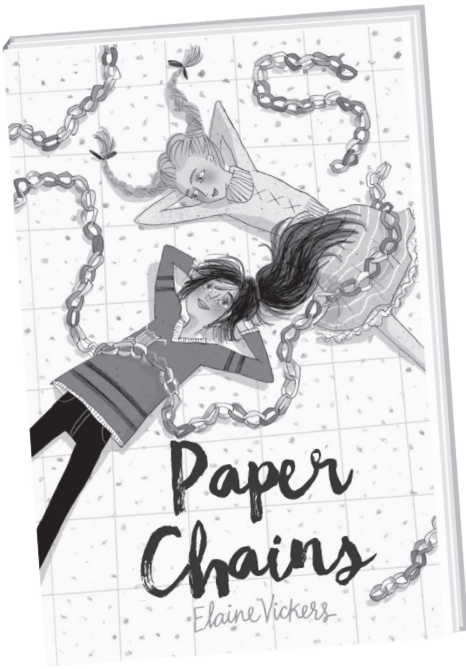




An Activity Guide for
Classrooms, Book Groups,
and Families

By Elaine Vickers



Katie and Ana are the kind of friends who share everything with each other—friendship bracelets, hidden messages, and ice skating escapades. But some things you can't share, even with your best friend, and lately, Katie and Ana have been keeping secrets from each other.

Katie has always known she was adopted, but recently she's been wondering about her birth parents and her birthplace. She worries that saying this out loud—even to her best friend—could mess up the perfect family she has now.

Ana's family has been falling apart ever since her dad left, and it's up to her to hold it together. But Ana fears no matter how hard she tries, her family may never be whole again.

At a time when they need each other the most, the links between the girls are beginning to break. Before they lose each other, they must work through the tangles of secrets to the shining truth underneath: friendship, just like family, is worth fighting for.



“Endearing, authentic... A captivating story with tremendous heart.” —School Library Journal

“A well-told story celebrating the power of friendship to comfort and heal when families fall short.” —Kirkus Reviews (starred review)

“A beautifully written story about the power of friendship... Vickers explores the complexities of family with gentleness and care.” —Deseret News

“Lovely.” —The Salt Lake Tribune

Winner of the Whitney Award for Best Middle Grade Novel

An AML Middle Grade Novel Finalist

Activity guide illustrations, recipes, and graphic design by Kinsey Beckett

illustration.skbeckett.com

Make a Thankful Chain

"Every year, [Katie] and her parents made paper chains to count down the days from Thanksgiving to Christmas, and on each little strip, they wrote something they were thankful for. Every night after that, they'd each take a link off their chain and read them to each other."

What you need:

8.5x11 inch paper of any color

Scissors

Stapler or tape

Pens, pencils, or markers

Your family and friends



What to do:

1. The last page of this activity book pdf is a template for the paper chains. You can print as many as you like and use the template. A different way to do it is to cut unprinted paper into 6 equal peices (about 1.4 inches wide).
2. Cut out the thankful chain links.
3. Write what you are thankful for on the links. Be creative! You can be thankful for anything, no matter how big or how small!
4. Take one of your links and curl it around until both ends are slightly overlapping and it makes a circle with the words inside. Using a stapler or some tape, secure the ends of the link together. Next, take another link and loop one end through the previous link, and then close by overlapping it on itself slightly. Secure it with tape or a stapler.
5. Keep making the chain by looping and overlapping the links. If you have different colors, it could be cool to make a pattern or design.
6. Undo one link of the chain per day and discuss what you're thankful for with your friends and family. You can count down to anything you like, and share what you are thankful for with anyone you love.

Candy Bar Pie

“Mikey thought for a second, then grabbed the puck from Ana. He held it between his palms and whispered his wish. ‘Candy bar pie. I want candy bar pie for Thanksgiving, like our real grandma used to make us.’ . . . As soon as he’d said the words, Ana could taste the pie herself, with just the right amount of chocolate and crunch under a snowbank of whipped cream.”

