

The Great Company Adventures · Book 11 of 50

QUALCOMM

# THE WHISPER IN THE AIR



six riddles, twelve mental models, and the invisible waves that carry every voice  
across the sky.

***"Discovering the businesses that built the modern world"***

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Qualcomm.



# ***THE GREAT COMPANY ADVENTURES***

*Discovering the businesses that built the modern world.*

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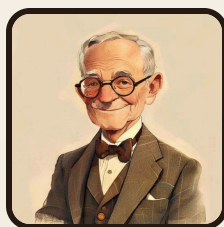
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Published by Omaha Investments.



## ***MEET THE CHARACTERS***



***SIRI***



***BEN***



***WARREN***



***CHARLIE***



***WREN***

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 WHISPER WITH NO WIRES

Midnight. Homework: not happening. Because Grandpa Ben's brass compass just started... trembling.

**TIK-TIK**

It spun. Locked. Pointing straight at—

**SPIN**

Wait. Seriously?

Down the hall: Mom on a video call. Dad with earbuds. A game on a tablet. Not one cable anywhere.

It's never done THIS before.

We're wrapped in something INVISIBLE.

The spare phone, asleep in the moonlight, quietly playing a song. Nothing touching it. The most ordinary thing on Earth.



YOU'RE a great company? You're a PHONE.

The diary flipped open by itself. Fresh ink.



"Time to meet the businesses that built the modern world, little one. Start with the whisper in your own hand."

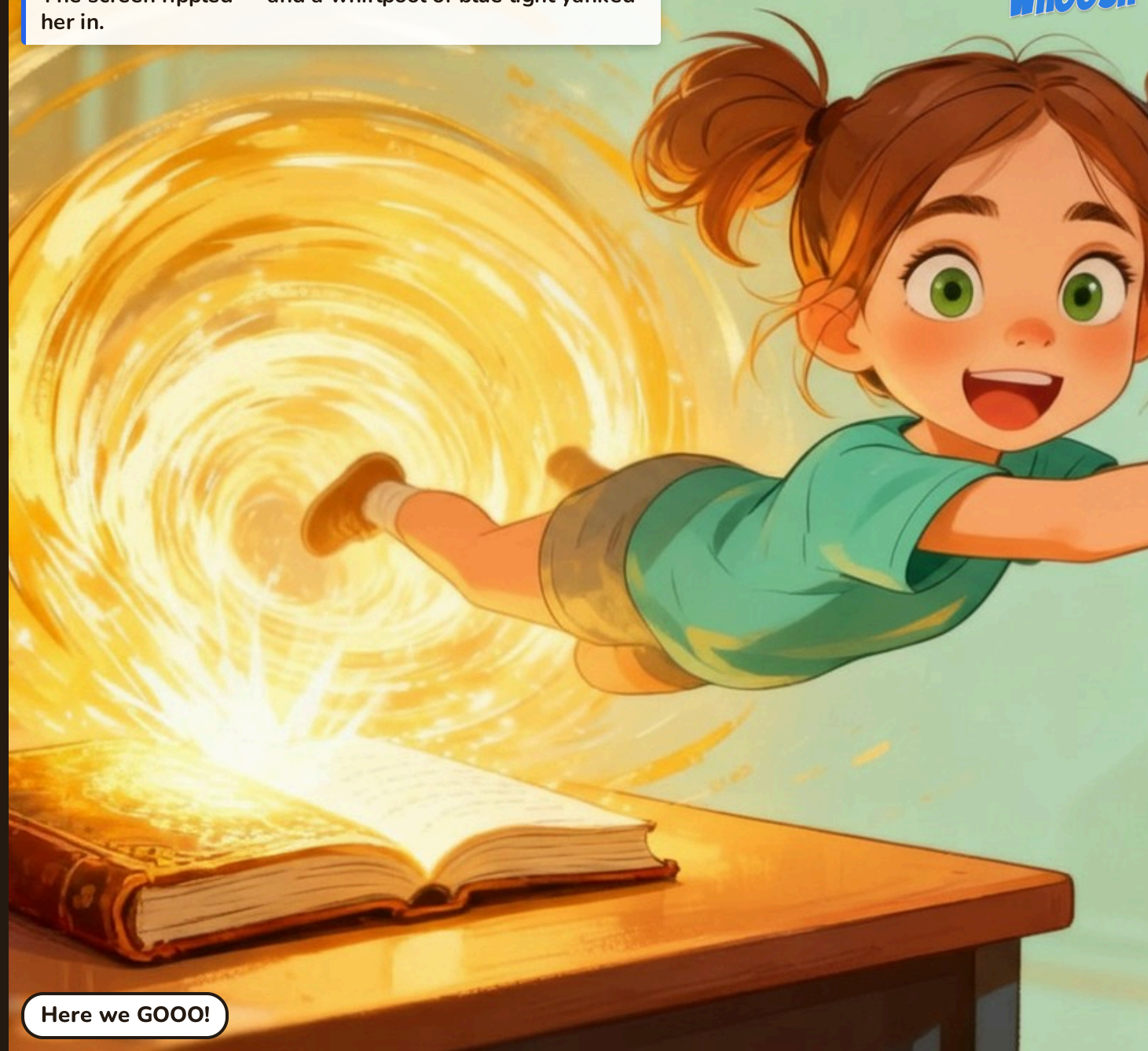
★ WORTH REMEMBERING

A song is playing, and nothing is touching your phone — no wire, no string. It crossed the room as **invisible light your eyes can't see**. Tonight's mystery: **who taught the empty air to carry a whisper?**



The screen rippled — and a whirlpool of blue light yanked her in.

WHOOSH



Here we GOOO!



#### SIRI'S SECRET NOTEBOOK

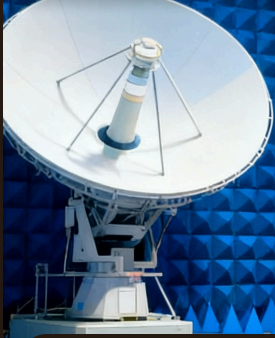
Biggest mystery yet 📡

- ① How does a voice cross an empty room with NO wires?
- ② Grandpa says this invisible whisper built one of the great companies. Prove it, compass.



# THE ROOM THAT ATE ALL SOUND

She landed in a hushed room walled with blue foam pyramids. A giant dish stared down. Silence so thick it hummed.



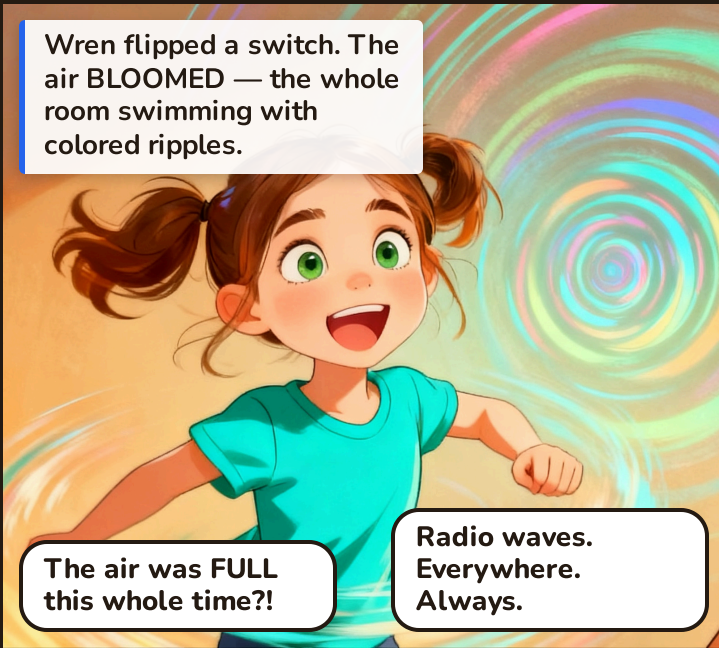
It's SO quiet. My ears feel funny!

A young engineer waved from a bench of antennas. "I'm Wren. I chase invisible waves for a living."



Best. Job. EVER.

Wren flipped a switch. The air BLOOMED — the whole room swimming with colored ripples.



The air was FULL this whole time?!

Radio waves. Everywhere. Always.

She unrolled a parchment map. Six glowing doors. "Six riddles. Open them all, and you'll know this whisper better than most grown-ups."



Six doors. Deal.

## ★ WORTH REMEMBERING

Right now, invisible waves fly **THROUGH** you — songs, calls, videos, all at once. You never feel a thing. This whole adventure is learning to see the **ocean we swim in but cannot see.**





#### SIRI'S SECRET NOTEBOOK • THE RIDDLE MAP



1 THE WAVE — what is a whisper made of?



2 THE SIZE — why do antennas come in sizes?



3 THE RIDE — how does a voice climb onto the air?



4 THE NUMBERS — why turn a voice into 1s and 0s?



5 THE CROWD — how do a million talk at once?



6 THE JOURNEY — who carries it... and WHY?

Let's GO 

# A PEBBLE IN THE POND OF LIGHT

## 3a Riddle One: what is a wave?

Riddle one led... to a pond?!  
Wren tossed a pebble.  
Rings raced out. "THAT'S a  
wave. A wiggle that  
travels."



So a wave is... a  
moving wiggle?

"Light is a wave too.  
Stretch it longer than red,  
past what eyes can see —  
and you get RADIO."



Radio is just... giant  
invisible light?!

### ★ WORTH REMEMBERING

Here's the big unlock: **radio is light your eyes can't see**. Same speed — 300,000 km a second. Your phone is a tiny lantern glowing in a color no eye will ever catch.



“Long waves roll lazy and far. Short waves buzz fast and close. Whales and hummingbirds of light.”



One family. Every size!

Wren snapped a long rope. A wave rolled down it. “A wiggle carries energy — not the rope. The rope stays put.”



The wave MOVES, the rope doesn't!

