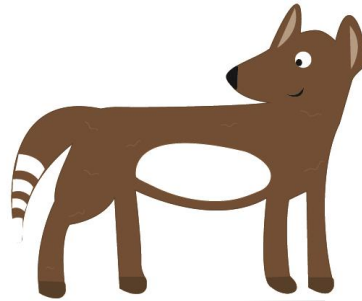


OVERVIEW

This activity allows students to reflect on their own survival challenges and then participate in an urban wildlife survival game.

MATERIALS

- Game station signs
 - Non-migratory animals (white-tailed deer, eastern coyote)
 - Migratory animals (piping plover, birds, monarch butterfly)
- Student worksheet (page 4)
- Game die template
- Clipboards



ACTIVITY

PART A:

Start with a discussion about what it means to survive. On an individual level there are three basic needs for survival: food/water, shelter, and space. As individuals survive, they go on to reproduce and ensure the survival of their own species. Animals move through their environment (space) in order to find the other two basic needs (food/water and shelter). Some species are able to find all three basic needs year-round in one area; these species are categorized as non-migratory. Other animals must travel long distances twice a year to meet their needs. These are migratory species. A common example is the spring and fall migration of certain bird species. By migrating south, individuals find better shelter and escape the harsh northern winters. Migrating back north they spread out to use more space and food resources during the spring.

Migratory and non-migratory species each face challenges. Some must deal with natural issues like drought or predators. Some struggle with human-related challenges, like avoiding vehicles or competing for space.

THEME

Effects human activity can have on survival of urban wildlife.

OBJECTIVES

Students will:

- Collect, organize, and interpret data.
- Identify wildlife survival challenges and victories.
- Explore the positive and negative impacts human activity can have on urban wildlife.
- Develop solutions to **coexist**.
- Explore ways to encourage others to **coexist** with urban wildlife.

SUBJECTS

Human impacts on earth systems, ecosystem relationships, integrating engineering or technology to **coexist**

SKILLS

Engaging in evidence based discussions, recognizing cause and effect patterns, strengthening science communication

ADDITIONAL BACKGROUND MATERIALS

Suggested for facilitator

- Wildlife Basic Information Packet
- WildlifeNYC website nyc.gov/wildlife

Ask students how they survive, and identify how they fill the three basic needs (food/water, shelter, space) in their own lives.

- How much space do you need to survive?
- Where do you find food and shelter?
- How far do you have to travel from your shelter to get food?
 - What challenges do you face during this travel?
 - Do you choose to travel different distances for different food? Why?

For older and advanced students, continue the discussion by scaling out and identifying how humans move within their habitat to survive.

- In addition to getting food, list other reasons why people travel within their habitat space.
 - From these listed reasons:
 - When is travel the shortest in distance? In time? Why?
 - When is travel the longest in distance? In time? Why?
- Ask students to consider one of these trips.
 - Do you always take the same route? Why or why not?
 - What affects your decision when choosing a route?
- Is there any place on Earth where humans cannot survive? Why?
 - Ask students to draw one of these uninhabitable settings.
 - Next, ask students to get creative and come up with ways they could survive in this setting while fulfilling the three basic needs.

PART B:

Survival Games: Choose which game(s) you want your students to play. Games can be played indoors or outdoors—just provide enough space for students to move around. Set up and space game station signs at least 4 to 5 feet apart in numerical order. They can be taped to walls, set up on recreation cones, or strung along a fence. It is up to the facilitator to choose what works best in their space. Game station signs can also be set up in a linear or circular pattern. Make considerations when working with groups of 10 students or larger. Multiple games should be set up so students can play with minimal wait time.

Cut and glue the die template. The facilitator can choose to make a pair of dice for each game, or ask each student to color and decorate their own die to carry with them while playing. Game station signs direct students when to roll a die.

Students can work in pairs, completing the game in two rounds. For round one, choose which student is player and which student is recorder. The recorder will use the data worksheet and fill in the data. After round one, students switch roles. Go over the worksheet with students prior to playing. Make sure they understand what information they are collecting and how to record it.

After the completion of round two, gather the students together for a group discussion.

- How did they feel when they came across a harmful event in the game? A helpful event?
- Have they witnessed any of the game's challenges before?

