

SHOULD I STAY OR SHOULD I GO NOW?



NOTES

AGE GROUP:

Early elementary; upper elementary; tweens

TYPE OF PROGRAM:

Facilitated hands-on experience; Opportunity to invite a bird expert as a guest speaker; Stations could be set up as passive Exploration Stations

ACTIVITY TIME:

40 minutes to 1 hour; Long Duration (days to months)

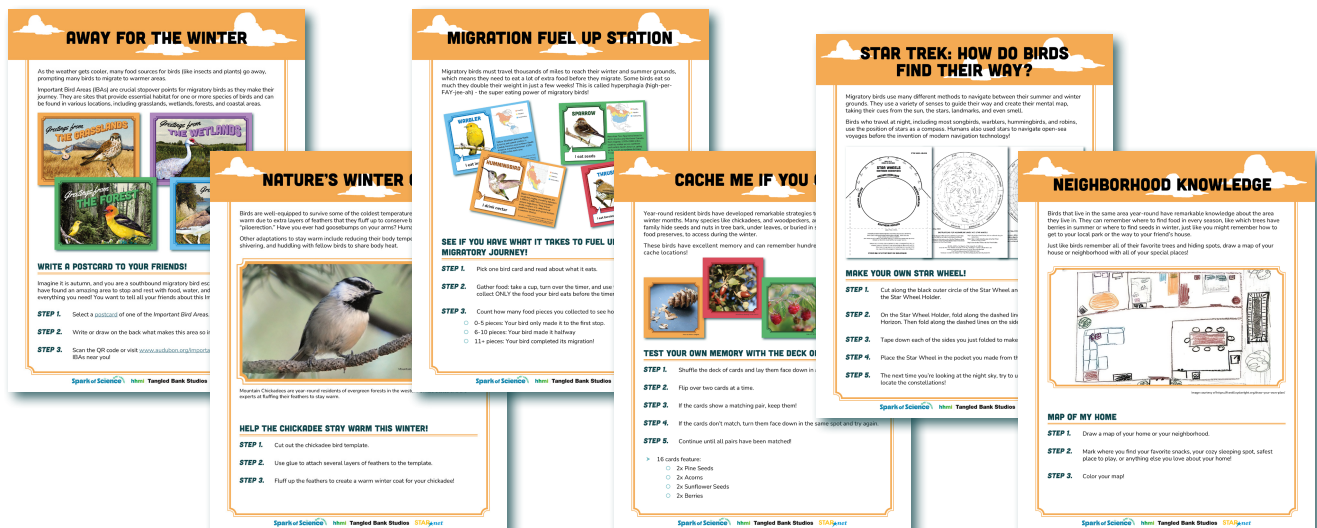
Through a series of Stations, patrons will learn to identify common local species, and explore and compare the different survival strategies of seasonal birds vs. year-round residents.

WHAT'S THE POINT?

- Migratory bird species have physical and behavioral adaptations that enable them to travel long distances.
- There are many reasons why some birds migrate, including food availability, breeding conditions, and predator avoidance. Migration is a survival strategy!
- There are also many different tricks that birds use to make their migration effective – navigating by the stars, extraordinary memory, and even remembering smells!
- Resident birds have their own adaptations which allow them to thrive in their habitats year-round.

PREPARATION:

- Prepare a table for each Station
- Print the table signs and display them at each Station (2 table signs per Station – one for migratory birds, one for year-round birds)
- Print and assemble the materials for each Station

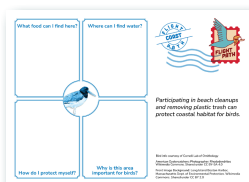
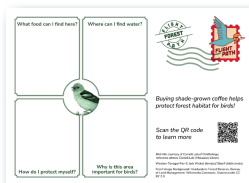
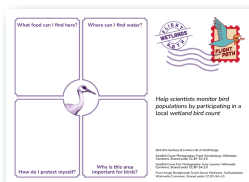
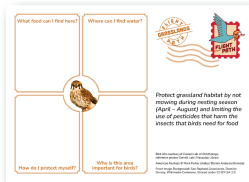
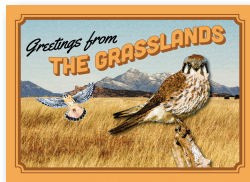
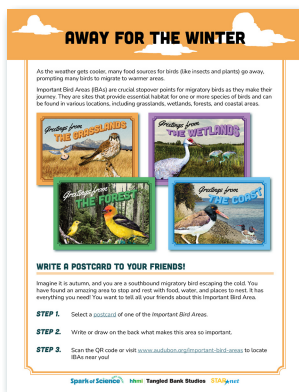


EXPLORATION STATIONS:

STATION 1. CONQUERING THE COLD

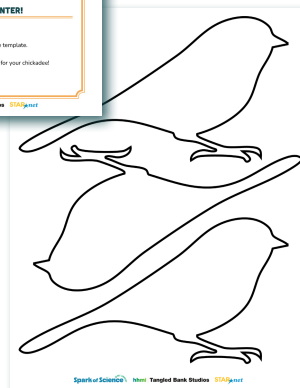
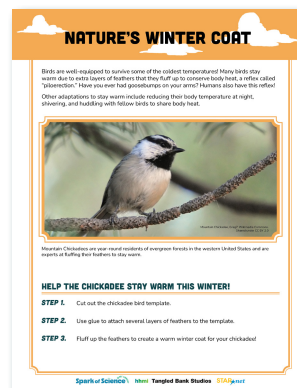
Migratory birds: Away for the Winter

- Materials:
 - [Away for the Winter](#) Table Sign
 - [Postcard Templates](#)
 - Markers, crayons, colored pencils, etc.