★ WORTH REMEMBERING

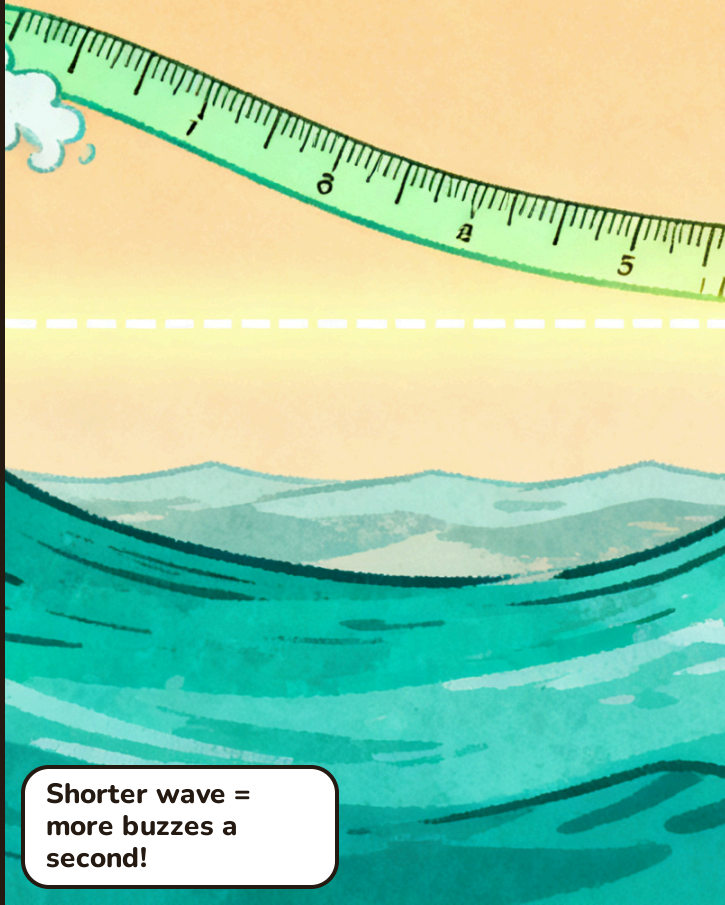
A wave is a moving **pattern**, not moving stuff. The pond water bobs; the ripple travels. Your voice never crosses the room — only its shape does. 🌊

📖 SIRI'S SECRET NOTEBOOK • RIDDLE 1 OPEN

Radio = invisible light, same speed as sunlight 🌈. Long waves = far & slow, short = close & fast. A wave carries the **PATTERN**, not the stuff. 📡

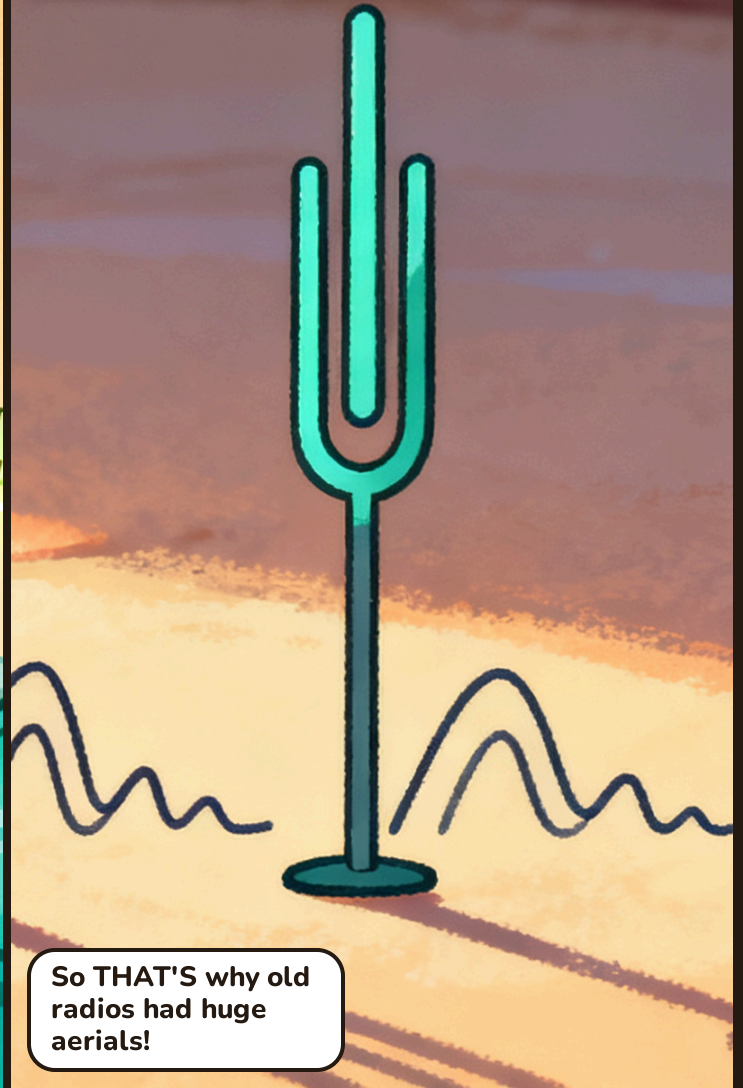
# THE GOLDILOCKS OF THE SKY

Riddle two. Wren  
measured crest-to-crest.  
“That gap is the  
wavelength. Squeeze it —  
the wave buzzes faster.”



Shorter wave =  
more buzzes a  
second!

“And an antenna must  
MATCH its wave, like a  
tuning fork. Big waves, big  
antennas. Tiny waves, tiny  
ones.”



So THAT'S why old  
radios had huge  
aerials!

## ★ WORTH REMEMBERING

Buzzes-per-second is the **frequency**. Here's the rule of the sky: fast little waves carry lots of data but tire quickly; long slow waves reach far but carry less. You can't have both. 🏴‍☠️



Wren balanced a see-saw: piles of data on one side, long reach on the other. “Pick your wave, pick your bargain.”



Every wave is a TRADE!

★ WORTH REMEMBERING

That trade shapes everything wireless. Country signals go long and slow; city 5G goes short and fast. The whole game is choosing the right wave for the job — and squeezing more into it. 📏

📖 SIRI'S SECRET NOTEBOOK · RIDDLE 2 OPEN

Wavelength = crest-to-crest. Frequency = buzzes/sec. Antenna must MATCH its wave (tuning fork!). Big rule: fast = more data but short reach; slow = long reach, less data. Trade-offs everywhere. ⚖️



## TEACHING THE WAVE TO SING

## 5a Riddle Three: the empty carrier

"A bare wave is just a hum," said Wren. A steady glowing pulse, saying absolutely nothing.



It's the loneliest wave I've ever seen.

"So we make your voice RIDE it — reshaping the wave to match every word. That's modulation."

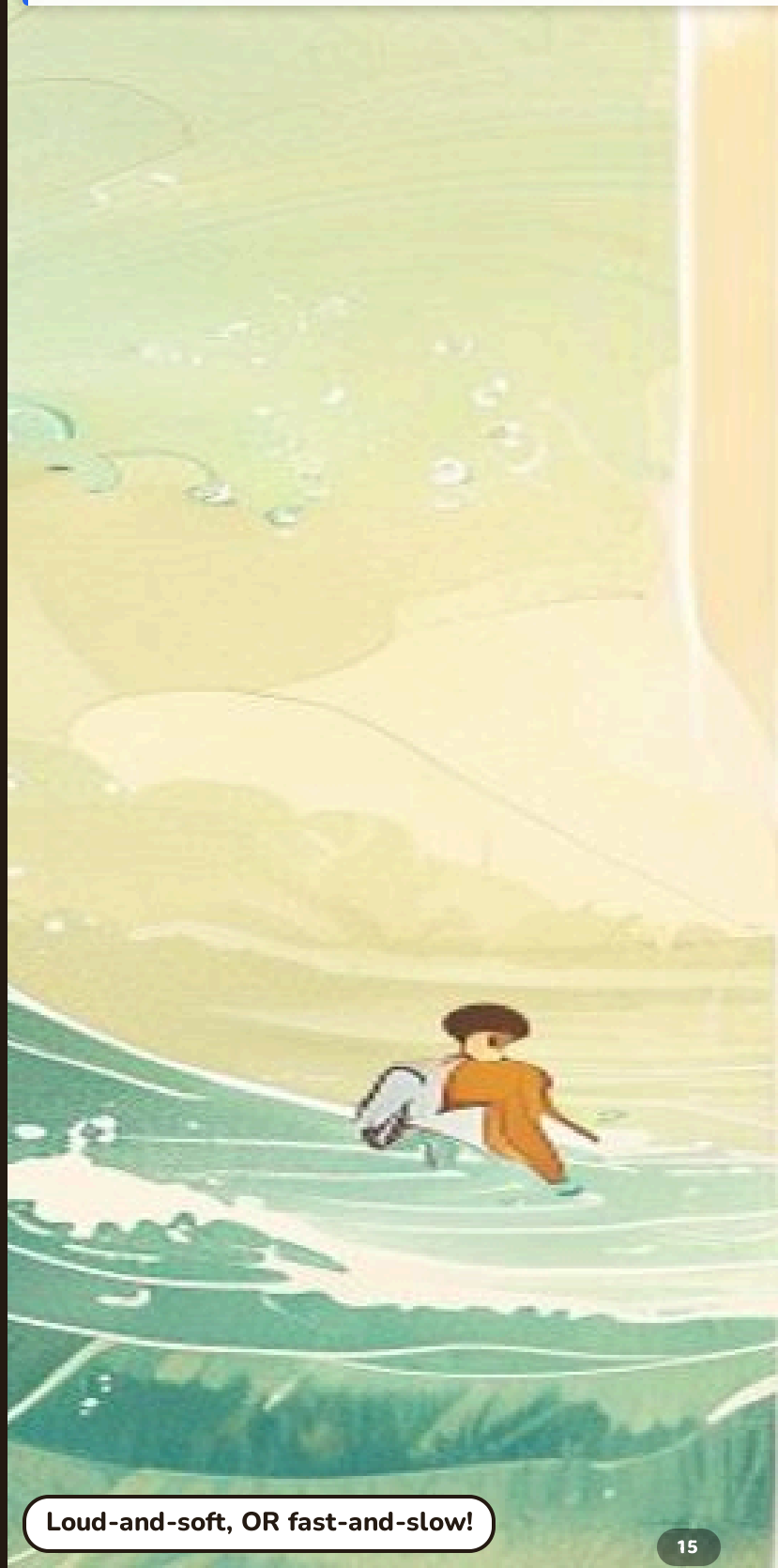


You hide my voice ON the wave!

## ★ WORTH REMEMBERING

**Modulation:** the steady wave is the carrier, your voice gently reshapes it, and the far phone reads the reshaping back into sound. Empty hum out — your laugh in. 🎵

"You can sing by changing the wave's HEIGHT... or by changing its SPACING. Two tricks, same idea."



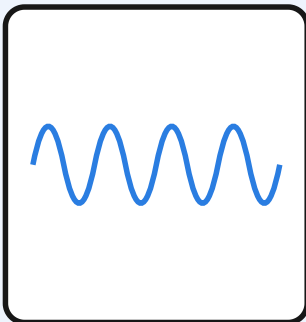
Loud-and-soft, OR fast-and-slow!