What you need:

An adult to help you toast the pecans

1 ½ cups graham cracker crumbs or Oreo cookie crumbs

¼ cup melted butter

1 package (8 oz.) softened cream cheese

⅓ cup sugar

⅓ cup smooth peanut butter

2 cups thawed whipped topping

½ cup chopped pecans

¼ cup caramel ice cream topping plus more for drizzling on top

3 to 4 tablespoons chocolate syrup

What to do:

1. In a mixing bowl, mix together the crumbs and melted butter. Press them onto the bottom and up the sides of a 9-inch pie plate. Sometimes it helps to have a little butter or cooking spray on your fingers.

2. In an electric mixer’s bowl, beat together the cream cheese, sugar, and peanut butter until fluffy.

3. Toast the pecans over medium heat for 3 minutes on your stovetop. Shake them frequently so they don’t burn. Set them aside on a plate or cooking sheet to cool.

4. Add the whipped topping and half of the toasted pecans to the cream cheese mixture and stir until blended well.



5. On the bottom of the cookie crust, spread 1/4 cup of caramel ice cream topping. Then spread the cream cheese mixture on top of the caramel. Freeze for 2 hours.
7. Take out the pie and spread the rest of the pecans over the top.
8. Drizzle the chocolate syrup over the top, then drizzle some caramel topping over the pie too. Put it back in the freezer for 1 hour.
10. Serve to your friends and family! Keep the leftovers in the freezer... if there are any!



Latkes

"[Ana] wanted to live in the movie she'd seen in her head, of four happy faces smiling in the light of the candles with fresh latkes in their hands. Hanukkah was supposed to be about rebuilding. So why was everything falling apart?"

What you need:

An adult to help you cook

1 yellow onion

4 large Yukon Gold potatoes, peeled

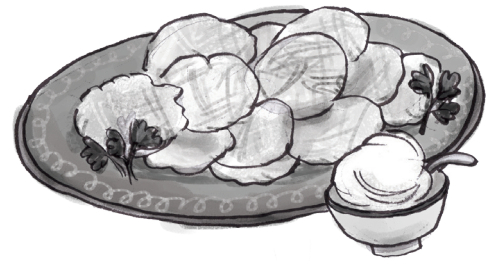
1 egg, lightly whisked

Kosher salt and freshly ground black pepper

$\frac{1}{3}$ cup canola oil

4 tablespoons butter

Sour cream and applesauce, for serving



What to do:

1. Place a large, clean kitchen towel on your counter and put a box grater on top of it. Grate the onion on the part with the bigger holes. Take the grater off, wrap the grated onion in the towel, and squeeze over your sink. This will leak out the water, and help make the latkes crispy. Then put the onion in a large bowl.
2. Get a fresh towel. Grate the potatoes on the bigger holes of the grater over the towel. After you grate each potato, squeeze out the water like you did with the onion. Keep doing this until all the potatoes are grated and squeezed. Put the potatoes in the bowl with the onion. Stir the potato and onion together.
3. Add the egg and mix. Season to your liking with salt and pepper.
4. In a large skillet, heat the oil and butter over medium-high heat. Working in batches, scoop $\frac{1}{3}$ cup of the potato mixture into the hot oil and butter. Use a spatula to flatten a bit. Cook the latkes until golden and crisp, 3 to 5 minutes per side.
5. Serve immediately, with sour cream and applesauce on the side.

Riddles

Paper Chains is full of little mysteries and puzzles to be solved. Here are a few more, inspired by the book:

Ana in the Attic

Ana decides to see if there are any treasures in her attic. There are three switches at the base of the stairs, and each one lights up one of the three light bulbs in the attic. She can turn the switches on and off and leave them in any position.

How could Ana identify which switch goes to all three light bulbs, if she's only allowed one trip upstairs?