As the discussion ends, let the class determine how to tally the game results to create one master data worksheet. Then ask students to each create a graph with this data. You can allow students to choose the variables for their graph. What information do they want to convey to others? Examples include: survival vs. non-survival, survival vs. number of helpful events, number of offspring vs. number of harmful events, etc.

EXTENSION ACTIVITY:

Students will work together on a stewardship and education project for their community. Lead another group discussion asking students to reflect back on the game. Ask them to list all of the harmful events they had to face to survive. Categorize them as either human-caused or natural events. Human-caused events include vehicle collisions and habitat destruction. Natural events include drought and severe weather.

Reviewing the list of human-caused harmful events, is there one they recognize and believe they can change? Create an action plan to address this harmful event.

Suggested questions for students to answer:

- What is the harmful event? What is the cause?
- Who is responsible for the cause?
- What behavior needs to change to remove or lessen the impact of this harmful event?
 - Create a poster, slogan, or song that illustrates this.
- How can you share the information with those responsible?
- Should anyone else know about this? How can you share with them?
- How can you get your family or friends involved?

Student Data Worksheet		
ROUND 1		
Game Played:		
Recorder:	Player:	
	Place a tally mark in the box as you answer each question.	
Each time you encounter a harmful event, make a tally mark.		
Each time you encounter a helpful event, make a tally mark.		
Did you have any offspring?	Yes	No
Did you survive?	Yes	No

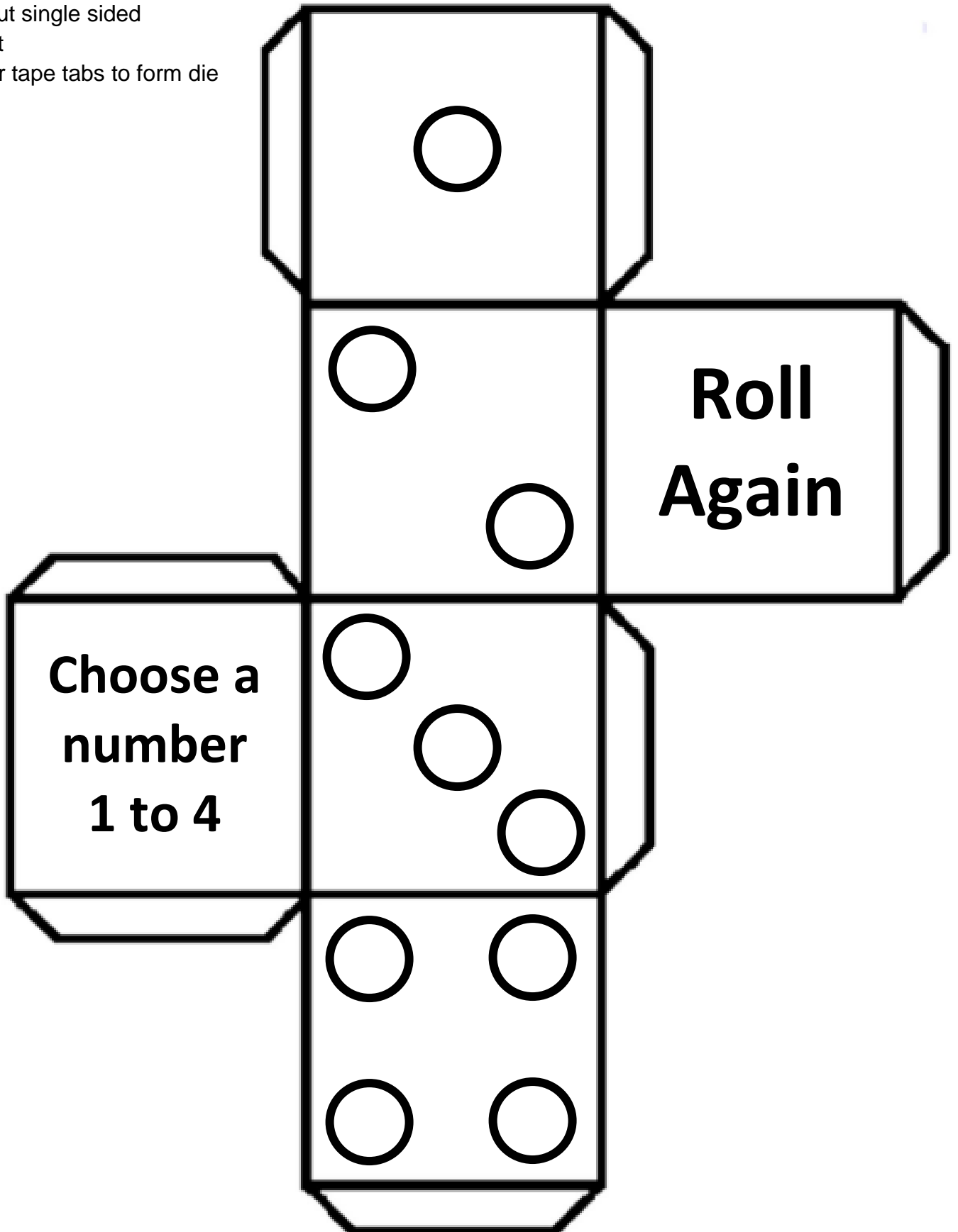
ROUND 2		
Game Played:		
Recorder:	Player:	
	Place a tally mark in the box as you answer each question.	
Each time you encounter a harmful event, make a tally mark.		
Each time you encounter a helpful event, make a tally mark.		
Did you have any offspring?	Yes	No
Did you survive?	Yes	No

