

The Great Company Adventures • Book 45 of 50

NVIDIA

THE BRAIN MADE OF SAND

A curious girl, three wise mentors, and the little chip that taught machines to learn.

"Discovering the businesses that built the modern world"

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THE GREAT COMPANY ADVENTURES

Discovering the businesses that built the modern world.

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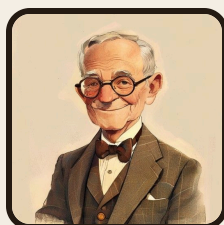
Illustrations were created with AI image tools; the text was written with AI assistance. All content is reviewed and edited by our editorial team.

For readers aged 7 and up. First Kindle edition, 2026.
Published by Omaha Investments.

MEET THE CHARACTERS



SIRI



BEN



WARREN



CHARLIE



GRETA

A curious girl named Siri, a wise old teacher named Ben, and his student Warren with Warren's partner Charlie — together discovering the businesses that built the modern world, one adventure at a time.

THE GLOBAL 50

One great company per volume · Fifty adventures, one modern world

SPACE & EXPLORATION

1. SpaceX — *"The Fire That Comes Back"*

MANUFACTURING & ENGINEERING

2. Toyota — *"The River That Builds Cars"*
3. Siemens — *"The Factory That Builds Factories"*
4. Caterpillar — *"The Machines That Move Mountains"*
5. Boeing — *"The Bird With Six Million Pieces"*
6. Airbus — *"The Plane Four Countries Built"*

ENERGY & INDUSTRY

7. Shell — *"The Sunlight Buried at Sea"*
8. ExxonMobil — *"The Ancient Sunlight Machine"*
9. GE Vernova — *"The Wheel That Makes Lightning"*

COMMUNICATION

10. AT&T — *"The Voice Inside the Wire"*
11. Qualcomm — *"The Whisper in the Air"*
12. Ericsson — *"The Towers That Talk"*

TRANSPORTATION

13. Tesla — *"The Car With No Engine"*
14. John Deere — *"The Machine That Feeds the World"*
15. UPS — *"The Promise in a Brown Truck"*

INFRASTRUCTURE

16. ABB — *"The Arms That Never Tire"*
17. Schneider Electric — *"The Guardian of the Grid"*

MATERIALS

18. Corning — *"The Thread of Light"*
19. DuPont — *"The Inventors of Almost Everything"*

SCIENCE & TOOLS

20. 3M — *"The Factory of Ten Thousand Ideas"*
21. Bosch — *"The Spark in Every Machine"*
22. Honeywell — *"The Dial That Tames the Weather"*

MEDICINE & BIOTECHNOLOGY

23. Pfizer — *"The Shield in a Tiny Vial"*
24. Roche — *"The Detectives of the Blood"*

25. Novo Nordisk — *"The Key to a Billion Locks"*

26. Johnson & Johnson — *"The Little Bandage That Grew"*

FOOD & AGRICULTURE

27. Nestlé — *"The Cup That Wakes the World"*
28. Cargill — *"The Invisible Harvest"*

FINANCE & COMMERCE

29. Visa — *"The Handshake Inside the Card"*
30. Mastercard — *"The Two-Second Trust Machine"*
31. Walmart — *"The Store That Never Runs Out"*
32. Costco — *"The Treasure Warehouse"*
33. FedEx — *"The Race Against the Sun"*

CONSUMER INNOVATION

34. Disney — *"The Factory of Dreams"*
35. LEGO — *"The Brick That Builds Anything"*
36. Sony — *"The Pocket Full of Music"*
37. Coca-Cola — *"The Secret in the Red Can"*
38. Nike — *"The Shoe That Learned to Fly"*

LUXURY & CRAFTSMANSHIP

39. Rolex — *"The Heartbeat on Your Wrist"*
40. LVMH — *"The Suitcase That Conquered the World"*

COMPUTING & DIGITAL CIVILIZATION

41. Apple — *"The Glass That Thinks"*
42. Microsoft — *"The Invisible Machine"*
43. Google — *"The Library With No Walls"*
44. Amazon — *"The Box That Crossed the World"*
45. NVIDIA — *"The Brain Made of Sand"*
46. Intel — *"The First Thinking Chip"*
47. TSMC — *"The Invisible City"*
48. ASML — *"The Machine That Prints With Light"*
49. OpenAI — *"The Machine That Learned to Talk"*

THE FINAL DISCOVERY

50. The Company Yet to Be Built — *"The Adventure You Will Build"*

THE CARD IN THE CARDBOARD BOX

Midnight. Homework: unfinished. And Grandpa Ben's old brass compass? Spinning like crazy.

SPIN

The needle stopped. Pointing at... a dusty green card in a box. Dad's old computer part.

YOU? You're a piece of junk!

The magic diary flipped open by itself. Fresh ink. Grandpa's handwriting.

