Classrooms in a Box: Magnificent Mammals

SASKATCHEWAN WILDLIFE FEDERATION

SASK LOTTERIES

The purpose of this classroom in a box is to introduce your students to the mammals that live in Saskatchewan, the special adaptations that they have, and talk about the impacts of habitat loss and climate on their populations. This program will also provide you with the opportunity to get your class outside, allow your students to connect with nature as well as tap into their creative sides. Feel free to mix and match activities to suit your class dynamic and curriculum requirements.

Introduction to mammals in Saskatchewan

Saskatchewan is home to a very wide range of plants and animals including 72 different species of mammals. Some are able to build their own houses while others use the forest cover as a home. Some mammals prefer to sleep through the province's extremely cold winters while others have to stay awake all year to survive. Some fly, some swim, some burrow! Each and every species have incredibly unique characteristics and adaptations that make them specialists in the world that they live in, whether that is in the prairie, the boreal forest, or the sand.

Activity 1: Mammals big and small

Purpose: To explore adaptations that all mammals have in common as well as talk about the very diverse adaptions that mammals have developed to survive in various habitats and environments.

Background: Mammals come in all shapes and sizes. Some are so small they can be held in your hand and others are so big that you could swim in their veins if you wanted to! For instance, did you know that the largest mammal on the planet is the blue whale? Its tongue is heavier than an elephant! While we might not have whales in Saskatchewan, our province is home to over 50 species of land mammals.

Take a look at some different examples of mammals, if you have any SWF posters pull them out, if not think about different groups like hoofed animals (moose, caribou, white-tailed, and mule deer, pronghorns), rodents (beavers, muskrats, red-backed voles), felines (cougars, bobcats, lynx), canines (wolves, coyotes), weasels (martin, weasels, wolverine, badgers). What do you think about when you think of mammals? What do these creatures have in common? While it might be easier to spot differences in their appearances what about their life styles? Do they lay eggs or have live young? Do they have warm or cold blood? Do they all have backbones? What about differences? How many differences between all the mammals can you come up with? What do they eat? Where do they live? Are they good runners or swimmers? These are some questions to get your students thinking and looking at the different adaptations that these animals have that make them experts surviving their habitats. In this activity students will pick a specific adaptation from one of Saskatchewan's mammals and discover some reasons why they are useful.

Materials:
Optional

- List of different adaptations to discover feel free to come up with your own!
- Wildlife posters (SWF has tons that are Saskatchewan based. We can send them to you for free, check out our website! www.swf.sk.ca)
- Magazine or calendar pictures of different mammals that you can find in Saskatchewan

Activity:
Either in groups or solo get students to choose an adaptation and find out what animal has this adaptation and what it does to help the animal. Sometimes there could be multiple answers. If you would like you can get students to do a couple and present, their findings to the class, or make a poster!

Webbed Feet	**Large paws**
Hooves	**Retractable claws**
Forward facing eyes	**Eyes on the side of the head**
Sharp pointy teeth	**Large molars**
Sharp teeth and molars	**Spots**
Quills	**Wings**
Large eyes	**Horns**
Antlers	**Whiskers**
Colour changing fur	**Long front teeth**

Activity 2: Animal Sign Detective

Purpose: To get outside and check out different kinds of clues that are indicators that mammals are nearby and what kind of behaviours they exhibit.

Materials:

- Animal sign checklists (provided below)
- Binoculars (optional)
- Magnifying glass (optional)
- Pen/pencil
- Tweezers (optional)

Background:
Animal signs are anything that is left by an animal that is not a footprint. Learning animals signs can help understand animal behaviour and it helps us to locate and view animals in the wild. The following are a few animals signs to look out for.

Trails
Trails are the super highways of the animal world. They are usually well worn, sometimes deep into the ground forming a trough-like route through the landscape. Most trails are devoid of vegetation and are easy to find.

Beds
Animal bedding areas are usually found in thick, heavy brush, which gives maximum protection from the elements and predation. Animal beds are often worn into the ground, showing continuous and long-term use. Bedding areas are typically hard to get to because they are placed in ways that a predator will usually make noise when approaching and thus alert the sleeping animal. Lays or resting areas are usually used only one time. You might notice large depressions in the grasses and tangled brush. These depressions are the outline of an animals resting body. During the course of the day or night, an animal may lie down to rest, creating these depressions.

Chews and Gnawings
Gnowings are seen anytime animals attempt to gnaw through vegetation, wood, or even bone. The most classic examples of gnawing are the stumps left by beavers. Gnawing animals will cut certain types of vegetation and often gnaw on bones or antlers to take in calcium. By measuring the size of the marks, you can sometimes determine what has been making the gnawing. Chews are seen anytime an animal bites off a twig, stalk of grass or tree bud. If the chew is sharp and angular, it is caused by animals with incisors such as rabbits, hares, or rodents. If the bite is squarish and a little frayed, it is caused by a member of the deer family. If the chew is ripped or punctured, then it is evidence of a predator.

Rubs
When animals are travelling along trails and runs, or when they are passing over, under or around obstructions, they will often rub themselves on that obstruction. Soon with repeated use the area will become slightly polished. Deer rubbing their antlers on a bush also produce a rub area.

