

# MIND vs. MACHINE

## THE CHESS MATCH THAT CHANGED THE WORLD

by Steve Sheinkin and Maurice Ashley; illustrated by Thien Pham

### ABOUT THE BOOK

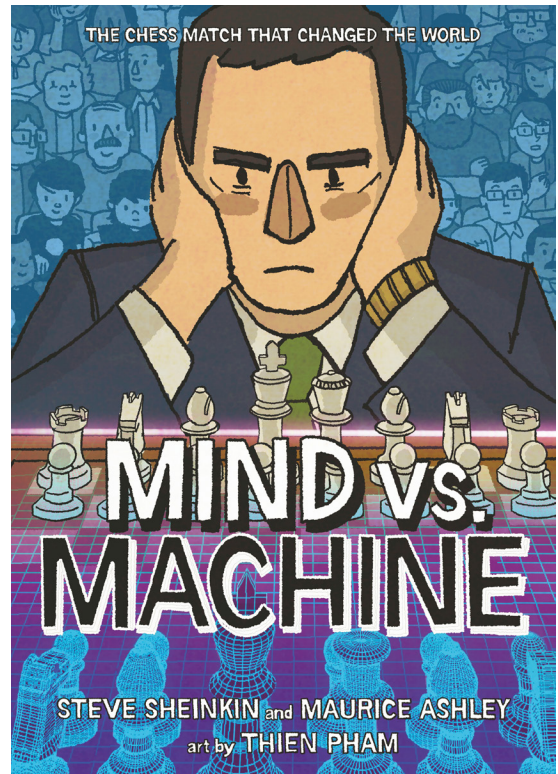
The hope of humanity rests on the shoulders of one chess player in this graphic novel about the real-life epic chess match between a human and a supercomputer, by the bestselling author Steve Sheinkin, chess grandmaster Maurice Ashley, and award-winning comics artist Thien Pham.

It's May 1997 in New York City. World champion Garry Kasparov is about to begin a six-game match against Deep Blue, the cutting-edge supercomputer developed by a team of visionaries at IBM. No machine has ever defeated a chess champion in a multi-game match.

If it happens, it will be a major turning point in human history. It will be, as *Newsweek* declares on its cover, "The Brain's Last Stand."

Will the human mind prevail? Or is this checkmate for humankind?

Told through three-time National Book Award finalist Steve Sheinkin's gripping writing and firsthand accounts from Chess Grandmaster Maurice Ashley, with riveting illustrations by Eisner winner Thien Pham (*Family Style: A Memoir*), this nail-biting narrative captures the excitement and suspense of a classic sports showdown and explores thought-provoking themes about where humanity stands at the rise of AI.



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### ABOUT THE CREATORS:

**Steve Sheinkin** is the acclaimed author of fast-paced, cinematic nonfiction histories, including *Diamond Fever!*, *Fallout*, *Undeclared*, *Born to Fly*, *The Port Chicago 50*, and *Bomb*. He is also the co-author, with Ruta Sepetys, of the *New York Times* bestselling middle grade novel, *The Bletchley Riddle*. His accolades include a Newbery Honor, three



Boston Globe–Horn Book Awards, a Sibert Medal and Honor, and three National Book Award finalist honors. He lives in Saratoga Springs, New York, with his wife and two children.

**Maurice Ashley** is a chess grandmaster, a three time national championship coach, an author, and a world-renowned commentator for some of the game's biggest matches. In 1999, he earned the title of grandmaster, making him the first African American in chess history to do so, and in 2016 he was inducted into the World Chess Hall of Fame. He lives in Florida.

**Thien Pham** is a graphic novelist and educator based in Oakland, CA. He is the author and illustrator of the graphic novel *Sumo* and the illustrator for the middle-grade graphic novel *Level Up*, written by Gene Luen Yang. His graphic novel, *Family Style*, a memoir about his family's immigration to America told through the lens of food, has been on numerous best-of lists. *Family Style* was a finalist for the ALA YALSA Excellence in Non-Fiction award and won an Eisner award for Best Memoir Graphic Novel. Currently, Pham is working on his next graphic novel, teaching, and eating. A lot.

A “This is sure to be popular with gaming, computer science, and chess enthusiasts . . .

