

How Animals Communicate



In a Nutshell



Students learn how and why wildlife use sound, scent, and body language to communicate. Students will discover how biologists use this knowledge of wildlife communication to help identify wildlife species they may not be able to see.

Grades	2 & 3
Seasons	Spring
Location	Visitor Center

Learning Objectives

After this activity, students will be able to:

- List three ways animals communicate: sound, smell, and body language.
- Explain two reasons biologists study animal communication.

Literature Connections

Slap, Squeak and Scatter: How Animals Communicate by Steve Jenkins

Animal Communication by Janet McDonnell

Animal Senses: How animals see, hear, taste, smell and feel by Pamela Hickman (9301)

What's in a Birdsong? by Tom Anderson, MN Conservation Volunteer Magazine

Buggy Sounds of Summer by Larry Weber, MN Conservation Volunteer Magazine

Secrets of Sound: Studying the Calls and Songs of Whales, Elephants, and Birds by April Pulley Sayre.



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Pre-Activities

Students will listen to a variety of recorded animal calls and study pictures illustrating body language. Based on observations, students will discuss the many ways animals communicate and the types of messages they are sending.

On-site Activities

Scent Trail: Following a scent trail, students will gather clues at scent stations to help them identify the mystery animal.

OR

Sound Mapping: Students “map out” **spring** sounds they hear on the refuge by quietly listening and recording animal sounds and the location of each sound they hear. When the “sound maps” are complete, students make comparisons between their own sampling area and those from different habitats on the refuge.

Classroom Connection

Students can observe and listen for the animals in their community. Encourage students to record their observations and discoveries. How are animals using sound, scent, and body language to communicate? Compare and contrast the observations during different times of the day, different seasons, and different weather conditions.

Teacher Resources

[A Guide to Wildlife Sounds](#) by Lang Elliott

[What's in a Birdsong?](#) by Tom Anderson, MN Conservation Volunteer Magazine, Teacher's Guide

http://www.dnr.state.mn.us/young_naturalists/teachersguides

[Buggy Sounds of Summer](#) by Larry Weber, MN Conservation Volunteer Magazine, Teacher's Guide

http://www.dnr.state.mn.us/young_naturalists/teachersguides



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Pre-Activities

Materials

- Frogs of Minnesota poster
- Birds of Minnesota poster
- Birdsong & Frog Call Identifier
- Balloons
- Wildlife pictures of animals “communicating” (wolves, turkey, birds, frogs etc.)
- Squirrel, Beaver, and Great Horned Owl puppets
- Squirrel call
- Deer skull

Introduction

Animals communicate with each other in many ways. Some methods are obvious, while others are subtle. Animal communication is generally not well understood by people. People often think animals use only sound to locate other members of their species. Surprisingly, animals use many techniques to send a wide variety messages to communicate with other animals.

Sound

Sound can be used for a variety of reasons, and is a great way for animals to find other members of their species; however, making noise can be dangerous. Sound can alert predators, making it easier to locate prey. Ask students why they think animals that “sing” sound so different from each other? Perhaps the most important reason for one animal to sound different from another animal is to quickly locate the opposite sex. If an animal can easily recognize the call of a potential mate, then finding each other can happen quicker. This is why spring is a “noisy” season. Birds returning from migration and frogs waking up from their winter hibernation are busy locating mates.

- Refer students to the *Frogs of Minnesota* poster. Ask students why it would be important for a Spring Peeper to sound different than an American Toad? Using the Identifier, play frog calls for the students.
- Some animals that use sound to communicate (like frogs & toads) have a built in amplifier that makes the sound louder.

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Use a balloon to demonstrate. As frog's vocal sack is inflated (blow air into the balloon), the pressure from the air vibrates the sack creating sound. As the air is released, (deflate the balloon) more sound is created. Ask a student to volunteer to help demonstrate the location of a frog's vocal sack (place an inflated balloon under the chin or a balloon on each shoulder).

- Using the *Birds of Minnesota* poster or bird pictures and the Identifier, play the calls of several different birds that students might hear during the refuge fieldtrip while pointing them out on the poster or photograph.