Hair and Feathers
Mammals and birds are constantly losing hair and feathers. Looking closely at the landscape, these signs can easily be spotted. Hair and feathers are one of the easiest clues as to what bird or mammal has been nearby.

Scat
By observing animal droppings not only can we tell what kind of animal deposited them but also exactly what those animals have been eating. DO NOT dissect scat. It can carry disease and parasites that are harmful to humans. However, by simply observing scat- its shape and consistency- you can learn a great deal.

Homes

These include nests, dens burrows, insect galls, or anything a critter uses for a home. Take a look around, up, down, low on the ground, and in small places.

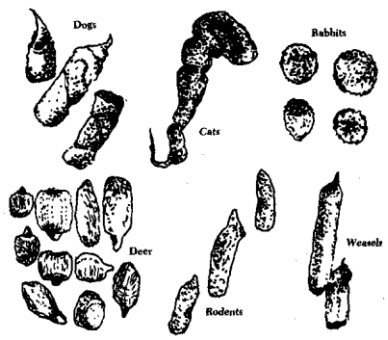
Activity:

Take the class out to look for animal signs. Encourage them to look closely, to get down on their knees and bellies and scan trails and runs. Whenever they find something of interest have them call everyone over to see the find. Using the animal checklist, they can keep track of what the group has seen. Photocopy the following pages to make a booklet. If you would like you can add extra white paper for sketches.

Animal Signs Checklist

As you hike, try to find as many animal signs as you can. When you find a sign, place a check mark beside one on the lines and write down what animal you think made the sign. If you don't know the animal, discuss with the rest of the group what it could be.

Scat



θ _____

θ _____

θ _____

θ _____

θ _____

Trails

θ _____

θ _____

θ _____

θ _____

θ _____

Chews &

θ _____

θ _____

θ _____

θ _____

θ _____

Rubs

θ _____

θ _____

θ _____

θ _____

θ _____

Beds

θ _____

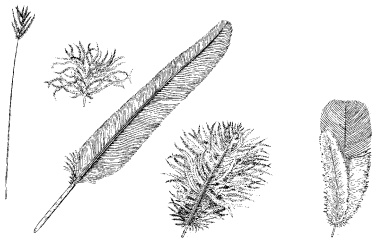
θ _____

θ _____

θ _____

θ _____

Hair & Feathers



θ _____

θ _____

θ _____

θ _____

θ _____

Homes

θ _____

θ _____

θ _____

θ _____

θ _____

Activity 3: What a size!

Purpose: To discover and compare the actual sizes of mammals found in Saskatchewan

Materials:

- Photocopy of the following animal pictures with grid overlays
- 30cm by 30cm sheets of paper
- Colouring utensils
- Coloured pictures of animals (old calendars, magazines, or SWF posters work great!)
- Tape

Background

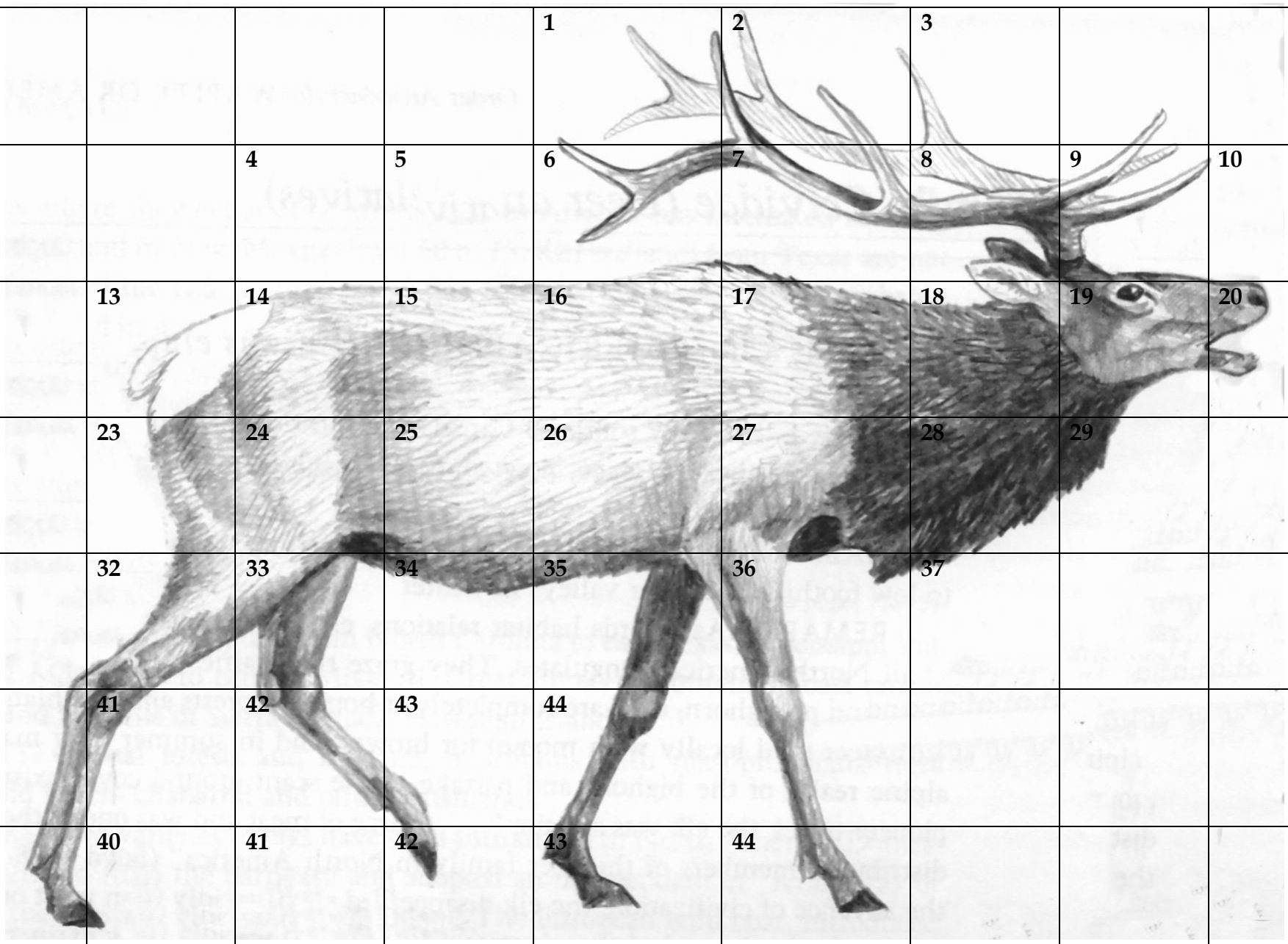
The chart below shows average sizes of males of Saskatchewan large mammal species:

