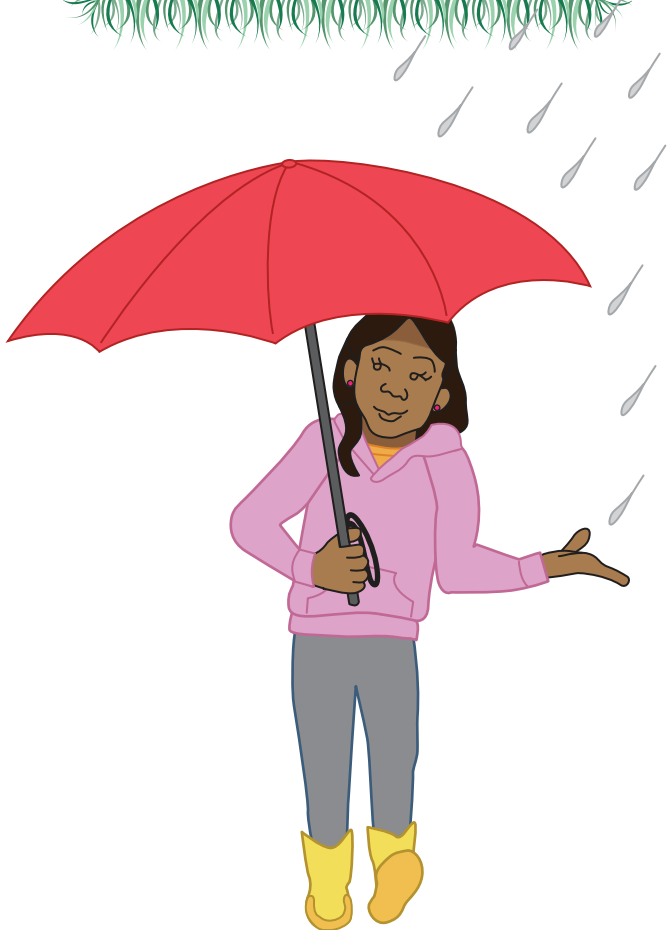




### COOL SPRING FACT

The saying "April showers brings May flowers" holds true. April has on average 11 days with rain.



MINNESOTA MASTER NATURALIST

UNIVERSITY OF MINNESOTA  
**EXTENSION**



MASTER NATURALIST EXPLORERS

## Spring Nature Journal



Name \_\_\_\_\_

Date \_\_\_\_\_

The Minnesota Master Naturalist Explorers Program connects adult volunteers with youth in an after-school setting. The goal of the Explorers Program is to offer fun, outdoor, science-based educational opportunities for elementary students to learn about the ecology and natural history of their schoolyard, neighborhood, nearby natural areas, and the entire state.

Explorers is a component of the Minnesota Master Naturalist Program whose mission is to promote awareness, understanding, and stewardship of Minnesota's natural environment by developing a corps of well-informed citizens dedicated to conservation education and service within their communities.

## Acknowledgments

Authors: Dawn A. Flinn, Minnesota Department of Natural Resources; Darren Lochner and Robert B. Blair, University of Minnesota Extension

Reviewers: Bev Blomgren, Pete Cleary, Sara Aker

Designer: Amy Beyer, Minnesota Department of Natural Resources

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OCO\_144\_15

# Answers

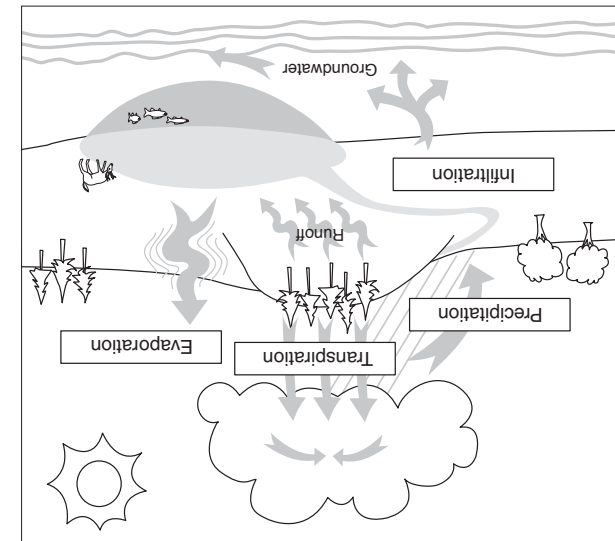
Spring Word Scramble Answer page 18

L I G H T N I N G  
 R O B I N  
 S O I L  
 F L O W E R  
 P R E C I P I T A T I O N  
 C U M U L U S  
 X Y L E M  
 P U D D L E  
 E V A P O R A T I O N  
 A N T  
 T H U N D E R S T O R M

Spring Word Scramble Answer page 18

Common Nighthawk

Bird Migration Answer page 14



Water Cycle Answers page 8

# Vocabulary Words

**phenology** – the science of seasonal changes and their effect on the natural world

**journal** – notebook or binder used to make recordings, drawings, and write thoughts and reflections

**precipitation** – moisture, often in the form of rain or snow, that falls to the ground

**evaporation** – the process of water molecules condensing and rising into the atmosphere

**condensation** – the opposite of evaporation, when water vapor in the air converts into liquid form

**transpiration** – when plants give off water vapor through tiny pores in their leaves

**infiltration** – the process of water soaking into the soil from the ground level

**parent material** – the main materials such as rocks and minerals that soil is formed from

**subsoil** – the soil lying immediately under the topsoil

**topsoil** – the layer of soil on the surface, often the most fertile and composed of higher amounts of organic matter and microorganisms

**ephemeral plants** – plants that emerge quickly in the spring, bloom, go to seed, and then die back to the underground root system

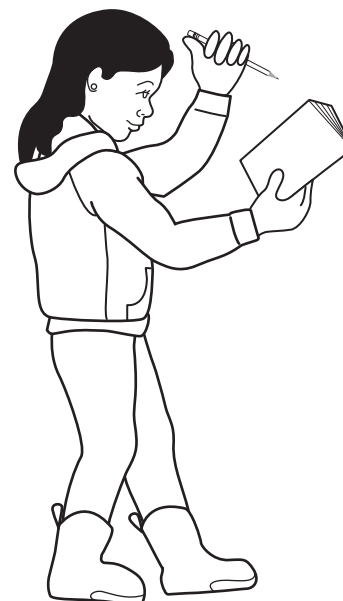
## COOL SPRING FACT

Minnesota's latest spring freeze is usually around April 29 in the metro and June 1 in the far north.

