

# ASHA and BAZ

Meet Elizebeth Friedman



## **The ASHA and BAZ Series**

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# ASHA and BAZ

Meet Elizebeth Friedman

(Book 3)



By Caroline Fernandez



Common Deer Press

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*In honour of Elizebeth Friedman and all  
women in science and technology  
who overcome challenges to make  
amazing discoveries.*



*Kaavya, your happiness is your strength,  
Always keep smiling. You are perfect the way  
you are. You're an amazing individual and  
I am proud to be your mom.*





## CHAPTER 1

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# THE CODEBREAKER CHALLENGE

“**H**ow do you write a secret message without using invisible ink?” Ms. Wilson giggled as she asked the class. Everyone looked around at each other. When their teacher laughed that way, it meant she was up to something fun.

“Does this have anything to do with a class challenge?” asked Asha. She was the most curious kid in the grade.

“Yes!” exclaimed a thrilled Ms. Wilson. “It’s the Codebreaker Challenge!”

“Chal-lenge, chal-lenge, chal-lenge,” the class chanted.

“Pick a partner and get into teams,” directed Ms. Wilson.

Everyone settled into their teams. Asha and Baz picked each other, as always. They were best friends.

“So, how do you write a secret message without using invisible ink?” asked Ms. Wilson.

Hands shot up around the class. Ms. Wilson pointed to each person, giving them a chance to speak.

“Use a picture instead of writing a word,” suggested a girl.

“Write the message in a different language,” said a boy.

“Use numbers instead of letters,” Baz whispered to Asha.

“Baz says,” Asha said, “use numbers instead of letters.”

Baz sunk down in his seat.

“Thank you, team Asha and Baz,” replied Ms. Wilson. Baz was grateful she didn’t force him to speak up for himself.

“I think you will like this challenge,” said Ms. Wilson. “It’s about secret codes and codebreaking.”



Ms. Wilson walked to the front of the class. She began writing on the blackboard.

## **CODEBREAKING: science, history, engineering, math, AND solving puzzles**

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- **Replace letters with numbers**
- **Replace letters with symbols or pictures**
- **Use different languages or alphabets**
- **Replace numbers and letters with dots and dashes**

“Secret codes are so much fun,” said their teacher. “Long ago, kings and rulers sent messages written in secret code. That way, no one could steal their messages,” Ms. Wilson explained. “We still use secret codes today. Can anyone think of a secret code?”

Hands shot up all around the class.

“My computer password,” said Asha.

“Barcodes on cereal boxes,” suggested a boy.

“My mom’s four-number secret code for her bank card,” suggested a girl.

“I LOVE this brainstorming!” replied Ms. Wilson. “You are all correct.”

The class cheered.

Ms. Wilson took a stack of worksheets from her desk and started handing them out to the students.

“The team that solves the Codebreaker Challenge gets a reward,” announced Ms. Wilson.

“A reward! What is it?” asked a girl.

“You have to crack the code to find out. It’s hidden in the secret message,” replied Ms. Wilson. “Read the instructions.”

Baz tapped Asha’s arm. She bounced up and down in her chair.

“A reward,” Asha whispered in his ear.

“We have to win this,” replied Baz.



The class fell silent as they read the instructions.

## The Codebreaker Challenge

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Instructions: Solve the letter/number key below to decode the secret message.

				5					10			
A	B	C	D	E	F	G	H	I	J	K	L	M

	15					20					25	
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

$\overline{3}$   $\overline{15}$   $\overline{4}$   $\overline{5}$   $\overline{2}$   $\overline{18}$   $\overline{5}$   $\overline{1}$   $\overline{11}$   $\overline{5}$   $\overline{18}$   $\overline{19}$   
 $\overline{7}$   $\overline{5}$   $\overline{20}$       $\overline{5}$   $\overline{24}$   $\overline{20}$   $\overline{18}$   $\overline{1}$       $\overline{20}$   $\overline{9}$   $\overline{13}$   $\overline{5}$   
 $\overline{1}$   $\overline{20}$       $\overline{18}$   $\overline{5}$   $\overline{3}$   $\overline{5}$   $\overline{19}$   $\overline{19}$

“It looks like math,” Asha whispered to Baz.  
 “No,” said Baz, looking at the worksheet.  
 “There are no addition, subtraction, or other

math symbols.” He read the instructions out loud. “Solve the letter/number key below to decode the secret message. We have to figure out how the numbers and letters work together. See how some of the letters already have a number?” he said as he pointed to the page.