Optional Activity : Create a Frog Chorus

Materials: Frog chorus kit (combs, rubber bands, sleigh bells), Frogs of MN Poster

Divide the class into 4 groups. Pass out one item from the frog chorus kit to 3 of the 4 student groups. Explain to the 4th group they have their own built in frog calling "tool" and will be shown how to use it. As each team receives their chorus kit item, demonstrate how to "play" the item (as described below) explaining which frog the call imitates.

Team 1: Green Frog (rubber band) – Stretch the rubber band between the thumb and second finger. Pluck one side of the stretched rubber band to create a sound that imitates the "plunk" of a Green Frog. Instruct the team to "call" (play their rubber bands) in unison.

Team 2: Chorus Frog (comb) – Run a fingernail down the edge of a comb to imitate the "raking" call of a Chorus Frog. Instruct the team to "call" (play their combs) in unison.

Team 3: Spring Peepers (sleigh bells) – Shake the sleigh bells to imitate the "jingling" call of the Spring Peeper frog. Instruct the team to "call" (play their bells) in unison.

Team 4: American Toad – To imitate the "trill" of the American Toad touch the tip of your tongue to the roof of your mouth. Instruct the team to "call" in unison.

When each team has mastered their "tool", instruct students to "call" in unison like a frog chorus.

Body Language

Animals also use body language to communicate. An animal can communicate how it is feeling to other animals by the way it stands, raises a tail, fluffs feathers or fur, or shows teeth.

- Using the Great Horned Owl puppet, point out to students the ear tufts (which are really feathers), usually mistaken as horns. The owl raises these tufts when it feels threatened to make it appear larger and more threatening than normal.
- Show the turkey photos. Explain the different methods turkeys use to communicate with each other. One method is using body language. A Tom (male turkey) will display its tail fan to look more intimidate to other Toms, or to look attractive to hens. Encourage students to guess what the turkeys in the pictures are communicating to each other. Communication message is labeled on the back of the photographs.
- Using the squirrel puppet, explain how squirrels use their tails to help keep themselves warm, to balance as they run through tree branches and to communicate. The way a squirrel flicks and curls its tail, along with clicks and chatter, will tell other squirrels when to back off. Use the squirrel call and show pictures to demonstrate.

Smell

Scent marking is another tool of animal communication. Dogs, foxes, wolves, coyotes, raccoon, beaver and many other kinds of animals define or “mark” their territory by leaving a scent around the habitat where they hunt, live, and raise their young. This “scent fence” is a warning to other animals to STAY OUT of another animal’s territory to avoid a fight. These scent trails also help predators find prey. Animals may mark their territory with urine, scat, and/or oils from special scent glands on their body.

- The beaver has a scent gland, the castor gland, located under the tail. The beaver will rub the gland against small mounds of mud it makes along the shoreline. Show the picture of the beaver.
- White-tail deer have scent glands in their heads, on all four feet and on the inside of their legs. They rub their scent on tree branches and trunks to mark their territory. Use the deer skull to illustrate.

Wrap-Up

Explain to students during their fieldtrip to the refuge, they will test their ability either by listening for sounds and mapping where they are coming from or to follow an animal's scent using their sense of smell discovering where their habitat. Remind students to dress for the weather and outside exploration.

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On-site Activities

Materials

- Wildlife pictures of animals “communicating” (wolves, turkey, birds, frogs etc.)
- Squirrel, Beaver, and Great Horned Owl puppets

Scent Trail Activity

- 30 Mystery Animal Clue Cards with scented canisters attached
- 6 Laminated refuge maps showing placement of numbered clue cards
- 6 Scent canisters– one scent per team (cologne, vinegar, peppermint, licorice, menthol, cinnamon)
- 6 Mystery Animal Clue Sheets
- 6 Clipboards and pencils

Sound Mapping Activity

- Blank Paper- 1 per student
- Clipboards- 1 per student
- Pencils- 1 per student
- Sound map example

Introduction

Inside Visitor Center (10 minutes)

Review with students the various ways animals communicate as discussed in the pre-activity. To refresh the students’ memory, display the assortment of wildlife pictures that were used in the pre-activity.

Sound

Perhaps the most important reason for animals to sound different from each other is that it makes it easier to quickly find the opposite sex. However, making noise is dangerous! Sound can alert predators.