It's never done THIS before...

"Time to meet the businesses that built the modern world. Go and find the brain made of sand."

★ WORTH REMEMBERING

Ask a computer to write a poem, draw a dragon, or spot a tumor — it answers in seconds. Nobody typed those answers in first. So **what is doing the thinking?**

The chip glinted. A whirlpool of blue light grabbed her.

WHOOSH



Here we GOOO!



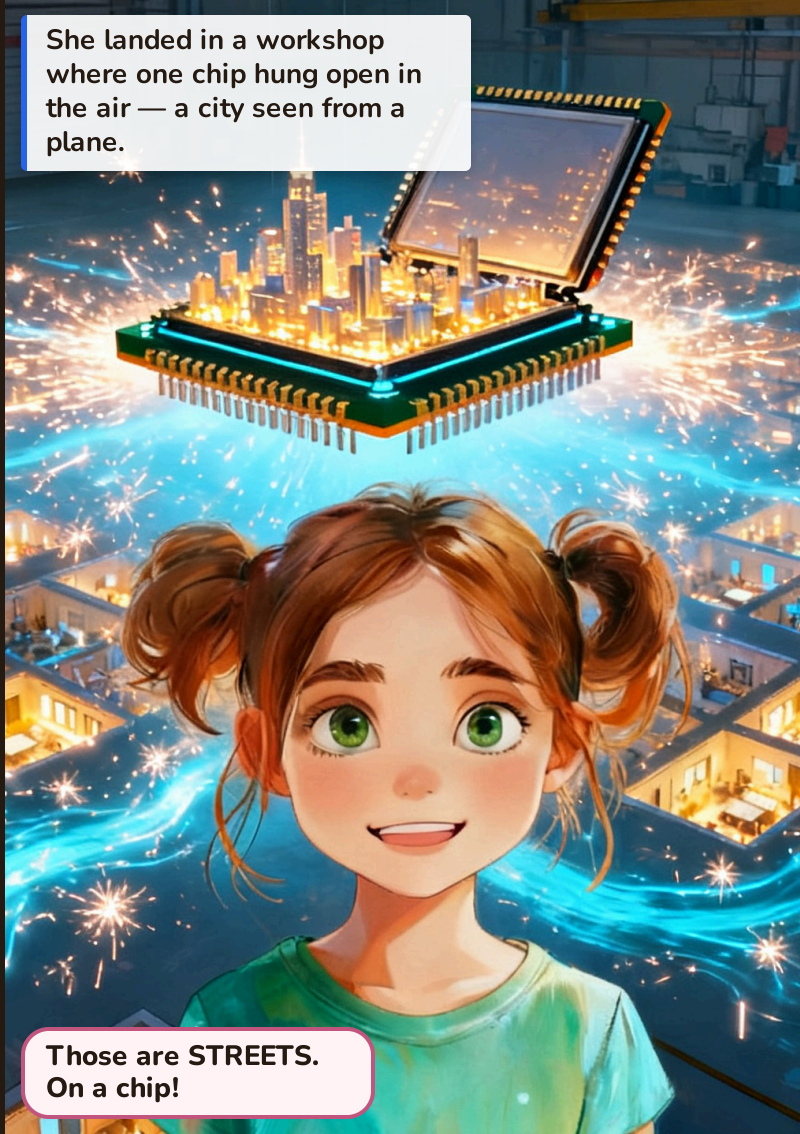
SIRI'S SECRET NOTEBOOK

New mystery! 🧠

- ① A dusty green card that somehow helps machines THINK. How?
- ② Grandpa says a brain can be made of sand. Sand doesn't have ideas. Prove it.

THE CITY ON THE CHIP

She landed in a workshop where one chip hung open in the air — a city seen from a plane.

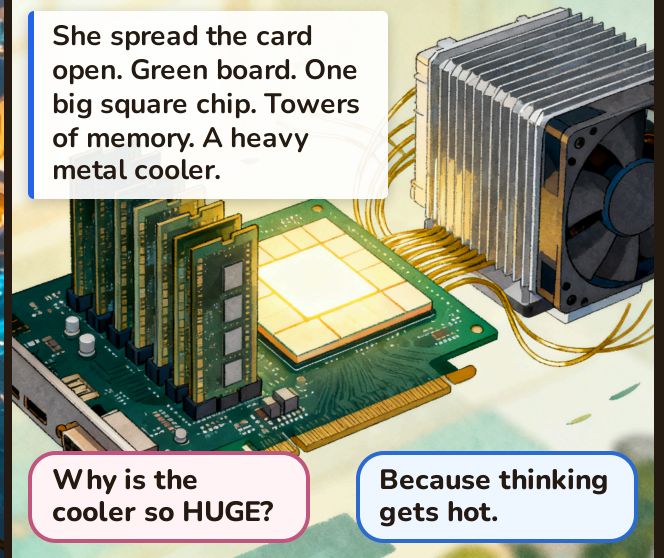


An engineer waved from a balcony. *"I'm Greta. I design chips. Welcome to the smallest city on Earth."*



Best. Job. EVER.

