

The Case of the Silent Spring



Gypsy Gameschooler

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OVERVIEW

Make your kids' Spring Unit Study unforgettable with the Case of the Silent Spring! Featuring a story and 6 evidence pages, this fun and engaging printable game will be a huge hit for kids ages 8 and up. Whether you're planning a party for your child, a co-op game day, a sleepover, or just need some rainy-day activities for family game night, this spring game is perfect for you.

Looking for a mystery experience at home without all the fuss? Look no further! Our printable mystery game is perfect for you. With no complicated shapes to cut out, and no folding or taping required, our low-prep mystery allows you to experience the thrill of the mystery game right away.

Our mystery game is designed to be easy to set up and play, with no props or complicated instructions required. Kids can examine the evidence individually or in small groups, making it a great activity for classrooms, youth groups, or team-building exercises. With our mystery game kit, you'll have everything you need to create an exciting adventure for your little ones from the comfort of your own home.

WHAT'S INCLUDED IN THE INSTANT DOWNLOAD?

PDF game guide (8.5 x 11)

Frequently asked questions

Set up instructions

Story

6 Pages of evidence

Hints

Solution

Gameplay: 30-60 minutes

Ages: 8+

Number of players: As many as you want!

DIRECTIONS



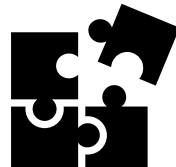
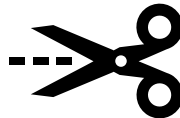
The story is on pages 6 and 7. This can be printed out or read from the computer.

The evidence is on pages 8-13. It can be examined from your device (without printing) or you can print it. Make sure you have enough copies so that all members of your group can look at something.



It's okay if your kids come up with a different solution than the one provided. Science is messy and there are often many contributing causes!

Once all 6 pages of evidence have been printed, read the story out loud on pages 6 and 7. Next, let the fun begin! Let kids know that they can examine the evidence in **ANY** order.



PRINTING THE GAME

Make sure you **download** the file to your computer **FIRST**, then **print**. Sometimes your computer opens the PDF in the default web browser (which makes black boxes appear around images when you print). It happens when trying to print from the preview URL when it opens in a new tab. Make sure you are using the latest version of Adobe Acrobat Reader (FREE) – rather than a preview application on Macs or web browsers. Grab Adobe here: <https://get.adobe.com/reader/>

F.A.Q.

How long does this activity take to complete?

It really depends on a lot of things. Estimated completion time is 30-60 minutes but it's based on the kids' puzzle skills, group size, and age. We recommend ages 8+.

How many kids can play at once?

Kids can play individually, with friends or siblings, or in large groups. There really is no limit to the number of players.

What if the kids get stuck on one of the pieces of evidence?

It might be best to set it aside and come back to it later. With more of the information, the importance of the evidence might become more clear. This is also when having more people can come in handy; different people will notice different things.

Where do kids start?

Start with the story, but then the evidence can be examined in any order.

How do you know if their answers are correct?

The solution is provided in the PDF.

How do I set up the activity?

Just print and play! Everything you need is included in your download. You don't need locks, envelopes, or special equipment. You can hang or hide the evidence or just spread it out on the kitchen table.

Do I have to print out the game materials for every kid?

Not necessarily, though if you have a large group, it might be best to divide them up into smaller groups and print multiple copies. Alternatively, the evidence can be examined right from your computer screen!

The Case of the Silent Spring

Disclaimer: Maplewood, MI and Hiawatha National Forest are real places, and the scarlet tanager is a real bird species. Many of the details and specifics about Maplewood and the scarlet tanager are accurate. However, all people are fictional. While this specific scenario has not been documented, thousands just like it play out across the world. Scientists have determined many contributing causes to species decline. However, biological systems are complex and there are often many factors, some of which may be as yet undiscovered.

Setting: Maplewood, MI, spring 2025, near Hiawatha National Forest

Tora Knutson eagerly anticipates spring each year. Winters in Maplewood, MI are long and cold, but summers are glorious. She puts up with the terrible, snowy winters so that she can carefully look for signs of spring and eventually summer. Tora has a large vegetable and wildflower garden in her backyard on the edge of town that butt up against the national forest. Every day, she takes walks, looking for signs of spring and especially returning birds.

Once a month in the winter, and once a week starting in April, Tora gets together with fellow birders Malva Öberg and Theodore Ericson to compare notes, hike, bird, and volunteer in Hiawatha National Forest together.

