

The Great Company Adventures · Book 16 of 50

ABB THE ARMS THAT NEVER TIRE

seven doors, twelve mental models, and the tireless steel arms that quietly build the modern world.

"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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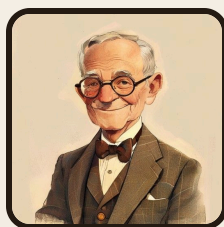
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MEET THE CHARACTERS



SIRI



BEN



WARREN



CHARLIE



JONAS

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 ARM THAT MOVED IN THE DARK

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

TIK-TIK

It spun. Locked. Pointing straight at—

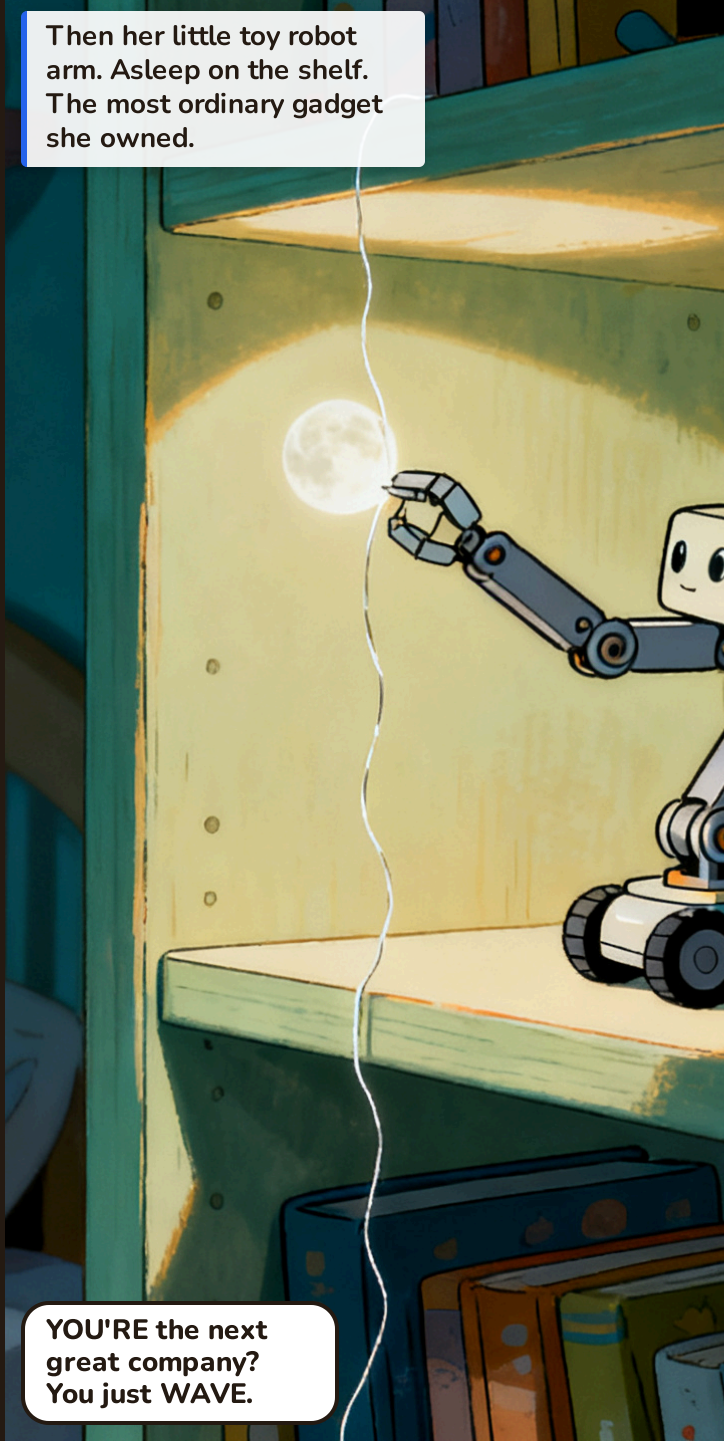
SPIN

Wait. Seriously?