Year-round birds: Nature's Winter Coat

- Materials:
 - [Nature's Winter Coat](#) Table Sign
 - [Chickadee Bird Templates](#) (one for each visitor)
 - Assortment of craft feathers
 - Glue



STATION 2. FINDING FOOD

Migratory birds: Migration Fuel Up Station

➤ Materials:

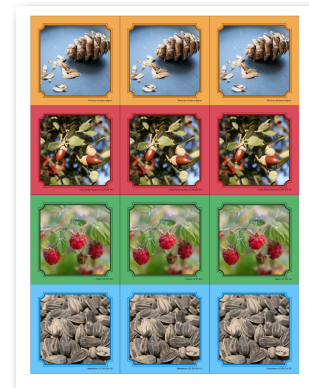
- [Migration Fuel Up Station](#) Table Sign
- 4 small clear plastic containers
- Colored pom-poms or beans representing different foods:
 - Red = berries
 - Yellow = nectar/flowers
 - Blue = insects
 - Green = seeds
- Small cups
- Plastic spoon or tweezer (representing bird beaks)
- Laminated bird cards as game pieces
 - Hummingbird: "I drink nectar" (yellow)
 - Warbler: "I eat insects" (blue)
 - Sparrow: "I eat seeds" (green)
 - Thrush: "I eat berries and insects" (red and blue)
- Sand timer
- Laminated migration map with distance markers



Year-round birds: Cache Me If You Can

➤ Materials:

- [Cache Me if You Can](#) Table Sign
- Deck of 8 cards



STATION 3: NAVIGATION

Migratory birds: Star Trek

► Materials:

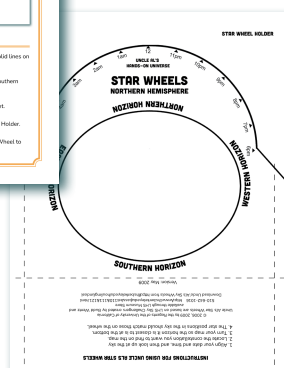
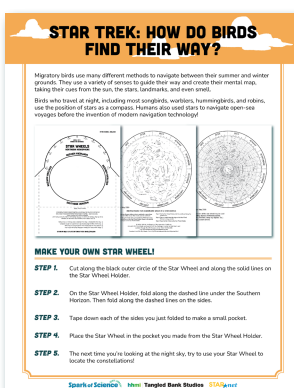
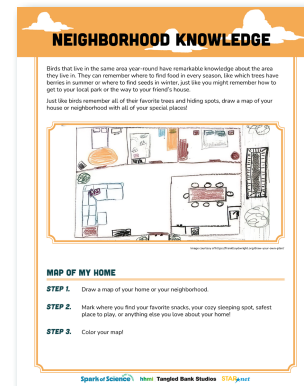
- [Star Trek](#) Table Sign
- Tape
- Star Compass Star Wheel templates (one for each visitor)
 - Note: If you are located in Alaska, use the “Higher Latitude Star Wheel”
 - For more information, watch this “How-To” video for making and using the Star Wheels: <https://www.youtube.com/watch?v=bcf4zScR1Sk>
- Paper Plate
- Brass fasteners (one for each visitor)
- Markers, crayons, colored pencils, etc.
- (Optional) Glow-in-the-dark stickers

Original activity link source: <https://lawrencehallofscience.org/activities/star-wheels/>

Year-round birds: Neighborhood Knowledge

► Materials:

- [Neighborhood Knowledge Table Sign](#)
- Drawing paper
- Markers, crayons, colored pencils, etc.



AWAY FOR THE WINTER

As the weather gets cooler, various food sources for birds (like insects and plants) go away, prompting many birds to migrate to warmer areas.

Important Bird Areas (IBAs) are crucial stopover points for migratory birds as they make their journeys. They are sites that provide essential resources for one or more species of birds and can be found in various locations, including grasslands, wetlands, forests, and coastal areas.



WRITE A POSTCARD TO YOUR FRIENDS!

Imagine it is autumn, and you are a southbound migratory bird escaping the cold. You have found an amazing stopover spot with food, water, and places to rest. It has everything you need! You want to tell all your friends about this Important Bird Area.

- STEP 1.** Select a [postcard](#) of one of the *Important Bird Areas*.
- STEP 2.** On the back, write or draw on the back what makes this area so important.
- STEP 3.** Scan the QR code or visit www.audubon.org/important-bird-areas to locate IBAs near you!




FRONT: GRASSLANDS



BACK: GRASSLANDS


What food can I find here?

Where can I find water?



How do I protect myself?

Why is this area important for birds?




Protect grassland habitat by not mowing during nesting season (April – August) and limiting the use of pesticides that harm the insects that birds need for food

Bird info courtesy of Cornell Lab of Ornithology;
reference photos Cornell Lab | Macaulay Library
American Kestrels © Mark Parker (male) / Dorian Anderson(female)
Front Image Background: San Raphael Grasslands, Dominic Shrony. Wikimedia Commons. Shared under CC BY-SA 2.0


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Front Image Background: San Raphael Grasslands, Dominic Shrony. Wikimedia Commons. Shared under CC BY-SA 2.0


FRONT: FOREST



BACK: FOREST



What food can I find here?

Where can I find water?




How do I protect myself?

Why is this area important for birds?

Buying shade-grown coffee helps protect forest habitat for birds!

Scan the QR code to learn more




Bird info courtesy of Cornell Lab of Ornithology;
reference photos Cornell Lab | Macaulay Library

Western Tanager Pair © Jack Wickel (female)/ Sharif Uddin (male)

Front Image Background: Headwaters Forest Reserve, Bureau of Land Management. Wikimedia Commons. Shared under CC BY 2.0



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FRONT: WETLANDS


Greetings from
THE WETLANDS





Greetings from
THE WETLANDS




BACK: WETLANDS



What food can I find here?	Where can I find water?
	
How do I protect myself?	Why is this area important for birds?



Help scientists monitor bird populations by participating in a local wetland bird count

Bird info courtesy of Cornell Lab of Ornithology;
Sandhill Crane: Photographer: Frank Schulenburg. Wikimedia Commons. Shared under CC BY-SA 4.0
Sandhill Crane Pair: Photographer: Gary Leavens. Wikimedia Commons. Shared under CC BY-SA 2.0
Front Image Background: Scioto Grove Wetlands, Sixflashphoto Wikimedia Commons. Shared under CC BY-SA 4.0

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FRONT: COAST





BACK: COAST

What food can I find here?

Where can I find water?

How do I protect myself?

Why is this area important for birds?

Participating in beach cleanups and removing plastic trash can protect coastal habitat for birds.



Bird info courtesy of Cornell Lab of Ornithology
American Oystercatchers: Photographer: Rhododendrites
Wikimedia Commons. Shared under CC BY-SA 4.0
Front Image Background: Long Island Boston Harbor,
Massachusetts Dept. of Environmental Protection. Wikimedia
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NATURE'S WINTER COAT

Birds are well-equipped to survive some of the coldest temperatures! Many birds stay warm due to extra layers of feathers that they fluff up to conserve body heat, a reflex called “piloerection.” The human version of this reflex is goosebumps, though they don’t do much to keep us warm!

Other adaptations to stay warm include reducing their body temperature at night, shivering, and huddling with fellow birds to share body heat.