**TEACHERS PLEASE
NOTE**

Staff may have to adjust/exchange scents depending on availability or effectiveness. Please check with refuge staff at the start of your fieldtrip to confirm the scents being used.

THANKS!

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Body Language

Animals also communicate with body language. How an animal stands, raises a tail, fluffs feathers or fur, or shows teeth can inform another animal how it is feeling.

Smell

Dogs, foxes, wolves, coyotes, raccoons, beavers and many other types of animals define or “mark” their territory by leaving a smell around the habitat where they hunt, live, and raise their young. This “scent fence” is a warning to other animals to **STAY OUT** of their territory. These scent trails also help predators find prey. Animals mark their territory with urine, scat, and oils from special scent glands on their body.

Activity Option 1: Scent Trail

On refuge, (50 minutes)

Set up instructions are listed on a separate page.

Collecting Clues

Divide students into five teams with an adult leader for each team. Explain to the class that they will be testing their ability to follow their own, unique “scent trail”. Provide each team with a scent canister and explain that this scent belongs to their team “mystery animal.” Provide students a few minutes to try to identify the smell. Students should not open the containers to determine the smell. Students will be able to smell their scent through the holes on the bottom of the container. Let each team guess their scent. Write the name for each scent on the board next to the team number (Team 1: cologne, Team 2: licorice, Team 3: peppermint, Team 4: menthol, Team 5: cinnamon, *optional extra if needed Team 6: vinegar*). Each team **must remember their scent** for this activity as they will not be allowed to take their scent canisters on the scent trail.

Pass out one clipboard, pencil and Mystery Animal Clue sheet per team.

- **In Rapids Lake:**

Explain that the clues on the sheet are written on cards hanging at six “scent stations” throughout the refuge. To determine the identity of their Mystery Animal, each team must visit all six scent stations to collect the clues to their animal’s identity.

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- **In Bloomington:**

Explain that the scent canisters are hanging along the Hillside Trail. Students collect clues by smelling **EACH** canister at **EACH** scent station. To determine the identity of their **Mystery Animal**, each team must visit all scent canisters to collect the clues to their animal's identity.

If the canister scent matches their team scent, students should circle the corresponding number on their clue sheet. Use the demo card and canister to point out the location of the clue number. Emphasize to check **EVERY** card and scent canister at **EACH** scent station for the following reasons.

THERE MAY OR MAY NOT BE A CLUE FOR EVERY TEAM AT EACH SCENT STATION

THERE MAY BE MORE THAN ONE CLUE FOR A TEAM AT A SCENT STATION.

After stopping at each scent station, each team should return to the Visitor Center with five clues circled, one answer under each of the five categories:

- What My Animal Eats
- What My Animal Looks Like
- Where My Animal Lives
- My Animal's Babies
- A Special Fact About My Animal

To avoid congestion at the scent stations, start teams at different scent stations or directions along the trail. Instruct the teams to meet back at the Visitor Center when they have located all five clues. Provide each adult leader with the **Mystery Animal Clue Key** to use **ONLY** if the team is having a high level of difficulty distinguishing scents.

Encourage students to keep a list of the sounds they hear as they travel between scent stations. If students can not identify the animal making the sound encourage them to describe the sound. Example: Does it

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sound like “chatter”, a “buzz” or a “hum”? Are there many animals making the sound together or is it coming from a single individual? Look to where the sound is coming from. Can they spot the animal making the noise? If they can, how is the animal behaving? What is it saying with its body language?

Wrap-Up – Option 1 Scent Trail

Back inside the classroom, ask each team to read off the numbers of the clues they collected, reading each clue aloud. Use the answer key to correct teams as needed. Ask the team to guess the identity of their “mystery” animal. Ask the rest of the class if they agree. Then repeat this process with the next team.

Pass out a laminated copy of the map showing where the numbered clue cards were placed. Ask students to map out the territory of their animal by connecting the clue numbers, starting with their lowest clue number and moving in order to highest. Show an example on the board.

Use the animal territories map/poster to compare the placement and size of the Mystery Animal’s territories. Lead the class in a discussion of the following questions.

