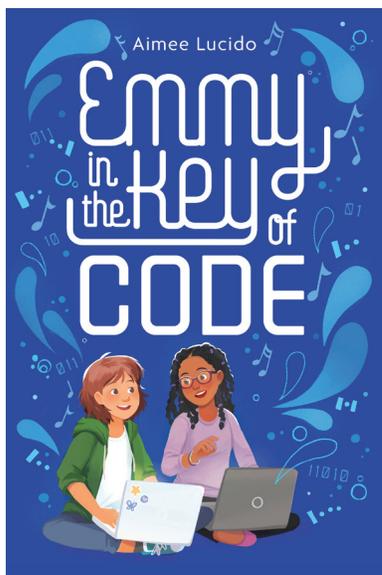


Emmy in the Key of Code

by Aimee Lucido



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About the Book

In a new city, at a new school, twelve-year-old Emmy has never felt more out of tune. Things start to look up when she takes her first coding class, unexpectedly connecting with the material—and Abigail, a new friend—through a shared language: music. But when Emmy gets bad news about their computer teacher, and finds out Abigail isn't being entirely honest about their friendship, she feels like her new life is screeching to a halt. Despite these obstacles, Emmy is determined to prove one thing: that, for the first time ever, she isn't a wrong note, but a musician in the world's most beautiful symphony.

About the Author

Aimee Lucido is a former software engineer, and she got her MFA in writing for children and young adults at Hamline University. She lives with her husband in San Francisco where she likes to bake, run marathons, and write crossword puzzles.

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Background Building

In this novel in verse, the author interweaves many references to music, musicians, songs, and music-specific terminology as she brings her music-loving character to life. The author's glossary of music terms will help students who are not familiar with this specialized vocabulary. In addition, the protagonist explores the world of computer coding, and many examples of coding, coding vocabulary, and computer-related elements also populate this story. Lucido provides a helpful glossary of coding terms that may be useful to students too. Before you begin reading or sharing this book, it could be helpful to alert students to the presence of both these specialized knowledge bases and vocabularies. Students who have particular expertise in one of these areas may be happy to point out examples, explain concepts, or share experiences. And all students may be interested to learn more about each discipline and to see how the author presents them in the context of each poem and then weaves them together to show how these two areas have more in common than one might expect.

[CCSS.ELA-Literacy.RL.5.1, 6.1, 7.1]

Poem Titles

Talk about how the author uses poem titles to convey tiny nuggets of story elements and to set the tone. If you read only the titles, what can you guess about what's happening (before or after reading the book)? Try it! Read the book aloud as a group using only the poem titles by passing the book around the class and inviting students to read only the titles "round robin" style. How do the titles alone set the stage or move the story along?

[CCSS.ELA-Literacy.SL.5.1d; SL.6.1d; 7.1]

Discussion Questions

As students read, invite them to consider the characters, their relationships and conflicts, and how the elements of music and computer coding connect with the characters and the story. Challenge them to find poems that support their opinions or analysis. Possible discussion questions include the following:

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1. Before reading, speculate on the meaning of the book's title, *Emmy in the Key of Code*. What do you think that means? Is she a spy? Is this a mystery?
2. Have you ever moved or been in a situation where everyone else knew each other? What was that like? What helped you fit in? How does Emmy feel as she moves from Wisconsin to California to begin sixth grade?
3. How are Emmy's issues with moving and her mom's issues with moving parallel? How are they different? ("So I Don't Worry Her" p. 37; "Hopes" p. 95–96)
4. Emmy repeatedly says she is "fine" to her parents and teachers when she is not "fine." Why? What happens when she says she is not fine? ("Not Fine" p. 300)
5. How is the yellow piano important in the story?
6. In the poem "Off-Key" (pp. 214–215), Emmy reveals this about her friend Abigail, "She says I'm her best friend / but if that's true / why am I still / a secret?" And then Abigail lies to her other friends about being in computer classes, but Emmy reveals that lie, causing Abigail deep embarrassment and creating a rift in their blossoming friendship. Which is worse? Lying or tattling? Are either of them being a good friend? Why or why not?
7. Ms. Delaney says an error is "a mystery to be solved" and "errors are meant to help you." What does she mean by that? ("Errors" p. 173–174)
8. In the poem, "What You Hate" (p. 186), Emmy raises the question, "If you don't love something / is it even worth doing?" Is it? Why or why not?
9. Ms. Delaney reveals why she left her prestigious computer job for teaching in "Ms. Delaney's Fairy Tale: Remix" (pp. 216–217): "Plus something happened / that made me realize how little time we have / and that I shouldn't waste it / being just half / of who I am." What does it mean to be "half" of who you are?
10. Ms. Delaney introduces C++ and shows a project she created, saying "Code is a form of expression / just like any other. // And for me / code is art." ("Digital Art" pp. 225–226). Then Emmy says she feels like a musician in "Digital Music" (p. 230). How is creating code on a computer like painting or composing music?
11. The students discuss artificial intelligence and discover there are machines that can talk to you. This raises the question, "What makes a human mind?" ("Machine Learning" pp. 236–237). And in talking about "smart" machines, Emmy speculates, "How do we know they're not people?" What do you think? Can machines be human? What does it mean to be human?
12. Emmy says, "Forgiveness / is the least boolean thing / in the entire world." in the poem, "Not Quite Boolean" (p. 205). What does she mean by that?
13. Then, in the poem, "Forgiveness: Remix" (p. 328), Emmy notes: " maybe forgiving someone else / is a lot more boolean / than forgiving yourself." What does she mean here?
14. In "Argument One" (p. 253), after her betrayal of Abigail, Emmy asks herself, "*What would I want / if I were Abigail?*" How can putting yourself in the place of your enemy or "frenemy" help?
15. How does Emmy know she finally belongs (in class, in school, in the community)?

[CCSS.ELA-Literacy.RL.5.1; RL.6.1; RL.6.3; RL.7.1]

Reader's Theater

With novels in verse, oral reading can be especially powerful since hearing the words read aloud gives a physical voice and point of view to the personal text. This can begin with the teacher or adult reading aloud, of course. But we can also involve students in presenting excerpts aloud using reader's theater so students can read a poem aloud in parts. Several of the poems in this novel in verse lend themselves to reader's theater performance, so students can get a sense of

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the characters' personalities. The following poems offer text in two or three parts (spaced left, right, and centered) for two or three volunteers or groups to read aloud in turn. Then talk about how hearing the words read aloud helps us understand the poem, the characters, and the points of view better.

- “What I Hear from Across the Room” p. 18
- “Attempted Duet No. 5” p. 32
- “Orchestra One vs. Orchestra Two” p. 52
- “Duet No. 1” p. 49
- “Emmy and Abigail: An Actual Duet” p. 133
- “Stuck in My Head” p. 143
- “What I Hear from Down the Hall” p. 161
- “The Dynamic Debugging Duet” p. 175
- “Emmy and Francis: A Duet, If You Can Call It That” p. 201
- “Emmy and Abigail: The Dyn--}” p. 211
- “Emmy and Abigail: The Apology Duet” p. 273
- “Rest” p. 319
- “What I Hear from My Bedroom” pp. 344–345
- “Attempted Trio” p. 347

The author provides a glimpse into Emmy's quest to make friends through many “duet” poems. These in particular lend themselves to reader's theater performance and together reveal an important thread of the story.

- “Attempted Duet” and “Duet” and other “duet” poems. Pages: 5, 9, 11, 26, 32, 50, 133, 175, 221, 273, 342

Use a recording app to tape the reading of your favorite poems. Share your recording during morning announcements or at a parent meeting just for fun.