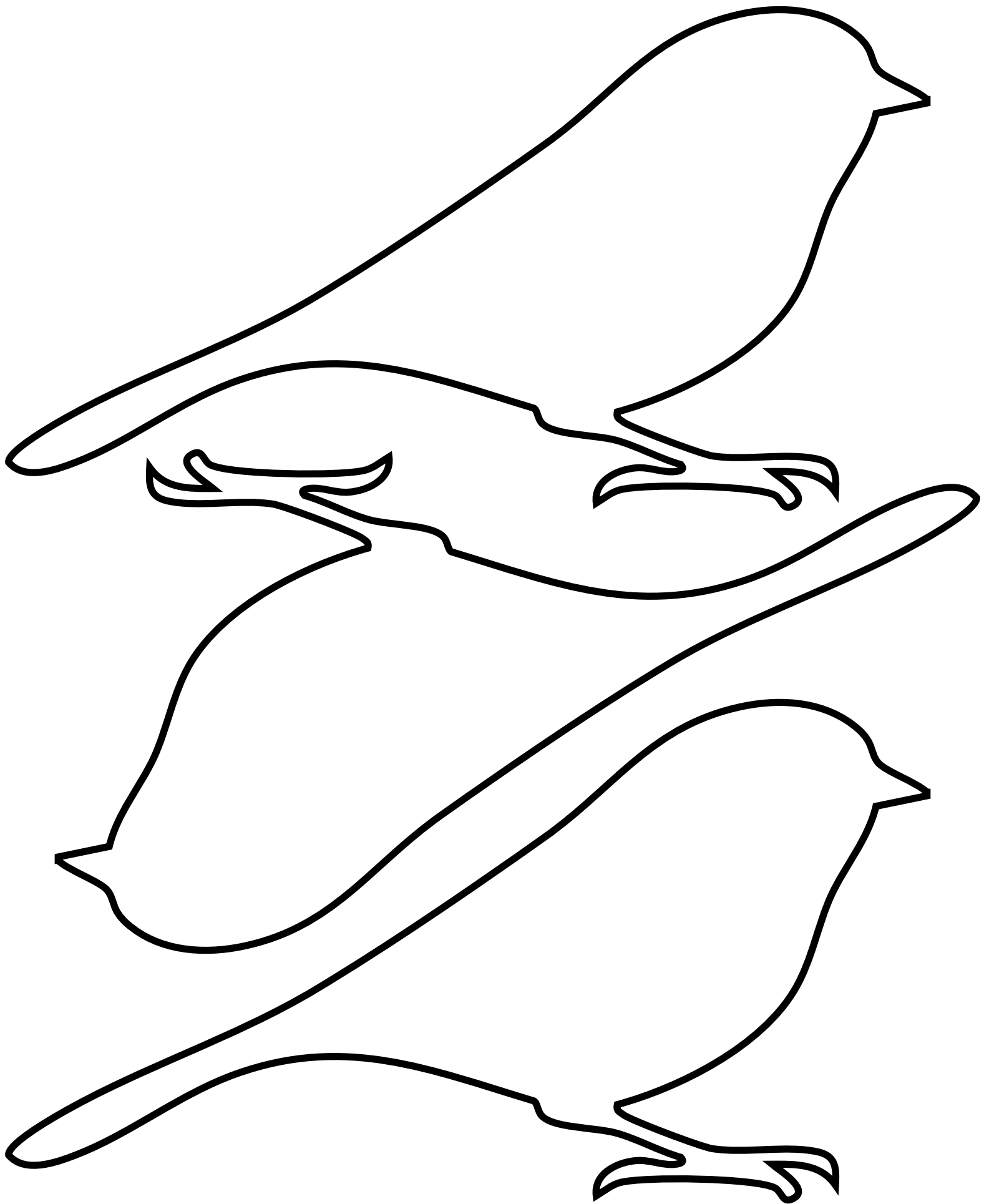


Mountain Chickadee, Greg7, Wikimedia Commons.
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Mountain Chickadees are year-round residents of evergreen forests in the western United States. They’re experts at fluffing their feathers to stay warm.

HELP THE CHICKADEE STAY WARM THIS WINTER!

- STEP 1.** Cut out the chickadee bird template.
- STEP 2.** Use glue to attach several layers of feathers to the template.
- STEP 3.** Fluff up the feathers to create a warm winter coat for your chickadee!



MIGRATION FUEL UP STATION

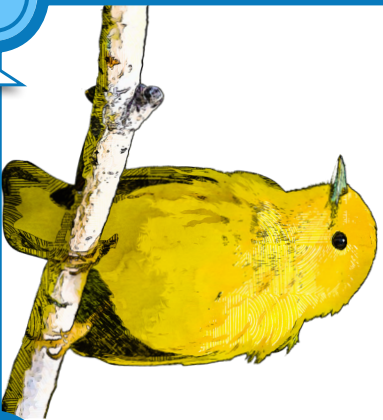
Migratory birds often travel thousands of miles to reach their winter and summer territories, which means they need to eat a lot of extra food before they migrate. Some birds eat so much they double their weight in just a few weeks! This is called hyperphagia (high-per-FAY-jee-ah) – the super eating power of migratory birds!



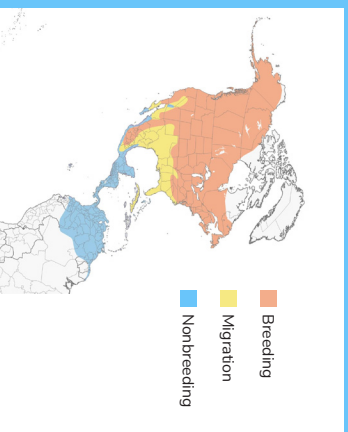
SEE IF YOU HAVE WHAT IT TAKES TO FUEL UP BEFORE YOUR MIGRATORY JOURNEY!

- STEP 1.** Pick one bird card and read about what that bird eats.
- STEP 2.** Gather food: take a cup, turn over the timer, and use the spoon/tweezer to collect ONLY the food your bird eats before the timer runs out.
- STEP 3.** Count how many food pieces you collected to see how far your bird can fly:
- 0-5 pieces: Your bird only made it to the first stop.
 - 6-10 pieces: Your bird made it halfway
 - 11+ pieces: Your bird completed its migration!

WARBLER



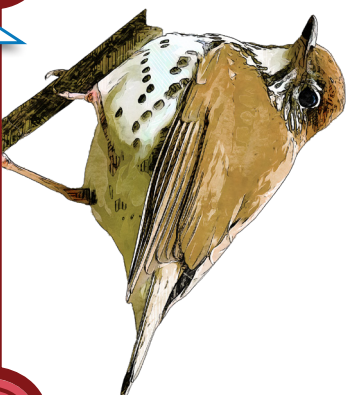
I eat insects



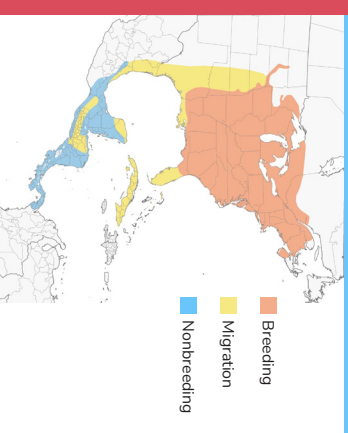
Yellow Warblers breed in North America and spend winters in Central America and northern South America, traveling between 1,500 to 3,000 miles each way.