She spread the card open. Green board. One big square chip. Towers of memory. A heavy metal cooler.



Why is the cooler so HUGE?

Because thinking gets hot.

★ WORTH REMEMBERING

That square chip holds more than **eighty billion** tiny switches. If each switch were a person, that one tile would hold ten Earths' worth of people — all working at once.

📖 SIRI'S SECRET NOTEBOOK

One card = board + one giant chip + memory towers + a cooler the size of a brick. 🧊
80,000,000,000 switches. Greta says start where everything starts: SAND.

PERFECT SAND, PRINTED WITH LIGHT

3a From beach to mirror

"Every chip begins here," said Greta. Sand. Melted, purified, grown into one flawless crystal.



My computer used to be a BEACH?!

The crystal is sliced into mirror discs. *"Purified to nine nines. 99.9999999% silicon."*



How pure IS that?

★ WORTH REMEMBERING

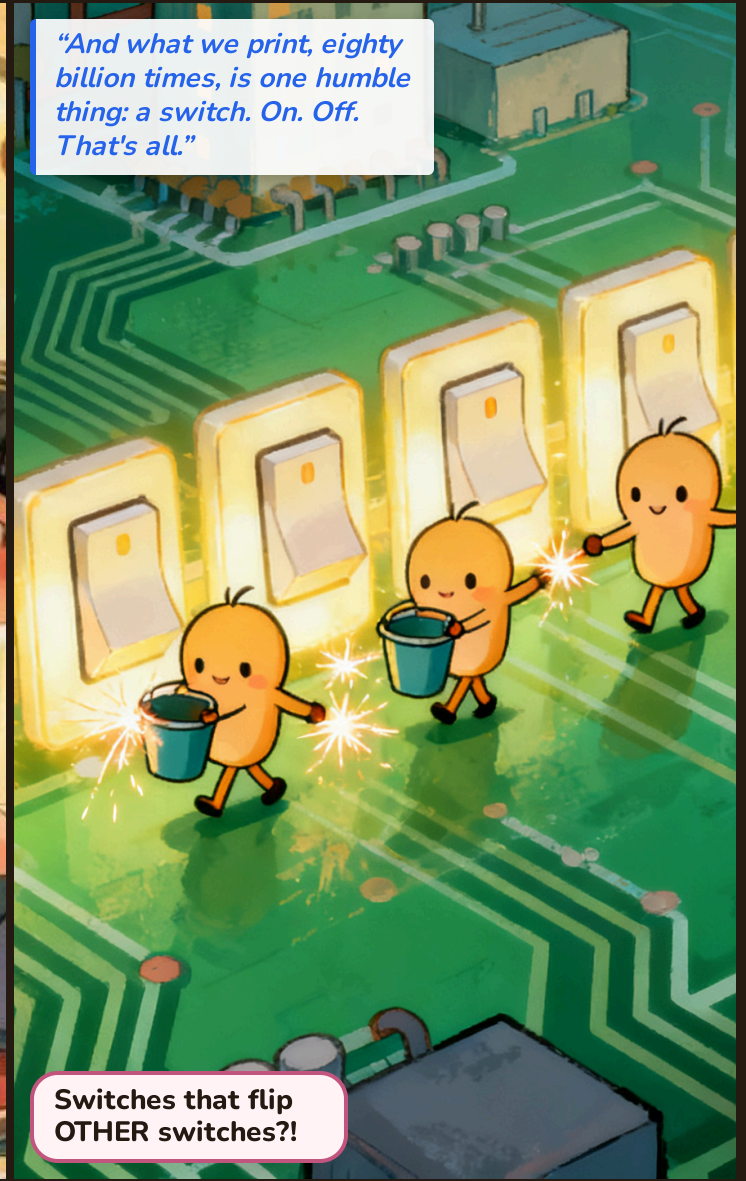
Nine nines: imagine a **mountain of sugar** with just one spoonful of anything else allowed. Electricity must flow in perfect silence. One stray atom is a boulder in the stream.

A machine the size of a bus fired violet light through a stencil onto the wafer. Layer by layer.



You're **PRINTING** the city!

"And what we print, eighty billion times, is one humble thing: a switch. On. Off. That's all."



Switches that flip **OTHER** switches?!