Down the hall: the fridge, the car keys, a chocolate bar. Everything in the house made by machines.

We use these ALL DAY. And I've never asked who built them.

It's never done THIS before.



Then her little toy robot
arm. Asleep on the shelf.
The most ordinary gadget
she owned.



The diary flipped open by
itself. Fresh ink.

YOU'RE the next
great company?
You just WAVE.

"Time to meet the
businesses that
built the modern
world, little one.
Start with the arms
that never tire."

★ WORTH REMEMBERING

Really look around. Your phone, your shoes, your snacks, the car outside — almost none were touched by a human hand. Tireless metal arms built them, all day, all night. So tonight's mystery: **who taught steel to work?**

The toy arm swung up — and a whirlpool of orange light yanked her in.

WHOOSH



Here we GOOO!



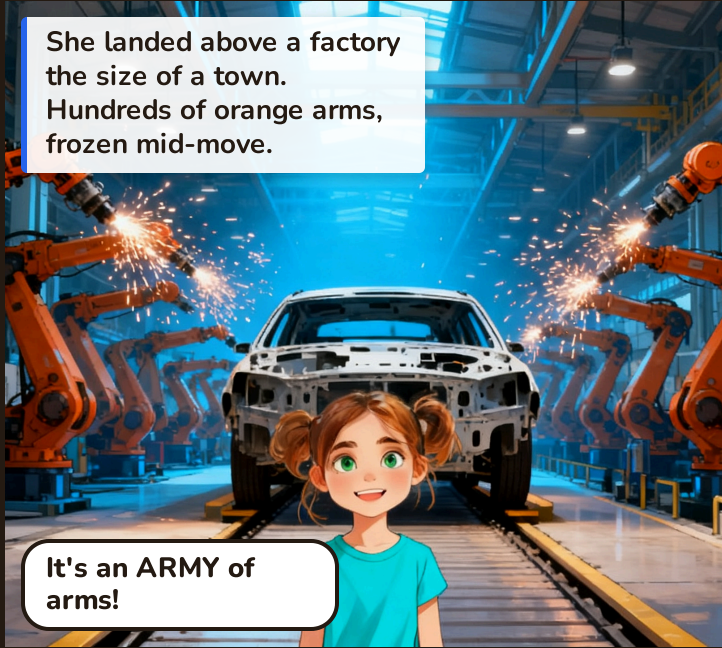
SIRI'S SECRET NOTEBOOK

Biggest mystery yet 🔑

- ① How can metal be strong AND gentle, tireless AND perfect?
- ② Grandpa says these arms built a giant company. Prove it, compass.

A PUZZLE WITH MANY JOINTS

She landed above a factory
the size of a town.
Hundreds of orange arms,
frozen mid-move.



It's an ARMY of
arms!

A young engineer waved.
"I'm Jonas. I teach robots
how to build cars."



Best. Job. EVER.

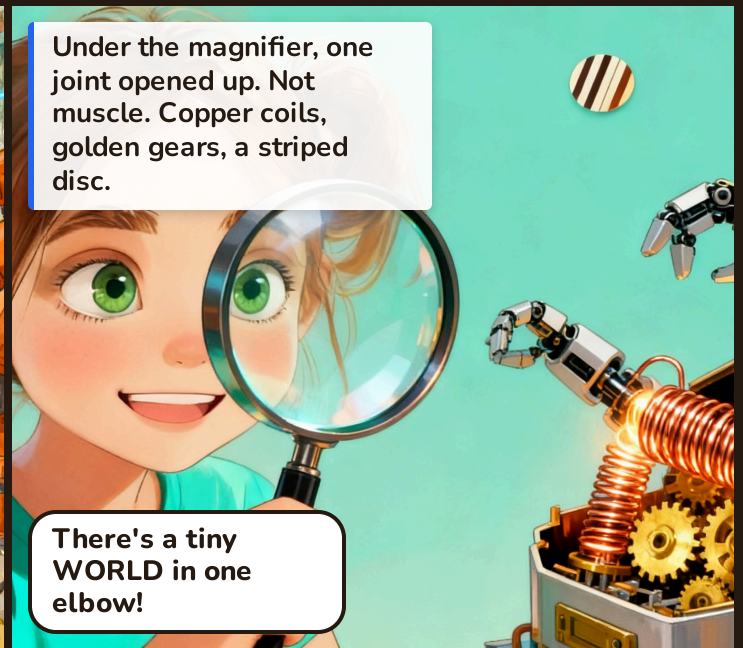
A whistle blew. The arms
woke — welding, lifting,
twisting a car together in a
storm of sparks.