# Introduction

## Who is a Master Naturalist Explorer?

It is someone like YOU! A kid who is interested in nature, wants to learn more about it, and have fun exploring the outdoors.



## Please do the following:

Be safe.

Be respectful of each other and nature.

Have fun!

## What is a nature journal?

A nature journal is a booklet that helps you capture your experiences in nature. It is a place to write, sketch and record your personal observations and thoughts about nature. It is a great way to keep track of your discoveries over time.



# Minnesota Biomes

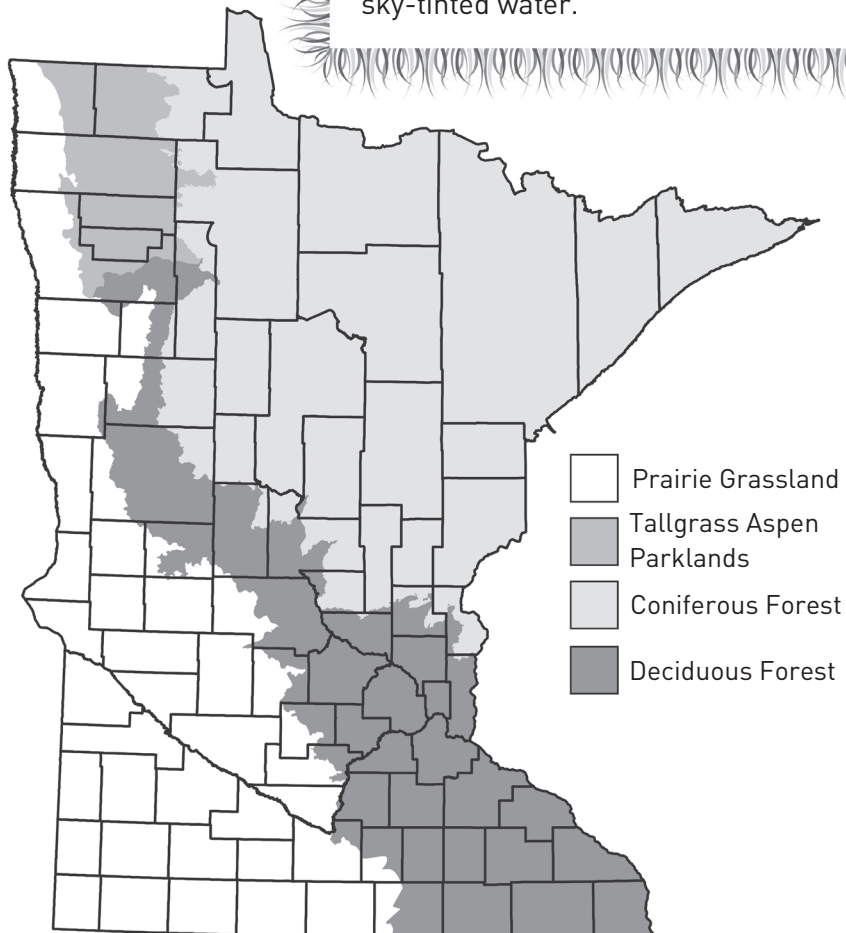
In general, a biome is a large area of land with the same type of plant communities.

Put a star on the map to mark the location of your Explorers program.

What biome are you in? \_\_\_\_\_

## COOL SPRING FACT

Minnesota comes from the Dakota Indian name "Minisota," which means sky-tinted water.



## I Promise I Will Help Nature by:

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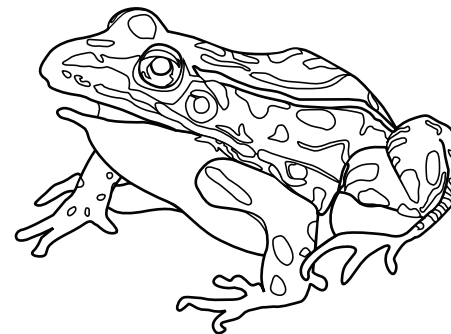
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Signature \_\_\_\_\_





Date \_\_\_\_\_



## Nature Observations/Field Sketches

## Nature Observation

Explore your site. Write or draw your nature observations in the boxes below.