Yellow Warbler © Darren Clark
Bird info courtesy of Cornell Lab of Ornithology; reference photos Cornell Lab | Macaulay Library

THRUSH



I eat berries and insects



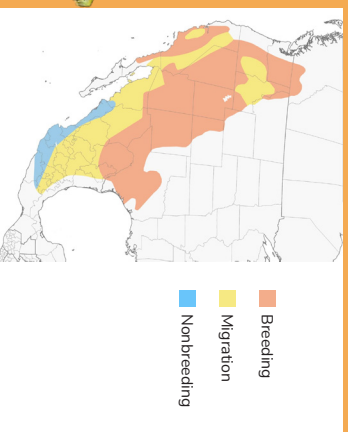
Wood Thrushes fly about 2,500 miles between eastern North America and Central America twice yearly, crossing the Gulf of Mexico in one night.

Wood Thrush © Mykola Swarnyk Shared under CC BY-SA 3.0
Bird info courtesy of Cornell Lab of Ornithology

HUMMINGBIRD



I drink nectar



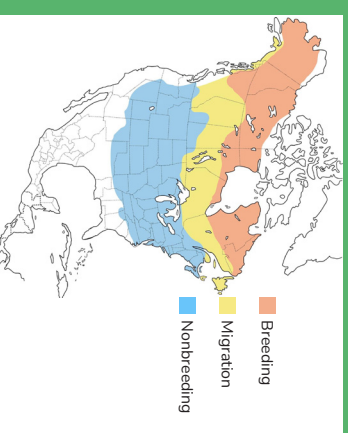
Black-Chinned Hummingbirds are small but mighty, traveling between 1,000 to 2,000 miles during their annual migrations. They breed in the western U.S. and parts of southern Canada and spend winters in western Mexico.

Black-Chinned Hummingbird © Jim Merritt
Bird info courtesy of Cornell Lab of Ornithology; reference photos Cornell Lab | Macaulay Library

SPARROW



I eat seeds



American Tree Sparrows breed in arctic Alaska and Northern Canada, then migrate 1,000-2,000 miles south to winter across northern and central North America, going as far south as northern Arizona, Texas, and Alabama

American Tree Sparrow © Dorian Anderson
Bird info courtesy of Cornell Lab of Ornithology; reference photos Cornell Lab | Macaulay Library

CACHE ME IF YOU CAN!

Year-round resident birds have developed remarkable strategies to find food during the winter months. Many species like chickadees, woodpeckers, and members of the crow family hide seeds and nuts in tree bark, under leaves, or buried in soil to create caches, or food preserves, to access during the winter.

These birds have excellent memories and can remember hundreds or thousands of cache locations!



TEST YOUR OWN MEMORY WITH THE DECK OF CARDS!

- STEP 1.** Shuffle the deck of cards and lay them face down in a grid pattern.
- STEP 2.** Flip over two cards at a time.
- STEP 3.** If the cards show a matching pair, keep them!
- STEP 4.** If the cards don't match, turn them face down in the same spot and try again.
- STEP 5.** Continue until all pairs have been matched!

- 8 cards feature:
- 2x Pine Seeds
 - 2x Acorns
 - 2x Sunflower Seeds
 - 2x Berries



Photo by Kristine Lofgren.



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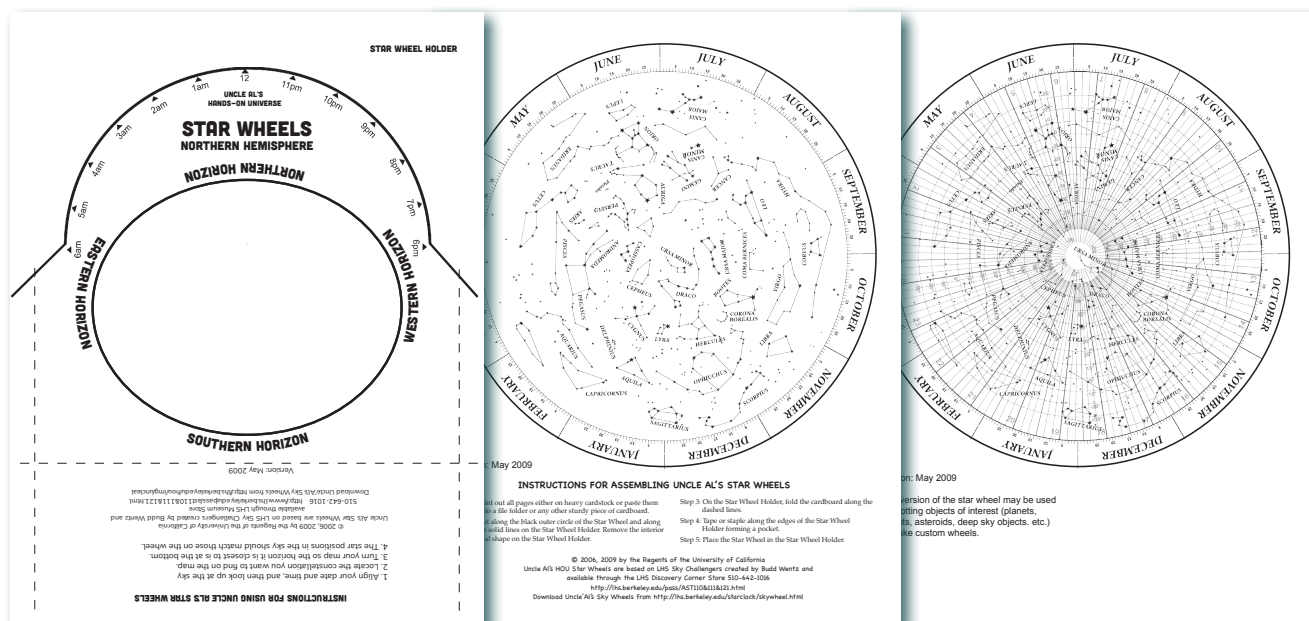


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STAR TREK: HOW DO BIRDS FIND THEIR WAY?

Migratory birds use many different methods to navigate between their summer and winter grounds. They use a variety of senses to guide their way and create their mental map, taking their cues from the sun, the stars, landmarks, and even smell.