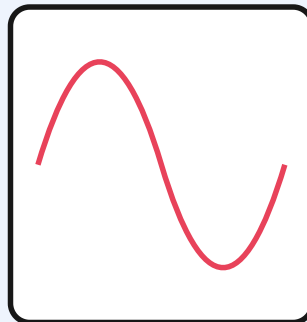




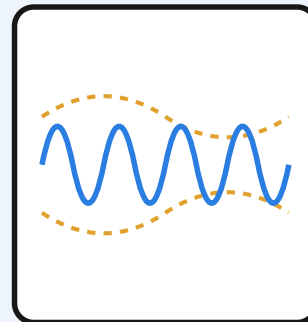
## HOW YOUR VOICE RIDES A RADIO WAVE



**THE CARRIER**  
a fast, steady wave



**YOUR VOICE**  
a slow, wiggly wave



**RIDING TOGETHER**  
voice reshapes the carrier

★ WORTH REMEMBERING

Changing height is one way; changing spacing is another, and it shrugs off crackle better. Every radio, phone and Wi-Fi in your house is doing a fancier version of this **right now**. 📻

📖 SIRI'S SECRET NOTEBOOK • RIDDLE 3 OPEN

Bare carrier = a hum. Modulation = my voice reshapes the wave. Two styles: change HEIGHT or change SPACING. Empty wave out, my words in. 🎵

# TURNING A VOICE INTO NUMBERS

"Old radios sent the wobble raw. We do something bolder — we chop your voice into thousands of tiny NUMBERS."



You turn my VOICE into math?!

"And numbers only need two symbols: on and off. One and zero." Siri counted past a thousand on ten fingers.



1,023 on my HANDS?! I've been robbed!

## ★ WORTH REMEMBERING

Why numbers? Because a number can be copied **perfectly, forever**. A wobbly wave picks up crackle at every step; a clean 1-or-0 shrugs static off. Digital is a voice that refuses to blur.  $\begin{smallmatrix} 1 & 2 \\ 3 & 4 \end{smallmatrix}$



Wren pushed both through a storm. The old wave came out fuzzy and hissing. The 1s and 0s? Crisp as new.



190010010100

The numbers didn't even FLINCH!

★ WORTH REMEMBERING

This is the quiet revolution: turn everything — voice, photos, video — into numbers, and noise loses its power. Once it's math, the whisper can cross the planet and arrive spotless. ✨

📖 SIRI'S SECRET NOTEBOOK · RIDDLE 4 OPEN

Voice → thousands of NUMBERS → just 1s and 0s. Numbers copy perfectly; crackle can't stick to them. Digital = a voice that won't blur. And I can count to 1,023 on my fingers

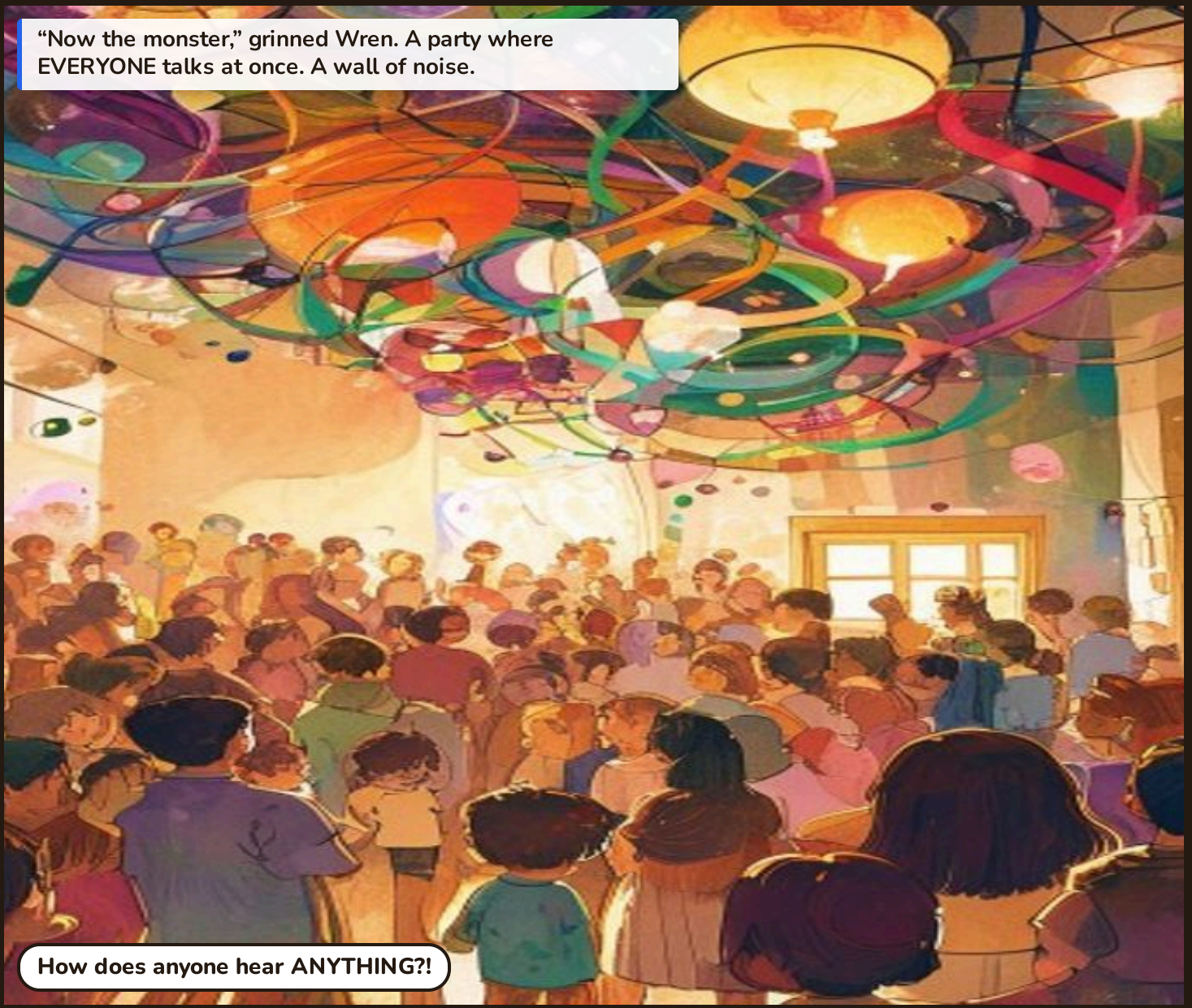




# THE CROWDED SKY

## 7a Riddle Five: the party problem

“Now the monster,” grinned Wren. A party where EVERYONE talks at once. A wall of noise.

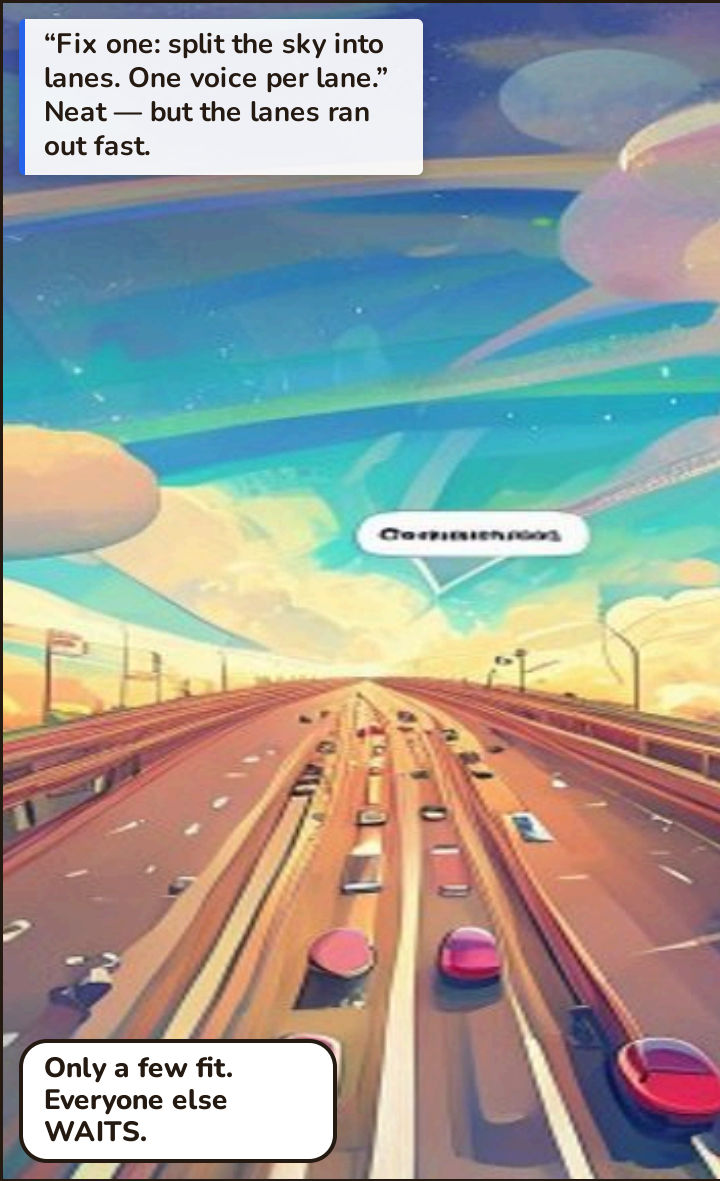


How does anyone hear ANYTHING?!

### ★ WORTH REMEMBERING

This was the wall that stumped everyone: the air is **shared**. One sky, a whole city of talkers. If two shout on the same wave at the same moment, both are lost. So — how do you fit a million?

"Fix one: split the sky into lanes. One voice per lane."  
Neat — but the lanes ran out fast.



Only a few fit.  
Everyone else  
WAITS.

"Fix two: take turns, super fast — you, then you, then you." Clever — but still a crowded clock.



Sharing by the  
second... still not  
enough!

### ★ WORTH REMEMBERING

Lanes (by frequency) and turns (by time) both work — a little. But a big city eats them by lunchtime. Everyone believed those were the **ONLY** two ways to share a sky. Everyone was wrong. 🌈

### 📖 SIRI'S SECRET NOTEBOOK • RIDDLE 5, HALF OPEN

Air is **SHARED**. Fix 1: lanes (each a frequency). Fix 2: turns (tiny time-slots). Both run out in a real city. There has to be a third way... Wren's grinning like she knows one. 😊



# EVERYONE TALKS AT ONCE

"Third way," said Wren.  
"Everyone talks at the  
SAME time — but each pair  
whispers in a secret code."



Everyone at once?  
That's just NOISE!