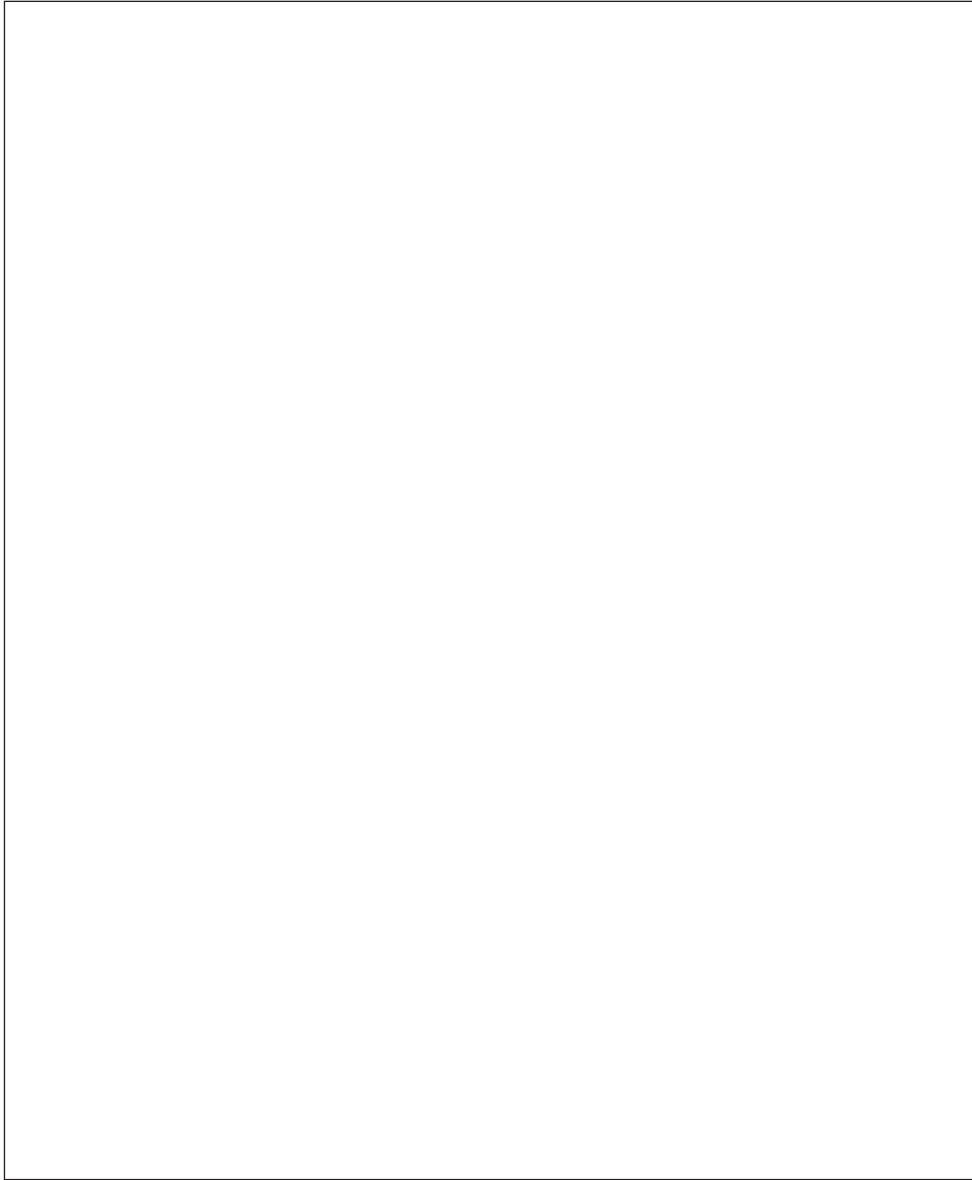
 <p><b>I see</b></p>	 <p><b>I feel</b></p>
 <p><b>I smell</b></p>	 <p><b>I hear</b></p>

### COOL SPRING FACT

Spring peepers can be heard in March, one of the earliest callers among the dozen frog species found in Minnesota.

## Draw a Map of Your Site

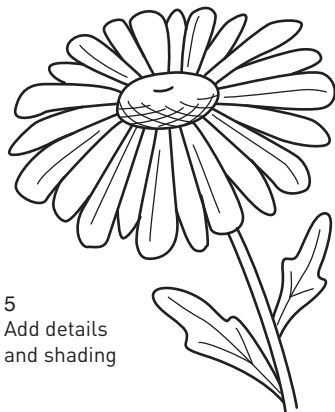
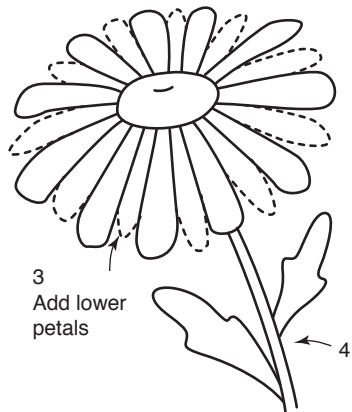
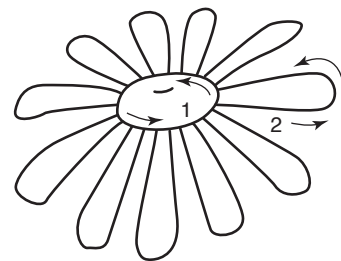
Create a birds-eye view map of your Explorers program site. Draw in large items such as buildings, playgrounds, streets, grassy areas, trails, forests or gardens. Create a key to identify major features.



## Nature Observations/Field Sketches

# How to Draw

Take one step at a time to draw a daisy or a flower of your choice.



Key



# Phenology

Phenology is the science of seasonal changes and their effect on the natural world. In the squares draw and/or write natural things that may be happening in the different seasons.

Spring	Summer
Fall	Winter

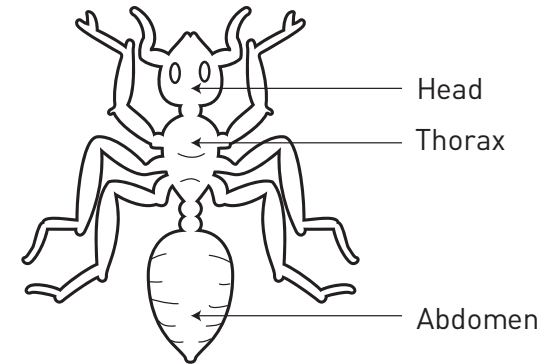
## COOL SPRING FACT

March 20, the first day of spring, is called the vernal equinox and is Latin for spring equal night.

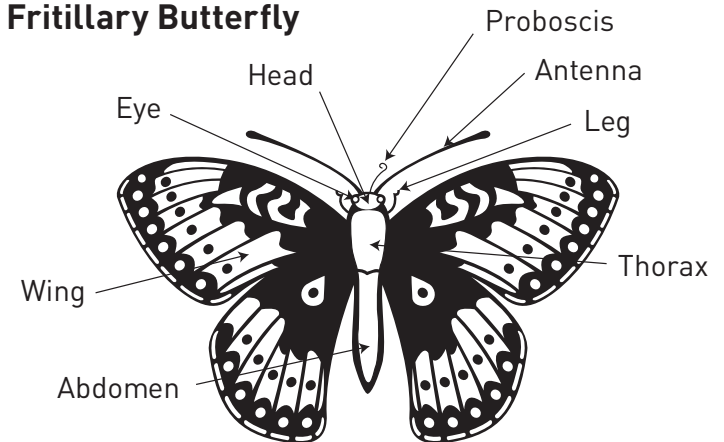
# Search for Insects

Get to know some of the insects found in your area. Ants, moths and butterflies are common insects that you might find at school or in your neighborhood. A few common features of insects include: six legs along with a head, thorax, and abdomen body parts.