Birds who travel at night, including most songbirds, warblers, hummingbirds, and robins, use the position of stars as a compass. Humans also used stars to navigate open-sea voyages before the invention of modern navigation technology!

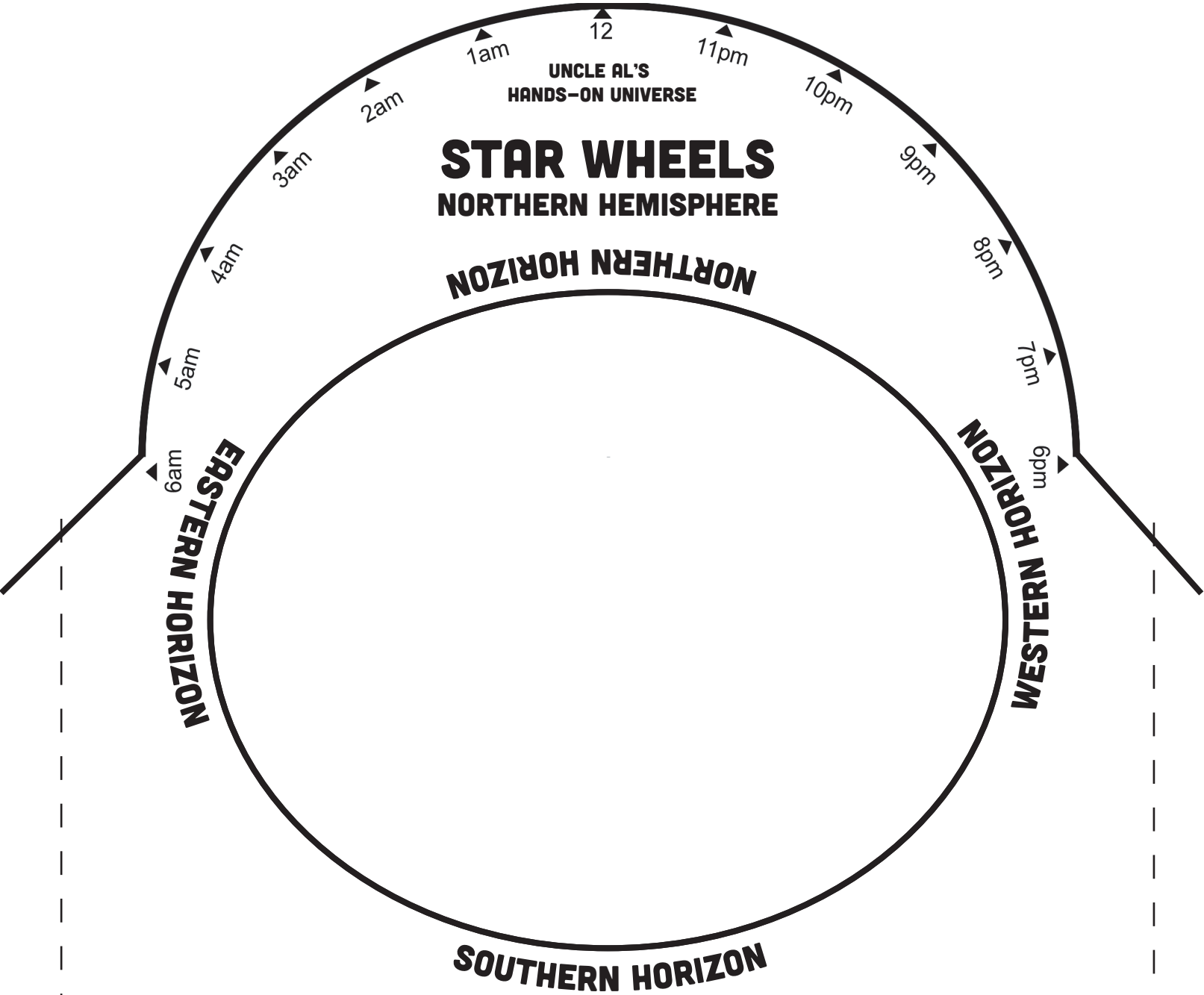


MAKE YOUR OWN STAR WHEEL!

- STEP 1.** Cut along the black outer circle of the Star Wheel and along the solid lines on the Star Wheel Holder.
- STEP 2.** On the Star Wheel Holder, fold along the dashed line under the Southern Horizon. Then fold along the dashed lines on the sides.
- STEP 3.** Tape down each of the sides you just folded to make a small pocket.
- STEP 4.** Place the Star Wheel in the pocket you made from the Star Wheel Holder.
- STEP 5.** The next time you're looking at the night sky, try to use your Star Wheel to locate the constellations!