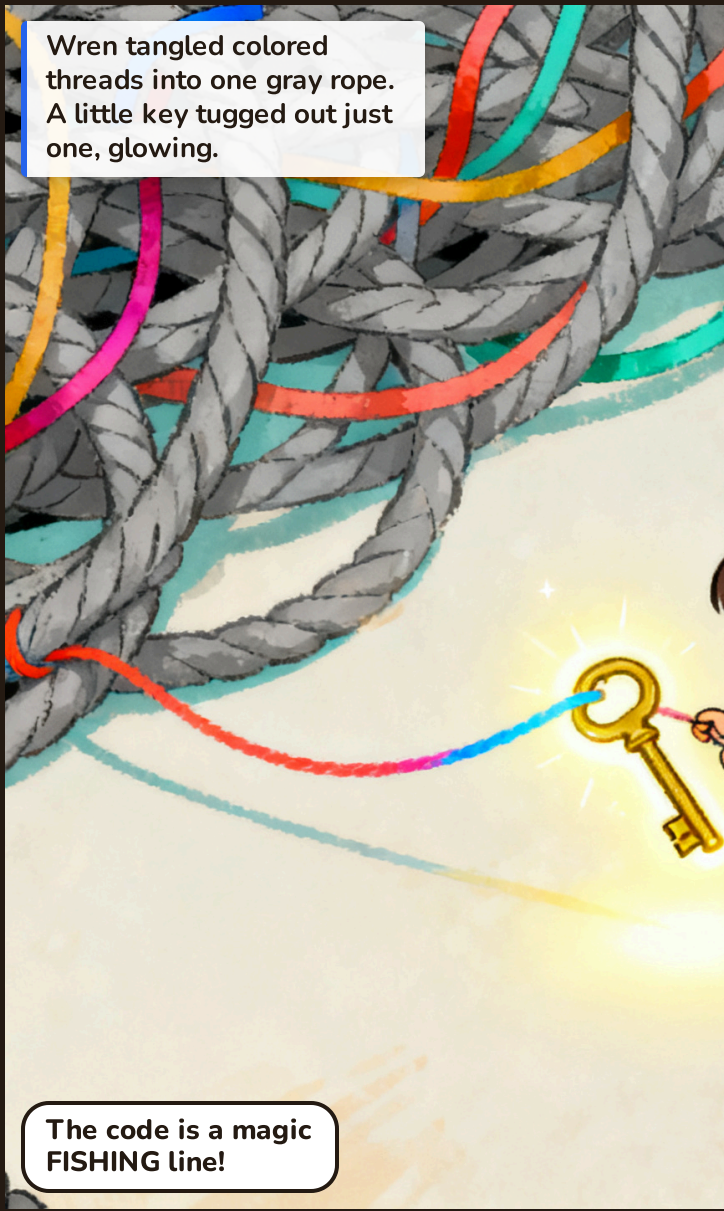
"Think of a party where  
every couple speaks a  
different language. Your  
ear ignores all but your  
own."



I only hear the  
words I KNOW!

## ★ WORTH REMEMBERING

This is **spread spectrum**, the beating heart of this book. Blend a hundred coded voices into one roar; each phone knows only its own code and lifts its friend cleanly out. The crowd becomes a conversation. 🎉



Wren tangled colored threads into one gray rope. A little key tugged out just one, glowing.



She handed Siri a walkie-talkie glowing the same color as hers. Amid all the babble, only Siri's crackled.

The code is a magic FISHING line!

It found ME in all that noise!

That's your code, kiddo.

★ WORTH REMEMBERING

The wonder: the more voices you add, the noise just rises a little — nobody needs their own lane. Whisper under the roar, share every scrap of sky. This idea would quietly rewire the planet. 📡

📖 SIRI'S SECRET NOTEBOOK · RIDDLE 5 UNLOCKED

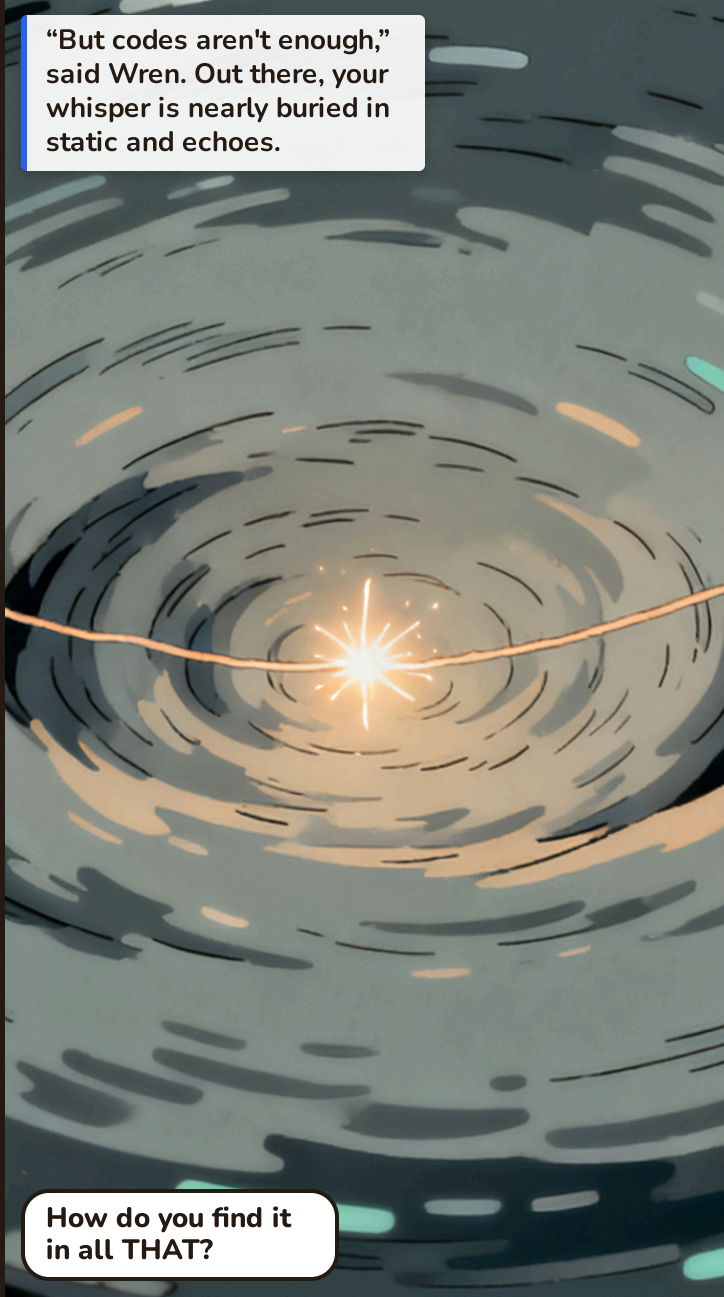
THIRD WAY: everyone talks at once, each in a secret CODE. Spread spectrum! Like a party of different languages — your ear grabs only yours. No lanes, no waiting. Genius.





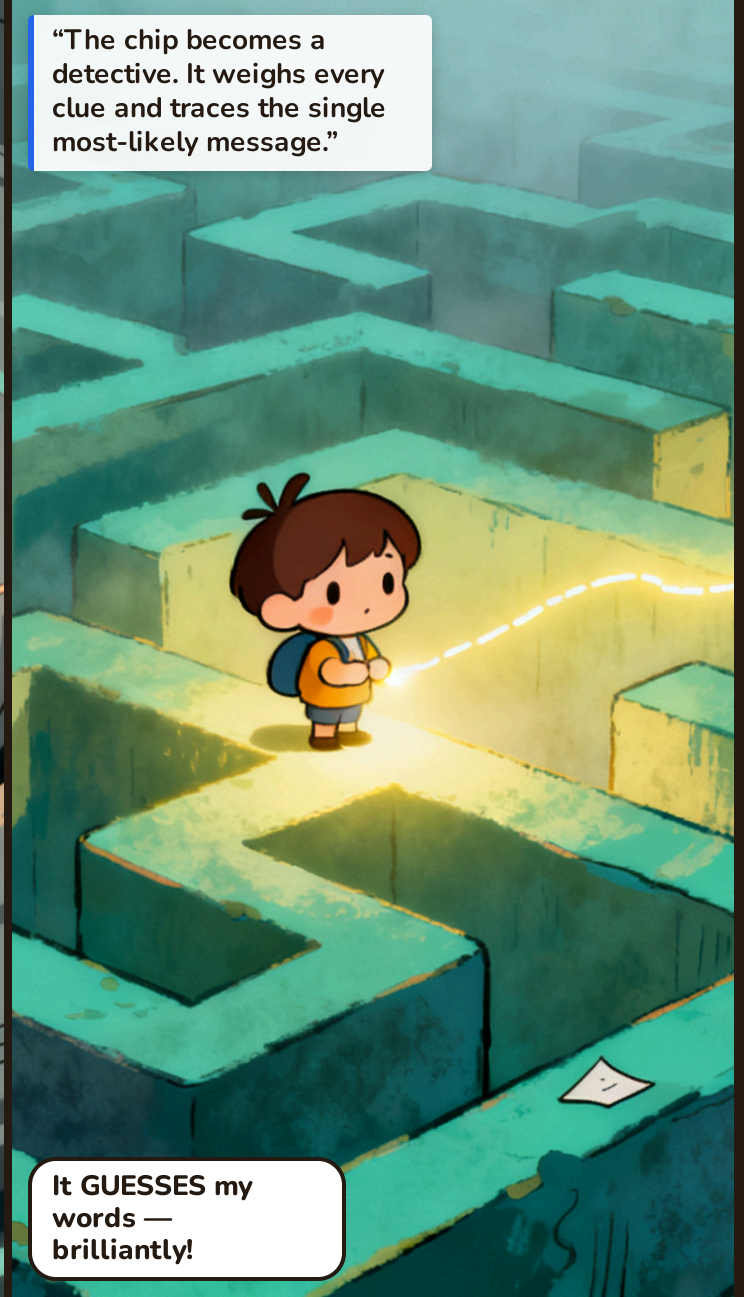
# FINDING A WHISPER IN A STORM

"But codes aren't enough," said Wren. Out there, your whisper is nearly buried in static and echoes.



How do you find it in all THAT?

"The chip becomes a detective. It weighs every clue and traces the single most-likely message."



It GUESSES my words — brilliantly!

## ★ WORTH REMEMBERING

Cleverer still: the phone sends **spare clues** along with your voice, so if noise eats a word, the far chip rebuilds it from the leftovers. Like spelling a name so it survives a bad line. 🤖



This detective is the modem — a tiny tireless brain making billions of guesses a second, turning fuzz into clear words.