**Highly recommended** for upper elementary and middle school collections.”—*School Library Journal*

A “A **deep, comprehensive dive into** an important moment in  
the history of technology and human achievement.”—*Booklist*

A “**Nearly impossible to put down...** offers meaningful insights into the present-day debate over AI and challenges young people to take an active role in shaping the future of technology.” —*The Horn Book*

## PRE-READING QUESTIONS

1. How would you define the term “humanity”? What does it mean to be human?
2. What are your thoughts on the role of AI in the world today? What are its benefits? What are the downsides?  
How might AI change humanity?
3. What is the meaning of the title, *Mind vs. Machine*?
4. Using visual evidence, what is the person on the front cover feeling? On a separate piece of paper, draw a thought bubble and write his thoughts.
5. The event this book is based on was called “the chess match that changed the world.” What do you think you will be reading about? How might a chess match change the world?



6. What differences do you notice in the two sets of chess pieces on the cover? Why might they be drawn this way?
7. What do you notice about the shape of the person's shadow on the back cover? What do you think the artist is trying to tell us?
8. If the computer had won the chess match against a human, would it have been a major turning point in history? Why or why not?
9. What are your thoughts on using AI as an opponent in chess? Who would you expect to win? Why?

**Teacher Tip:** Explain the basics of chess before reading the book. It could also be helpful to play a game or two.

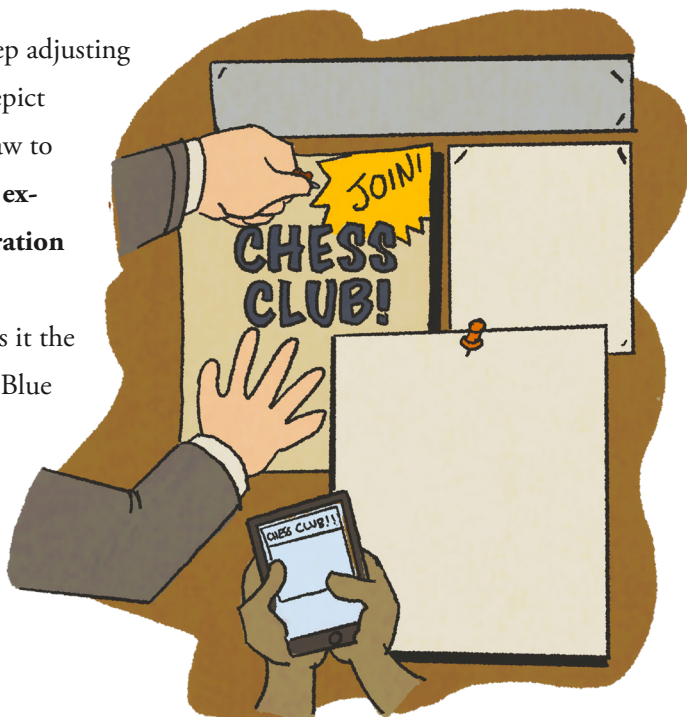
## DISCUSSION QUESTIONS

**Teacher Tip:** Not all students are familiar with graphic novels and may not fully understand the importance of images to add meaning to the story. Ask for visual evidence, such as body language, action lines, emotions, and facial expressions. The teacher is essential in the beginning. Share a few panels together as a class and discuss the impact of the illustrations. (See page 6, panel 3 as an example.)

1. Do you think a machine can think like a human, or better than a human? What type of machine could Wolfgang von Kempelen have invented in the late 1700s that would force people to think about these questions? (There are some clues in the panels on pages 2 and 3, if you look closely.)
2. Using visual evidence on page 6, panel 3, what is the reaction of Ben Franklin to this invention? What is he feeling and thinking? How is the rest of the audience feeling and what are they thinking?
3. How is Ben Franklin feeling on page 8, panel 4? Why does he feel that way?
4. Do you think a machine could have beaten a human in the late 1700s (page 9)? How do you think the machine could have won?
5. What types of machines and inventions have shocked you in your lifetime?
6. Do you think people can be replaced by technology? In what ways?
7. Is what happens on page 15 what you predicted in question 4?
8. Should humanity welcome the idea that a machine can beat humans in chess, or should we be terrified?
9. What do you think will happen on page 23? Who will win? Use a word to describe how Garry Kasparov is feeling in the last panel.
10. Why do you think the Deep Blue team created Deep Blue? On pages 28 and 29, how are they feeling about the upcoming match?
11. What do you think Feng-Hsiung Hsu means by the “essence of intelligence” (page 29, last panel)? How would you define intelligence? What does it mean to be an intelligent being? Can machines be considered intelligent, thinking beings?