★ WORTH REMEMBERING

Here's the whole secret of computers: a **transistor is a switch**. Wire switches together and they make **decisions**. Billions of them, billions of times a second — that's the 'thinking'. No magic, which makes it more magical. 🧠

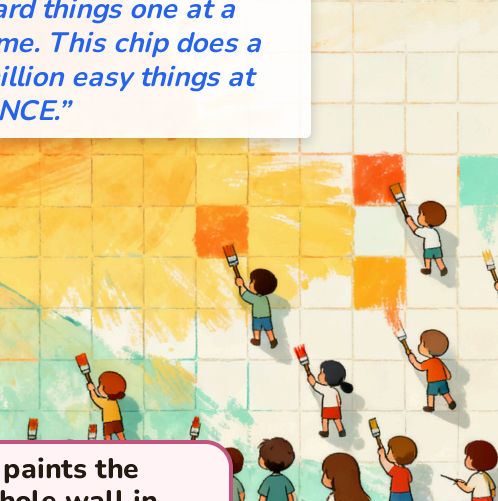
📖 SIRI'S SECRET NOTEBOOK

Sand → nine-nines crystal → mirror wafer → printed with **LIGHT**. 💡 Each switch is smaller than a virus. A brain made of sand... is a beach with unbelievable organization.

"Now the important bit," said Greta. Two ways to do a mountain of sums.

One genius... or a thousand helpers?

"One clever chip solves hard things one at a time. This chip does a million easy things at ONCE."



It paints the whole wall in one blink!

A vibrant, abstract illustration of a child standing on a grid of numbers and symbols, surrounded by glowing geometric shapes and mathematical concepts. The scene is filled with warm colors like orange, yellow, and red, with glowing lines and shapes representing mathematical concepts. The child, seen from behind, is wearing a red shirt and blue pants, and is holding a pencil. The grid they are standing on is composed of yellow and blue squares, some containing numbers and symbols. The background is a complex, multi-layered grid of lines and shapes, with various mathematical symbols like pi, infinity, and numbers scattered throughout. The overall effect is one of a magical, mathematical world.

"Because thinking machines mostly do one boring thing: multiply grids of numbers. Over and over."

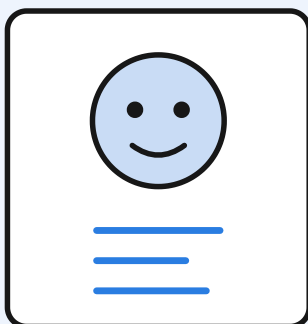
**THAT's the big secret?
MULTIPLYING?**

★ WORTH REMEMBERING

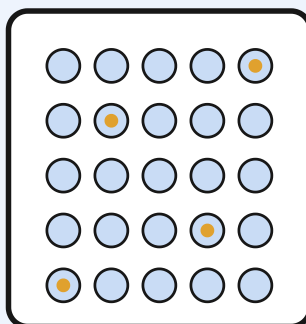
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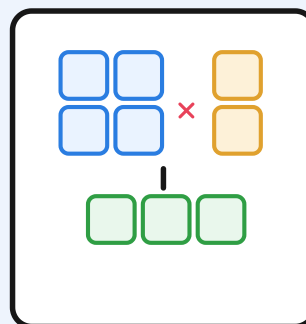
TWO WAYS TO DO MATH



ONE BIG BRAIN
hard sums, one by one



A MILLION HANDS
easy sums, all at once



GRID MATH
what learning is made of



SIRI'S SECRET NOTEBOOK

Two kinds of brain: ① one genius doing hard things in a row, ② a million helpers doing easy things together. Thinking machines = mountains of grid-multiplying. So kind ② wins. 🙌

HOW A MACHINE LEARNS

"Inside every AI is a wall of dials," said Greta. "Billions of them. Each one just a number."



"It guesses. It's wrong. Every wrong guess nudges the dials a hair. Then it guesses again."



It learns by being **WRONG?**!

Siri watched the desk robot fail at blocks — twice, ten times, a thousand times. Then it didn't.



Nobody told it the rules!

Nobody knew them to tell.