They're DANCING!

And they never
take a break.

Under the magnifier, one
joint opened up. Not
muscle. Copper coils,
golden gears, a striped
disc.



There's a tiny
WORLD in one
elbow!

★ WORTH REMEMBERING

This one arm can lift a whole car, then turn and set down a screw softer than you'd place a butterfly. Same arm. It works forever and never once gets tired. How? Seven secrets — let's open them all.

Jonas unrolled a parchment map. Seven glowing doors.
“Open them all, and you’ll understand this machine better
than most grown-ups.”



Seven doors. Deal.



SIRI'S SECRET NOTEBOOK • THE QUEST MAP

1 THE MUSCLE — what makes it move?

2 THE STRENGTH — how does it lift a car?

3 THE FREEDOM — how does it reach
anywhere?

4 THE SENSE — how does it know where it
is?

5 THE SENSES — can it see and feel?

6 THE MIND — who tells it what to do?

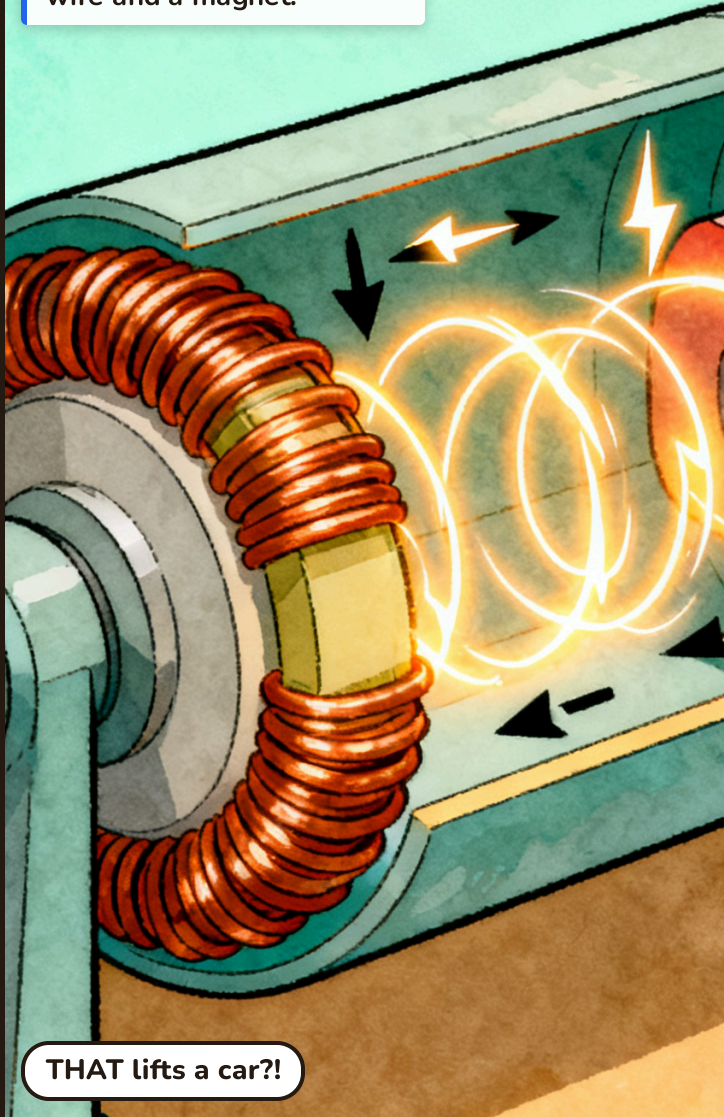
7 THE POWER — what feeds it all? Let's GO



MUSCLES MADE OF LIGHTNING

3a Door One: what makes it move?