The scarlet tanager, *Piranga olivacea*, is Tora's favorite bird. He's hard to spot, often flitting about in the tops of trees high overhead. However, she has learned to pick out his distinctive call from all the other songbirds and listens carefully for it each spring and summer. She always hears it by the middle of May, but it's late May now, and she has yet to hear it.

At the next weekly birding meeting, Tora brings up her worries to Malva and Theodore. The three friends discuss birds they have seen and not seen yet that year as they pull invasive weeds and realize that the scarlet tanager isn't the only missing player. A nearby volunteer, Martha Pettersson, overhears their conversation and chimes in.

"I'm an environmental studies student at Bay College, and this is happening all over! Scientists have been studying it, but there seem to be many contributing factors."

After they're done volunteering, all four head to Jack's to meet Tora's nephew Ty for milkshakes. There, they discuss what they know about the problem and agree to return and bring as much evidence as they can the next week.

The next week, the five friends gather again.

“I went through all my journals to collect important information without having to bring an entire bookshelf to this meeting. I have my grandmother’s journals, too; she taught me to track the temperatures and take the averages. So we have average temperatures for each month and decade from the 1970s to 2010s, then just yearly from 2020. I brought the info for the months of February through June. Do you think that’s enough, or should I bring the rest of the months?” Tora asks.

Examine the Average Temperatures sheet for patterns.

“I went through my birding journals and created this log so we can look through changes of songbird sightings over the past several years.” Theodore presents a handwritten sheet with species names, months and years, and tallies.

Look through the Birding Log for patterns or generalizations.

Ty offers up a sheet with two newspaper articles taped to it. “I clipped out these newspaper articles last spring. I wonder if they’re related?”

Martha pulls out a photocopied page from a birding book and a range map. “I thought more information about the scarlet tanager might be helpful.”

Finally, Malva’s contribution is some journal entries. “I’m not sure if these are relevant, but maybe?”

Examine all of the collected evidence. Can you figure out what might have happened to the scarlet tanager?

Average Temperatures

1970s

Month	Average Temp
Feb	17 F
March	30 F
April	44 F
May	56 F
June	66 F

1980s

Month	Average Temp
Feb	21 F
March	31 F
April	45 F
May	57 F
June	65 F

1990s

Month	Average Temp
Feb	23 F
March	32 F
April	44 F
May	57 F
June	67 F

2000s

Month	Average Temp
Feb	21 F
March	33 F
April	46 F
May	56 F
June	67 F

2010s

Month	Average Temp
Feb	21 F
March	33 F
April	44 F
May	58 F
June	67 F

2020

Month	Average Temp
Feb	21 F
March	35 F
April	43 F
May	56 F
June	68 F

2021

Month	Average Temp
Feb	15 F
March	38 F
April	47 F
May	57 F
June	71 F

2022

Month	Average Temp
Feb	20 F
March	32 F
April	42 F
May	61 F
June	69 F

2023

Month	Average Temp
Feb	26 F
March	29 F
April	46 F
May	58 F
June	68 F

2024

Month	Average Temp
Feb	33 F
March	38 F
April	48 F
May	60 F
June	69 F

2025

Month	Average Temp
Feb	19 F
March	37 F
April	46 F
May	
June	

Birding Log

March

Species	2020	2021	2022	2023	2024	2025
Scarlet Tanagers						
Baltimore Orioles						
American Robin	HHH	HHH	HHH	HHH	HHH	HHH HHH
Red-Winged Blackbird	HHH	HHH		HHH		HHH
Kirtland's Warbler						

April

Species	2020	2021	2022	2023	2024	2025
Scarlet Tanagers						
Baltimore Orioles						
American Robin	HHH HHH HHH	HHH HHH	HHH HHH HHH	HHH HHH	HHH HHH HHH HHH	HHH HHH HHH HHH
Red-Winged Blackbird	HHH HHH	HHH HHH	HHH HHH	HHH HHH HHH	HHH HHH	HHH
Kirtland's Warbler						

May

Species	2020	2021	2022	2023	2024	2025
Scarlet Tanagers						
Baltimore Orioles	HHH		HHH	HHH		
American Robin	HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH HHH	HHH HHH HHH
Red-Winged Blackbird	HHH HHH HHH	HHH HHH HHH HHH	HHH HHH HHH HHH	HHH HHH HHH HHH	HHH HHH HHH HHH	HHH
Kirtland's Warbler						