GAME DIE TEMPLATE

Print out single sided

Cut out

Glue or tape tabs to form die



1

Watch out! Fence ahead. Don't hit it! Jump high, five times. Play rock-paper-scissors with your partner. If you win, run to Station 3. If you lose, run to Station 2.

WHITE-TAILED DEER

2

You find a garden with strawberries and clovers. Bob your head 10 times to eat the food. Roll the die and move ahead that number of spaces.

WHITE-TAILED DEER

3

You escape from coyotes, but sprain a leg in the escape. Get it back in shape. Slowly kick your foot 10 times. Then move ahead one space to Station 4.

WHITE-TAILED DEER

4

You spar with a buck and get injured. A wildlife veterinarian is able to help you. Hop on one leg in a circle, count to 20. Then move ahead four spaces to Station 8.

WHITE-TAILED DEER

5

Watch out for coyotes that want to eat your fawns! Freeze, count to 30, then sneak ahead two spaces to Station 7.

WHITE-TAILED DEER

6

Oh no! An unexpected freeze causes food to become scarce. Go back four spaces to Station 2 as you try to find more food.

WHITE-TAILED DEER

7

The velvet on your new antlers is itchy. Scratch your antlers against a tree - making a buck rub. Then go ahead two spaces to Station 9.

WHITE-TAILED DEER

8

You can't find your favorite meadow. A new shopping mall has been built there. Walk around in a wide circle three times searching for a place to rest. Then move ahead one space to Station 9.

WHITE-TAILED DEER

9

You find a large park where there is plenty of food, water, and shelter. Rub your stomach 15 times and move ahead one space to Station 10.

WHITE-TAILED DEER

10

You have a fawn! Roll the die and move ahead that number of spaces.

WHITE-TAILED DEER

11

You've been blinded by car headlights. Sit down, hold your head and count to 35. Move ahead two spaces to Station 13.

WHITE-TAILED DEER

12

You have been hit by a truck and do not survive. Fall down dramatically. The game is over for you.

WHITE-TAILED DEER

13

An unknown danger frightens you.

Wag your tail to alert the rest of the herd. Then, go back one space to Station 12.

WHITE-TAILED DEER

14

Fresh spring leaves are growing.

**Bob your head 15 times to eat.
Leap ahead one space to finish.**

WHITE-TAILED DEER

Finish

**Congratulations, you survived!
Get some rest, tomorrow you will
have to travel again to find food
and shelter.**

1

Great hunting today. You have an extra rat to bring back to the family. Play rock-paper-scissors with your partner. If you win, run to Station 3. If you lose, run to Station 2.

COYOTE

2

You want to go on a longer walk today and explore. Roll the die and move that many spaces.

COYOTE

3

You were crossing the street. You did not see the car driving towards you. Your back leg was hit. Limp back one space to Station 2.

COYOTE

4

It is a beautiful night to be outside. Make a loud howl. Your family will know how happy you are. Move ahead two spaces to Station 6.

COYOTE

5

Oh no! You ate a rat that ate poison. You get sick and do not survive. Sadly the game is over for you.