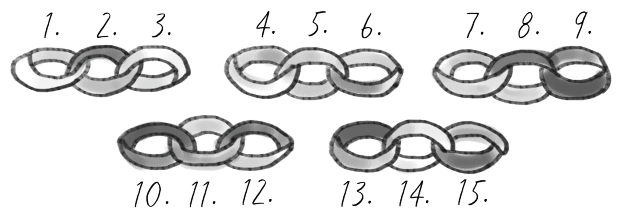
The Firebirds

There are four magical firebird ornaments on Katie's Christmas tree: two with green feathers on their backs and two with blue feathers. But none of the firebirds can turn their heads to see the feathers on their own backs.

Firebird A sits on the top branch and can see firebirds B and C nestled on the branches below her. Firebird B can only see firebird C. Poor firebird D is all alone at the base of the tree among the thickest branches. She cannot see any of the other firebirds, and none of them can see her. If all the firebirds know that there are two with green feathers and two with blue, and they all know which birds the others can and cannot see, which one of them would be the first to guess the color of her feathers to break the spell and fly away?

*Thankful Chains*

Katie accidentally made her Thankful Chain in segments, but she wants it all hooked together. She could unfasten link 3 and attach it to link 4, unfasten link 6 and attach it to link 7, unfasten link 9 and attach it to link 10, and unfasten link 12 and attach it to link 13—but that would be eight total moves. Is there a way to attach all the links in one unbranched chain in only six moves?



Riddles

The Dark Bridge

Katie, Ana, Mikey, and Babushka are crossing a narrow bridge on a dark night. They can't cross without a flashlight, but they only have one flashlight and only two people can fit on the bridge at once! Here's how long it takes each of them to cross each way:

Mikey: 1 minute

Ana: 2 minutes

Katie: 5 minutes

Babushka: 10 minutes

How can they all get safely across the bridge in 17 minutes?



For hints and answers to the riddles, go to elainevickers.com/answers.

But first, try your best to work them out on your own! The harder you work, the better you'll feel when you figure them out. I know you can do it!

And for more fun math and logic puzzles, have an adult help you search online, or check out *The Moscow Puzzles: 359 Mathematical Recreations* by Boris Kordemsky.

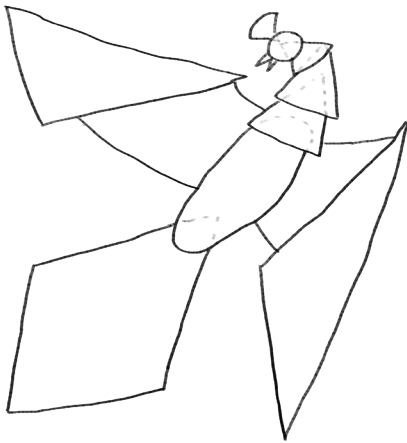
Draw a Firebird

"If you find the feather of a firebird, a great quest has found you. You must return the feather to find your destiny...It is a lonely and dangerous task. But you must try."

In Russian folklore, the firebird can symbolize different things. It can be a blessing, or bad luck. Some people think it brings hope to people who are sad. There is one story where a firebird flies over a village of poor peasants and drops pearls from its beak for them to use to buy food.

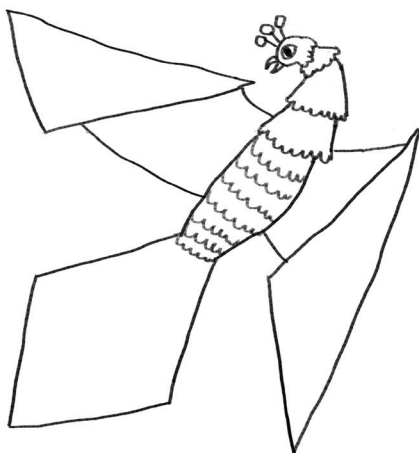
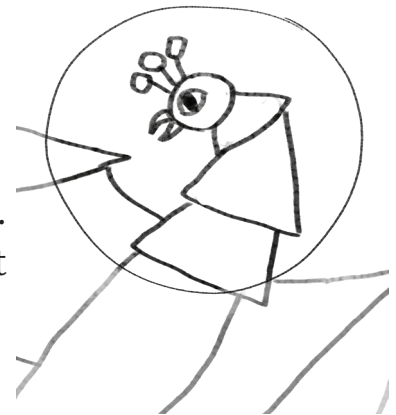