A brain made of **KNOBS?**

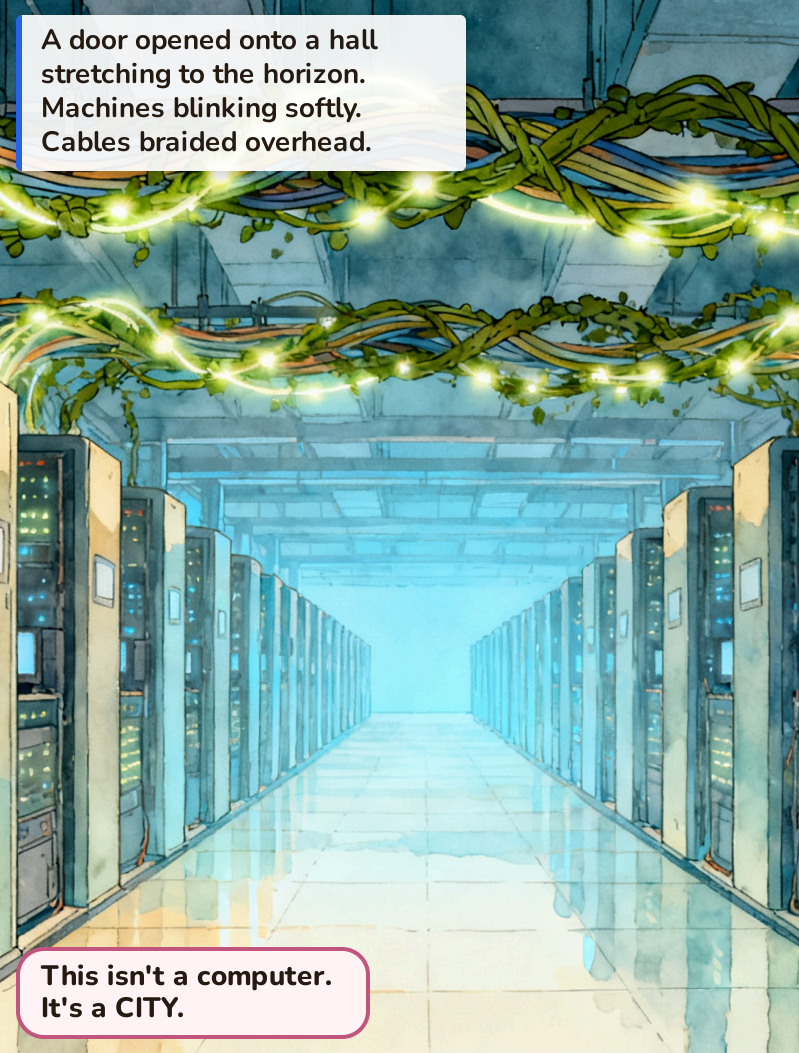
★ WORTH REMEMBERING

Nobody programs 'what a cat looks like'. The machine sees millions of pictures, guesses, checks, and nudges its dials toward less-wrong. Do that trillions of times and the wall of numbers becomes **skill**. That nudging is the mountain of grid-math. 🧮

📖 SIRI'S SECRET NOTEBOOK

AI = a wall of billions of dials + guess → wrong → nudge → repeat. 🧮 Learning is just being wrong, politely, a trillion times. And every nudge needs my million small hands.

THE THINKING FACTORY

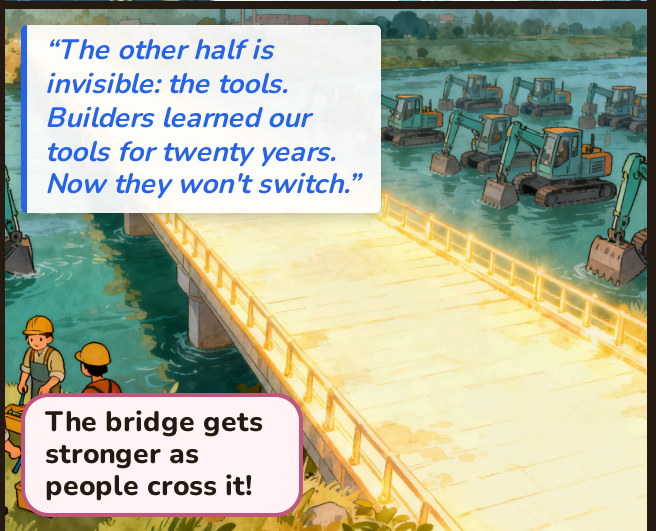


A door opened onto a hall stretching to the horizon. Machines blinking softly. Cables braided overhead.



"Tens of thousands of chips, wired to act as ONE. And all that thinking becomes heat."

So you give it a WATERFALL!



"The other half is invisible: the tools. Builders learned our tools for twenty years. Now they won't switch."

The bridge gets stronger as people cross it!

This isn't a computer. It's a CITY.

★ WORTH REMEMBERING

Why is this so hard to copy? ① It isn't one chip — it's chips, cables, cooling and software working as **one machine**. ② Millions of builders already know the tools. A rival can copy a chip. Copying twenty years of habits? Much harder. 🏗️

📖 SIRI'S SECRET NOTEBOOK

A thinking factory = 10,000s of chips acting as one + cables + a waterfall of coolant. 💧 Plus the TOOLS everybody already learned. Grandpa's rule: find what people would hate to give up.

THE COMPANY THAT WAITED TWENTY YEARS

Under a green California sky stood a headquarters of glass triangles. Siri knew the name. Everyone does now.

NVIDIA! The brain made of sand is a GPU!

"It started in 1993. Three engineers. A roadside diner. Sketches on a napkin."

A DINER?!

"For years they made chips for one thing: video games. Millions of tiny sums, all at once, to draw worlds."

Games taught it to think fast!