[CCSS.ELA-Literacy.RL.5.6; RL.6.6; RL.6.7; RL.7.6; RL.7.7; SL.4.1b; SL.5.1b; SL.6.1b]

Music

Look online for some examples of the music cited in the poems in this verse novel, such as *Songs in the Key of Life* by Stevie Wonder or Beethoven's Minuet in G. Play it in the background as you read the poem aloud or before sharing poems in preparation. Or share the

rhyiming poem, “If You Close Your Eyes” (p. 27–28) to introduce a varied list of musicians. Some of the music mentioned throughout the poems includes the pieces listed below (as well as references to many individual musical instruments). In addition, Lucido provides a glossary of music terms to help guide student understanding of many terms woven throughout the poems.

- *Songs in the Key of Life* by Stevie Wonder
- Katy Perry
- The Beach Boys
- The Mamas & the Papas
- Beethoven's Minuet in G
- “Flight of the Bumblebee”
- Ella Fitzgerald singing “Summertime”
- Mozart's Rondo in C Major
- Burgmüller's “By the Limpid Stream”
- Beethoven's Sonata, op. 49, no. 2
- “Mary Had a Little Lamb”
- “Clair de Lune”
- “Rhapsody in Blue”
- Queen's “Don't Stop Me Now”
- Bach's *Well-Tempered Clavier*
- Tupac's “Hail Mary”
- Corelli's *Christmas Concerto*
- Chopin's *Fantaisie-Improptu*

[CCSS.ELA-Literacy. SL.5.5; SL.6.5; SL.7.5]

Response Activities

As students consider the elements of this story, the engaging poems, and the infusion of music and coding, they may enjoy exploring a response activity that helps them think more deeply about the craft of the poetry or connect it with their own life experiences. Here are a few options to consider:

How can we make a new student feel welcome? In the poem, “Solo” (p. 10), Emmy lists some things she wishes would happen. Which can you try?

In this novel, students have several opportunities to share “fun facts” with each other (“Fun Facts” pp. 53–54; “Fun Facts: Remix” pp. 337–338). What fun facts would you share?

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In “Evening Music,” (p. 38) Emmy says: “My favorite part / of every day / is four p.m.” What is your favorite time of the day and why?

Students who like secret codes may enjoy trying their hands at creating a message in binary code (as in “ecret-Say ode-Cay” pp. 322-323).

Many of the poems in this book, play with the look of the words, using different sizes and shades of words and letters. Look for examples of this and discuss how that affects the meaning of the poem.

- “The Girl in Braids” p. 19
- “Looking Up” p. 25
- “4'33” p. 73 (This refrain is repeated several times in other poems)
- “Solo: Remix” p. 141
- “Small Steps” p. 163
- “public” pp. 286-287
- “ecret-Say ode-Cay” pp. 322-323
- “Allegro” p. 335
- “No Telling” p. 339
- “The Final Number” pp. 372-382

Elements of computer coding appear throughout this novel in verse, more and more frequently as Emmy immerses herself in learning Java coding. In particular, this list is “the entry point / for every single program / in Java” (“{ }” pp. 65–66, “Ms. Delaney Says” pp. 64):

- public
- static
- void
- main
- string
- bracket
- bracket
- args

Emmy turns this list into a song and repeats it throughout the story. Challenge students to compose a tune for (“Lunchtime Music” p. 70) and sing it.

[CCSS.ELA-Literacy. RL. 5.5; 6.3; 7.3]

Computer Coding Definitions and Concepts

For students who are new to computer coding, Lucido provides poetic definitions for key coding concepts.

Coding in Java is first introduced in “{ }” pp. 65–66 where students are “turning the sounds / into code.”