How to Draw the Firebird



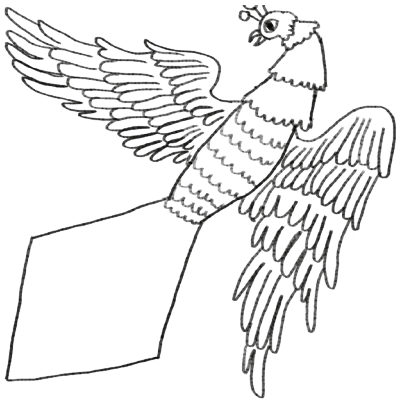
1. First draw the basic shapes of the firebird's body like this. Make sure to draw them a bit lighter so that you can erase the parts you don't need later.

2. Next, draw the eye, beak, and head feathers. The eye is shaped like an almond. The head feathers are like lollipops, or circles on sticks. The beak is two triangles that are slightly curved.

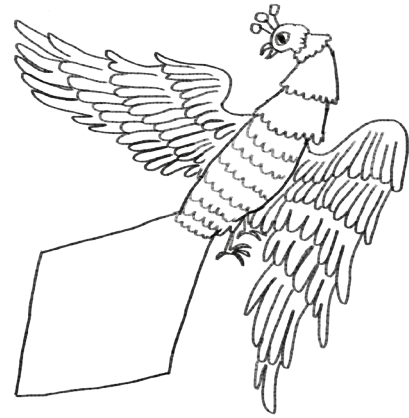


3. Draw the body feathers and neck feathers. They are like curvy w's drawn over and over.

4. The wings are next. They have longer feathers and are layered over and over.



5. Draw the claws after the wings.



6. Finally draw the tail feathers. They are egg-shapes with a long dark middle. They look like peacock tail feathers.

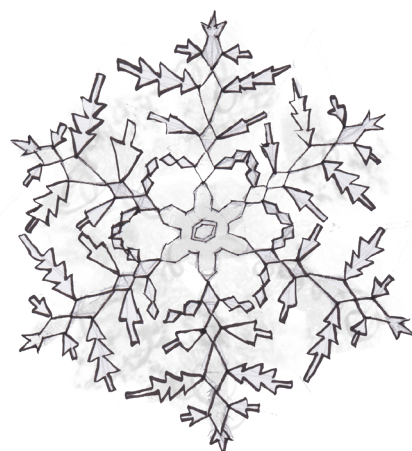


Answers to Paper Chains' Top 5 Science Questions

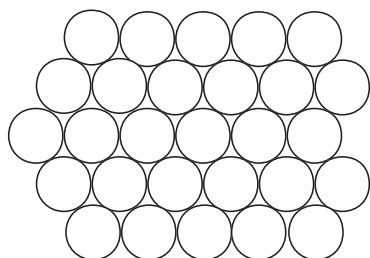
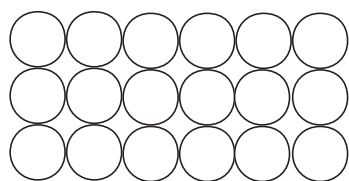
(Plus a couple of experiments to try on your own!)

This story is full of snow, including when Ana teaches Katie to make paper snowflakes with six sides. Do snowflakes always have six sides? Why?

You probably know that snow is made of water and that water is H_2O , which means that every water molecule is two hydrogen atoms attached to an oxygen atom. When these molecules come together in snowflakes, they make regular patterns that naturally go into a hexagon shape. Not all snowflakes have six sides, especially if they're man-made (like at a ski resort), but most do because of the shape of the water molecules and the way they fit together best.



Try it yourself:



Have you ever seen oranges stacked at the grocery store? Did you notice that they're in a hexagon pattern? It turns out that's a very efficient way for lots of things to fit together— everything from oranges to bathroom tiles to atoms. To try it for yourself, all you need is a small box and a bunch of marbles. Try to make a single layer of marbles across the bottom layer of the box in both of the configurations shown on the left.