Jonas cracked a joint open.
“No muscles. Just copper
wire and a magnet.”



THAT lifts a car?!

“Run electricity through a
coil and — poof — it
becomes a magnet. Push.
Pull. Push. Pull.”



Electricity makes
MAGNETS?

★ WORTH REMEMBERING

This is one of the deepest tricks in the modern world: **electricity and magnetism are the same force wearing two coats**. Push electricity through a wire and it can pull on iron. That secret runs every motor on Earth. ⚡

"Now ring a magnet with coils and flip them in turn. Push, pull, push — the magnet chases them around."



So it spins ITSELF in circles!

Jonas spun a little motor on his fingertip. "That's an electric motor. The muscle of every robot."



No sweat. No rest. Just spin.

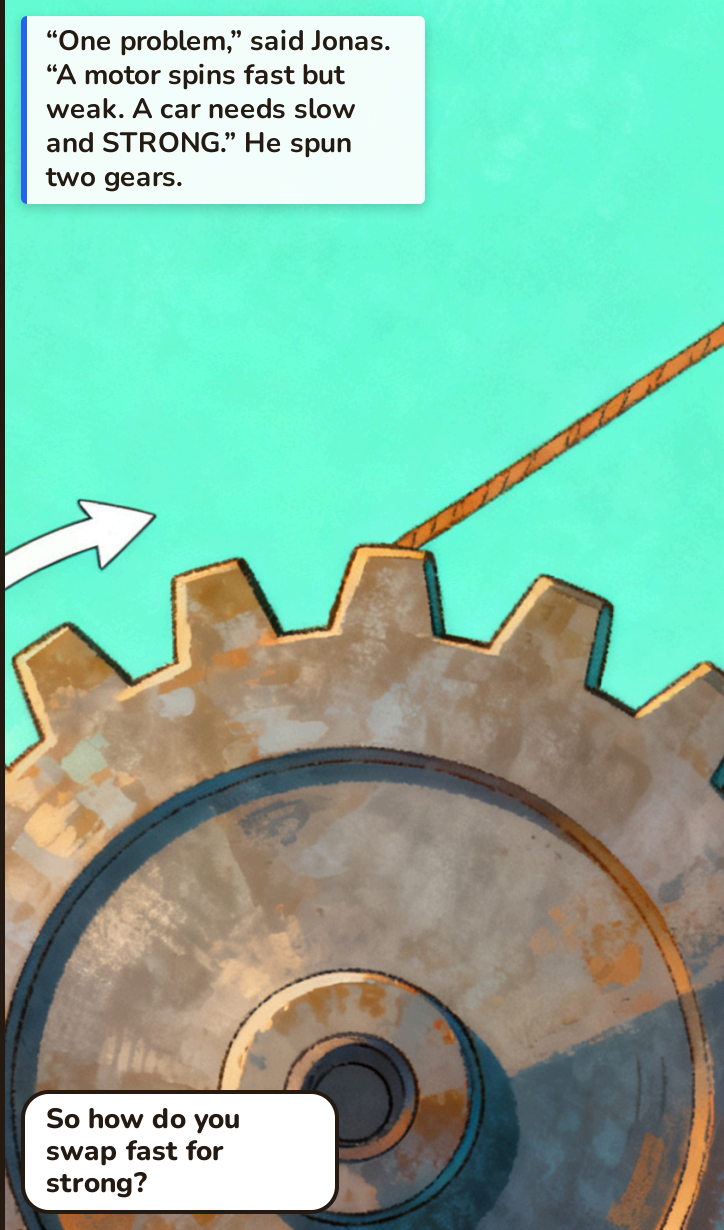
Forever, if you let it.