June

Species	2020	2021	2022	2023	2024	2025
Scarlet Tanagers	HHH	HHH	HHH	HHH		
Baltimore Orioles	HHH HHH HHH	HHH HHH	HHH HHH HHH	HHH HHH HHH	HHH HHH	
American Robin	HHH HHH HHH HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH HHH HHH HHH	HHH HHH HHH HHH HHH HHH HHH HHH	
Red-Winged Blackbird	HHH HHH HHH HHH	HHH HHH HHH HHH HHH	HHH HHH HHH HHH	HHH HHH HHH HHH	HHH HHH HHH HHH	
Kirtland's Warbler	HHH	HHH	HHH	HHH		

Unseasonably warm February raises concerns

By *Marissa Ven*
Feb. 14, 2024

across northern Michigan

MAPLEWOOD, MI — February is typically one of the coldest and snowiest months in northern Michigan, but this year has started off much differently. According to data from the National Weather Service, temperatures across the region have remained well above average since the beginning of the month.

El Niño, which tends to bring warmer and drier conditions to the northern United States. At the same time, a persistent high-pressure blocking pattern in the upper atmosphere has limited the movement of colder Arctic air into the region.

In Maplewood and surrounding areas near the Hiawatha National Forest, daily high temperatures have frequently climbed into the upper 30s and 40s. Historically, average highs for early February are closer to the low 20s. Several days have also seen overnight temperatures remain above freezing, leading to early snowmelt and patchy ground conditions.

“When you combine El Niño with this kind of atmospheric blocking, it allows mild air to linger much longer than usual,” said a meteorologist with the National Weather Service office in Marquette. “That’s why we’ve seen extended periods of above-average temperatures and reduced snowfall.”

For many residents, the milder weather has also brought a sense of relief after months of winter conditions. “I’m not complaining about seeing the sun again,” said a Maplewood resident. “It feels good to get outside, and I’ve even started thinking about starting my garden early this year.”

Meteorologists say the unusual warmth is being driven by large-scale climate patterns rather than a short-term weather shift. This winter coincides with an active

Odd weather pattern leaves Upper Peninsula

By *Alex Brewer*
Jan. 31, 2024

warmer than lower Michigan

Residents of Michigan’s Upper Peninsula experienced an unusual turn of events this week as temperatures climbed well above seasonal norms, in some cases surpassing readings farther south in the Lower Peninsula. Meteorologists say the pattern, while temporary, is notable for both its intensity and timing.

High temperatures across much of the U.P. ranged from the upper 30s to low 50s, roughly 15 to 20 degrees above average for late January. Menominee County recorded one of the warmest readings, reaching into the mid-50s during the afternoon. By comparison, several areas of southern Michigan remained cooler under cloud cover and different atmospheric conditions.

“This isn’t something we see very often,” meteorologists with the National Weather Service office in Marquette noted in a statement. “Typically, the farther south you go, the warmer it is, but this week the pattern has reversed.”

According to the National Weather Service, the warmth is the result of a large-scale atmospheric setup known as a blocking pattern. High pressure in the upper levels of the atmosphere has settled over the Midwest, preventing colder Arctic air from moving into the region. As a result, milder air has remained in place for several consecutive days.

Sunshine accompanying the warmer temperatures has accelerated snowmelt across forests, fields, and residential areas. Snowpack has thinned noticeably, and some smaller streams and wetlands have begun to open up earlier than usual for this time of year. Winter recreation groups have reported mixed conditions, with some trails becoming slushy or temporarily unusable.

While the mild stretch has been welcomed by many residents, forecasters caution that it does not signal the end of winter. Overnight temperatures have continued to dip below freezing, and colder conditions could return if the blocking pattern weakens or shifts.

Scarlet Tanager

The scarlet tanager is a vivid red-and-black songbird of eastern deciduous forests, often heard before it is seen as it forages high in the leafy canopy. A long-distance migrant from South America, it arrives in spring, when brief cold spells may bring it into view, before molting to a more subdued plumage later in the year.



Identification: In spring and early summer, adult male scarlet tanagers are unmistakable, with a bright scarlet body contrasted by black wings and tail, making them the only bird of this color combination in Michigan forests. Females and immature birds are much more subdued, appearing yellow-green overall with darker wings. They can resemble other woodland species, though their thick bill, robin-like size, and deliberate movements are helpful clues. By late summer, males molt into a greenish winter plumage similar to the female's. The species is often detected by sound rather than sight, giving a hoarse, hurried song reminiscent of a robin and a sharp, nasal chip-bree call from high in the canopy.