## Ant



## Fritillary Butterfly



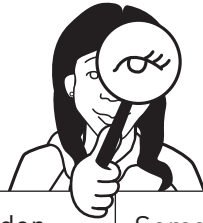
## COOL SPRING FACT

An ant can carry 10-50 times its body weight. There are more than 10,000 species of ants around the world.



# Scavenger Hunt

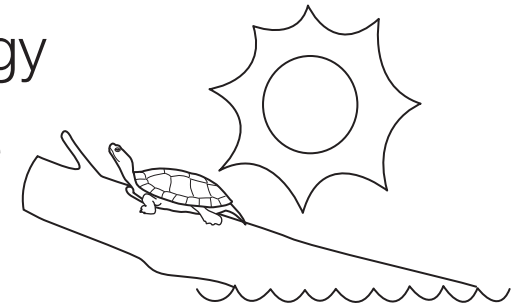
Check-off each item you find and then sketch or write what it is.



Something that needs air/oxygen to survive <input type="checkbox"/>	Something older than yourself <input type="checkbox"/>	Something smaller than your thumb <input type="checkbox"/>
Something that flies <input type="checkbox"/>	Something taller than you <input type="checkbox"/>	Something younger than yourself <input type="checkbox"/>
Something that you have not seen before <input type="checkbox"/>	Something with a scent <input type="checkbox"/>	Something with a bud <input type="checkbox"/>

# Spring Phenology

The first time you discover each item below check it off and write down the date. Add your own things to watch for.



Date: \_\_\_\_\_

Frogs begin to call	<input type="checkbox"/>	_____
Male red-winged blackbirds return	<input type="checkbox"/>	_____
First day wearing shorts outside	<input type="checkbox"/>	_____
Bird carrying nesting material	<input type="checkbox"/>	_____
Smell of mud in the air	<input type="checkbox"/>	_____
Worms on ground after spring rain	<input type="checkbox"/>	_____
Sap visible on tree bark	<input type="checkbox"/>	_____
Sighting of first baby animal	<input type="checkbox"/>	_____
First severe weather warning	<input type="checkbox"/>	_____
Turtles sunning	<input type="checkbox"/>	_____
First butterfly or moth sighting	<input type="checkbox"/>	_____
Sound of lawnmower	<input type="checkbox"/>	_____
Canada geese goslings appear	<input type="checkbox"/>	_____
First dandelion blooming	<input type="checkbox"/>	_____
Mushrooms popping up	<input type="checkbox"/>	_____
First mosquito bite	<input type="checkbox"/>	_____
Buds on trees start to open	<input type="checkbox"/>	_____
First 60 degree day	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	_____

# Water Cycle

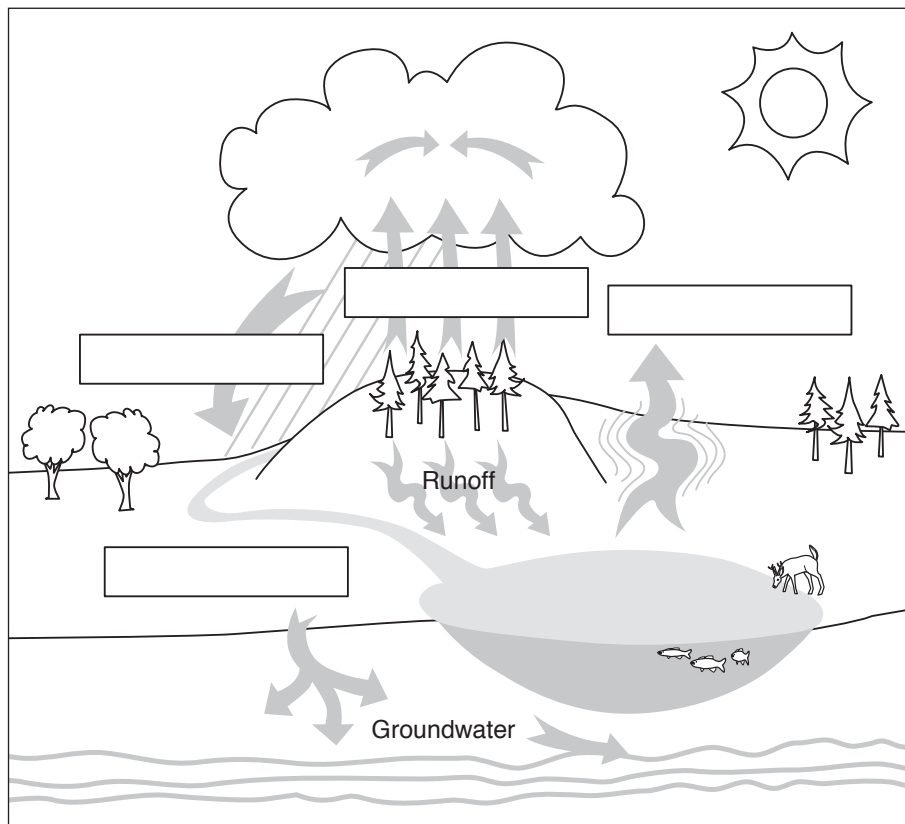
Fill in the blanks with the word that best describes what is happening in the water cycle.