"Then in 2012, students used two gaming cards to teach a machine to recognize pictures. It crushed everyone."

Game chips... started the AI age?

★ WORTH REMEMBERING

Here's the beautiful part. In 2006 Nvidia opened its game chips to scientists — a toolkit called **CUDA** — and for years most people called it a waste of money. They kept paying for it anyway. Six years later, that 'waste' turned out to be the road AI would arrive on. **Patience is a strategy.**



THE STORY IN TIME

1993

Three engineers sketch a graphics chip in a roadside diner booth.

1999

The GeForce 256 arrives — they name the new kind of chip a GPU.

2006

CUDA opens the gaming chip to scientists. Most people shrug.

2012

Students win a picture contest using two gaming cards. The AI era starts.

2016

Nvidia builds computers made only for teaching machines.

2017

A new idea called the transformer makes AI hungry for far more math.

2022

Chat-style AI arrives; the whole world wants thinking factories.

Today

Nvidia builds chips, cables, cooling and software as one system. 🧠

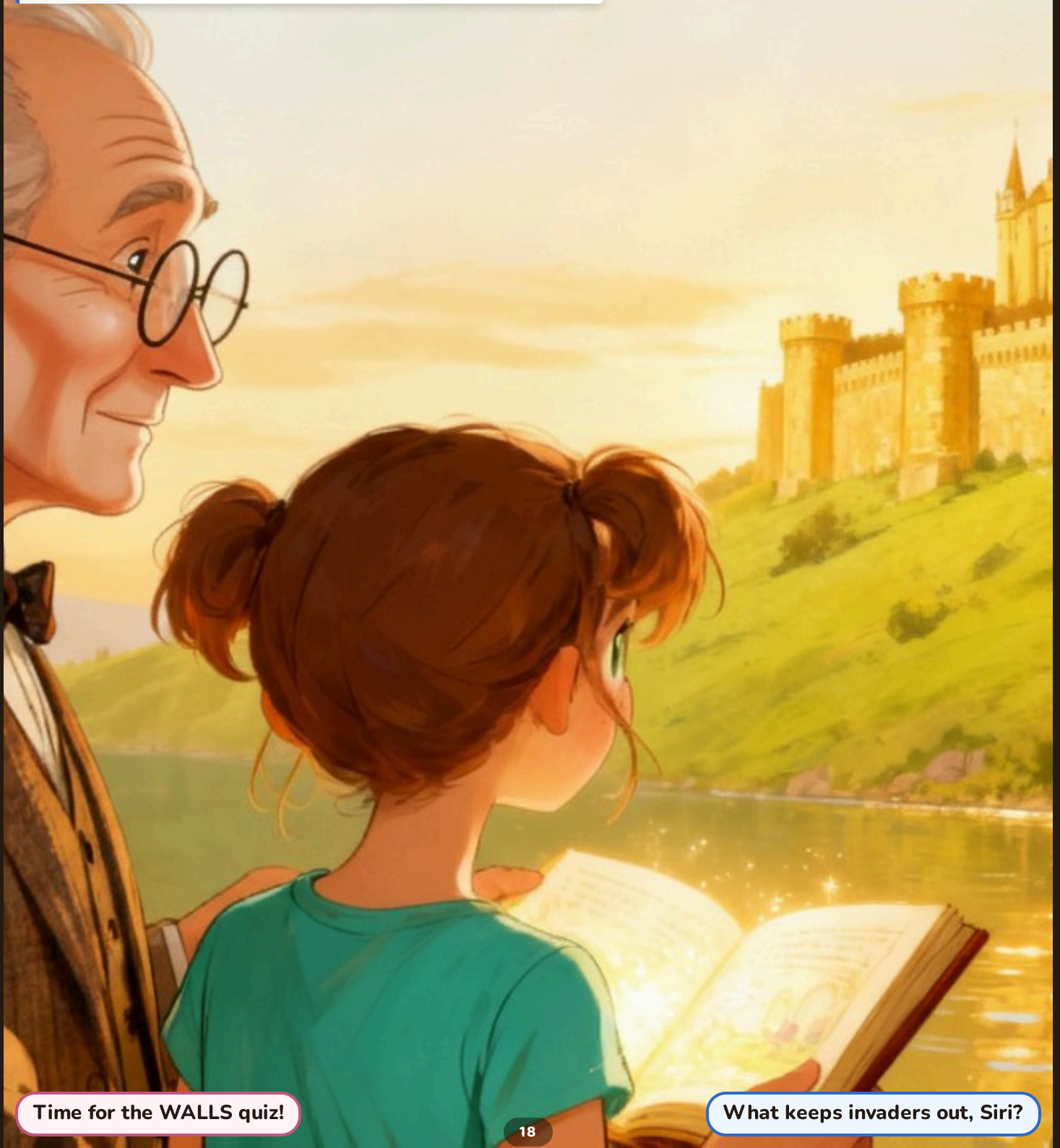


SIRI'S SECRET NOTEBOOK

NVIDIA! 1993 diner napkin → game chips →
2006 CUDA (everyone said: waste!) → 2012 the
picture contest → AI. They spent 20 years
building a road before the traffic came. 🛣️

THE CASTLE OF SAND

A warm glow. A smell of cherry cola. Warren and Charlie, the partners from Omaha, stood before a shining castle.



