.
  - b. Did you ever hear the story about Charlotte's Web? Charlotte the spider laid her egg sac and then died. Leaving her babies to hatch in the spring and continue the life cycle.

### Conclusion:

1. During the winter, animals can die if they don't have enough habitat or food. What are some ways you think you could help them survive?
- a. Brush piles, use your Christmas tree and other brush to make a proper brush pile to give them a habitat to survive

- b. Feed the birds, be sure to keep the feeders full if you start feeding the birds, if they are used to your constant source of food, it may be difficult for them to find another if your feeders become empty!
  - c. Don't buy so much stuff. When we buy stuff it destroys their habitat, we need trees for paper and wood for furniture. And always be sure to recycle your paper.
2. We will recite a poem in conclusion. Repeat after me:

a. Sometimes they migrate and go where it's warm  
Or hibernate and sleep through the storm  
Sometimes they're dormant and wake once in a while  
Sometimes they're adapted to an active lifestyle  
And sometimes they lay eggs and die!