Which one worked better? Can you find the hexagon shape? What happens if you put another layer of marbles on top? How many layers can you get before it collapses?

Speaking of snowflake shapes, is every one really different?

Yes! A typical snowflake has about 1,000,000,000,000,000,000 water molecules, so the odds of every one of those lining up exactly the same in two different snowflakes are pretty much impossible.

Why does ice float? Is that why Katie and Ana's pond freezes from the top down? (And is that good or bad?)

Ice floats because it is less dense than water. In fact, anything that is less dense than water floats in water, just like anything that is less dense than air (like a helium balloon) floats in air. Density measures how tightly packed the atoms or molecules are in a substance. (Bonus question: Which of your marble arrangements from before would be more dense?)



Most things get more dense—pack more tightly together—as they cool down. But not water! As water gets close to freezing—and then freezes—the molecules actually spread out a little, so the cooler water can move to the surface and the ice stays on top. And that's a very good thing! If ice didn't form at the top of a pond or lake, shallow ponds would freeze solid, which would be very bad news for all the creatures living inside! And think of all the creatures that live on top of ice in the polar parts of the world! It's a very good thing for a lot of animals (and people) that ice floats.

Speaking of ice, which is thicker: the ice on Ana and Katie's pond or the ice on their skating rink?

It depends on the pond—but if it's thick enough to stand on, it's thicker than the ice in a skating rink. The ice in a skating rink is usually only about $\frac{3}{4}$ " thick—which is okay, because there's a solid floor underneath it! This is enough ice to keep skates from cutting all the way through, but not so

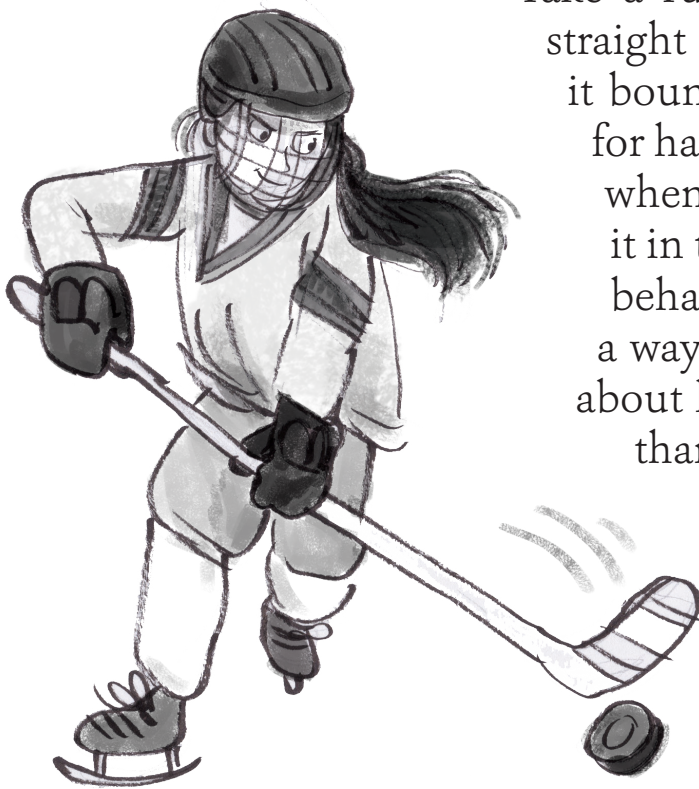
much that it takes a lot of energy to keep it cool in a rink or arena. Fun fact: Hockey players prefer their ice a little colder so they can move faster across it. Figure skaters prefer it slightly warmer (but still frozen!) for a little bit softer landing.

Ana and Mikey have a magic puck from one of their dad's hockey games. Why do they use a puck in hockey instead of a ball?

Hockey players need something they can move around the rink and into the goal quickly—but also something they can keep under control. If players tried to use something that was always rolling, sliding, and bouncing, it wouldn't work so well! And speaking of puck control, pucks are actually frozen before the game in a lot of hockey leagues, including the NHL, so they'll be less bouncy and easier to control.