COYOTE

6

Your den was found by a group of people. You have to move your pups to another location. Roll the die and move that many spaces.

COYOTE

7

Run away! A woman is yelling and waving her arms at you. Let's get out of here. Move ahead one space to Station 8.

COYOTE

8

You find a cat outside. Let's chase it. Run in a circle three times. Move ahead one space to Station 9.

COYOTE

9

There are so many cool places to explore. Choose to either move back three spaces to Station 6 or move ahead three spaces to Station 12.

COYOTE

10

Yippee! You found a patch of wild berries to eat. Dance around to show how happy you are. Move ahead one space to Station 11.

COYOTE

11

People have come to build a house on the field you live in. It is too scary and loud to stay. Move back six spaces to Station 5.

COYOTE

12

It has been a long, cold winter. Food is becoming very hard to find. Save your energy and slowly walk ahead one space to Station 13.

COYOTE

13

You found food scraps in a garbage bag someone left out. As you are eating, a person comes out yelling and throwing rocks at you. Run away! Quickly move ahead one space to Station 14

COYOTE

14

Like your coyote brothers and sisters, you can jump really far. Jump as far as you can to the next station.

COYOTE

Finish

**Congratulations, you survived!
Tomorrow you will continue
exploring your home territory,
hunt for food and raise your pups.**

1

You found the Rockaway Beach Plover Site! There is plenty of habitat and food. Play rock-paper-scissors with your partner. If you win, fly to Station 3. If you lose, fly to Station 2.

PIPING PLOVER

2

You find a spot with lots of yummy insects! Bob your head 10 times to eat the food. Roll the die and move that number of spaces.

PIPING PLOVER

3

A new hotel has been built on the beach right where your favorite nesting spot was. Walk around in three wide circles searching for a place to rest and feed. Move ahead one space to Station 4.

PIPING PLOVER

4

A scientist catches you for research. They put a metal band on your leg and set you free. Move ahead four spaces to Station 8.

PIPING PLOVER

5

Watch out for the unleashed dog on the beach! Freeze still so it does not see you, and count softly to 30. Sneak ahead two spaces to Station 7.

PIPING PLOVER

6

A big wave washes your nest away! Scrape your feet on the ground five times to make a new nest. Go back four spaces to Station 2.

PIPING PLOVER

7

It's a beautiful summer day. You are able to sit on your nest all day safely. Crouch low to the ground for 10 seconds then move ahead two spaces to Station 9.

PIPING PLOVER

8

Watch out for vehicles working on the beach. Don't get hit! Fly away to safety. Move ahead two spaces to Station 10.

PIPING PLOVER

9

There's a predator near your nest! Pretend to have a broken wing for 10 seconds, get its attention, and draw it away from the nest. Then move ahead one space to Station 10.

PIPING PLOVER

10

You've hatched a full clutch of eggs! Roll the die and move ahead that number of spaces.

PIPING PLOVER

11

**Too many people on the beach!
You are scared to go to the
shoreline to feed. Count to 15
while you wait for people to go
away. Move ahead two spaces to
Station 13.**

PIPING PLOVER

12

**A cat catches and eats you. Fall
down dramatically. The game is
over for you.**

PIPING PLOVER

13

Someone is flying a kite near you. It looks like a predator! Run back and forth and peep loudly five times to warn your chicks. Then, go back one space to station 12.

PIPING PLOVER

14

Your one-month-old chick is able to fly. Act like the chick and fly in a circle five times, then fly to the finish!

PIPING PLOVER

Finish

**Congratulations, you survived!
You will spend the next few
months here. By August, you will
make the reverse trip. You will fly
south with your children and
friends.**

1

It's spring. You have a long distance to migrate north. Play rock-paper-scissors with your partner.

**If you win, fly to Station 3.
If you lose, fly to Station 2.**

BIRD MIGRATION

2

You land in a playground. Children playing nearby begin to throw rocks at you. Quickly flap your arms to fly away. Roll the die and move ahead that many spaces.

BIRD MIGRATION

3

It is raining and there is a strong wind. It is not a good day to fly. Close your eyes and rest for 10 seconds. Fly back one space to Station 2.

BIRD MIGRATION

4

It is a nice, sunny day. You decide to eat all day and restore your energy. Flap your wings and fly ahead two spaces to Station 6.