“5, 10, 15, 20, 25,” Asha read out loud.

Ms. Wilson walked up and down the rows of desks. “You need to find the *key* to unlock the code,” she hinted. She clapped her hands together with excitement. “Now that you’ve had a look at the challenge, get ready for recess. When you come back, you can jump in to puzzle-solving.”

Everyone in the class stood up and walked toward the door. Asha pulled Baz to the side and whispered in his ear, “I’ll get the magic stick. You bring the worksheet, OK?” Baz doubled back to his desk to get the worksheet. Meanwhile, Asha went over to her backpack and took out a strange-looking stick.

At that moment, the recess bell rang out.

The kids walked down the hall and out the back door to the schoolyard. Once outside, Asha and Baz broke into a run. Asha carried the magic stick, and Baz clutched the worksheet.

They raced down the hill and past the soccer field. They ran to where the grass turned into sand. That's where they stopped.

Asha looked over at the worksheet. "OK, so we need to crack the code," she said. "This time you use the magic stick." She held out the stick to her friend.

Baz took a step back and looked at her with worry. "No, no, no. I don't want to be the one in charge of the stick," he protested.

They had found it in the schoolyard. It was not the regular kind of stick one would find lying around a playground. No, this did not fall off a tree. Someone had created this tool. It was a dark brown color at its base that flowed into a honey color at its tip. And it had a strange bend in the middle. Asha and Baz were both drawn to this stick. . .for this was a magic stick.

"It won't hurt you," said Asha. She held the magic stick out for Baz to take.

He bit his bottom lip and shook his head. He held up the worksheet instead. "No, Asha," he said. "I don't want to hold the magic stick. I'll hold the worksheet."

"Are you sure? It's OK if you want to have a turn with it," said Asha.

“I’m sure,” Baz replied.

Asha knew Baz was a worrier. On the other hand, she was fearless. “I understand,” she said.

“Can I see the worksheet, please?” she asked.

Baz held out the paper. They looked at it together.

“Ms. Wilson said we have to find the *key* to unlock the code,” said Asha. “It’s a hint!”

Asha bent down. Using the magic stick as a pencil, she wrote the secret message in the sand.

3 15 4 5 2 18 5 1 11 5 18 19  
7 5 20 5 24 20 18 1 20 9 13 5  
1 20 18 5 3 5 19 19

“Step in,” Asha invited Baz. Baz stepped into the drawing next to Asha. Next, she pressed the tip of the magic stick to the sand. “Codebreaker,” she yelled. In that exact moment, the south wind blew sand into a gentle tornado around them. Asha and Baz were transported through space and time.

The mini tornado blew away as quickly as it had blown in. Asha and Baz looked around. The playground and school were gone. Instead, they were standing in someone's yard.

"The secret code!" Baz exclaimed, pointing at the ground.

It was magic.

There, in the sand, the numbers were gone, and in their place was a name and a year:

**ELIZEBETH FRIEDMAN. 1942.**





## CHAPTER 2

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### 1942. Washington D.C.

**A**sha and Baz were standing in a small patch of sand in front of someone's house. The air was warm, but not hot. The sky was blue. The grass was thick and green.

"This house doesn't look modern," said Asha. "The magic stick has sent us back in time to 1942. To meet someone named Elizebeth Friedman. She must know about codebreaking."

"Where do we find Elizebeth?" asked Baz. He looked around the yard. It was empty.

"This must be her house," said Asha. She put the magic stick in her pocket for safekeeping. "Let's go knock."





They walked up the stone path to the brick house. Asha and Baz looked up. There were five windows on the second floor and four windows on the first floor. The path led up to the front door.

Baz stopped at the door. “You knock,” he said, pushing Asha forward.

“You are going to have to get over being shy one of these days,” warned Asha.

“I know,” he said. Yet, the thought of being the one to knock made him feel like he was going to throw up.

Asha knocked three times.

The door opened.

“May I help you?” asked a woman.

Her black hair was in a low bun. She was dressed in a gray blouse with a black cardigan over it. Her black skirt went down to her ankles. She wore black shoes with thick heels.

Baz gave Asha a tap on her shoulder, signaling her to be the one to talk for them both. “OK, fine,” Asha whispered to Baz.