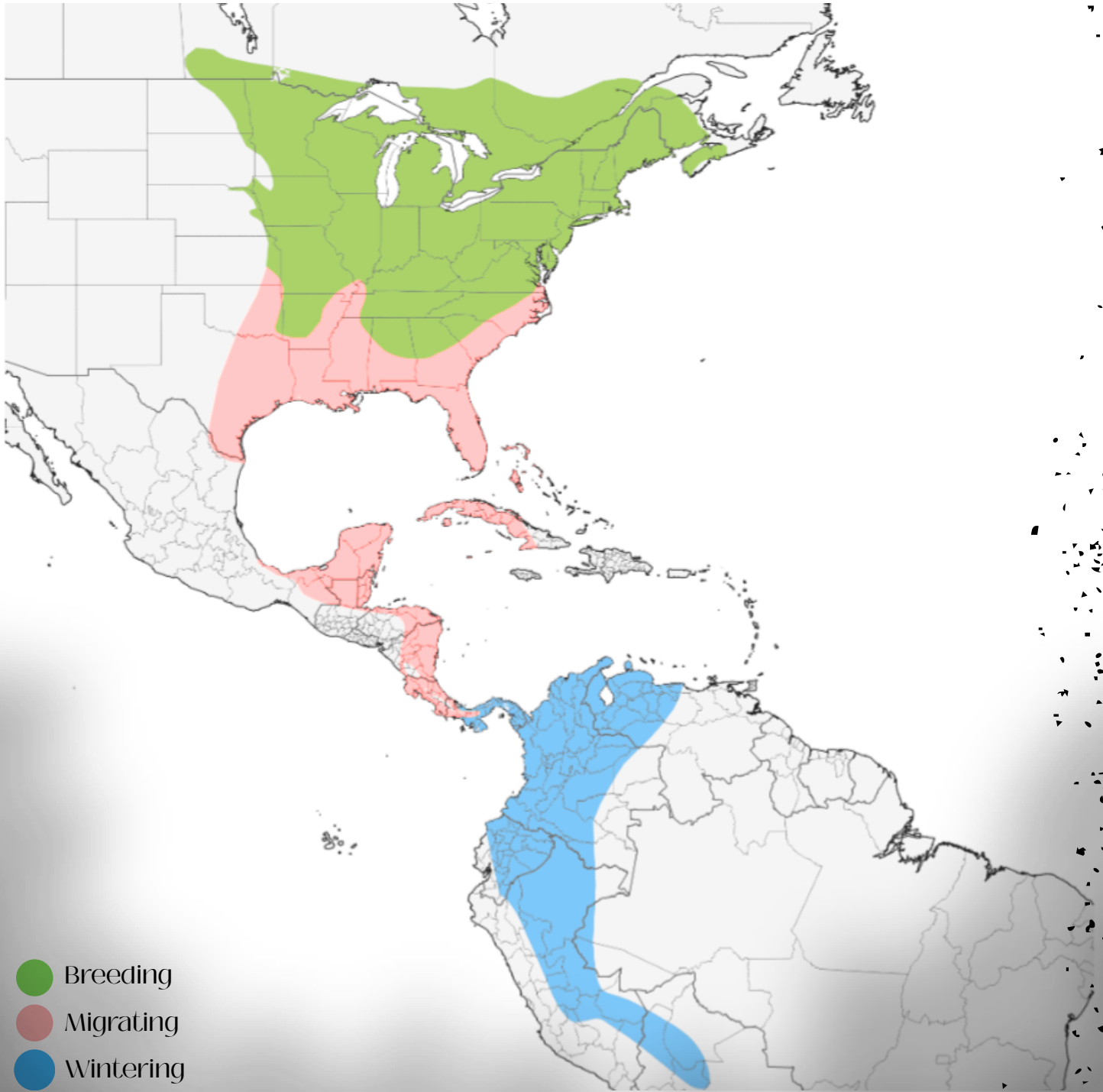
Range: Scarlet tanagers winter in tropical rainforest lowlands in western South America, just east of the Andes, and breed from the southeastern US into southeastern Canada. Scarlet Tanagers breed primarily in mature deciduous forests, especially those dominated by oaks, but they also occur in maple, beech, and mixed hardwood stands. They are most common in forests with a relatively closed canopy and a dense, diverse understory, including moist upland woods, floodplains, and swamp forests, and they will sometimes nest in wooded parks, orchards, or large shade trees in suburban areas.