BIRD MIGRATION

5

It is a hot day and you have a long distance to fly. You have to wait until it is cooler at night to migrate. Close your eyes and rest for five seconds. Fly ahead three spaces to Station 8.

BIRD MIGRATION

6

Flying between tall city buildings is difficult. The windows act like mirrors and confuse you. Turn around three times to avoid the glass windows. Fly ahead one space to Station 7.

BIRD MIGRATION

7

Uh oh! You have to fly through fog today. Sing your bird call to let your flock know where you are. Flap your wings and slowly fly ahead two spaces to Station 9.

BIRD MIGRATION

8

Heads up! New wind energy turbines in the field below. Fly in a zigzag pattern to avoid the propeller blades. Fly ahead two spaces to Station 10.

BIRD MIGRATION

9

Halfway there, but you can't find your favorite wetland to stop and rest. A new mall has been built there instead. Save your energy and slowly fly ahead one space to Station 10.

BIRD MIGRATION

10

You spot a hawk soaring high above. Quick! Find a place to sit and hide for ten seconds. Then roll the die and move ahead that many spaces.

BIRD MIGRATION

11

You find a field with lots of insects and plants to feed on. You decide to eat, eat, eat to restore your energy. Choose to fly ahead three spaces to Station 14 or fly back to Station 8.

BIRD MIGRATION

12

A cat catches and eats you. Fall down dramatically, the game is over for you.

BIRD MIGRATION

13

A short rainstorm blows you off course. Fly back one space to Station 12.

BIRD MIGRATION

14

Great, you have reached the park you were born in. Start looking for a safe place to build your nest. Look for twigs and fly ahead to the next station.

BIRD MIGRATION

Finish

**Congratulations, you survived!
You will spend the next few
months here. In the fall, you will
make the reverse trip, flying
south with your children and
friends.**

1

It's a beautiful day in Mexico. A good day to start migrating north. Play rock-paper-scissors with your partner.

**If you win, fly to Station 3.
If you lose, fly to Station 2.**

BUTTERFLY MIGRATION

2

Oh no! You are being chased by a bird that wants to eat you.

Escape by rolling the die and move ahead that many spaces.

BUTTERFLY MIGRATION

3

Great news! You found your favorite plant—milkweed. Find a leaf to lay your eggs on. Walk slowly ahead one space to Station 4.

BUTTERFLY MIGRATION

4

Your eggs hatch and the caterpillars are hungry! They need to eat lots of milkweed leaves before transforming. Stay here for 10 seconds. Fly forward three spaces to Station 7.

BUTTERFLY MIGRATION

5

No rain this spring. The flowers and plants are dying. You cannot find any healthy leaves to eat and do not survive. Fall down dramatically. The game is over for you.

BUTTERFLY MIGRATION

6

Some of your caterpillar friends were killed by a wasp! Move back four stations to Station 2.

BUTTERFLY MIGRATION

7

The second generation has made it north. A strong summer storm makes it difficult to fly.

Don't get your wings wet. Quickly move ahead one space to Station 8.

BUTTERFLY MIGRATION

8

You hit the windshield of a passing car and get stuck. You wiggle free but are now miles off course. Choose to move ahead one space to Station 9 or back six spaces to Station 2.

BUTTERFLY MIGRATION

9

You find a large garden with many flowering plants full of nectar. Stop, eat, and rest for 10 seconds. Then move ahead one space to Station 10.

BUTTERFLY MIGRATION

10

A scientist catches you in a net. Your wing is tagged. You are then set free. Roll the die and move ahead that many spaces.

BUTTERFLY MIGRATION

11

The third generation is ready to fly back south. It is a nice and sunny day to fly. Move forward two spaces to Station 13.

BUTTERFLY MIGRATION

12

Your wings get damaged by people trying to catch you. You cannot continue to fly south to Mexico. Fall down dramatically. The game is over for you.

BUTTERFLY MIGRATION

13

It is hot and dry. It is getting difficult to find flowers blooming with nectar. Save your energy and slowly fly forward one space to station 14.

BUTTERFLY MIGRATION

14

You made it safely to Mexico. This is your first time here. Only your great-grandparents have been here before. Explore and fly forward to the next station.

BUTTERFLY MIGRATION

Finish

**Congratulations, you survived!
You will lay eggs, and those
butterflies will take the same
journey next year.**