	Weight	**Height at shoulder**	**Length from nose to rump**
Moose	540kg (1200lbs)	2.3m (7 ½ft)	2.7-3m (9-10ft)
Elk	360kg (800lbs)	1.5m (5ft)	2.4-3m (8-10ft)
Caribou	225kg (500lbs)	1.4m (4 ½ft)	2.1-2.4m (7-8ft)
Mule Deer	80-90kg (175-200lbs)	1m (3-3 ½ft)	2m (6 ½ft)
White-tailed Deer	68kg (150lbs)	1m (3- 3 ½ft)	1.5-2m (5-6ft)
Pronghorn	45-63kg (100-140lbs)	1m (3-3 ½ft)	1.2-1.5 (4-5ft)
Black Bear	135-180kg (300-400 lbs)	3/4- 1m (2 ½ -3ft)	1.2-1.7m (4- 5 ½ ft)

Activity:

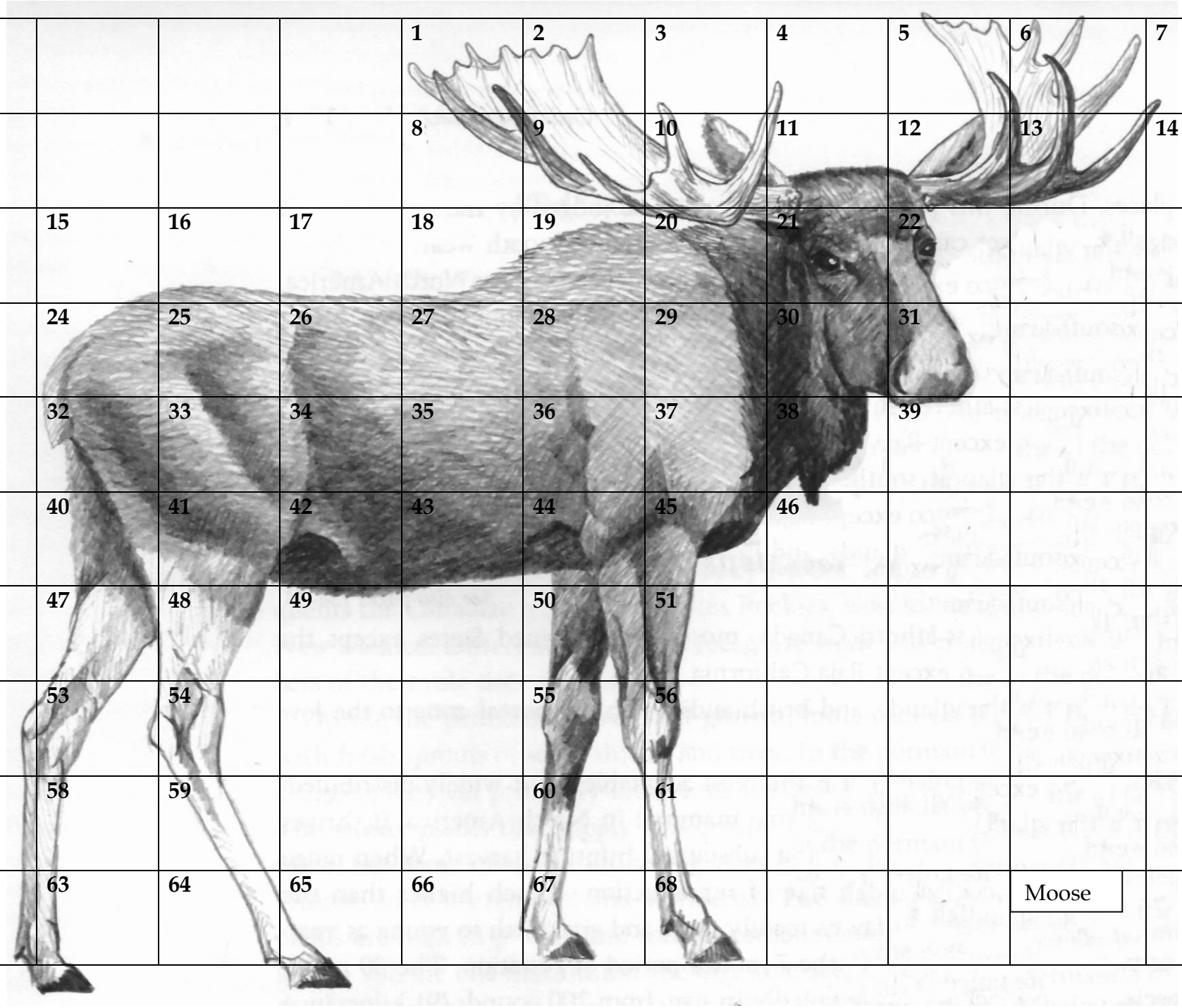
1. Cut up one the large mammal pictures into squares using the grid lines. Give each student a square or squares depending on the number of students you have. All the squares with numbers on them must be handed out.
2. Have all the students draw the contents of their square on a 30cm by 30cm sheet of paper. If you have coloured pictures of the animals, this might help them with their colouring. Be sure they write the number of their square on the sheet.
3. When all the squares are complete tape them up on the wall in order.
4. Have the students stand next to the completed animal to compare their own size to the real animal.