- Which animals had the largest territories? (deer, fox)
- Which animals had the smallest territories? (squirrel, beaver)
- Which animals stayed near water? (beaver, raccoon)
- Which preferred being in the woodlands? (fox, squirrel)
- Did any of the territories overlap? (all of them)
- Was the territory of a prey animal (squirrel) within the territory of a predator (fox)?

If time allows make a list of the sounds (and the sound descriptions) students heard as they collected their clues. Have the entire class try to identify the animals that made these sounds.

Activity Option 2: Sound Mapping

On refuge, (30 minutes)

Spring is a noisy time of year! Animals use sounds to locate mates and to set up and defend territories. This activity will allow students to “map out” **spring** sounds occurring on the refuge.

If the class brought enough volunteers, divide the class into groups and assign each group to a different location along the trail. For example, one group might be assigned to sit in a different habitat. If this is not possible, clearly identify boundaries within an area of the trail so students can easily be seen during the activity.

Provide each student with a blank sheet of unlined paper, a clipboard, and a pencil. Ask the students to start by marking an “X” in the center of the paper. The “X” will represent the student’s location on the sound map. Ask students to spread apart within the designated boundaries. Advise students in order for this activity to work, **there must be no talking**. Provide students at least 5 minutes (more if group can tolerate it) to sit quietly, listen and record the sounds they hear.

As students sit quietly, have them mark the location of any sounds they hear (in relationship to the “X”). Instruct students to mark all natural sounds with a large dot and man-made sounds with a star or asterisk. If they can identify the sound they can draw a very simple picture or write the name of the sound next to the shape. Show an example. *It is not necessary for students to identify all the sounds they hear.* Remember, the emphasis is placed on listening; not creating fabulous works of art. Students may continue drawing back in the classroom or at school. Students should record as many sounds as possible on their map during the time allowed.

Wrap-Up- Sound Mapping

Inside Visitor Center (20 minutes.)

When students have completed mapping the sounds, gather the group together in the classroom to analyze the data.

Compare Maps within One Habitat

Ask students from each habitat to answer the questions below. Record the answers on the board.

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1. What types of sounds did you hear?
2. Were all the sounds natural?
3. How could you tell the direction a sound came from?
4. How could you tell which sounds were closer & which were farther away?

Compare Maps from Different Habitats

5. Which habitat was the noisiest?
6. Which habitat had the most variety of sounds?
7. Which habitat had a lot of sound with most coming from one type of animal?

If enough time remains, take students on a hike through another part of the refuge to observe animal body language and listen for animal sounds.

Wrap-up Management Connection

Identifying and Understanding Wildlife Communities

Biologists study how animals communicate for several reasons. Often, animals are hard to see within a habitat but they can be heard. Being able to identify animals by their calls helps biologists during population and habitat studies.

Understanding animal “body language” helps biologists interpret interactions between individuals within a population or those between predators and prey. This helps us know more about the daily lives and life cycles of animals.

Biologist can also use the scent marking behavior as a way to attract wildlife into a type of “track trap”. Called a Scent Post Survey, this type of “trap” is especially useful in finding out what nocturnal animals are on the refuge. To build a Scent post survey, a circle of soft sand (about the size of a hula hoop) is carefully spread near a wildlife trail. A rock or post is set in the middle. A scent tablet is left at the base of the post. The scent tablet, which is VERY SMELLY attracts a variety of mammals, many of whom are predators looking for prey. These animals catch the scent from the post or rock and step into the sand to take a sniff. The next morning, biologists look at the tracks left behind in the sand to determine what animals are in the area.

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Rainy Day Hike Alternatives

Scent Trail Inside Option

Set-up as many of the scent stations as room will allow inside the Visitor Center. Proceed with the original activity as described. Complete the fieldtrip time with either of the other rainy day hike alternatives described below.

Bird Body Language Observation

Split the students into groups and have them observe the birds at all the feeder stations. Pass out clipboards, blank paper, and pencils to each student to record observations.

Compare Observations within One Feeder Station

Have the students from each feeder station answer the questions below. Record their answers on the board.

1. What types of body language did the birds display?
2. What did you think their body language was saying?
3. Did birds of the same species display similar body language?