Time for the WALLS quiz!

What keeps invaders out, Siri?



THE CASTLE WALLS • WHY RIVALS CAN'T COPY IT



Wall One: The Tools Everyone Learned

Millions of builders grew up on one toolkit. Their programs, habits and teachers all assume it. Switching means relearning a language.



Wall Two: The Whole Machine

Not a chip — chips, cables, cooling, software, all designed together. One sculptor, one sculpture. Rivals must match the whole thing, not one part.



Wall Three: Boring Reliability

A thinking factory that stumbles wastes millions a day. Customers pay extra for 'it just runs'. Trust like that takes years to earn.



Wall Four: Reinvestment

Profits go straight back into the next chip, the next tool, the next cable. The castle keeps building a bigger castle.



The Cracks in the Sand

Its biggest customers are designing their own chips. Rivals are copying the toolkit. Almost all the chips are baked on one faraway island. Power and heat have limits. And a boom this loud always tempts everyone in. Castles need defending — daily.

Charlie tapped his glasses. *"My trick: don't ask how to WIN. Ask what would DESTROY it. Then don't do that. Invert, always invert."*



Find the ways to lose... then don't!

★ WORTH REMEMBERING

Charlie's checklist for ruining this castle: let the tools get clumsy. Ship something unreliable. Squeeze customers until they build their own. Fall in love with today's chip and miss the next idea. Now — just never do those. Worry, turned into a to-do list.

Warren raised his cola. *"I mostly study castles I understand. This one I study for the lesson: build the road early, and stay useful."*



So the treasure isn't the chip. It's the ROAD.

SIRI'S SECRET NOTEBOOK

Walls: tools  + whole machine  + boring reliability  + reinvestment . Cracks: customers making own chips, copycat tools, one island, power limits, everyone piling in. Charlie: INVERT. 

THE NEXT THIRTY YEARS

"Last question," said Greta. *"What does this become in thirty years?"* A street of tomorrow: helper robots, gentler medicine.



Thinking might become like **ELECTRICITY!**

On a rooftop at dusk, Siri thought it through the way Grandpa taught her.



Don't bet on the chip. Bet on the **NEED.**



★ WORTH REMEMBERING

The deep currents: machines that help doctors read scans, robots that fold laundry badly then well, weather warnings days earlier, tutors with endless patience. Also real worries — power use, mistakes told confidently, and who gets to decide. Shapes change; the need to **think faster together** doesn't. 🌟



SIRI'S SECRET NOTEBOOK

2056 watchlist: robot helpers, AI in medicine, better weather warnings, patient tutors.

Worries: electricity, confident mistakes, who decides. Rule: bet on needs, not shapes.

COMING HOME

Her own bed. Morning. The compass: quiet. The house: somehow different.

Was it real? It FELT real...

One fresh line dried on the diary's glowing page.

"The modern world is not magic. It is millions of ordinary people doing small hard things, together, for a long time."

At breakfast the laptop hummed beside the milk. Perfect sand. Printed light. A million small hands.

You're a beach that learned to pay attention.

She hugged the diary tight. Somewhere far away, a hall of machines thought quietly through the night.

Show me the next one, Grandpa. ♡

★ WORTH REMEMBERING

Next time a machine answers you, feel it: nine-nines sand printed with violet light — eighty billion switches — a million small hands multiplying grids — a wall of dials nudged by a trillion mistakes. A chip is no longer just a chip.

Nothing, from now on, is just anything.



SIRI'S SECRET NOTEBOOK · WHAT I LEARNED

- ① Chips start as sand, printed with light.
- ② A transistor is just a switch.
- ③ Some jobs want a million small hands.
- ④ AI learns by being wrong and nudging dials.
- ⑤ A thinking factory is chips + cables + cooling + tools.
- ⑥ Build the road twenty years early.
- ⑦ Invert! And stay useful. 💛



OUR PHILOSOPHY

We believe the greatest gift we can give a child is the ability to think.