NORTHERN HEMISPHERE

STAR WHEEL HOLDER



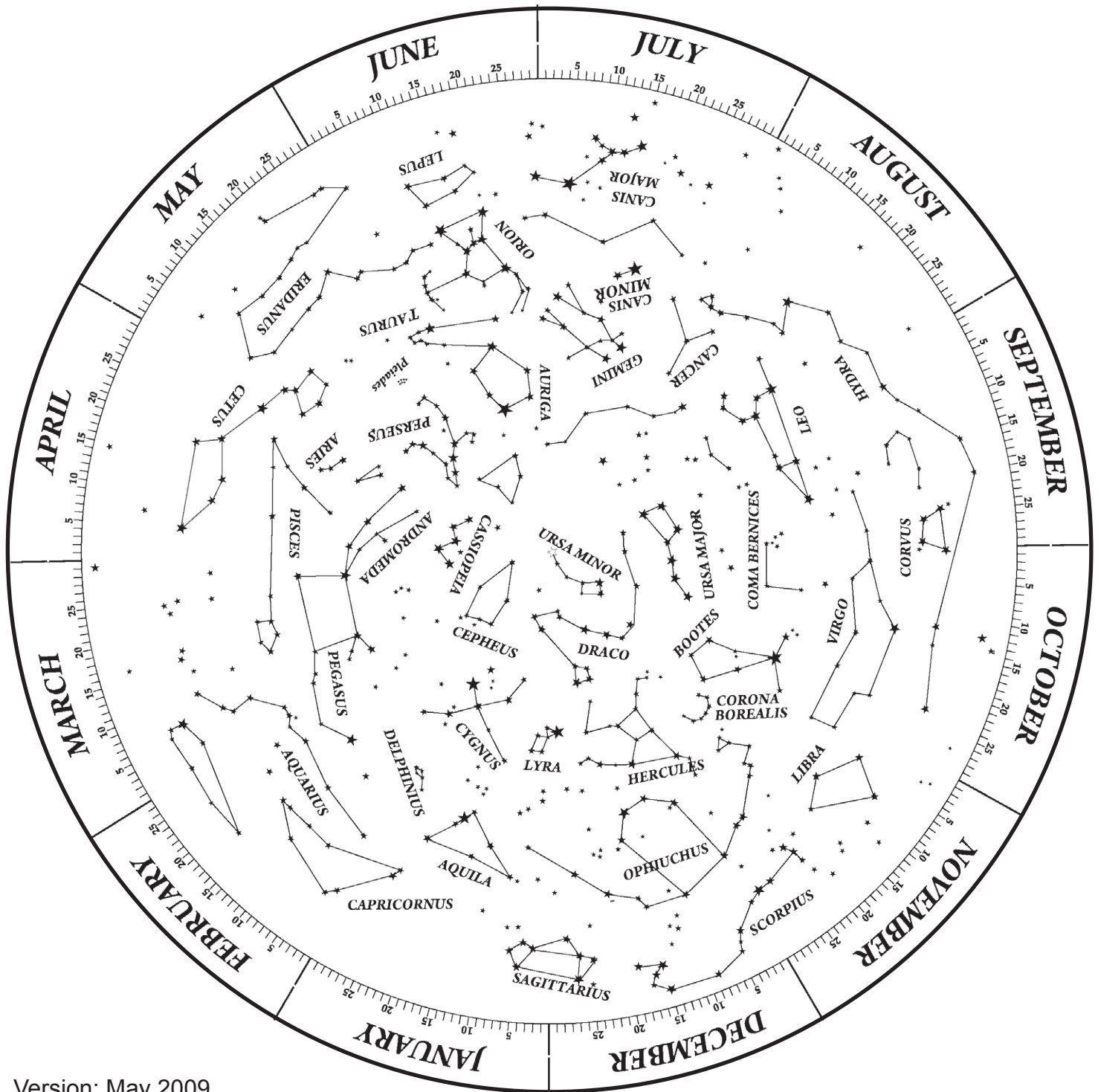
INSTRUCTIONS FOR USING UNCLE AL'S STAR WHEELS

1. Align your date and time, and then look up at the sky
2. Locate the constellation you want to find on the map.
3. Turn your map so the horizon it is closest to is at the bottom.
4. The star positions in the sky should match those on the wheel.

© 2006, 2009 by the Regents of the University of California
Uncle Al's Star Wheels are based on LHS Sky Challengers created by Budd Wentz and
available through LHS Museum Store
510-642-1016 <http://www.lhs.berkeleyedu/pass/ast110&11&121.html>
Download Uncle Al's Sky Wheels from <http://lhs.berkeleyedu/hou/img/uncleal>

Version: May 2009

NORTHERN HEMISPHERE



Version: May 2009

INSTRUCTIONS FOR ASSEMBLING UNCLE AL'S STAR WHEELS

Step 1: Print out all pages either on heavy cardstock or paste them onto a file folder or any other sturdy piece of cardboard.

Step 2: Cut along the black outer circle of the Star Wheel and along the solid lines on the Star Wheel Holder. Remove the interior oval shape on the Star Wheel Holder.

Step 3: On the Star Wheel Holder, fold the cardboard along the dashed lines.

Step 4: Tape or staple along the edges of the Star Wheel Holder forming a pocket.

Step 5: Place the Star Wheel in the Star Wheel Holder.

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 Uncle Al's HOU Star Wheels are based on LHS Sky Challengers created by Budd Wentz and
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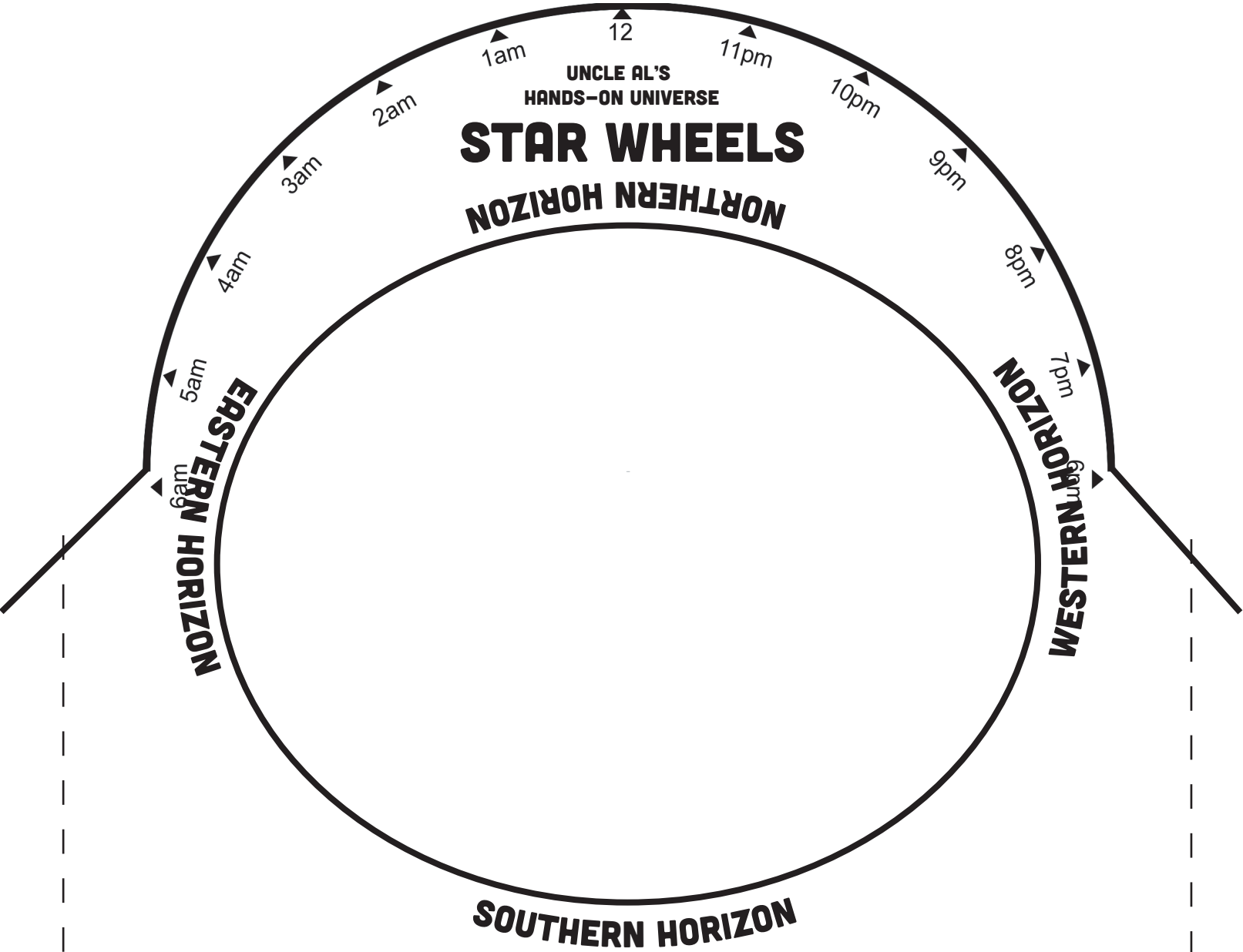
Download Uncle Al's Sky Wheels from <http://lhs.berkeley.edu/starclock/skywheel.html>