Precipitation

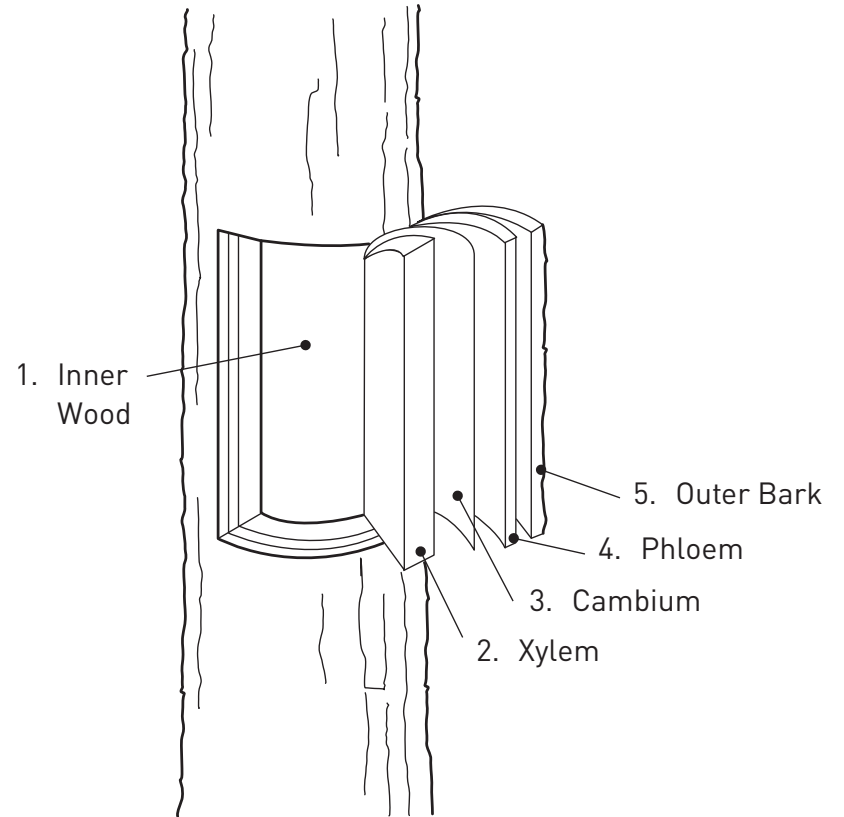
Transpiration

Evaporation

Infiltration



# Inside a Tree



1. Inner Wood—supports tree, stores growing compounds and sugars
2. Xylem (zahy-luh m)—carries water and minerals from roots to leaves
3. Cambium (kam-bee-uh m)—makes trunk, branches and roots thicker
4. Phloem (floh-em)—carries food (sap) from leaves to rest of tree
5. Outer Bark—dead tissue that protects the tree from injury

# Buds, Leaves and Branches

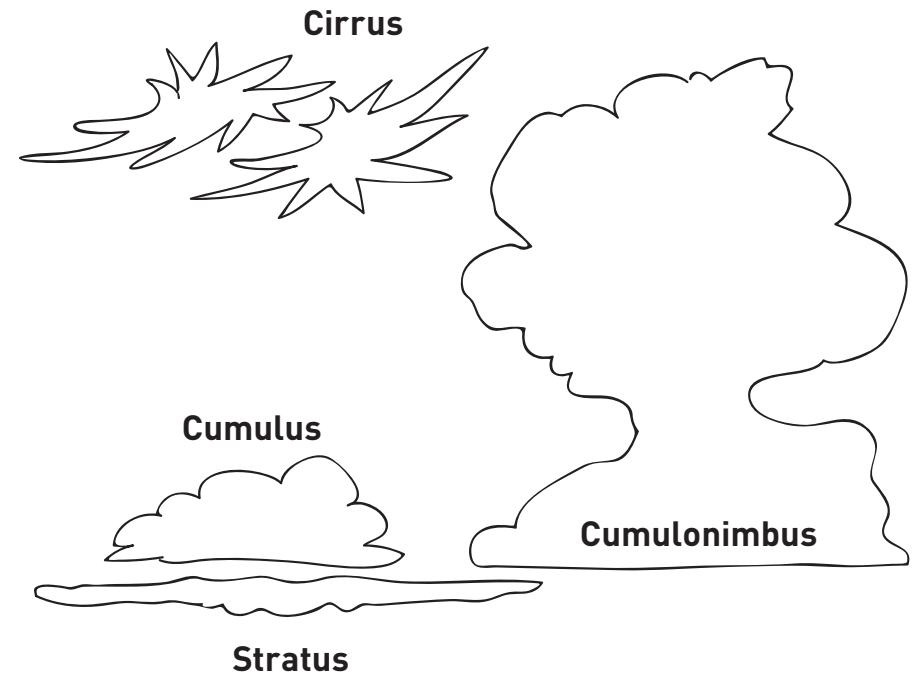
Draw the items below.

**Opposite  
branching**

**Alternate  
branching**

**Leaves or buds**

# Common Cloud Types



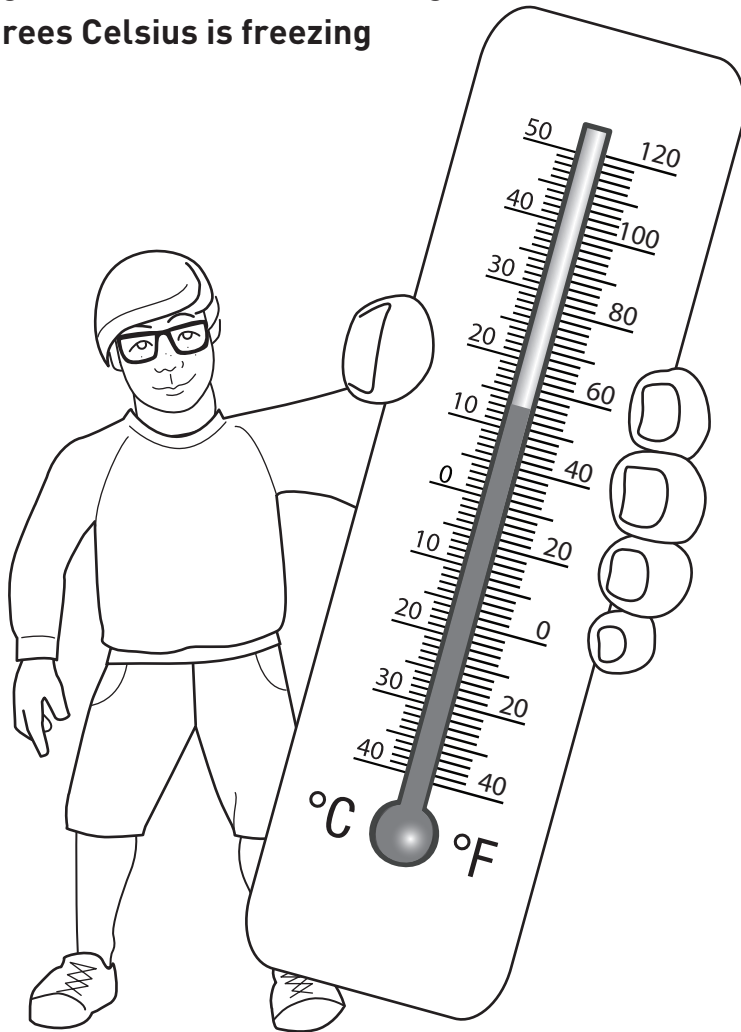
## COOL SPRING FACT

Winds inside a tornado can twist faster than any hurricane—more than 300 miles per hour.