				1	2	3		
		4	5	6	7	8	9	10
12	13	14	15	16	17	18	19	20
22	23	24	25	26	27	28	29	
31	32	33	34	35	36	37		
40	41	42	43	44				
	40	41	42	43	44			

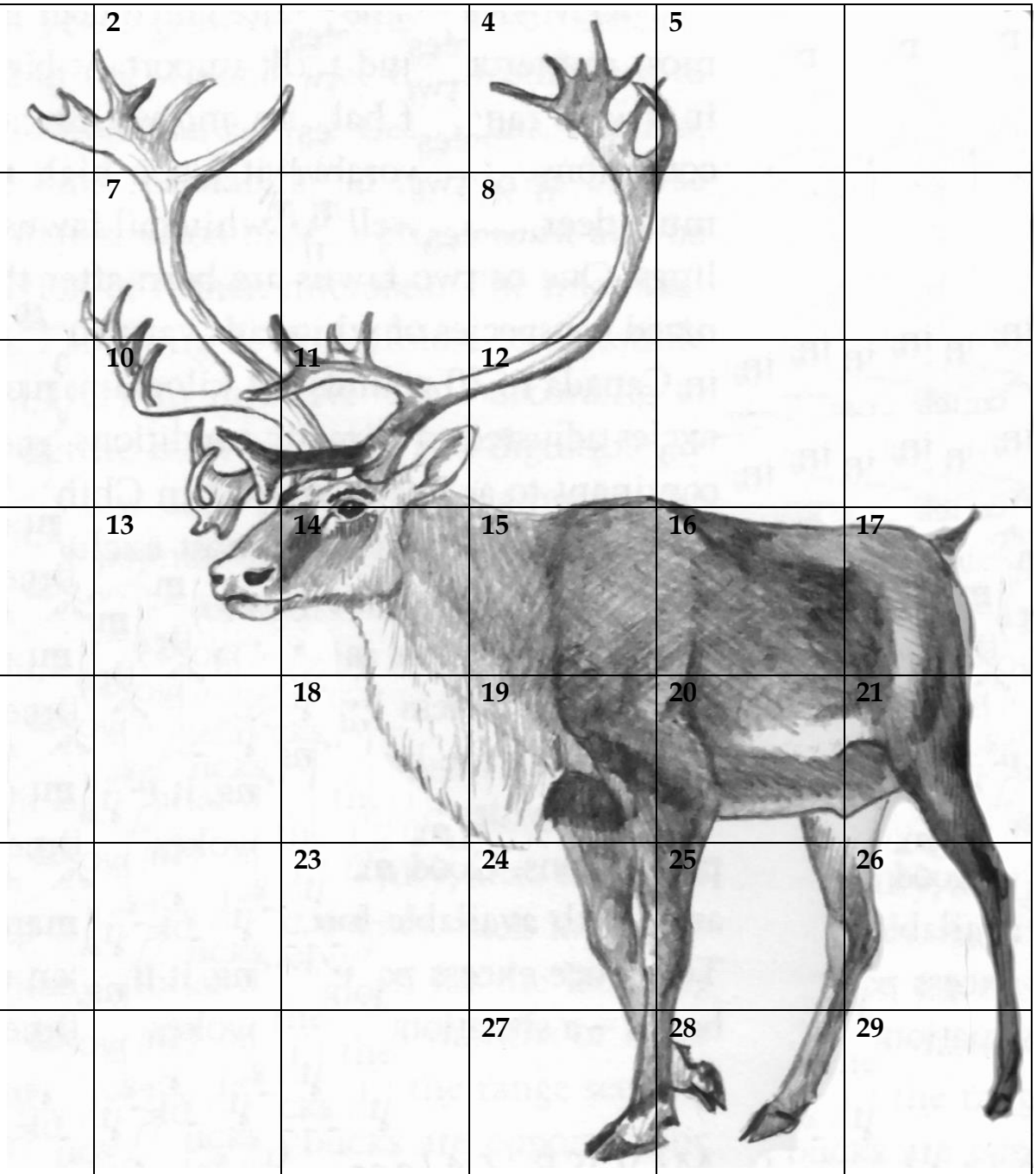


Elk

				1	2	3	4	5	6	7
				8	9	10	11	12	13	14
	15	16	17	18	19	20	21	22		
	24	25	26	27	28	29	30	31		