 SIRI'S SECRET NOTEBOOK · DOOR 1, HALF OPEN

Coil + electricity = magnet. Flip magnets in a ring = a spinning shaft = an **ELECTRIC MOTOR**. That's the muscle. Electricity and magnets are secretly the **SAME** thing?! ⚡

GEARS THAT MULTIPLY MIGHT

4a Door Two: turning a whisper into a lift



"One problem," said Jonas. "A motor spins fast but weak. A car needs slow and **STRONG**." He spun two gears.

So how do you swap fast for strong?



"Gears. A small fast gear turns a big slow one. Speed goes down, strength shoots UP. Ours are a clever flexing kind."

Trade the speed you don't need for the strength you DO!

★ WORTH REMEMBERING

A gear is a **strength machine**: give up spinning speed and you get lifting power back, like low gear on a bike up a hill. The right gears turn a whisper of a motor into an arm that hoists a car. 💪

The proof: an arm raised a whole car overhead, easy as a balloon.



It's not even TRYING!

Then, softly, the same arm cradled an egg. Didn't crack it.



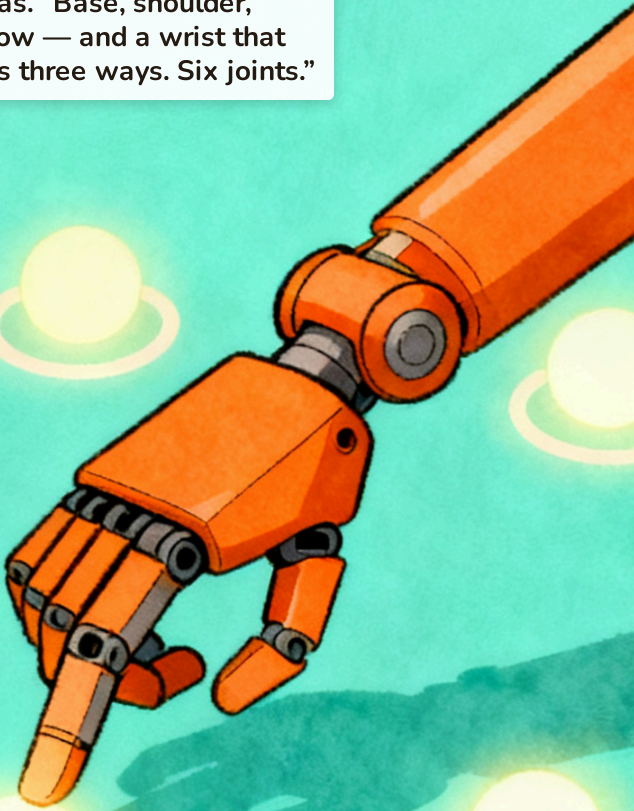
Strong as a crane.
Gentle as YOU.

 SIRI'S SECRET NOTEBOOK • DOOR 2 UNLOCKED

Motor = fast + weak. Gears trade speed for **STRENGTH** (like bike gears!). A whisper becomes a car-lift. Same arm, gentle enough for an egg. 🥚💪

SIX WAYS TO MOVE

“Watch it dance,” said Jonas. “Base, shoulder, elbow — and a wrist that rolls three ways. Six joints.”



It can reach every corner!

He bent and twisted his own arm. The robot copied every move. “Notice? Yours has about the same.”