A whole DETECTIVE lives in there?!

#### ★ WORTH REMEMBERING

So a call is really: numbers, wrapped in a secret code, buried in noise, then dug out and repaired by a chip guessing billions of times a second. The 'whisper' is a miracle of maths. 🧠

#### 📖 SIRI'S SECRET NOTEBOOK · THE MODEM

Codes get your voice INTO the sky; the MODEM digs it back out. It sends spare clues so lost words rebuild, then guesses the likeliest message billions of times/sec. Tiny detective. 🕵️

# NEVER DROP THE CALL

## 10a The relay race

"You're in a car, moving fast. One tower can't reach forever." So towers hand your call along.



Like runners passing a baton!

"The trick: the NEXT tower grabs your call before the last one lets go. Two hands for a moment."



Nobody drops the baton!

### ★ WORTH REMEMBERING

It's called **soft handoff**: two towers briefly hold the same call, so you never fall through the gap. That's why a call survives a highway, an elevator, a train. Seamless — on purpose. 🏃



“Last puzzle: near phones drown out far ones. So each phone speaks JUST loud enough — no more.”



Polite whispers so everyone's equal!

#### ★ WORTH REMEMBERING

Phones near a tower whisper; far ones speak up — adjusted **hundreds of times a second** — so every voice lands equally gentle. Shout and you'd bury your neighbours. Good manners, enforced by maths. 🤖

#### 📱 SIRI'S SECRET NOTEBOOK · STAYING CONNECTED

Soft handoff = next tower grabs the call BEFORE the last lets go (two hands!). Power control = every phone speaks just loud enough, tuned 100s of times/sec. That's why calls don't drop. 🏃

# A MILLION INVISIBLE HANDS

The last riddle filled the whole wall. Behind it, no machine — just the world, wired with light.

It starts with the brave: a climber high on a tower at dawn, bolting on an antenna, the city tiny below.

Someone **CLIMBS** up there for my calls?!

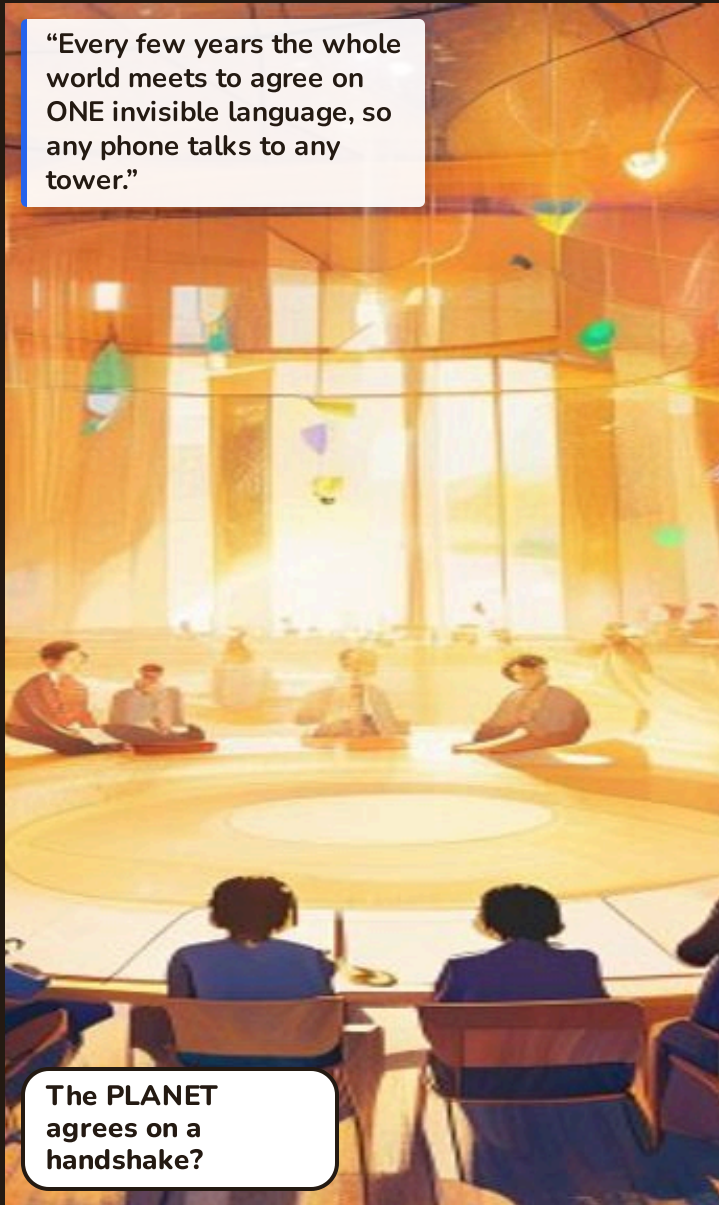
“And the wireless magic hides a secret: real buried cables and ocean fiber connect every tower.”

The sixth secret is **PEOPLE?**

Wireless... runs on **WIRES?!**



“Every few years the whole world meets to agree on ONE invisible language, so any phone talks to any tower.”



The PLANET agrees on a handshake?

Then a circle of faces: climber, chip designer, antenna tester, planner, delegate, repairer. Each did one sliver.



And nobody knows the WHOLE thing?

★ WORTH REMEMBERING

Sit with it: **nobody on Earth knows the entire system**. Each person masters one sliver, and shared standards conduct a million slivers into a single call. The conducting is the real invention. 🎵

📖 SIRI'S SECRET NOTEBOOK · RIDDLE 6 OPEN

Wireless secretly runs on buried cables + ocean fiber! Climbers, designers, testers, planners — a million hands, each one sliver. The world MEETS to pick one language. So WHO conducts it?

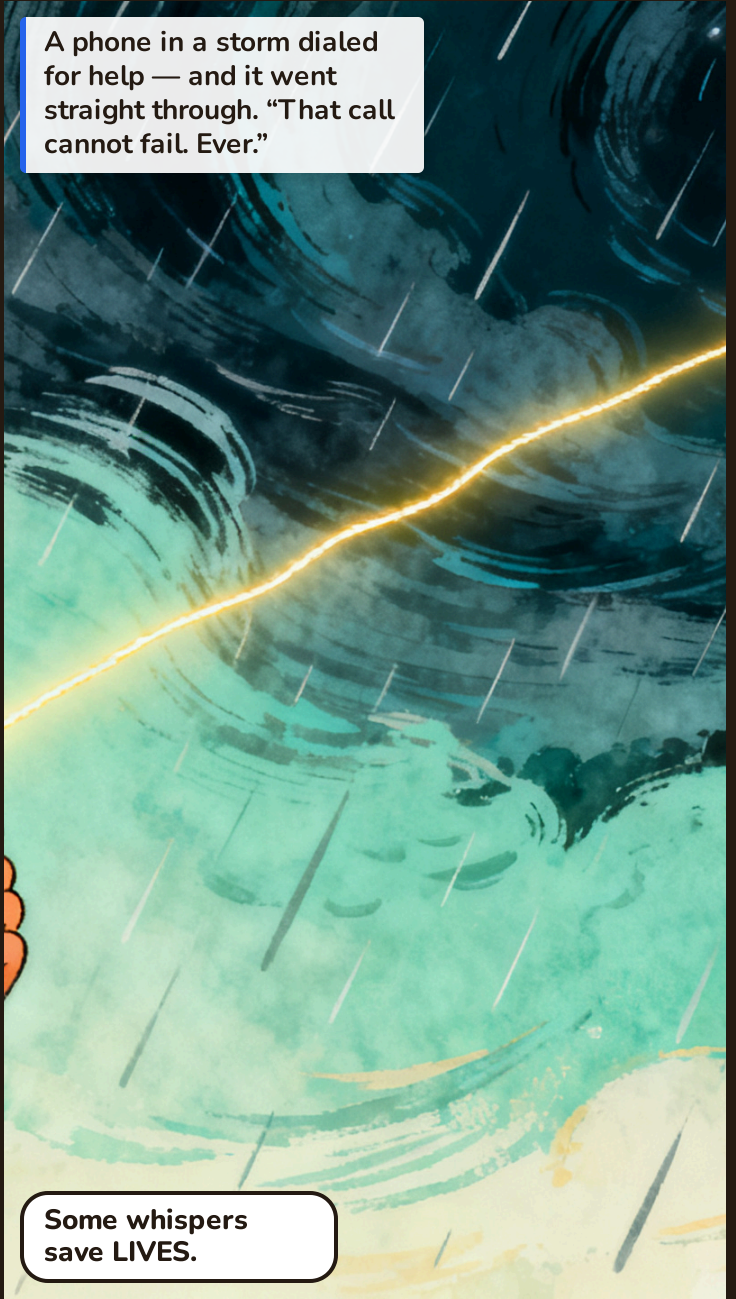
## THE INVISIBLE UTILITY

All six riddles open, Wren showed Siri the whole city humming — invisibly. “Like water and light. You only notice it when it stops.”



It's a utility you can't SEE!

A phone in a storm dialed for help — and it went straight through. “That call cannot fail. Ever.”



Some whispers save LIVES.

### ★ WORTH REMEMBERING

Here's the quiet business secret: **reliability is trust you can't see**. Nobody praises a call that works; everyone remembers the one that dropped. Invisible when perfect, unforgivable when not. 🤖



Wren spun a diagram:  
dozens of companies, all  
playing one shared score.  
“No conductor owns the  
whole song.”



It's an ORCHESTRA  
of rivals!

In a torture lab, signals  
were bounced through  
heat, tunnels, crowds and  
storms — all night, every  
night.



You BULLY the  
whisper on  
purpose?!

So it never fails  
you.

#### SIRI'S SECRET NOTEBOOK · THE INVISIBLE UTILITY

Wireless = a utility like water: invisible until it breaks. Reliability = unseen trust. Emergency calls **MUST** get through. Rivals play one shared score. Tested till it can't fail. 🎻

# WHY THE WORLD PAYS FOR A GHOST

## 13a Siri's question flips

Wren showed a photo: a 1980s 'car phone' the size of a brick, tied to a heavy bag. "One call. A fortune."



People LUGGED that around?!

Then a slim glass phone: calls, maps, video, the whole library of the world. Weight: a chocolate bar.



Smaller AND infinite. How?

### ★ WORTH REMEMBERING

Warren's favorite riddle: **price is what you pay, value is what you get**. When the value dwarfs the price, people don't feel tricked — they feel grateful. Billions of grateful yes'es a year. 💛



“But the part that makes it SPEAK — the modem — you never see. It hides at the heart of nearly every phone.”



The most important part is INVISIBLE!