Compare Observations from Different Feeder Stations

4. Which station was the busiest?
5. Which station had the most variety of birds?
6. Which station had the most number of the same species?

Wildlife Sounds Bingo

Pass out one Wildlife Sound Bingo sheet to each student and a handful of bingo chips to each table. Set-up the Wildlife Sounds Power Point and proceed through each slide quizzing students on the variety of wildlife sounds presented (owl, cricket, wolf, chickadee, etc...). Play until the first student covers 4 squares in a row and calls out "BINGO". If time remains continue until the first student covers all 20 squares and calls out "BLACK OUT".

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Activity Option 1: Scent Trail (Bloomington Version)

Mystery Animal Clue Collection

Find 5 clue cards that match the scent of your mystery animal. Circle one answer for each clue card you find along the trail. Read all your clues to guess the identity of your mystery animal.

What My Animal Eats

1. Buds, leaves, berries, even bark!
2. Small fish, crayfish, frogs, mice, eggs, fruits and nuts
3. Nuts, especially acorns, seeds and insects
4. Nuts and fruit, sometimes eggs and insects too
5. The bark off of aspen and willow trees
6. Small animals like mice, voles and birds, berries and insects

What My Animal Looks Like

7. Is large with long legs and gray or tan fur
8. Has a black face mask and a ringed tail
9. Has a long fuzzy tail and gray fur
10. The head and legs bare-skinned but males can change head color from bright red to blue
11. Has thick, shiny fur, webbed toes and a large, flat, hairless tail
12. Has beautiful reddish fur and a long tail

Where My Animal Lives

13. In woodlands, prairies, wetlands and even neighborhoods
14. Wherever there are large trees
15. In woodlands, especially where oak trees grow
16. Woodlands near streams, ponds, and lakes
17. In ponds and rivers
18. In forests and along edges of fields

My Animal's Babies

19. The young are covered in white spots to help them hide from predators
20. May have as many as 9 brothers and sisters at once
21. They are taken care of by all the moms in the family brood
22. Follow mom wherever she goes until they are all grown up
23. Have to learn how to swim from their parents
24. Are born underground in a burrow or den

A Special Fact About My Animal

25. This animal builds large leafy nests high up in trees
26. This animal can fly even though many people think it cannot!
27. This animal grows antlers in the spring and sheds them in the winter
28. This animal seems to wash its food in the water before eating it
29. This animal dams up fast moving water to create calm pools of water near their den
30. Their bark can sound like the bark of a small dog

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Activity Option 1: Scent Trail (Rapids Lake Version)

Mystery Animal Clue Collection

Find 5 clue cards that match the scent of your mystery animal. Circle one answer for each clue card you find along the trail. Read all your clues to guess the identity of your mystery animal.

What My Animal Eats

1. Buds, leaves, berries, even bark!
2. Small fish, crayfish, frogs, mice, eggs, fruits and nuts
3. Nuts, especially acorns, seeds and insects
4. Nuts and fruit, sometimes eggs and insects too
5. Green plants, insects, seeds, bird eggs, baby mice
6. Small animals like mice, voles and birds, berries and insects

What My Animal Looks Like

7. Is large with long legs and gray or tan fur
8. Has a black face mask and a ringed tail
9. Has a long fuzzy tail and gray fur
10. The head and legs bare-skinned but males can change head color from bright red to blue
11. Has a long narrow body with 13 alternating tan and dark stripes down the back.
12. Has beautiful reddish fur and a long tail

Where My Animal Lives

13. In woodlands, prairies, wetlands and even neighborhoods
14. Wherever there are large trees
15. In woodlands, especially where oak trees grow
16. Woodlands near streams, ponds, and lakes
17. Grasslands, prairies
18. In forests and along edges of fields

My Animal's Babies

19. The young are covered in white spots to help them hide from predators
20. May have as many as 9 brothers and sisters at once
21. They are taken care of by all the moms in the family brood
22. Follow mom wherever she goes until they are all grown up
23. Born naked with their eyes closed and spend their first 6-weeks underground.
24. Are born underground in a burrow or den