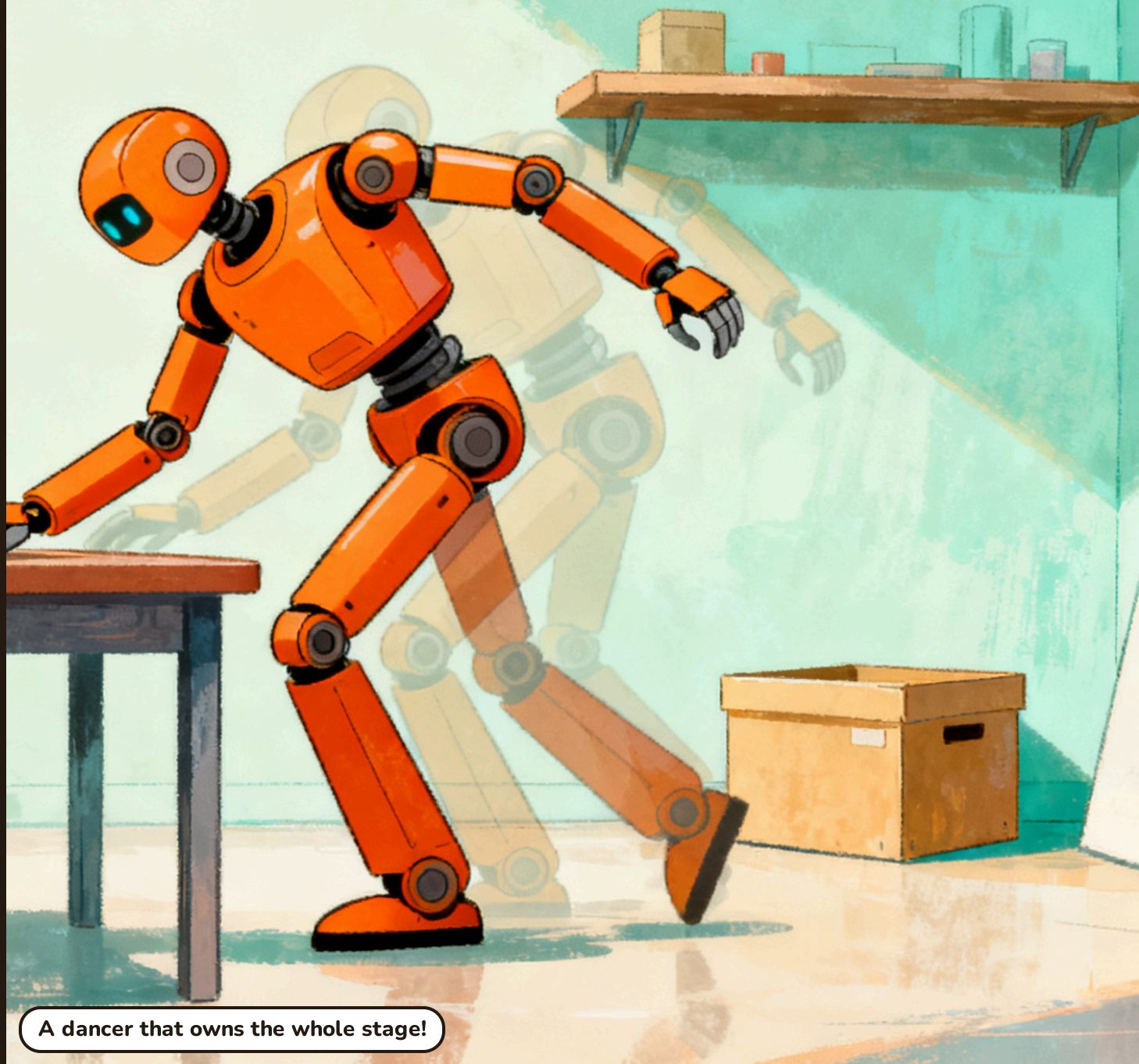


We're built the SAME way!

★ WORTH REMEMBERING

Engineers call each joint a **degree of freedom**. With six, an arm can put its hand at any point, at any angle — the exact freedom your own shoulder-to-wrist gives you. Fewer joints, fewer tricks. 🤖

The arm swept through a hundred poses at once — high shelf, low box, slanted panel — never stuck.



A dancer that owns the whole stage!