“Different makers, different phones — same tiny whisper-heart built right in.”



One heart. A thousand bodies!



#### SIRI'S SECRET NOTEBOOK

My question flipped: not 'how does it work' → 'WHY pay billions for a ghost?' A phone is dead without the whisper. Value >> price. The key part is the one nobody ever sees. 🧐

# THE LANGUAGE THE WORLD AGREED ON

"Long ago, every country's network spoke its own tongue. Cross a border — your phone went deaf."



Phones that couldn't understand each other!

"So the world did something rare: it agreed. One shared wireless language, written together."



Everyone shook ONE big hand?

Now one phone works from Tokyo to Toronto — same language, same handshake, everywhere.



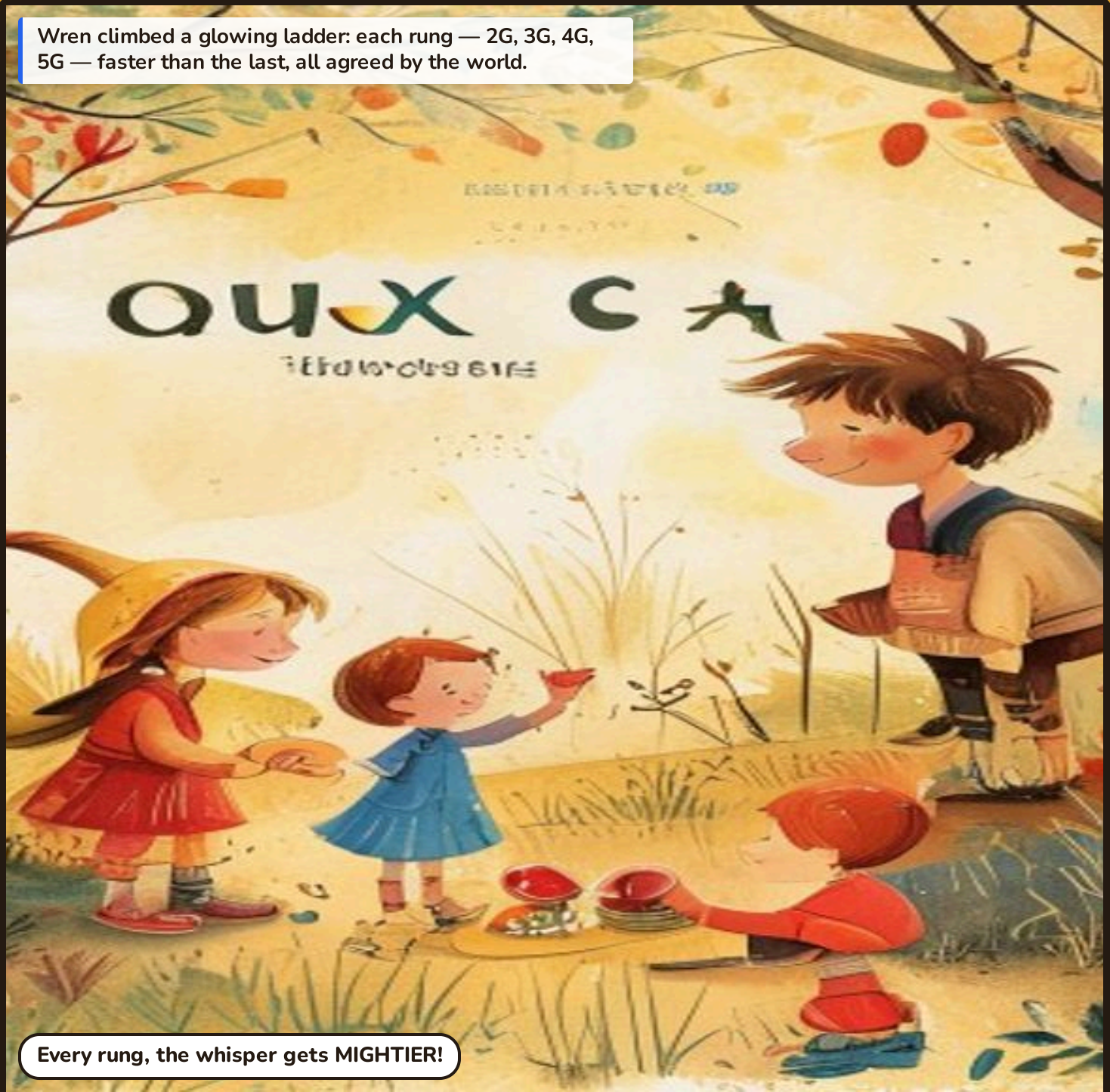
My voice needs NO passport!

## ★ WORTH REMEMBERING

This is a **network effect**, and a mighty one: the more people and makers speak one wireless language, the more valuable it becomes — and the harder to replace. Everyone builds on the shared handshake. 🏙️



Wren climbed a glowing ladder: each rung — 2G, 3G, 4G, 5G — faster than the last, all agreed by the world.



Every rung, the whisper gets MIGHTIER!



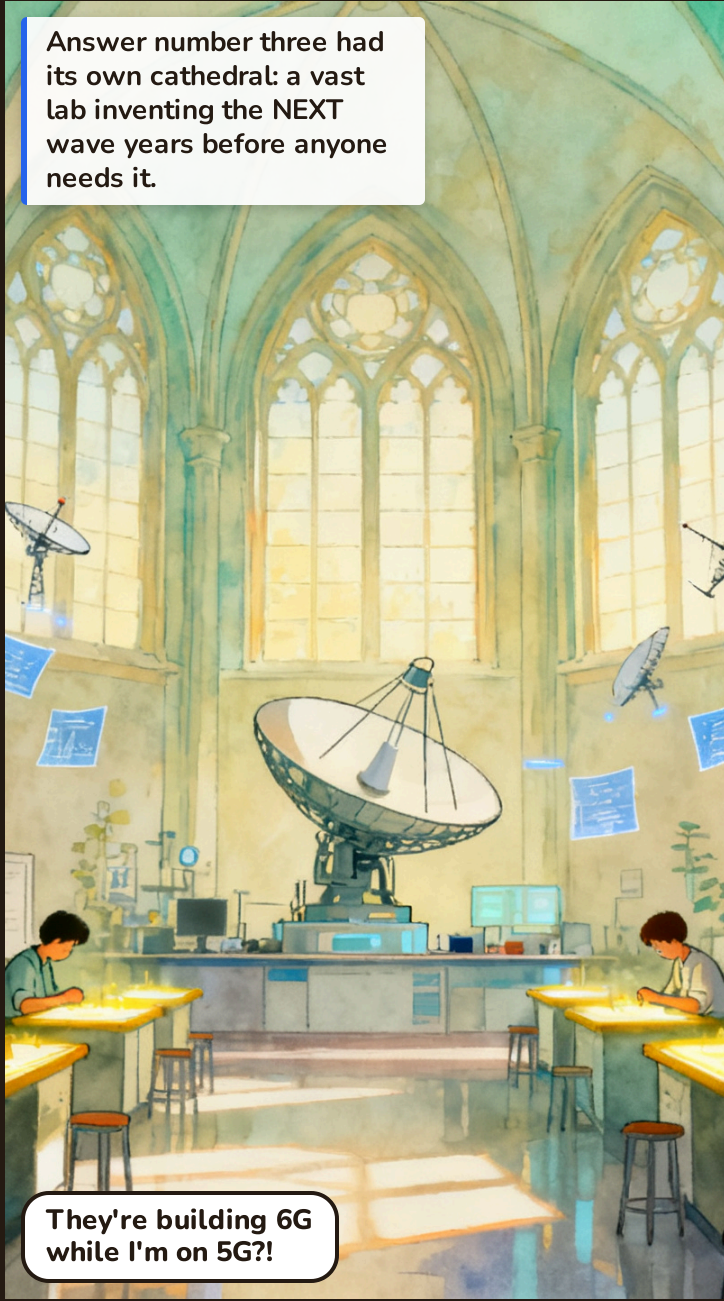
#### SIRI'S SECRET NOTEBOOK

Before: every country's network = a different language. Now: ONE shared handshake, so any phone roams anywhere. Network effect! Whoever helps WRITE the language is impossible to leave out. 🤝



# THE IDEA YOU CAN OWN

Answer number three had its own cathedral: a vast lab inventing the NEXT wave years before anyone needs it.



They're building 6G while I'm on 5G?!

Wren sealed a glowing idea in a crystal vault. "An invention can be OWNED — that's a patent."



You can own an IDEA?!

## ★ WORTH REMEMBERING

This is the deepest wall of all: **you can own an idea**. Invent how the whisper works, patent it, and anyone who wants to build a modern phone must knock — and pay a small toll. 🗝️



The tolls poured back INTO the lab — a fountain feeding itself, inventing faster than rivals could copy.



The money BUILDS the next idea!

“Sell chips AND rent the ideas. Two rivers of coins, both flowing back to the lab.”



Invent, rent, reinvest, repeat!

That's the whole machine, kiddo.

### SIRI'S SECRET NOTEBOOK · ANSWER #3

You can OWN an idea (a patent). Invent the whisper → everyone pays a toll  
→ tolls feed the lab → invent faster. Sell chips + rent ideas = two rivers.  
Value → Language → Owned-ideas. 

# THE COMPANY THAT SOLD THE AIR

The compass dragged them through sea-mist to a sunlit campus above a blue bay, antennas on every roof. Siri read the name.

“1985. San Diego. A handful of engineers, a chalkboard, and one wild idea about codes.”

The whole thing started at a CHALKBOARD?

“Two led it: a professor of communications, and a maker of the maths that digs whispers out of noise.”

Teachers built my phone's heart!

**QUALCOMM!** The whisper-maker has a NAME!

## ★ WORTH REMEMBERING

Their name IS the plan: **QUAL**ity **COMM**unications. They didn't sell a gadget you hold — they sold the invisible **idea** inside billions of them, and the chips that speak it best.



But the world laughed.  
“Everyone-talks-at-once?  
Impossible,” said the  
experts, again and again.



They bet the  
company on a 'no'?!