Other key concepts include:

- “Building Blocks” on pp. 90–91 and “Purple” p. 92–93 describe “primitives types.”
- “Booleans” p. 94; “Boolean Logic” pp. 97; “boolean”
- “Java” p. 102
- “String” p. 126; “String =” pp. 127
- “Variables” p. 130; “Global Variables” p. 137
- “Variables: Remix” p. 148
- “Semicolon” pp. 138–139
- “While Loop” p. 157–158; “Termination” p. 159
- “Bracket Bracket” p. 171; “[] =” p. 172
- “Methods” p. 179
- “Void” p. 180; “void =” p. 181
- “Main” p. 189; “main =” p. 190
- “Randomness” p. 199; “Random Numbers” p. 256–257
- “Arguments” p. 243; “args =” p. 244; “Arguments: Remix” p. 343
- “public” pp. 286–287
- “Static” pp. 369–370

Reread these poems and talk about the coding concept introduced and how Lucido infuses it into a poem.

[CCSS.ELA-Literacy. L. 5.2; 6.2; 7.2]

Writing

As you read this book with students, they will notice that the author presents poems in a variety of forms and arrangements in the book (or you can point this out after reading). Talk about how poets use “poetic license” to use or adapt poetry, even making up their own (like poems based on or infused with computer code). Discuss a few examples of these innovative poems and how each one is composed and arranged. Challenge students to select their favorite example and work with a partner to create their own original poem. Here are some of the options:

1. Patterns

Several poems use repetition of a key word or pattern to give a poem its rhythm or structure. This can create

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a comfortable framework for students to imitate in their own original poems. Here are four examples:

- “Usually” (repetition of the word “usually”) p. 82
- “We” (repetition of the word “we”) p. 371
- “Dad’s Song: 4:00 p.m.” (repetition of the word “song”) p. 123
- “Abigail” (use of “sounds like, tastes like, smells like, feels like”) p. 187

2. Concept of “Remix”

The author offers many examples of poems that return to a topic previously presented in the novel, in a “remix” or new approach to the same topic. Challenge students to find examples of this and then create their own “remix” of a poem in the book or of another poem of their choice.

3. Fairy Tales

Occasionally, the author presents a prose piece that borrows from the classic “fairy tale” form to tell a one-page story about a main character in a clever way. This includes

- “Ms. Delaney’s Fairytale” p. 169
- “Abigail’s Fairy Tale” p. 185
- “Francis’s Fairy Tale” p. 204
- “Emmy’s Fairy Tale” p. 303

Challenge students to write a one-page fairy tale about one of the other characters in the book (Mom, Dad, Evan, Drake, Iain, etc.) or their own autobiographical fairy tale that follows the conventions of this form.

4. Email Poems (letter writing)

When Ms. Delaney is away taking care of her health, she sends emails to the students who are missing her. These include:

- “Subject: Doctor Appointment Today” p. 280
- “Subject: The Next Week” p. 311
- “Subject: Pi” pp. 312-313
- “Subject: One More Thing” p. 314
- “Subject: The Showcase” p. 355

Talk with students about the form of letter writing and the elements present in each poem. Invite them to write their own poem to someone they care about.

[CCSS.ELA-Literacy. W. 5.1; 6.1; 7.1]

Writing Poems with Code

The author also incorporates a great deal of computer code throughout the poems, and students may enjoy experimenting with fusing code and poetry together themselves.

1. Brackets

Here “curly” brackets { } are used as punctuation in many, many poems. Lucido uses the brackets of coding throughout the book to signal pauses and closure in various places in a poem. Select a sample poem (with brackets) to read aloud, using the brackets to guide the reading with pauses for meaning. (For example, “Rest” p. 319). Then, invite students to try writing a poem and incorporating brackets for pauses and emphasis.

2. If Poems

For a more challenging exercise, review some of the poems that use “if” programming to create a poem. Here are a few examples:

- “If/Then” p. 99
- “The New Schedule” p. 124
- “What If?: Remix” p. 187
- “The Latest Schedule” p. 222
- “Things That Are False” p. 263
- “A Bad Weekend” p. 266
- “The New Schedule” p. 276
- “The Worst Schedule” p. 307
- “Infinite Loop” p. 315

These begin simply with “if” and brackets and then progress to more complex strings of text. Challenge students to try either version following one of the examples above.