Diet: Scarlet Tanagers feed primarily on insects during the breeding season, including caterpillars, beetles, moths, bees, and a wide variety of other invertebrates, with fruit and berries making up a smaller portion of the diet. They forage deliberately in the mid to upper canopy, searching leaves and branches and occasionally chasing insects in flight, but may drop to the ground during cool or rainy weather.

Reproduction: Form monogamous pairs for the season, though they will change partners between years. Females build a cup nest at the end of a horizontal branch, shaded by leaves, 2-23 meters above ground. 2-5 small, bluish eggs with brown splotches concentrated at the bigger end are incubated by the female only, 12-14 days. Both parents feed young. Young fledge after 9-15 days and parents continue feeding them for about 2 weeks. Scarlet tanagers only have one clutch a year.

Conservation: Scarlet tanagers are listed as Least Concern, but they are vulnerable to loss of habitat and nest parasitism by cowbirds.

Scarlet Tanager Range Map



Journal Entries

February 21, 2024

Work dragged today. Too many emails about things that could have been one sentence. I walked after dinner because I needed air. The path was muddy in spots, which was annoying. I need to clean my boots.

I stopped at the store on the way home and forgot the one thing I actually needed. Dinner ended up being eggs and toast, which was fine. I saw something small moving near the porch light when I got back, but I didn't look closely. I was cold by then and ready to be inside.

Can you believe it - I noticed 3 bug bites! Grr.

March 13, 2024

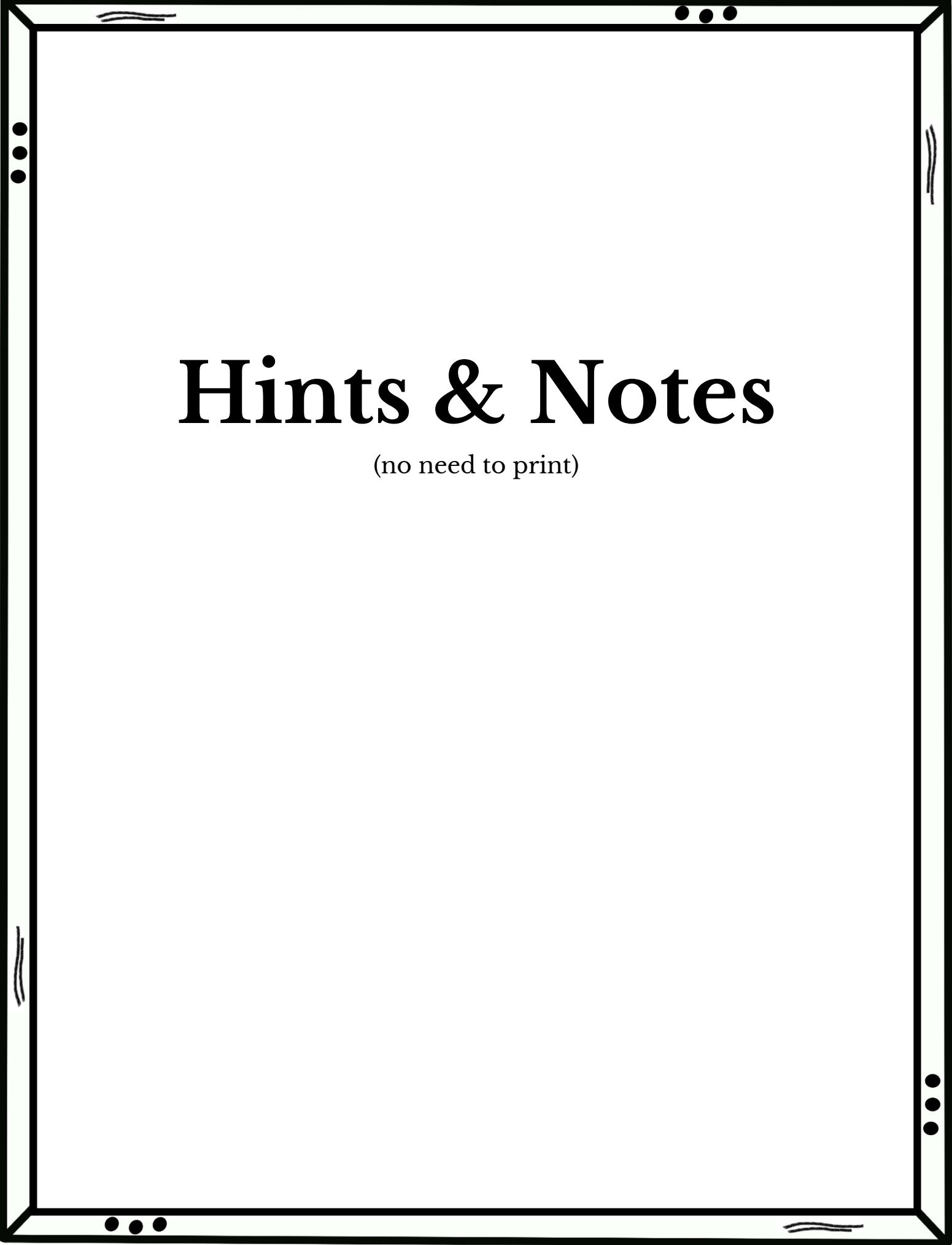
Cold again. I put my heavy jacket away too soon and had to dig it back out this morning. I was late to work because I couldn't find my keys, even though they were exactly where I always leave them.