1989. On a San Diego  
hillside, they proved it LIVE  
— dozens of clear voices at  
once from one antenna.



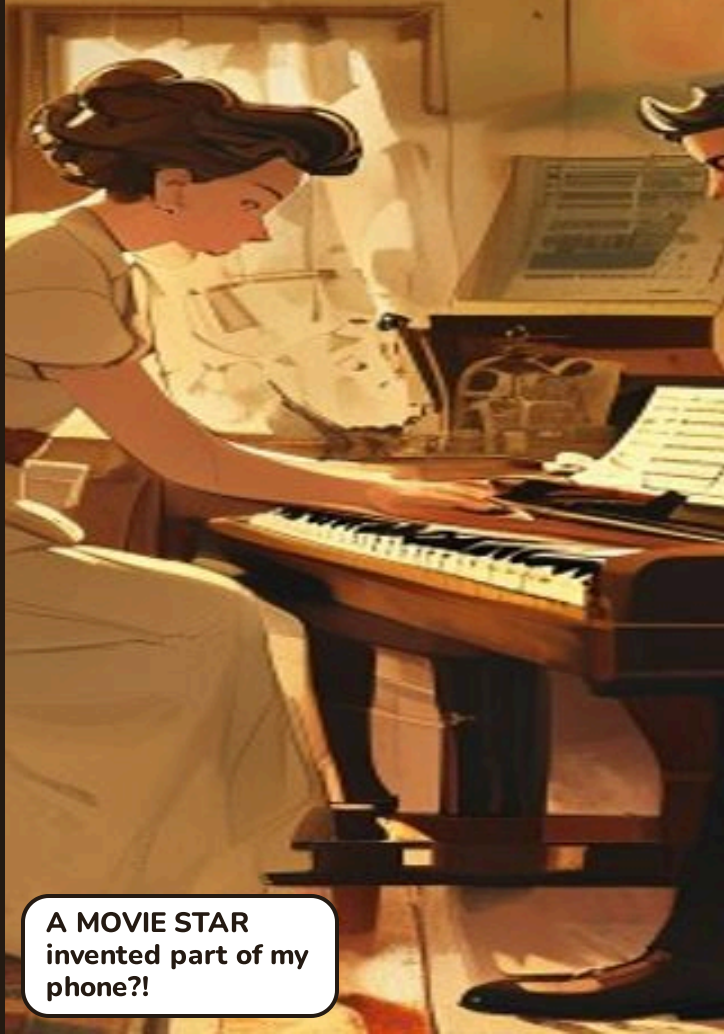
The impossible...  
just WORKED!

#### SIRI'S SECRET NOTEBOOK · THE REVEAL

QUALCOMM = QUALity COMMunications, San Diego 1985. A chalkboard, a professor + a maths genius, and a code idea everyone called impossible — proven LIVE in 1989. I gasped. HOW did they win?

## THE BET NOBODY BELIEVED

"The seed was older, and wilder," said Wren. "1940s: a movie star and a composer, sketching an idea."



A MOVIE STAR  
invented part of my  
phone?!

"They hopped a signal  
across many frequencies —  
like a tune skipping piano  
keys — so no one could  
jam it."



Hopping so fast it  
can't be caught!

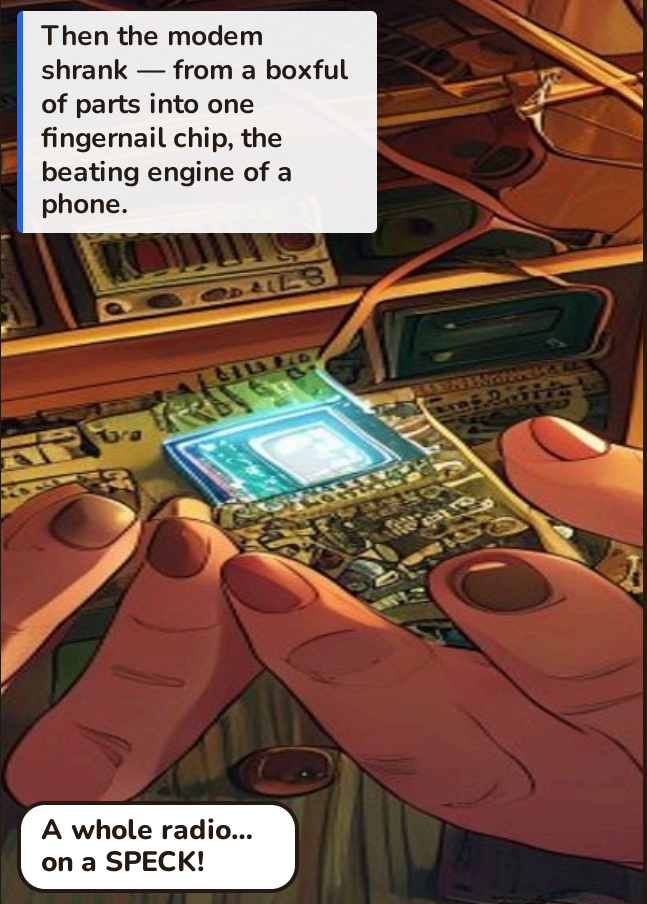
### ★ WORTH REMEMBERING

That was **spread spectrum's** ancestor — decades ahead of its time, then nearly forgotten. Great ideas often arrive before the world is ready to use them. This one waited forty years. 💡



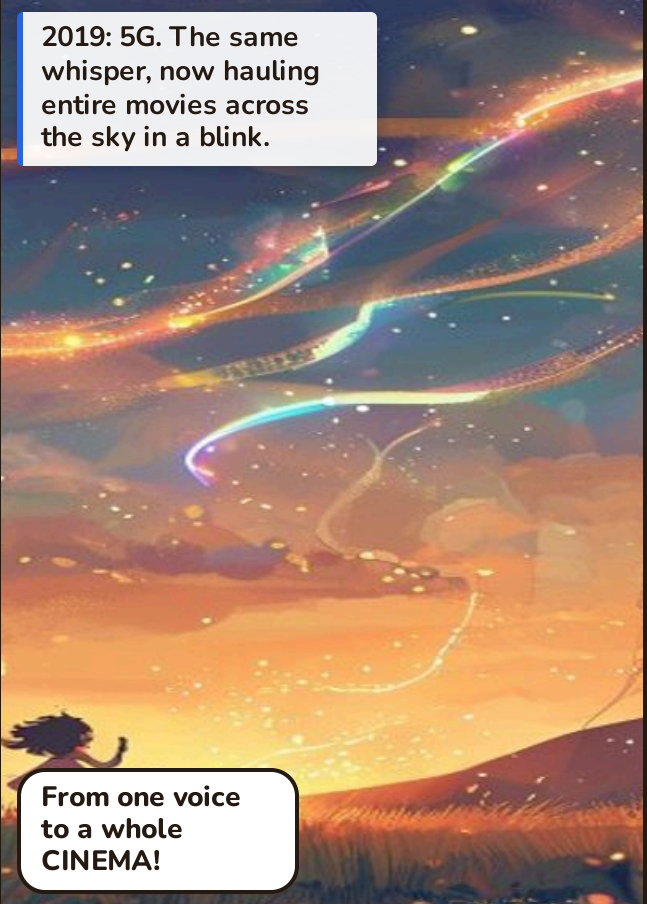


“Qualcomm dusted off the wild idea, added modern maths, and grew it into networks for the whole world.”



Then the modem shrank — from a boxful of parts into one fingernail chip, the beating engine of a phone.

A whole radio...  
on a SPECK!



2019: 5G. The same whisper, now hauling entire movies across the sky in a blink.

Old dream, new machine!

From one voice  
to a whole  
CINEMA!



#### THE STORY IN TIME

**1942**

A film star and a composer patent frequency-hopping — spread spectrum's ancestor.

**1985**

Qualcomm is founded in San Diego. QUALity COMMunications.

**1989**

It proves 'everyone talks at once' codes work — live, in the field.

**1990s**

CDMA codes spread into the world's networks.

**2000s**

Its ideas become the backbone of 3G, then 4G.

**2007**

The smartphone era; its modems ride inside the wave.

**2010s**

The whole radio shrinks onto one tiny system chip.

**2019**

5G — the whisper carries whole movies in seconds.

**Today**

Its inventions hum inside billions of devices. 📶





#### SIRI'S SECRET NOTEBOOK

Seed: a 1940s movie star + composer (frequency HOPPING!). Qualcomm revived it, added maths, built the networks. The modem shrank to a speck. From one voice → 5G cinema. In one lifetime. 🚀

# THE CASTLE OF CODES

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

Under an apple tree, the two old friends let her lay out the walls, one by one. Nodding. Chuckling. Correcting.

The only question that lasts a hundred years: what keeps invaders OUT?

Walls! I've collected them ALL BOOK!

Scarier than a school quiz. A hundred times more fun.





## THE CASTLE WALLS • WHY RIVALS CAN'T COPY IT



### Wall One: The Locked Ideas

Thousands of patents on how the whisper works. Build a modern phone and you must knock on this door — and pay. Ideas you can own.



### Wall Two: The Endless Lab

Billions poured back into inventing the NEXT wave before the last one lands. Rivals chase; it has already moved on.



### Wall Three: The Shared Language

It helps write the world's wireless standards. When everyone must speak your language, you are impossible to leave out.



### Wall Four: Designed In

Once its modem sits at a phone's heart, swapping it means rebuilding the whole machine. Most never bother.

Charlie tapped his thick glasses. "Turn the telescope around. Don't ask how it WINS — ask what would DESTROY it. **Invert, always invert.**"



Find every way to LOSE... then don't!





#### THE CASTLE WALLS · WHY RIVALS CAN'T COPY IT



##### **Crack One: Customers Go Solo**

The biggest buyers now try to build their OWN modems, to stop paying the toll.



##### **Crack Two: The Toll Fights**

Courts and rivals keep arguing whether the idea-tolls are fair. Forced lower, a wall thins.



##### **Crack Three: A Missed Wave**

Fall behind on the next generation once, and a rival could leap ahead of the whole parade.



##### **Crack Four: One Kind of Room**

So much depends on phones; a wider world of devices must keep the lab fed for decades.



★ WORTH REMEMBERING

Charlie's ruin-Qualcomm checklist: let the patents wither, anger the customers, or sleep through the next wave. Now — **just never do those**. Inversion turns worry into a to-do list. 🧭



Warren raised his cola. "A business the whole industry must pay to use, and can't easily copy. The treasure was never the chip. It was the IDEAS."



Buy the moat, not the gadget!

#### SIRI'S SECRET NOTEBOOK · THE CASTLE

WALLS: locked ideas  endless lab  shared language  designed-in .

CRACKS: customers go solo  toll fights  a missed wave  one kind of room . Charlie: INVERT. Warren: buy moats. 

## THE JUDGE'S QUESTIONS

Then Warren built a tiny courtroom in the orchard and put the WHISPER on the stand. "Every business faces a judge someday. The judge is the future. Today, that's you."

TOK TOK

Siri banged the little gavel and fired Warren's five eternal questions.

Order in the court!

Witness — will people still NEED you in thirty years?