# Temperature

**32 degrees Fahrenheit is freezing**

**0 degrees Celsius is freezing**



## Conversion formulas

Fahrenheit to Celsius

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times \frac{5}{9}$$

or

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times .56$$

Celsius to Fahrenheit








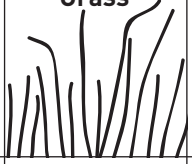


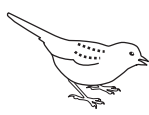





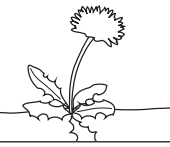

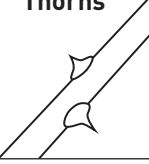



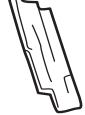
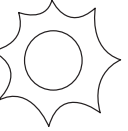
$$^{\circ}\text{F} = ^{\circ}\text{C} \times \frac{9}{5} + 32$$

or

$$^{\circ}\text{F} = ^{\circ}\text{C} \times 1.8 + 32$$

# Spring Nature Bingo

Take a walk outside and try to find each one of the objects on the bingo board. Cross off the ones that you find. Yell "nature!" if you find five objects in a row or diagonally.

<b>Ant</b> 	<b>Clouds</b> 	<b>Leaf bud</b> 	<b>Soil</b> 	<b>Birds nest</b> 
<b>Seeds</b> 	<b>Robin</b> 	<b>Grass</b> 	<b>Puddle</b> 	<b>Wind</b> 
<b>Sparrow</b> 	<b>Leaf</b> 	<b>Free Space</b> 	<b>Squirrel</b> 	<b>Singing bird</b> 
<b>Rocks</b> 	<b>Dandelion</b> 	<b>Coniferous tree</b> 	<b>Thorns</b> 	<b>Fly</b> 
<b>Other</b>	<b>Butterfly</b> 	<b>Flower</b> 	<b>Bark</b> 	<b>Sun</b> 

## COOL SPRING FACT

Hatched in the south, Green Darner dragonflies migrate north in the spring, traveling up to 87 miles per day.

Take the letters that appear in the shaded boxes and place them in order in the boxes at the bottom to reveal a spring message.

NAT			
-----	--	--	--

REVAPOATION

DDPU<sub>EL</sub>

--	--	--	--	--	--

YLMEX

SCUMLUU

PRACEIPITIONT

OEFLWR						
--------	--	--	--	--	--	--

LOIS

BROIN					
-------	--	--	--	--	--

GILIH TNG

[illegible]

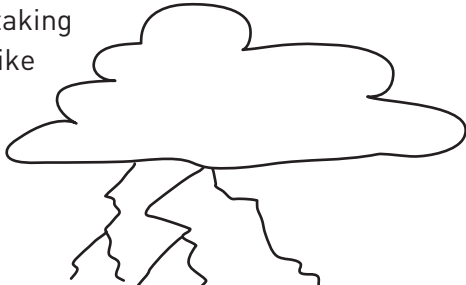
A **watch** means weather conditions are favorable for dangerous weather to occur such as a thunderstorm, tornado or a flash flood.

A **warning** means the weather event (thunderstorm, tornado or flash flood) is occurring somewhere in the defined warning area and that people need to take shelter as soon as possible.



## Lightning safety tips

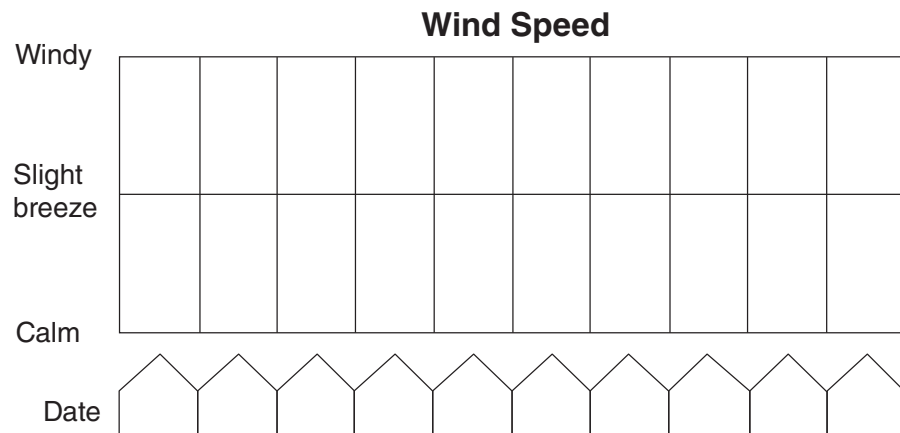
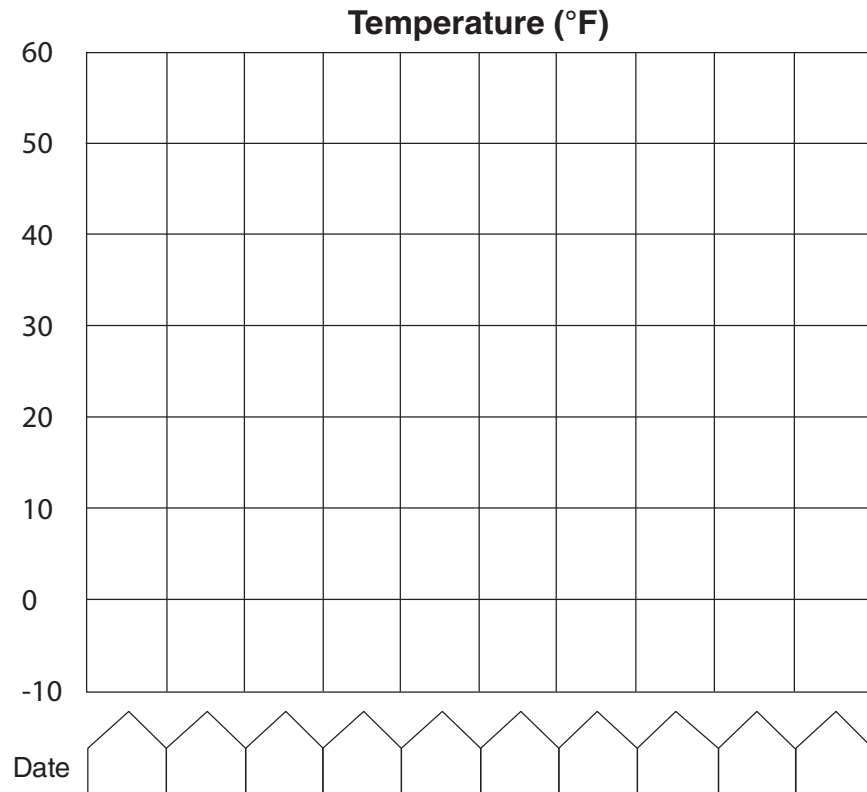
Lightning is dangerous. It kills about 100 Americans each year, more than tornadoes, and causes about 300 injuries. Every thunderstorm produces lightning! To be safe during a thunderstorm do the following:

- Get inside a building or enclosed vehicle.
  - If you are caught in an open area with lightning around, crouch down immediately! Put your hands on your knees, but don't lie down on the ground.
  - Do not use a landline phone or electrical appliance when lightning is taking place. A nearby lightning strike can travel through phone or power lines, right into the home.
  - Never seek shelter beneath one lone tree.
- 



# Weather Tracker

Create a bar graph for temperature and wind speed. Enter a symbol for cloud conditions and precipitation.

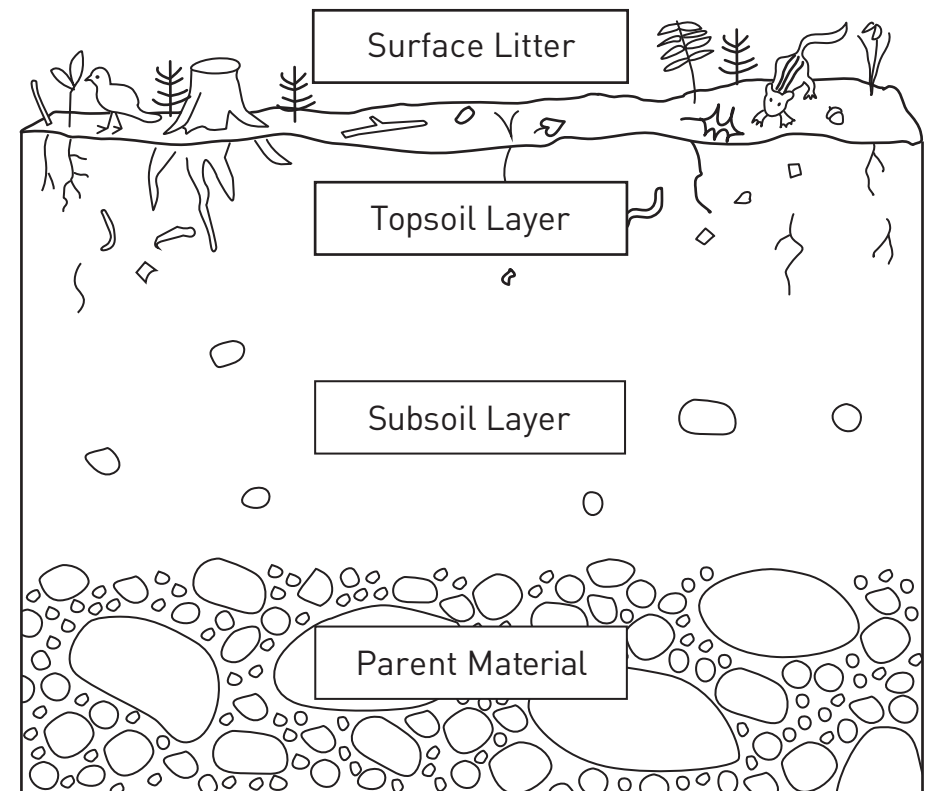


# What Type of Soil Does Your Site Have?

## Soil particle size comparison

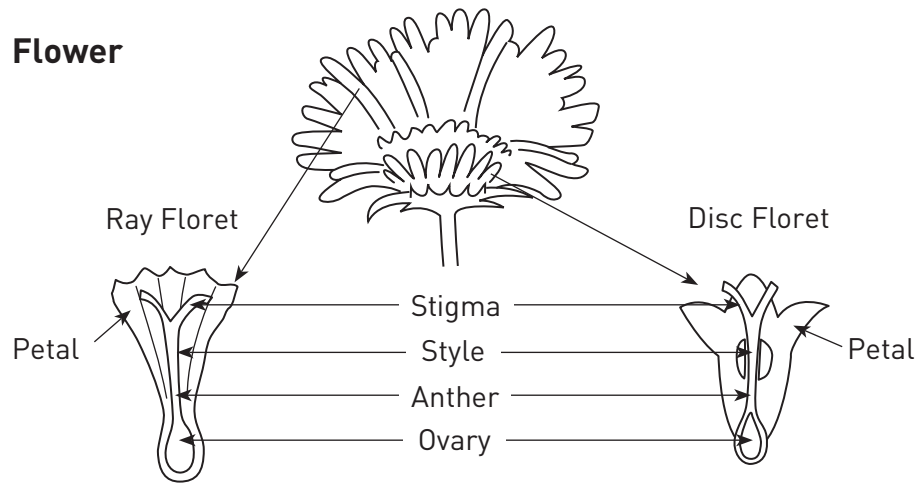
Clay	Silt	Sand
(Larger than actual size)		