This circular star chart illustrates the Northern Hemisphere's night sky, organized by month and declination. The outermost ring marks the months from January to December, with specific days of the month indicated along the perimeter. The chart is divided into 12 sectors, each representing a month. The inner rings show the declination of the stars, with labels such as 30°, 20°, 10°, 0°, -10°, -20°, and -30°. The constellations are labeled with their names in Latin, including Ursa Minor, Ursa Major, Bootes, Corona Borealis, Hercules, Ophiuchus, Sagittarius, Capricornus, Aquila, Cygnus, Delphinus, Pegasus, Andromeda, Perseus, Auriga, Gemini, Cancer, Leo, Hydra, Virgo, Libra, Scorpius, and Sagittarius. The chart is a black and white line drawing.

Grid version of the star wheel may be used for plotting objects of interest (planets, comets, asteroids, deep sky objects. etc.) to make custom wheels.

NORTHERN HEMISPHERE
HIGH LATITUDES

STAR WHEEL HOLDER



NORTHERN HEMISPHERE—HIGH LATITUDES

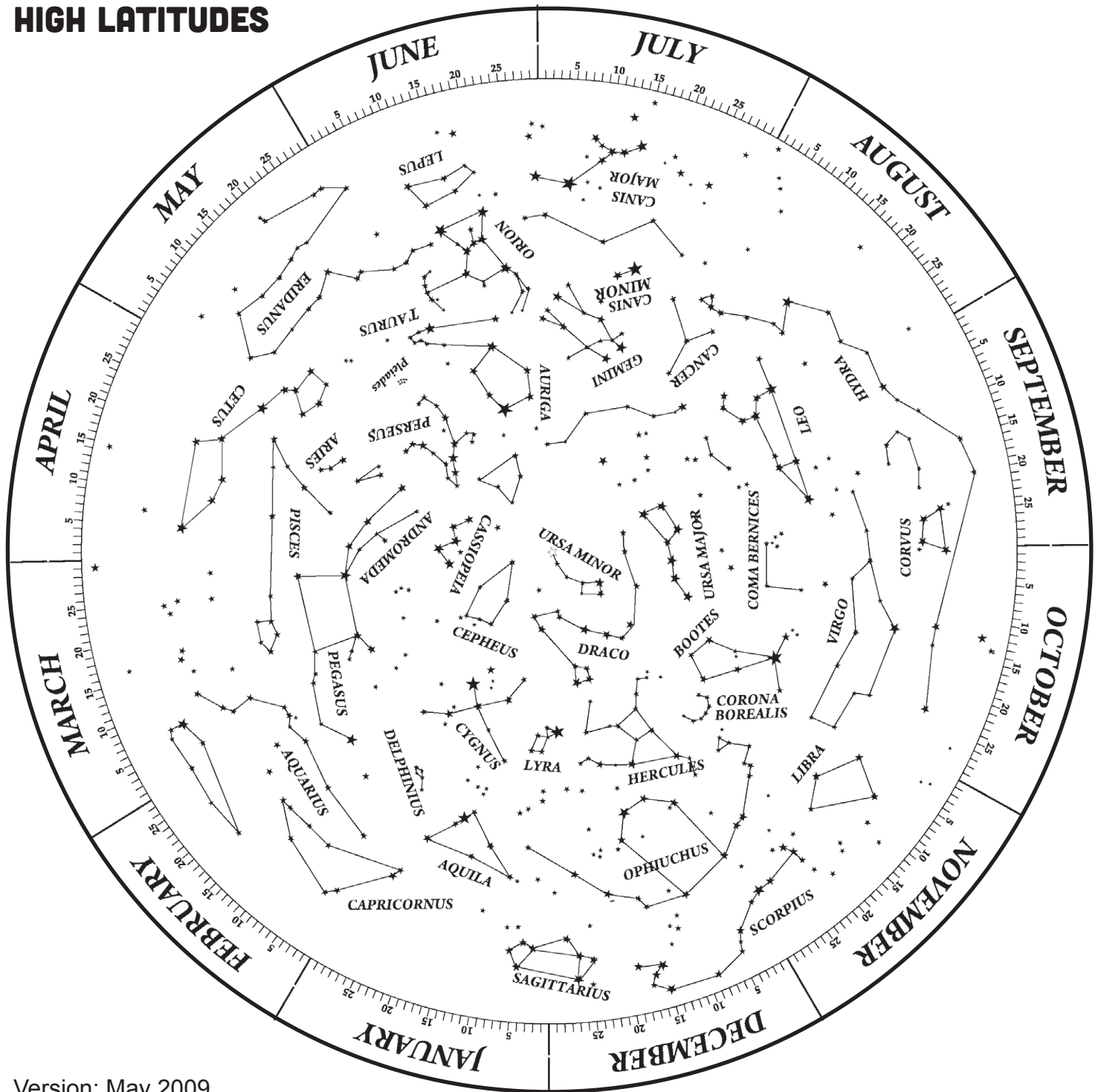
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NORTHERN HEMISPHERE HIGH LATITUDES