★ WORTH REMEMBERING

**The Owner's Court:**  Enduring need? — 'To reach each other. Older than money.'  Trust earned? — 'Billions of calls that just work.'  Reinvesting wisely? — 'Building the next wave years early.'  Copyable with cash? — 'The chip in a year; the patents and standards, not so fast.' Court adjourned for lemonade.

Last exhibit: a painting of 2056 — new gadgets, strange shapes, but people still reaching to be heard.



The SHAPE changes. The NEED never does.

 SIRI'S SECRET NOTEBOOK · JUDGE ANY BUSINESS

Warren's five: ① enduring need? ② trust earned? ③ reinvests wisely? ④ copyable with mere money? ⑤ what breaks it? Works on soap, railways, whispers — anything. He never once named a stock price. 



## THE NEXT THIRTY YEARS



One last walk into tomorrow: cars chatting to cars and to the road, warning each other before a human could blink.



“And it won't stop at phones. Doorbells, tractors, fridges, factories — all whispering.”

The whole  
WORLD gets a  
voice?



“Where no tower stands, your phone will reach a satellite — a whisper straight to the stars and back.”

No signal? Talk  
to SPACE!

Cars that GOSSIP to  
stay safe!

## ★ WORTH REMEMBERING

No crystal balls — just visible currents: talking cars, a world of connected things, phones reaching satellites, thinking chips at the edge. Shapes change; the need to connect never does. 🌐



On a rooftop at dusk, Siri added the honest last line: the whisper is a tool. Tools serve their masters.



Best servant. Worst master. Same as fire.

 SIRI'S SECRET NOTEBOOK

2056 watchlist: talking cars, connected everything, phone → satellite, thinking chips at the edge. Rules: bet on the NEED to connect · carry it best · stay the master of the whisper. 🌀



# THE SECRET NOTEBOOK

Home stretch. Siri pinned every discovery to her wall and joined them with red string.



It's all ONE WEB. Every thread pulls the others.

## ★ WORTH REMEMBERING

**The Science Web, one breath:** a wave is a moving pattern → radio is invisible light → antennas match their waves → voice rides the wave → voice becomes numbers → codes let all talk at once → a modem digs each whisper from the storm. Ordinary physics, stacked wonderfully.

## ★ WORTH REMEMBERING

**The Business Web, one breath:** value (a phone dead without it) → one agreed language (network effect) → owned ideas (patents + endless lab), guarded by Charlie's inversion, judged by Warren's court. Underneath: a million strangers, conducted into one call.



The real test: she retold the **WHOLE** thing to her little cousin. With two toy walkie-talkies. He got it.



If you can't explain it with toys, you don't **KNOW** it yet.

#### SIRI'S SECRET NOTEBOOK • THE LATTICEWORK

Charlie's word for my string-wall: a **LATTICEWORK** of mental models.  
From **ONE** whisper: pattern-not-stuff · trade-offs · modulation · digital-beats-noise · spread-spectrum · nobody-knows-the-recipe · price-vs-value · network-effects · own-the-idea · reliability-is-trust · invert · the owner's court. ✨



## COMING HOME

Her own bed. Morning. The compass: quiet. The house: lit differently, somehow.



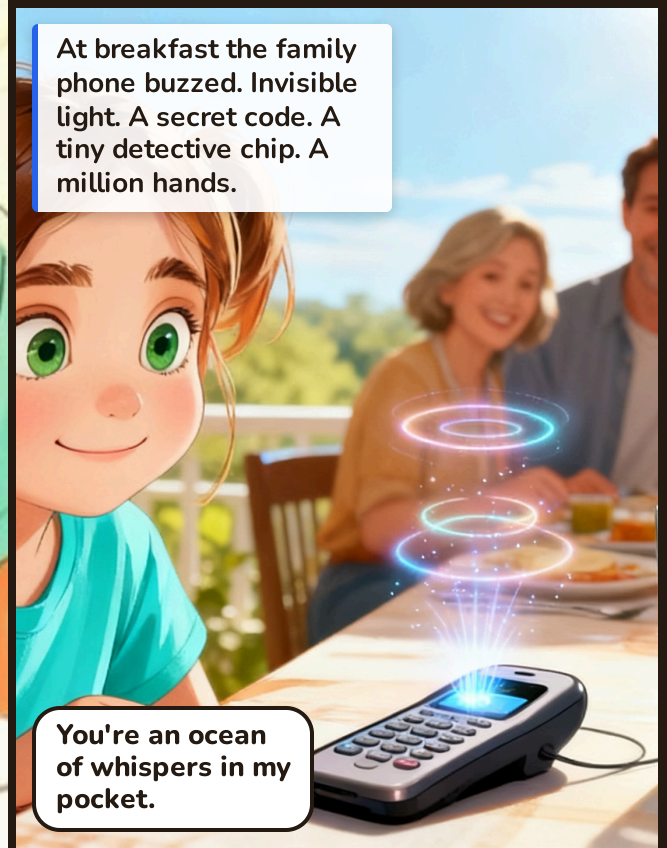
Was it real? It FELT real...

One fresh letter dried on the diary's page.



"The modern world is not magic. It is millions of ordinary people doing small hard things, together, for a long time. Be patient — patience is the one wall no rival can copy."

At breakfast the family phone buzzed. Invisible light. A secret code. A tiny detective chip. A million hands.



You're an ocean of whispers in my pocket.

Then Grandma's face lit up the screen from an ocean away, laughing — her voice riding the whisper home.



All that physics...  
just so nobody's  
far.

She hugged the diary tight.  
Somewhere far off, a tower  
blinked, patiently passing a  
voice along.



Show me the next  
one, Grandpa. 🧡

★ WORTH REMEMBERING

Next time your phone buzzes, feel it: invisible light your eyes can't see, your voice turned to numbers, hidden in a secret code, dug from the noise by a tiny detective. A phone is no longer just a phone. **Nothing, from now on, is just anything.**

📖 SIRI'S SECRET NOTEBOOK · VOLUME ELEVEN, CLOSED

Six riddles. Twelve mental models. One castle of codes. One impossible bet, proven live. One courtroom under a tree. But the compass is twitching toward the window... toward a tall tower blinking on a hill. Volume Twelve. 🧭📡





## OUR PHILOSOPHY

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

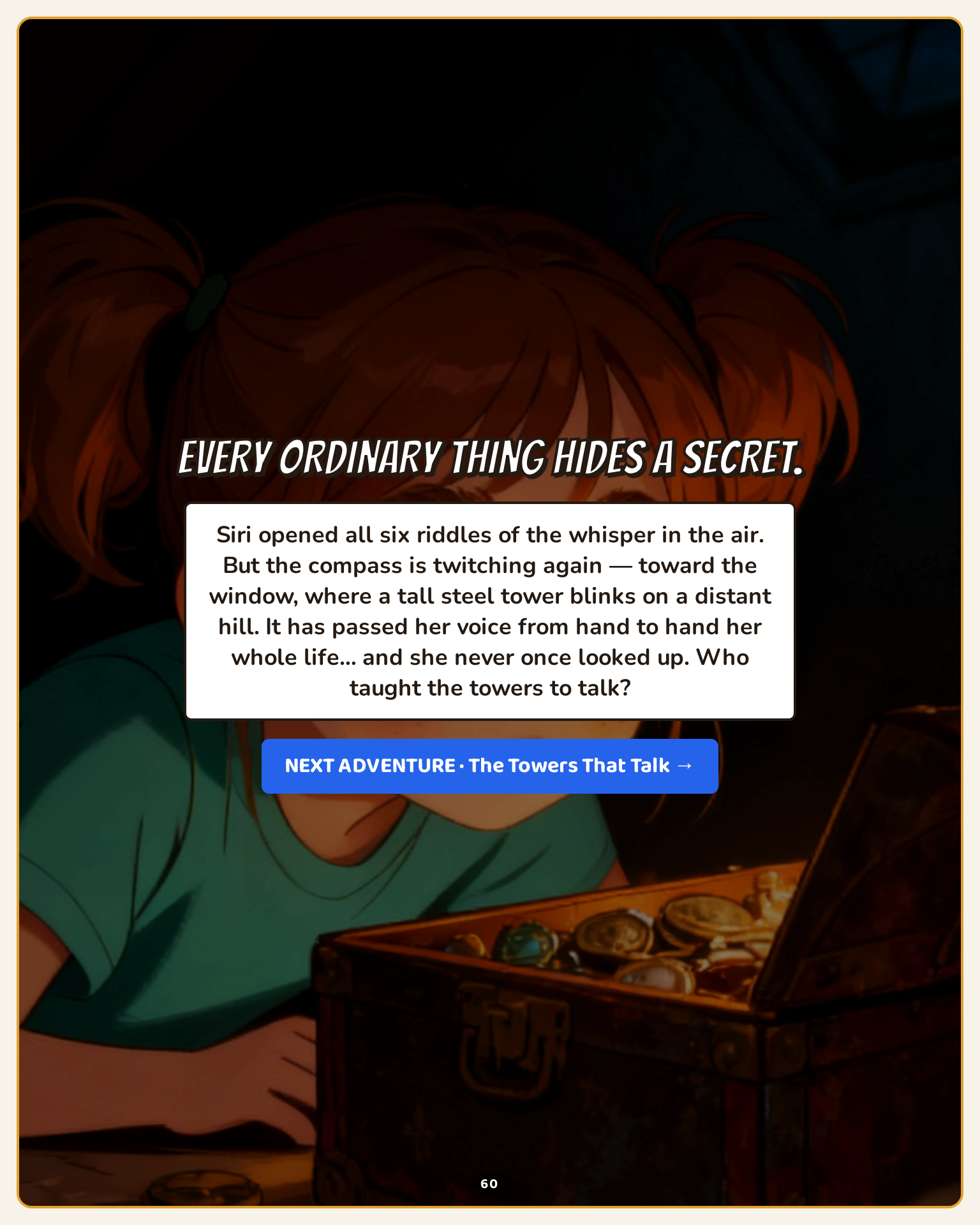
Inspired by the multidisciplinary thinking of [Charlie Munger](#) and the rational, long-term philosophy of [Warren Buffett](#), our comics connect science, technology, business, history, and human behavior to show how the real world works.

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 down at an open treasure chest filled with gold coins and jewels. The scene is dimly lit, with a dark background.

## *EVERY ORDINARY THING HIDES A SECRET.*

Siri opened all six riddles of the whisper in the air.  
But the compass is twitching again — toward the window, where a tall steel tower blinks on a distant hill. It has passed her voice from hand to hand her whole life... and she never once looked up. Who taught the towers to talk?

**NEXT ADVENTURE · The Towers That Talk →**