Try it yourself

Take a rubber bouncy ball, hold your arm straight out, and let it drop. How high did it bounce? Now put the ball in the fridge for half an hour. How high does it bounce when you drop it now? What if you put it in the freezer first? Do ping pong balls behave the same way? Can you think of a way this relates to what we said earlier about hockey players liking the ice colder than figure skaters?



More from the Book

Paper Chains covers some very different subjects—from hockey to Russian folklore—that you might be curious to learn more about. Here's a little more info and some places where you can do just that.

Hockey

There are lots of forms of hockey all over the world: field hockey, street hockey/roller hockey, air hockey, even broom hockey. But ice hockey (the kind Ana's family plays) is the most popular. It probably started out in Canada, and it's an Olympic sport for both men (since 1920) and women (since 1998). For most leagues (including the ones Ana and her dad played in), each team has five players on the ice at a time, plus their goalie. Whichever team scores the most goals at the end of three periods is the winner.



But of course, there's a lot more to it than that. There are lots of great books out there, but one of my favorites is *Hockey: Then to WOW!* from Sports Illustrated Kids. Or if you want to get in the game, check out www.usahockey.com/comeplayyouthhockey.

Russian Folklore

Katie and Ana encounter lots of Russian folklore, including:

Baba Yaga, a wild old woman or witch who lives deep in the forest in a hut that stands on chicken legs.

The Firebird, a magical creature whose feather can bring blessings or curses—and always adventure.

The Snow Child, a girl who comes to life after an old couple who have longed for a child build her out of snow.

Vasilisa, a girl with a magical item (not a hockey puck) that helps her get the best of Baba Yaga.

The versions of these stories in *Paper Chains* are my interpretations through my characters' eyes, but with a little research, you can find out a lot more about each of these—including the ways they're linked together.

Music and Literature

The Nutcracker by Pytor Ilytch Tchaikovsky

To experience this story like Katie did in *Paper Chains*, you can listen to the music and even watch the ballet online. There are also lots of beautiful illustrated book versions. For a slightly different twist, check out *The Nutcracker Comes to America: How Three Ballet-loving Brothers Created a Holiday Tradition* by Chris Barton, illustrated by Cathy Gendron.

"The Gift of the Magi" by O. Henry is a famous short story that you can find from many publishers or read for free online. (You might already be familiar with it, since it's been adapted by everybody from Disney to Sesame Street to Saturday Night Live. If you've read or watched a story of two characters giving up what they love to get the other a present—and then the present turns out to be something that goes along with the thing they gave up—that's "The Gift of the Magi"!)



Discussion Questions and Reading Guide

1. What are the biggest differences between Katie and Ana? What are the biggest similarities? How are you and your friends alike, and how are you different?
2. Which of the kids had the biggest challenges to overcome? Which was most like you? Which one would you be most likely to be friends with in real life, and why?
3. Katie's dad tells her that her pioneer ancestors lived in caves for the winter. In the spring, when hibernation ends, they were surprised to find they'd been living with snakes all winter. This is a true story about some of my ancestors! What stories do you know about your ancestors?
4. When the class is reading holiday stories, it reminds Ana of solyanka: "It's a soup my grandma makes. It's every random thing she's got, all mixed together." Ms. Decker says, "I like that. A mixture of all the stories that make us who we are." What are the ingredients in your story soup? What stories from your life (even books, movies, etc.) have made you who you are?
5. Mikey really believes that the puck is magic. What "magic" did you believe in when you were younger? What "magic" do you believe in now?
6. Ana and Katie's class talks about some of their winter holiday traditions. What traditions do you have in your family? Are there any new ones you'd like to start?
7. The smell of cloves brings back a very strong memory for Katie. What smells bring back memories for you?



About the Author

Elaine Vickers is a third-generation educator who teaches chemistry to her college students and all kinds of things to her three kids. She always wanted to be a writer and a teacher, except when she wanted to be an architect, an artist, a pediatrician, a judge, or a famous actress.



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PAPER CHAINS

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