Met up with Evan for coffee after work. It was nice enough, though I can't tell if we're on the same page or just polite. The walk home was quieter than earlier in the year.

July 12, 2024

Long day and hotter than I expected. I skipped my usual walk and went straight home, which I felt a little guilty about but not enough to change my mind. The house was stuffy, so I opened all the windows and let things air out.

I made pasta and ate it standing at the counter. Thought briefly about calling Evan and then didn't. The woods out back looked the same as always, green and dense, though it felt strangely still this evening. Probably just the heat. I'll try to get out earlier tomorrow.



Hints & Notes

(no need to print)

Average Temperatures and/or Birding Log

“I think it’s probably good,” Malva responds. “But I can’t make heads or tails of this as-is. Can we make it into a graph? That might be easier to track changes.” (Use graph paper or a computer program to create the graphs to ensure accuracy.)

*data collected for the Average Temperatures sheet from <https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/city/time-series/> using Green Bay, WI (as that is the closest city available to Maplewood, MI)

If players are still stuck, consider the following one at a time until a connection is made:

- What tells birds that it’s time to migrate?
- Which species arrive earliest each spring? Which arrive latest?
- Do all birds seem affected in the same way?
- What happens before the birds arrive that might matter to them later?
- Not all birds rely on spring in the same way.
- Some species arrive after spring has already begun.
- Consider what food might be available—or unavailable—when long-distance migrants arrive.
- If players focus only on population numbers, encourage them to think about timing and sequence.
- If spring is arriving earlier, who benefits—and who doesn’t?
- Which species seem resilient? Which seem fragile? Why might that be?
- What evidence suggests indirect effects rather than a single cause?

Solution

(no need to print)

Around the world, scientists and birders have been documenting similar stories of change: familiar species arriving later (or earlier) than expected, appearing in lower numbers, or failing to return at all. These patterns rarely have a single cause. Ecological systems are complex, shaped by many interacting forces that can amplify one another over time. Climate change alters temperature and seasonal timing, habitat loss reduces safe breeding and feeding areas, pesticide and herbicide use affects insect populations, and artificial light and landscape fragmentation can disrupt long-distance migration. Often, it is not one factor alone, but the combination that creates stress a species cannot easily adapt to.

In this case, evidence points to a chain of events set in motion by unusual spring weather in 2024. An early warm spell led to insects emerging weeks ahead of their typical schedule. When colder temperatures returned, many of those insects were killed by late frosts. Others had already completed their life cycles early, or were consumed by resident birds and other animals already present. Scarlet tanagers, which arrive later in spring after migrating from South America, reached their breeding grounds to find reduced food availability. With fewer insects to support nesting adults and growing chicks, breeding success dropped sharply, and some individuals may not have survived the season at all. The result was noticeably lower numbers the following spring, when the birds failed to return in their usual abundance.

It is important to note that this specific scenario is fictional and intended as an illustration of how subtle environmental shifts can ripple through an ecosystem. In reality, scarlet tanagers are currently considered stable in Michigan, and there is no documented local collapse like the one described here. However, the situation reflects real mechanisms that scientists study and observe in many species across the globe.