	32	33	34	35	36	37	38	39		
	40	41	42	43	44	45	46			
	47	48	49		50	51				
52	53	54			55	56				
57	58	59			60	61				
62	63	64	65	66	67	68			Moose	

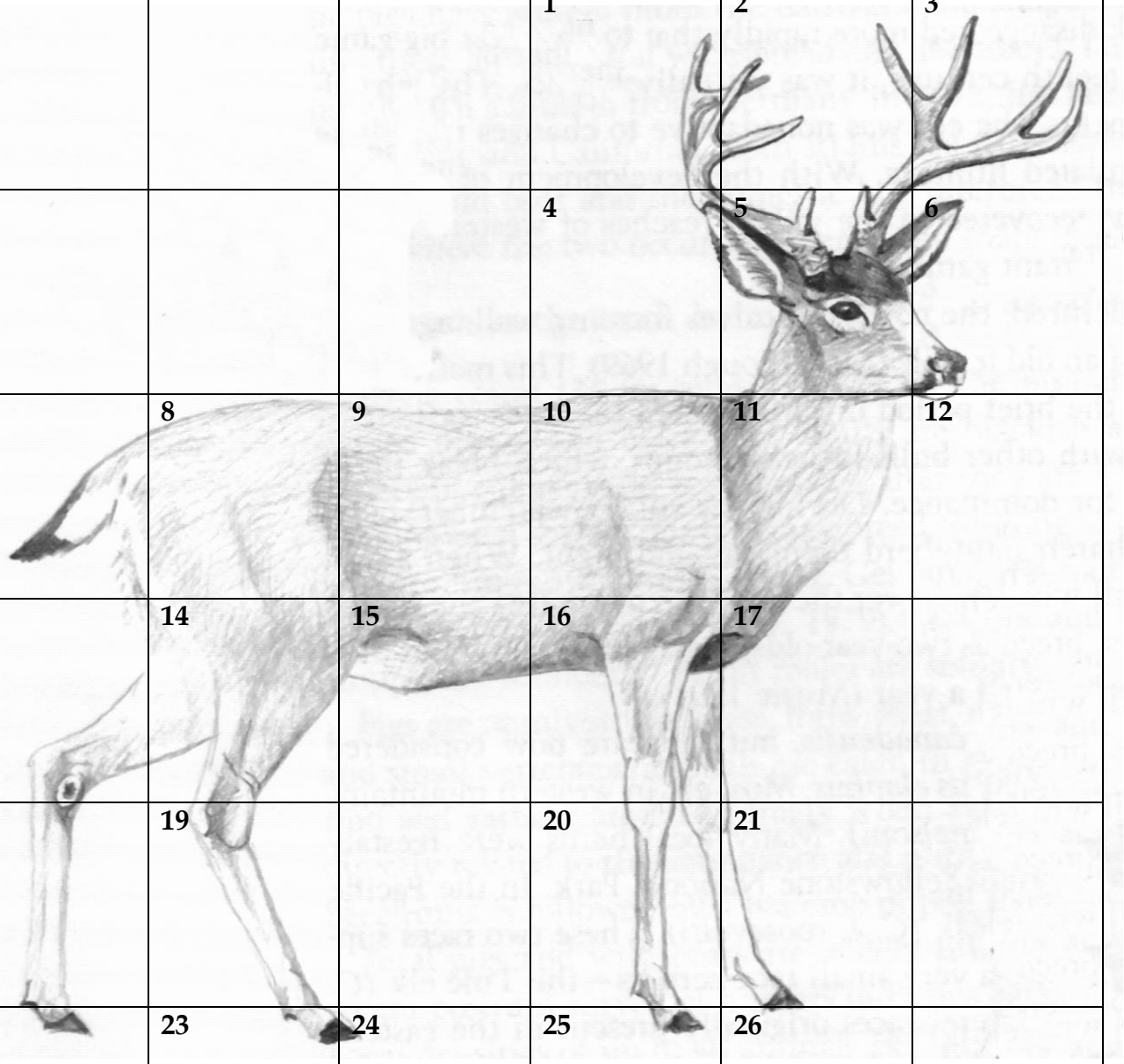


1	2		4	5	
6	7		8		
9	10	11	12		
	13	14	15	16	17
		18	19	20	21
		23	24	25	26
			27	28	29
			30	31	32