A Special Fact About My Animal

25. This animal builds large leafy nests high up in trees
26. This animal can fly even though many people think it cannot!
27. This animal grows antlers in the spring and sheds them in the winter
28. This animal seems to wash its food in the water before eating it
29. Stands upright on its hind feet to survey its territory.
30. Their bark can sound like the bark of a small dog

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Mystery Animal Clue Collection
Answer Key

White-tailed Deer (territory outline: 1, 7, 13, 19, 27)

Scent: Cologne (TEAM 1)

- **What My Animal Eats:** Buds, leaves, berries, even bark!
- **What My Animal Looks Like:** Is large with long legs and gray or tan fur
- **Where My Animal Lives:** In woodlands, prairies, wetlands and even neighborhoods
- **My Animal's Babies:** The young are covered in white spots to help them hide from predators
- **A Special Fact About My Animal:** This animal grows antlers in the spring and sheds them in the winter

Raccoon (territory outline: 2, 8, 16, 22, 28)

Scent: Licorice (TEAM 2)

- **What My Animal Eats:** Small fish, crayfish, frogs, mice, eggs, fruits and nuts
- **What My Animal Looks Like:** Has a black face mask and a ringed tail
- **Where My Animal Lives:** Woodlands near streams, pond, and lakes
- **My Animal's Babies:** Follow mom wherever she goes until they are all grown up
- **A Special Fact About My Animal:** This animals seems to wash its food in the water before eating it

Gray Squirrel (territory outline: 4, 9, 14, 20, 25)

Scent: Peppermint (TEAM 3)

- **What My Animal Eats:** Nuts and fruit, sometimes eggs and insects too
- **What My Animal Looks Like:** Has a long fuzzy tail and gray fur
- **Where My Animal Lives:** Wherever there are large trees
- **My Animal's Babies:** May have as many as 9 brothers and sisters at once
- **A Special Fact About My Animal:** This animal builds large leafy nests high up in trees

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Turkey (territory outline: 3, 10, 15, 21, 26)

Scent: Menthol (TEAM 4)

- **What My Animal Eats:** Nuts, especially acorns, seeds and insects
- **What My Animal Looks Like:** The head and legs are bare-skinned but males can change the head color from bright red to blue
- **Where My Animal Lives:** In woodlands, especially where oak trees grow
- **My Animal's Babies:** They are taken care of by all the moms in the family brood
- **A Special Fact About My Animal:** This animal can fly even though many people think it cannot

Beaver (territory outline: 5, 11, 17, 23, 29) *Bloomington Only*

Scent: Cinnamon (TEAM 5)

- **What My Animal Eats:** The bark off of aspen and willow trees
- **What My Animal Looks Like:** Has thick, shiny fur, webbed toes and a large, flat, hairless tail
- **Where My Animal Lives:** In ponds and rivers
- **My Animal's Babies:** Have to learn how to swim from their parents
- **A Special Fact About My Animal:** This animal dams up fast moving water to create calm pools of water near their den

13-Lined Ground Squirrel (territory outline: 5, 11, 17, 23, 29) *Rapids Lake Only*

Scent: Cinnamon (TEAM 5)

- **What My Animal Eats:** Green plants, insects, seeds, bird eggs, baby mice
- **What My Animal Looks Like:** Has a long narrow body with 13 alternating tan and dark stripes down the back. Tan spots decorate the dark stripes. It has a thin but hairy tail.
- **Where My Animal Lives:** Grasslands, prairies
- **My Animal's Babies:** Babies are born naked with their eyes closed and spend their first 6-weeks in the underground burrow.
- **A Special Fact About My Animal:** This animal stands upright on its hind feet to survey its territory. At the first sign of danger, it gives a trill-like whistle and quickly runs into its underground burrow.

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Red Fox (territory outline: 6, 12, 18, 24, 30)

Scent: Vinegar (TEAM 6)

- **What My Animal Eats:** Small animals like mice, voles and birds, berries and insects
- **What My Animal Looks Like:** Has beautiful reddish fur and a long tail
- **Where My Animal Lives:** Forests and along edges of fields
- **My Animal's Babies:** Are born underground in a burrow or den
- **A Special Fact About My Animal:** Their bark can sound like the bark of a small dog