While the causes of large-scale environmental change can feel overwhelming, ordinary people still play an important role in helping migrating birds and wildlife. Reducing car use, walking, biking, or taking public transit when possible helps limit greenhouse gas emissions that drive climate change. Turning off unnecessary outdoor lights at night—especially during spring and fall migration—can reduce disorientation for nocturnal migrants. Simple steps like adding decals or patterns to windows can prevent deadly bird collisions.

Longer-term actions matter as well. Supporting the protection of wildlands, preserving forested habitat, and voting for policies that prioritize conservation all help maintain the ecosystems birds depend on. Choosing products such as shade-grown coffee supports farming practices that protect tropical rainforests, which serve as vital winter habitat for many migratory species. Individually, these actions may seem small, but together they help create landscapes where wildlife—and people—can continue to thrive.

Are you ready for more? Don't miss the full Spring Unit Study!

Use code UNIT5 for \$5 off!

Experiments

1. Effect of temperature on plant growth. Fill three identical containers with soil. In the first, keep the soil at room temperature. In the second, keep it at 10°C above room temperature. In the third, keep it at 10°C below room temperature. Plant the same seeds in each container. Measure the height of the plants every week. Record the results.

2. Effect of light on plant growth. Fill three identical containers with soil. In the first, keep the soil in the dark. In the second, keep it in the light. In the third, keep it in the light but with the light source at a different angle. Plant the same seeds in each container. Measure the height of the plants every week. Record the results.

3. Effect of water on plant growth. Fill three identical containers with soil. In the first, keep the soil dry. In the second, keep it moist. In the third, keep it saturated. Plant the same seeds in each container. Measure the height of the plants every week. Record the results.

4. Effect of soil type on plant growth. Fill three identical containers with different types of soil (sand, loam, clay). Plant the same seeds in each container. Measure the height of the plants every week. Record the results.

5. Effect of container color on soil temperature and plant growth. Plant the same seeds in containers of different colors (black, white, clear) and track soil temperature and plant growth.

6. Effect of container shape on soil temperature and plant growth. Plant the same seeds in containers of different shapes (round, square, rectangular) and track soil temperature and plant growth.

7. Effect of container material on soil temperature and plant growth. Plant the same seeds in containers made of different materials (plastic, wood, metal) and track soil temperature and plant growth.

8. Effect of container size on soil temperature and plant growth. Plant the same seeds in containers of different sizes (small, medium, large) and track soil temperature and plant growth.

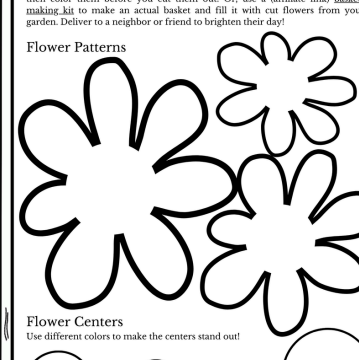
9. Effect of container location on soil temperature and plant growth. Plant the same seeds in containers in different locations (indoor, outdoor, shaded, sunny) and track soil temperature and plant growth.

10. Analyze the results of the experiments.

May Day Basket

Print the patterns out on colorful construction paper to make a paper basket and flowers. Alternatively, you can print the flowers out on white paper and then color them before you cut them out. Or, use a raffia link basket-making kit to make an actual basket and fill it with cut flowers from your garden. Deliver to a neighbor or friend to brighten their day!

Flower Patterns



Flower Centers

Use different colors to make the centers stand out!



Subjects Covered

Throughout this unit study, your student has covered:

- Math: Cooking, Time, Puzzles, Games
- Science: Physics, Ecology, Evolution, Experiments, Vocabulary
- Botany
- Reading: Subject-Matter in Science, History, and Cultures
- Suggested Reading
- Writing: Suggested Activities, Writing Prompts, Writing Assignments
- History: Spring Through the Ages, History of Holidays
- Geography: Holidays
- P.E.: Science of Spring Activities

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Subjects Covered

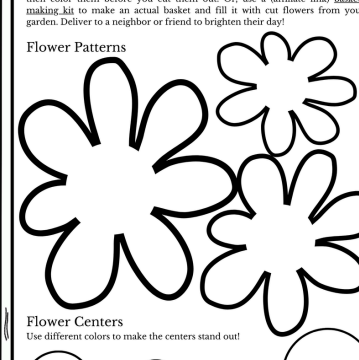
Grading Rubrics

Answer Keys

May Day Basket

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