“Excuse us for bothering you,” Asha began. “We are looking for Elizabeth Friedman.”

“Are you the two new trainees?” she asked.

Baz replied without thinking, “No, we’re—”

Asha elbowed him in the ribs. “Yes, ma’am,” she said. “Yes, we are the new trainees.”

Baz knew what to do. He followed Asha’s lead.

“Yep, we’re the new trainees,” he said.



“You look a little young to be trainees,” said the woman. She looked Asha and Baz up and down.

Baz bit his lip as he always did when he was nervous. Asha did not miss a beat. “You can’t judge a book by its cover,” she replied.

“You are right about that,” said the lady with a smile. “Things are not always what they seem. What are your names?” the woman asked.

“I’m Asha, and this is Baz,” Asha replied.

“Hello, Asha and Baz. Yes, I’m Elizebeth Friedman. Welcome to your first lesson in codebreaking.” She stepped to the side and invited them into the house.

# APPENDIX

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## **Are secret codes real?**

Yes, secret codes are real. People, businesses, and countries put codes on their secret information to protect it.

Here are some examples of secret codes:

- bank card numbers
- credit card numbers
- computer passwords
- email passwords

## **Was Elizebeth Friedman a real person?**

Yes, Elizebeth Friedman was a real person. Her story with Asha and Baz is fiction. Here are some facts about her life:

- Born Elizebeth Smith in 1892, she was the youngest of nine children.
- Elizebeth's mother didn't want anyone to call her daughter "Eliza" as a nickname. So, she spelled her daughter's name "Elizebeth" instead of "Elizabeth."
- Elizebeth graduated from Hillsdale College.

- She worked as a high school principal for a year.
- She married her husband, William, in May 1917.
- The Friedmans had two children: a son and a daughter.
- In 1921, the Friedmans went to work for the War Department in Washington, D.C.
- Elizebeth used her skills to break secret codes to catch gangsters and spies.
- She cracked the code to save the *Queen Mary* during World War II.
- Elizebeth Friedman worked for the U.S. Navy and other government departments.
- Elizebeth Smith Friedman died on October 31, 1980, in Plainfield, New Jersey. She was 88 years old.
- Elizebeth Friedman was a pioneer in codebreaking.
- Elizebeth's projects were TOP SECRET ULTRA.
- She never shared any of the secrets of her projects, even when others took credit for her work.

### **Was Sargo a real person?**

Yes, Sargo was a real person. He was a spy. Here are a few facts about his life:

- His name was Johannes Siegfried Becker.
- Sargo was his code name.
- He was one of the head spies in South America during World War II.

### **Was the *Queen Mary* a real ship?**

Yes, the *Queen Mary* was a real ship. Here are some facts about the ship:

- In 1930, construction on the *Queen Mary* began in Scotland.
- The first voyage of the *Queen Mary* was on May 27, 1936.
- The ship had five dining areas, two bars, two swimming pools, one ballroom, and one squash court.
- The *Queen Mary* was a very fast ship.
- During World War II, the *Queen Mary* sailed as a supply ship. It carried over 810,000 military personnel back and forth across the Atlantic Ocean.
- The German side of the war offered a \$250,000 reward to any Captain who could destroy the *Queen Mary*.

- In 1947, after the war, the *Queen Mary* returned to being a cruise ship.
- It retired from sea voyage in 1967.
- The *Queen Mary* is now a tourist attraction. It is in Southern California.

## TYPES OF SECRET CODES AND CIPHERS

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- Morse code (spaced dots and dashes replace letters of the alphabet):

... .. / .. ... / .- / -- --- .: ... . /  
 -: --- -.. / .:- .- -- .-. .:..

**(This is a Morse code example.)**

- Caesar code (a letter of the alphabet shifted down in placement replaces a letter):

**Wklv lv d Fdhvdu Frgh Hadpsoh**

**(This is a Caesar code example.)**

- Pigpen cipher (a symbol replaces a letter of the alphabet):

> n r v r v J . r r r . o o .  
 L r r . n o r . o > J . r . o . o

**(This is a Pigpen cipher example.)**

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Coming Next!

# ASHA and BAZ Meet Katia Krafft

(Book 4)

By

Caroline Fernandez



*Asha and Baz must create an eruption  
for the Great Volcano Challenge!*

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