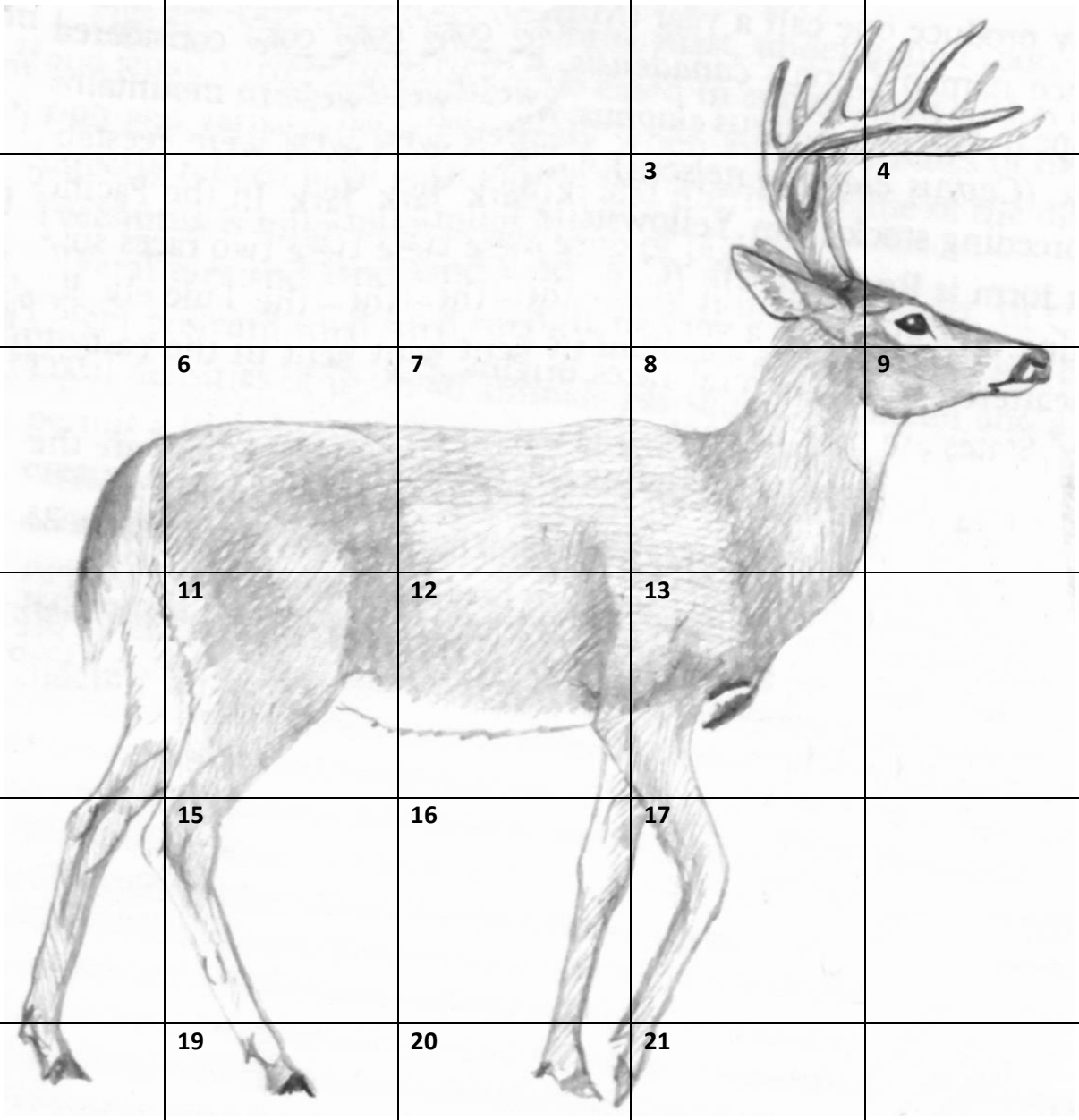
Caribou

			1	2	3
			4	5	6
7	8	9	10	11	12
13	14	15	16	17	
18	19		20	21	
22	23	24	25	26	



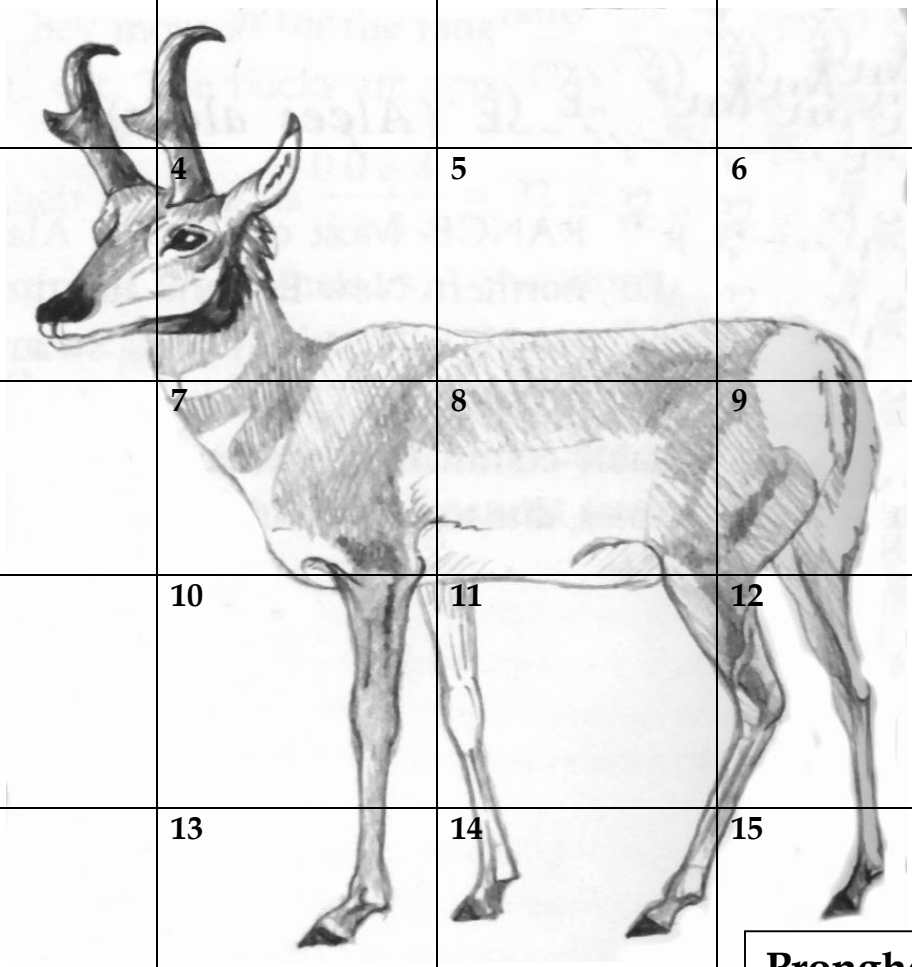
Mule Deer

			1	2
			3	4
5	6	7	8	9
10	11	12	13	
14	15	16	17	
18	19	20	21	



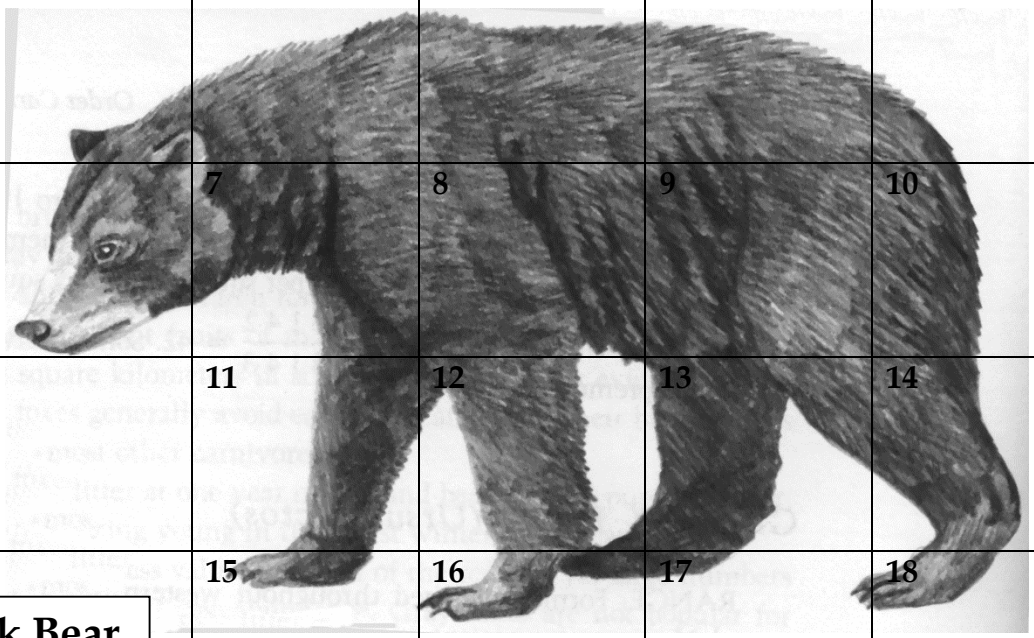
White Tailed-Deer

1	2		
3	4	5	6
	7	8	9
	10	11	12
	13	14	15



Pronghorn

1	2	3	4	5
6	7	8	9	10
	11	12	13	14
	15	16	17	18



Black Bear

Activity 4: Amazing Animal Adaptations

Purpose: For students to understand the importance of animal adaptations and how that helps them survive in the wild.