12. How is Feng-Hsiung Hsu feeling about the upcoming match (page 30, last two panels)?
13. Why does Feng-Hsiung Hsu view himself as a knight on a quest (page 32)?
14. How is Garry's mother feeling about the match (page 36)?
15. Have you ever faced a similar challenge, having to choose one activity or passion over another (page 55)?
16. Why is chess so important to Garry? How does the artist convey emotion in the panels on page 56? (Teacher Tip: This may be a good time to discuss death and coping mechanisms.)
17. Using the visual evidence on page 57, explain how Garry's adult opponents change their feelings about him. In panel 4, they feel \_\_\_\_\_, in panel 5 they feel \_\_\_\_\_, and in panel 6, they feel \_\_\_\_\_.
18. How is Garry feeling on page 60? What advice do you think his mom gave him? What advice would you give him?
19. What do the action lines in the last panel on page 62 tell us about how Garry is feeling?
20. What does page 66 make you think about in terms of AI and inventions?
21. Why do you think Deep Blue resigned (page 70)? What advantage did Garry have over Deep Blue?
22. How is the Deep Blue team feeling (page 73, last panel)? Check out this video analysis of the game: <https://tinyurl.com/5f94zuu>.
23. What does the character mean by "there are more possible chess moves than there are atoms in the known universe" (page 89, panel 4)?
24. Do you agree or disagree with the advantages of humans over computers in chess? How about with AI?
25. In what ways are human brains like computers? Can a computer ever be the same as a human brain?
26. What might the implications be for mankind if Deep Blue were to win?
27. How does this splash page help tell the story (pages 102–3)? What strategy is Garry using?
28. How does page 115 show an advantage of Deep Blue?
29. Have you ever had an experience where you had to keep adjusting to overcome an obstacle? The artist used a dragon to depict Garry's adversary (pages 116–17). What would you draw to represent your obstacle? **(This can also be done in the extension activities by having students create an illustration or comic about a situation from their life.)**
30. How and why did Deep Blue win (pages 126–29)? Was it the team of humans or Deep Blue itself that won? Is Deep Blue really being creative or was it more due to its programming? How about with AI? Can computers, software, and AI really be intelligent and think on their own?
31. How and why did Garry lose (pages 134–40)? Was this a weakness of being human?



32. If Garry had a thought bubble in the last panel on page 141, what would the text be?
33. What are the advantages Deep Blue has over a human (pages 150–51)? Is this a fair match?
34. What is Garry accusing the Deep Blue team of on page 158? Do you agree with him?
35. What do you think Napoleon Bonaparte tried to do (pages 164–65)? How did the Automaton react? (Take a moment and look up this historical moment involving the Mechanical Turk. It's a fascinating story!)
36. In the last panel on page 181, Hsu says, "I want to make people wonder what comes next." What do you think will come next in today's world? What would you invent or like to see invented?
37. What will happen when we (humans) are no longer the best (pages 193–95)?
38. Do you agree with the statement on page 199 that the future of humanity was on the line with the outcome of this match?
39. How are the two teams feeling on pages 208 and 209? What do you think is going to happen?
40. What does the match signify in this moment (pages 212–13)?
41. How are the two opposing men feeling? What do you notice about their expressions in the last panel on page 215? (**Teacher Tip:** Notice that the victor does not look pleased with the win.)
42. What is Garry thinking? What does the narrator mean by "a new world" (page 221)?
43. How do these questions make us think about our place in the world with AI (pages 222–24)?

## POST-READING QUESTIONS

1. Think-Pair-Share: What do you think of the ending? Are computers and AI a good thing?
2. Revisit your answer to Pre-Reading Question 1. Did your definition of humanity and what it means to be human change while reading the book?
3. Revisit your answers to Pre-Reading Question 2, and reflect upon any changes in your thinking. What are your thoughts on the role of AI in the world today? What are its benefits? What are its downsides? How might AI change humanity?
4. Go back to your answers to Pre-Reading Question 4. Now that you've read this book, what thoughts would you put into the cover character's mind? Did your predictions about the story match what you read? What was different? What was the same?
5. Go back and read your answers to Pre-Reading Question 5. Reevaluate the symbolism of having Garry's shadow drawn this way on the back cover.
6. Should there be restrictions on what can be done with computers, technology, and AI today? Why or why not? Should creators and inventors be held responsible for how their inventions are used?