3. String Poems

Similarly, the author uses the concept of “string” in coding (text between quotation marks) to create poems with a distinctive look. Here are a few examples, from simple to more complex examples:

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- “String” and “String =” pp. 126-127
- “Goodbye, Emmy” p. 144
- “String[] itemsonMsDelaneysDesk =” p. 213
- “Cafeteria Logic” p. 222
- “String[] whyMsDelaneyLeftHerJob =” pp. 231–232
- “String[] whatAbigailsays =” p. 241
- “String[] whatIHearFromMyBedroom =” pp. 249-250
- “String[] whatIHearWhenIPassThePrincipals Office” p. 288
- “Fine” p. 298
- “String[] whatEmmySaystoAbigail =” p. 304
- “String[] whatISayToFrancis =” p. 329

Invite students to try creating a poem like one of these string poems.

[CCSS.ELA-Literacy. W. 5.1; 6.1; 7.1]

Figurative Language

Discuss how Lucido incorporates figurative language throughout the poems in this book, particularly similes and metaphors. At first, there are many musical metaphors in the poems, but gradually more and more coding terms are used poetically. For example, in “Homeroom” (p. 7), Emmy feels like “a wrong note.” Later, in “Frozen” (p. 302), she describes herself as “void.” Have students look for examples and discuss the impact of each metaphoric passage they find. Here are just a few:

Music Metaphors

- “Homeroom” p. 7–8
- “Spotlight” p. 23
- “Cacophony” p. 30
- “Try Tone” p. 31

Coding Metaphors

- “The Cafeteria: Remix” pp. 191–192
- “Requiem” p. 264
- “Final Bell” p. 292
- “Frozen” p. 299
- “Come In” pp. 330-331
- “The Final Number” pp. 372-382

[CCSS.ELA-Literacy. RL. 5.4; 6.4; 7.4]

Connections Across the Curriculum

STEM Connections

Obviously, there are many STEM connections to make in this novel in verse (STEM = Science, Technology, Engineering, and Math). Work with students to discuss the field of computer science and what kind of career possibilities they envision. Several poems address various aspects of computing including:

- “Languages” p. 103 (different computer languages)
- “The Girls That Belonged” pp. 154-155 (first computers were women)
- “Punch Cards” pp. 207-208 (programming on paper cards)
- “Atonal Music” pp. 226-227 (about C++)
- “Artificial Intelligence” pp. 234-235
- “Machine Learning” pp. 236-237 (the Turing test)
- “ecret-Say ode-Cay” pp. 322-323 (binary code)

[CCSS.ELA-Literacy.SL.5.1; 6.1.D; 7.1.C]

Social Studies

Several poems also address the attitudes toward women in computer science (and in general) and how those attitudes may be changing. These include:

- “Polyrhythm” p. 51
- “Eye Roll” p. 109
- “One of the Above” p. 151
- “The Girls That Belonged” pp. 154-155

Engage students in a discussion of gender roles and career possibilities. What jobs can men have now that they might not have traditionally considered? And for women?

[CCSS.ELA-Literacy.SL.5.1; 6.1.D; 7.3]

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Web Resources

If you want to learn more about the author:

Author's website: aimeelucido.com

In her author's note, Lucido recommends these additional resources:

Khan Academy

Code.org

Coursaera

MIT OpenCourseWare

theCoderSchool

Girls Who Code

Black Girls Code

Bootstrap

Sylvan Learning Center

A Mighty Girl: about girls and women and how they shape the world. www.amightygirl.com

This guide was created by Sylvia Vardell, professor in the School of Library and Information Studies at Texas Woman's University and a recipient of the ALA Scholastic Library Publishing Award. She is the author of ALA's popular *Poetry Aloud Here!*, maintains the Poetry for Children blog, writes a poetry column for ALA's *Book Links*, magazine, and co-edits the *Poetry Friday Anthology* series with author Janet Wong.