Background:
Animals are adapted to their environment in order to survive. Animals may be adapted to changes in their environment as well. For example, snowshoe hares have a white winter coat to blend with the snowy environment and a tan summer coat to blend with summer ground and vegetation colours. Chameleons change colour 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. What other adaptations can you think of? Fish are a good example of this too. Think about body shape colouring.

Materials:
- Blindfolds
- Outdoor area, ideally vegetated where students can hide safely

Activity:
1. Take the students to an open outdoor area with some vegetation coverage.
2. Blindfold one student who will be the "predator". The predator counts to 15 slowly as the prey all hide. The students hiding must be able to see the predator at all times.
3. After counting, the predator removes the blindfold and looks for the prey. The predator can turn around, squat, and stand on their tip toes, but cannot walk or move from their spot. The predator should see how many prey they can find, identifying them verbally or by describing what they are wearing. When identified, the prey come out of hiding to the predator because they have been "eaten". These prey now become predators.
4. When the original predator has found as many as they can, all of the predators can now put on blindfolds. The original predator counts to 10 as the prey all move closer to the predators while still remaining "safe" or hidden. All the predators take their blindfolds off and take turns naming students they can see.
5. Repeat the process a few times until there are only 2 prey remaining. Get the two remaining prey to stand up and identify themselves. It may be surprising how close they were able to come to the predator without being detected. These prey were able to adapt to their surroundings successfully in order to survive.
6. Play the game again. Ask the students what sort of adaptations animals use in order to blend into their surroundings. What tactics worked best for the students who were able to get the closest to the predator? Clothing colour? Vegetation type? Position?

Optional: Ask the students to bring in items that might help them adapt to their environment and play the game again. Was there a difference in the game? Did it take longer? Were students able to hide easier?

Extension: This activity can be a great opener to more discussions about adaptations, in this activity adaptations were important for hiding from predators but animals have adaptations for all kinds of other reasons like eating or protection or surviving the winter. Some adaptations are just to look really cool for a mate (especially in birds). Students can make posters demonstrating different physical adaptations in animals and present their findings to the class. Old nature calendars or magazines are great places to find nature photos.

Game adapted from "The Thicket Game" *Project Wild 2017*

Bonus Active Activity

Run, freeze, wait

Purpose: For students to recognize the importance of adaptations in both predators and prey relationships and to understand the idea of limiting factors

Materials

- Food tokens (pieces of cardboard or discs, or small place holders) enough for 3 per student
- Gym pinnies/ vests to mark predators
- 4-5 hula hoops

Background:

Predator- An animal that kills and eats other animals for food.

Prey- An animal that is killed and eaten by other animals for food.

Limiting factors- There are many things that influence the life of an animal in the wild. When one of these (eg. Disease, climate, pollution, accidents, food shortages) exceeds the limit of tolerance for the animal, it becomes a limiting factor. It then drastically affects the well-being of that animal. Predators are limiting factors or prey and prey are limiting factors of predators.

Animals display a variety of different behaviours in predator/ prey relationships. These are adaptations to survive. Some prey behaviours are: signaling to others, flight, posturing in a fighting position, scrambling for cover, or even "freezing" on the spot to avoid detection. The kind of behaviour exhibited depends partly on how close the predator is to the prey.

Each animal has a threshold for threat levels. If a predator is far enough away for the prey to feel some safety, the prey may signal to others that a predator is near. If the predator comes closer, the prey may try to run away. If the predator is too close to making running away feasible, the prey may scurry to a hiding place. If the predator is so close that none of the alternatives are available, the prey may freeze in place. This freezing occurs as a kind of psychological shock in the animal (camouflage may also make them seem invisible if they stop moving). Too often people who come upon animals quickly and see them immobile they think that the animals are not afraid, when in reality, the animals are scared "stiff".

Activity:

1. Select any of the following pairs of animals:

Prey	Predator
Snowshoe Hares	Lynx
White tailed deer	Cougars
Caribou	Wolves
Mice	Foxes

Identify the students as either "prey" or "predators". With one predator for every 6 prey.

2. Using a gym or field identify one end of the field as the "food source" and the other end as "shelter"
3. Place the hula hoops randomly in between the food source and the shelter. These represent additional cover that the prey can use to hide.
4. Place the food tokens on the food source end of the playing area. Allow for 3 tokens for every prey.
5. Predators can wear pinnies or vests to distinguish them from the prey.
6. When the round begins the prey start from their "shelter". The task of the prey is to move from the primary shelter to the food source, collecting one food token, and returning to the primary shelter again. Each prey must collect 3 food tokens in total. When a predator spots a prey, the prey has two options; they can either run for a temporary shelter or they can freeze. Prey can only freeze if the predator is less than 5 steps away from them. They are allowed to blink but otherwise cannot move.
7. Predators start the game spread out randomly in the playing area. They attempt to tag prey as long as they are not in a hula hoop or frozen. Captured prey wait on the sidelines until the next round.

After the game is finished, you can ask the students some follow up questions. Which was the easiest was to escape the predator? Which one was most effective? What other tactics do you think animals use in the wild when they are trying to avoid predators? In what ways are adaptations important for both the predator and the prey?

Game adapted from "Quick Frozen Critters" *Project Wild 2017*