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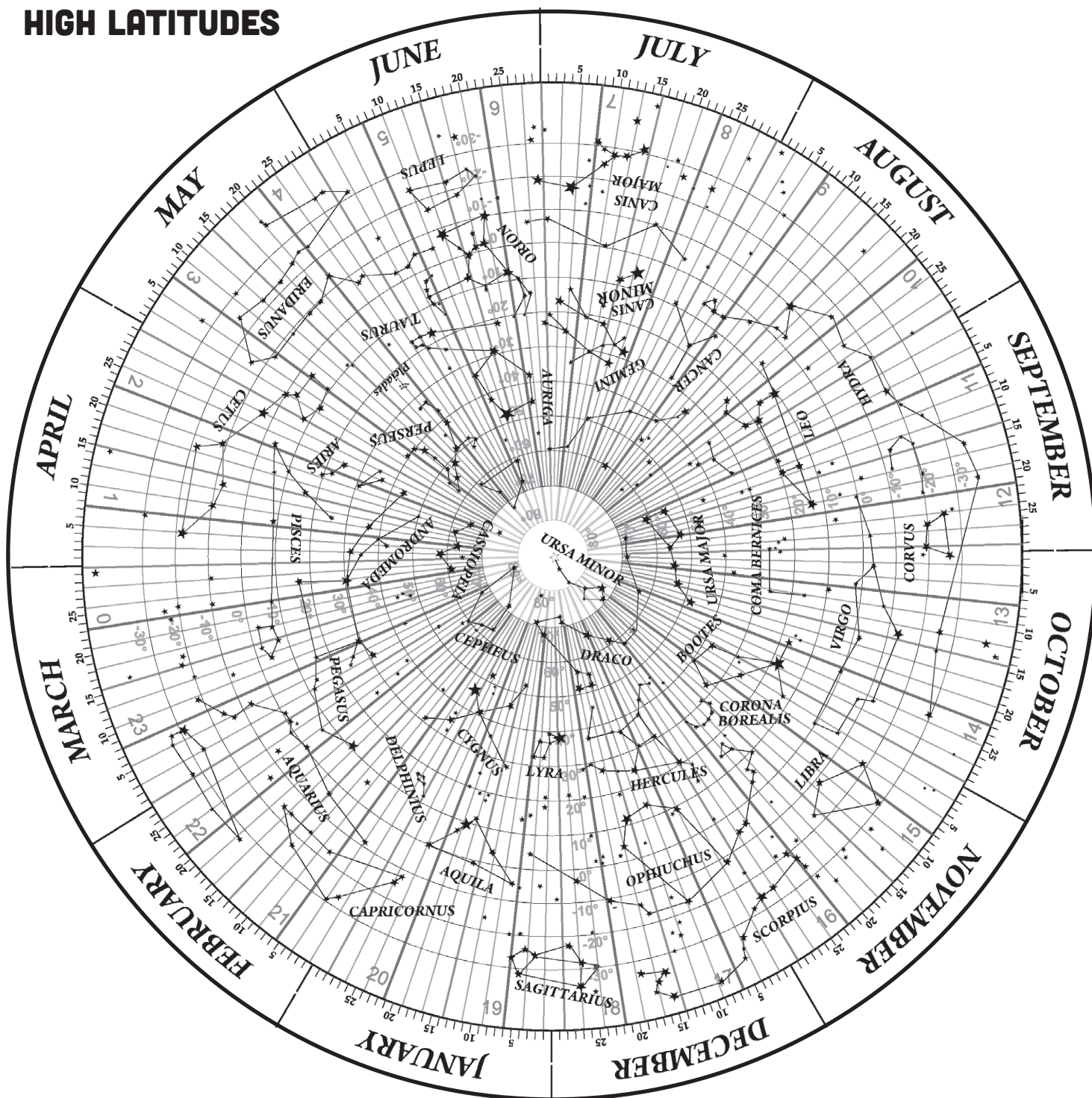
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NORTHERN HEMISPHERE HIGH LATITUDES



Version: May 2009

NEIGHBORHOOD KNOWLEDGE

Birds that live in the same area year-round have remarkable knowledge about their neighborhoods. They can remember which trees have berries in the summer, and where to find seeds in the winter. Some even have favorite hiding places for their food supplies. Just like you might remember which hill is the best for sledding, where the ice cream truck parks on the weekend, or where in your room you hid your favorite toy.

Birds can't draw, but you can. Draw a map of your house or neighborhood that includes all of your special places!

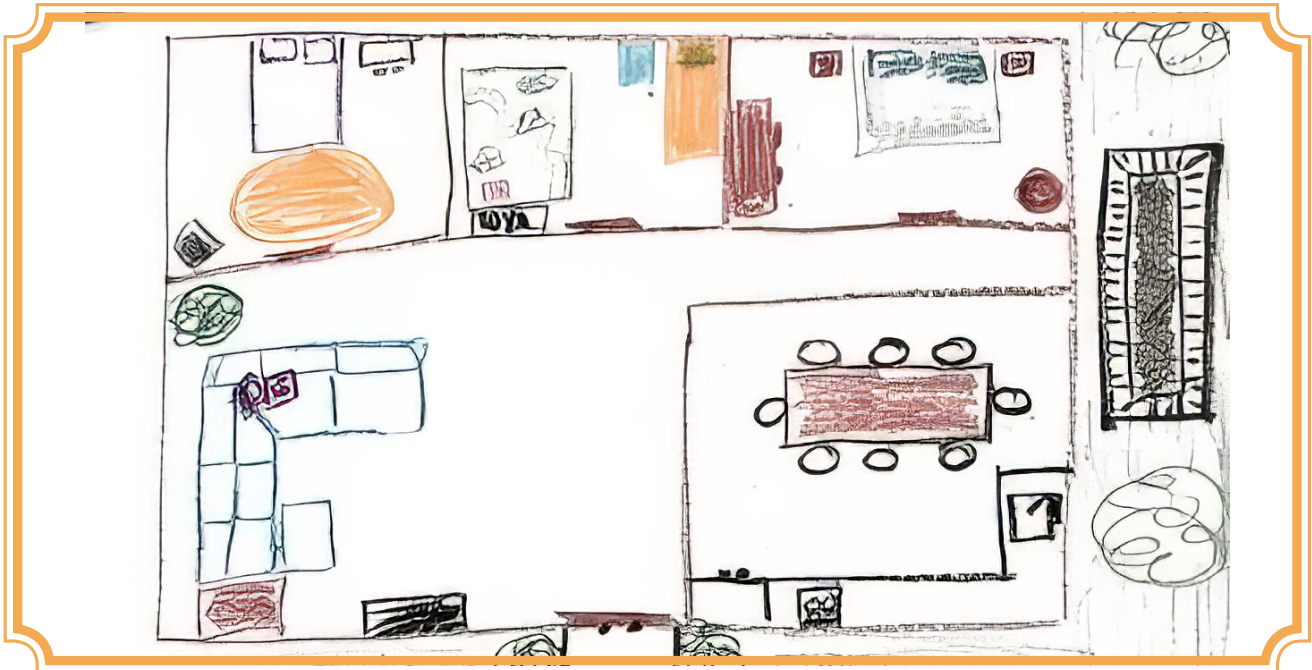


Image courtesy of <https://frankloydwright.org/draw-your-own-plan/>

MAP OF MY HOME

- STEP 1.** Draw a map of your home or your neighborhood.
- STEP 2.** Mark where you find your favorite snacks, your cozy sleeping spot, safest place to play, or anything else you love about your home!
- STEP 3.** Color your map!