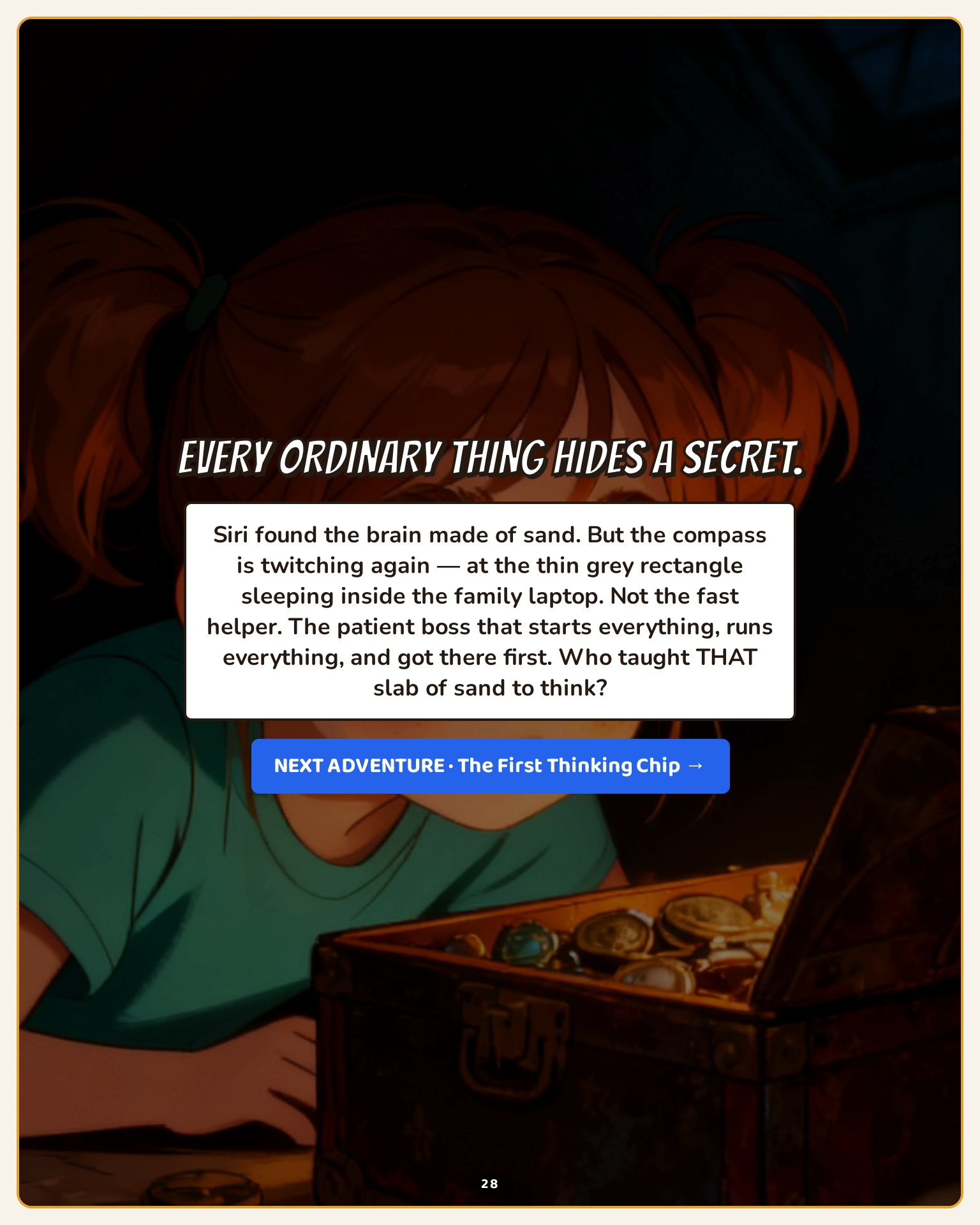
Inspired by the multidisciplinary thinking of [Charlie Munger](#) and the rational, long-term philosophy of [Warren Buffett](#), our comics connect science, technology, business, history, and human behavior to show how the real world works.

Every story begins with a scientific idea and follows its journey into innovation, industry, and the businesses that create value for society. Along the way, children learn that great companies are built on curiosity, experimentation, integrity, and long-term thinking.

Our goal is not to teach children how to invest, but to help them build the mental models needed to understand the world, ask better questions, and think independently.

The companies featured in *The Great Company Adventures* are educational case studies—not investment recommendations. They show how knowledge, innovation, and perseverance turn ideas into products, services, and enduring businesses.

LEARN THE SCIENCE. • UNDERSTAND THE BUSINESS. • THINK FOR LIFE.

A girl with red hair in pigtails, wearing a green shirt, is looking into an open wooden treasure chest. The chest is filled with gold coins and jewelry. The scene is dimly lit, with a warm, orange glow from the chest's contents.

EVERY ORDINARY THING HIDES A SECRET.

Siri found the brain made of sand. But the compass is twitching again — at the thin grey rectangle sleeping inside the family laptop. Not the fast helper. The patient boss that starts everything, runs everything, and got there first. Who taught THAT slab of sand to think?

NEXT ADVENTURE · The First Thinking Chip →