## EXTENSION ACTIVITIES

- Go back through the book and ask yourself: What are the advantages of Deep Blue? Of Garry?
- Research the Garry Kasparov–Deep Blue match. What would you add to the book? What panels might you change?
- Research and discuss other important chess matches in history, such as those at <https://www.theguardian.com/sport/2024/nov/24/greatest-chess-games-world-championship-history>. This site allows the reader to click through every match, play by play, to gain a deeper understanding of each game.
- Research automatons in history: <https://www.history.com/articles/7-early-robots-and-automatons>.
- Research impactful machines and technology and discuss their impact on mankind. Students could present each invention and then debate which one was the most impactful.
- Should militaries be allowed to use AI in warfare? Students can research each side and debate the topic in class. Does there always need to be a human in control?
- Have a classroom debate on advancing technology and the possible restrictions on AI.
- What should the role of AI and robotics be? What are the downsides? The advantages? Students can research and debate each side. (The work of Boston Dynamic is a good place to begin; they share many videos on YouTube.)
- Research each person in the book, such as Feng-Hsiung Hsu, Joel Lawrence Benjamin, Murray Campbell, Maurice Ashley, Yasser Seirawan, Alan Turing, Claude Shannon, and Susan Polgar. Using expert jigsaw puzzle groups would allow for a meaningful student exchange in a relatively short amount of time.
- Have students read and discuss the issue of *Newsweek* depicted on page 24, which can be read here: <https://tinyurl.com/57jhczzr>.
- Research the history and origins of chess. A video that provides a fantastic animated history of chess that students will love, which ends with Deep Blue and computer opponents in chess, can be found at: <https://tinyurl.com/3s726z4a>.
- Have students design their own chess pieces and board. (This resource is also in the pre-reading activities.)
- Did the Deep Blue team cheat? Look it up.
- How does Feng-Hsiung Hsu see himself? Go back through the book and jot down the evidence (knight, soldier, explorer). How do you see him? Is he a good guy? Is he a villain?
- On page 159 there are references to Maradona: “the hand of God.” Have students look this game up and explain what happened and if it was cheating. Students can also research other sports controversies.
- Making **Comics**: Students can hand-draw, use online tools like Pixton, or upload pictures or downloaded images to a PowerPoint, inserting dialogue or speech balloons onto their images. Some examples:



- » What is your personal holy grail? Make a comic showing a way that you will reach this goal.
- » Research other child prodigies and make a comic about them.
- » Have you ever had a similar experience to the one on pages 116–17, where you had to keep adjusting to an obstacle to overcome it? The artist used a dragon to depict Garry's adversary. What would you draw to represent your obstacle?



## ELA SPECIFIC ACTIVITIES

Have students collect and explain examples of figurative language that is used in the book. They can either do this while reading or go back after reading and find them.

- Idiom: sour grapes, be put in the hot seat, come to grips, taking its toll
- Simile: circle like a lion, moves like the branch of a tree
- Metaphor: now it was war, relish, loaded gun, gobbling
- Alliteration: dodging danger
- Allusion: boxing, heroic quest, holy grail, *The Hitchhiker's Guide to the Galaxy* (Deep Thought)

# VOCABULARY BANK

Teachers may want to pre-teach challenging vocabulary before reading the book to help students better understand the story. Another option is to distribute these vocabulary words and ask students to define them in context while they read the story.

## General:

|              |               |                        |
|--------------|---------------|------------------------|
| Automaton    | Evaluate      | Overrule               |
| Diplomat     | Complications | Sidestep               |
| Resign       | Implications  | Knockout punch         |
| Ferociously  | Swashbuckling | Principle              |
| Soviet Union | Holy Grail    | Carbon-based life-form |
| Quest        | Innovative    | Ritual                 |
| Obsessed     | Sacrifice     | Offbeat                |
| Commentator  | Exchange      | Spectator              |
| Complex      | Counterplay   | Epic                   |
| Intuition    | Relish        | Desperate              |
| Innovators   | Evaluates     | Landmark               |
| Algorithm    | Mind-boggling | Cliff-hanger           |

## Chess Terms:

|           |                 |                   |
|-----------|-----------------|-------------------|
| check     | rook            | Caro-Kann opening |
| checkmate | grandmaster     | draw              |
| pawn      | perpetual check | resign            |

**TIM SMYTH**, MS Reading Specialist, has been a high-school educator for more than twenty-five years. He has also written *Teaching with Comics and Graphic Novels*, which was nominated for a Will Eisner Comic Industry Award, and gives workshops across the country on analytical reading and writing through comics and pop culture. Smyth is also the founder of [TeachingwithComics.com](http://TeachingwithComics.com), where he shares many literacy resources and lessons for all subjects and levels. Additionally, he creates teacher materials and articles for publishers and organizations, and serves on the advisory board of the PBS NewsHour Classroom.