## A soil profile

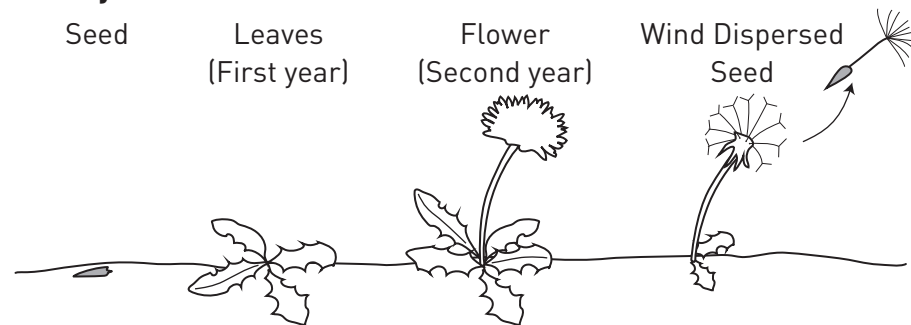


# Dandelion Parts

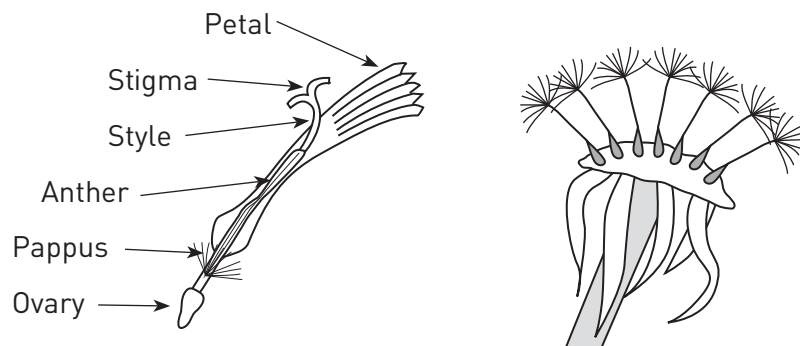
## Flower



## Life cycle



## Going to seed



## Cloud Conditions



Cirrus



Cumulus



Stratus



Cumulonimbus



None

	Cirrus	Cumulus	Stratus	Cumulonimbus	None
Date					
Date					

## Precipitation



Rain



Sleet



Snow

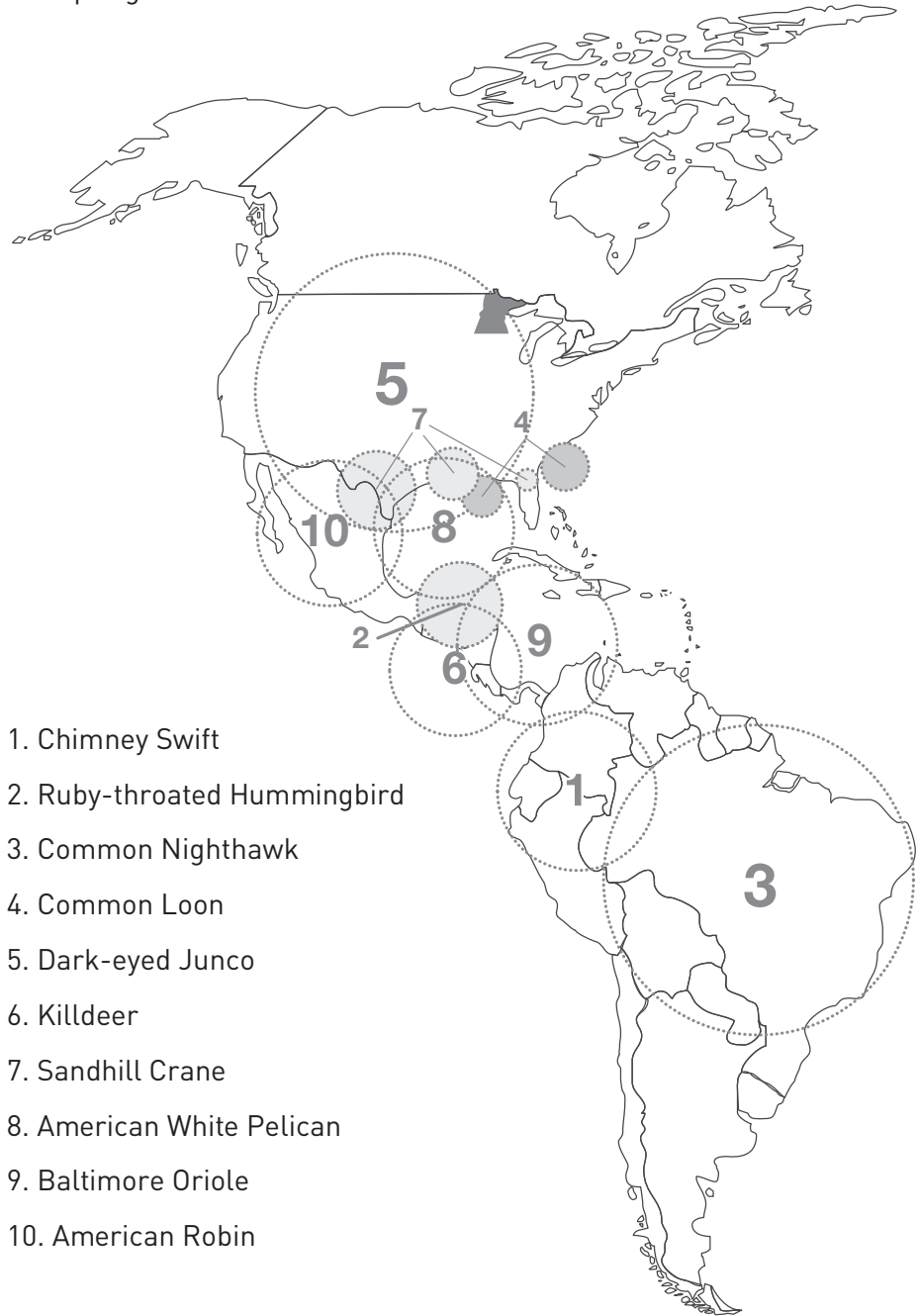


None

	Rain	Sleet	Snow	None
Date				
Date				

# Bird Migration

Which bird species will travel the farthest back to Minnesota this spring? \_\_\_\_\_



# Field Guide

Field guides help you to identify plants and animals found in nature. There are many kinds, big and small, but all contain some basic information such as: common name, scientific name, a picture and description.

Create your own imaginary plant or animal field guide entry below.

Common Name	
Scientific Name	
Description	