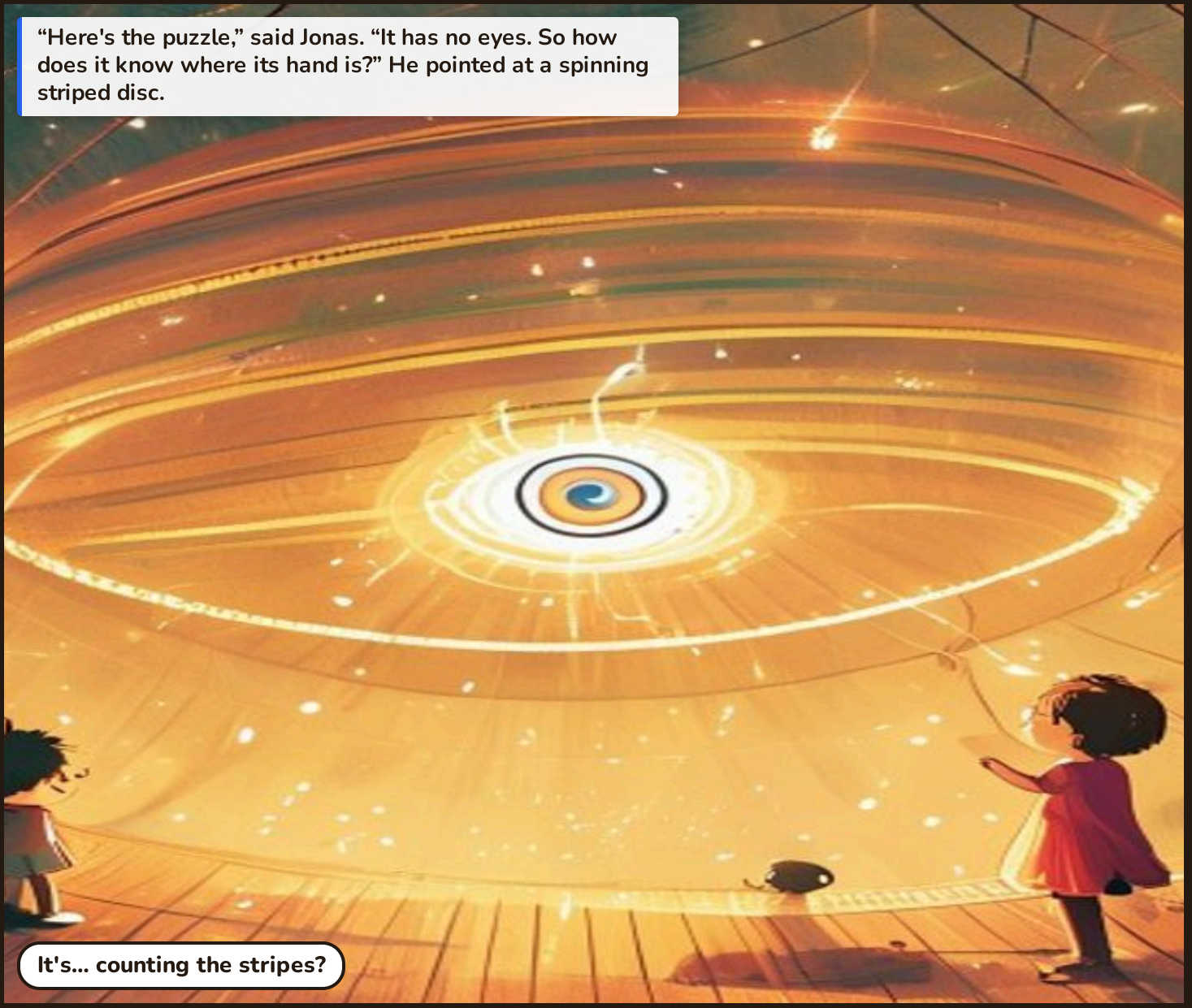
 SIRI'S SECRET NOTEBOOK • DOOR 3 UNLOCKED

Six joints = six 'degrees of freedom' = reach ANY point at ANY angle. Same as my own arm. That's why robot arms look so alive when they move. 🤖

THE SENSE OF WHERE

6a Door Four: knowing without seeing

"Here's the puzzle," said Jonas. "It has no eyes. So how does it know where its hand is?" He pointed at a spinning striped disc.



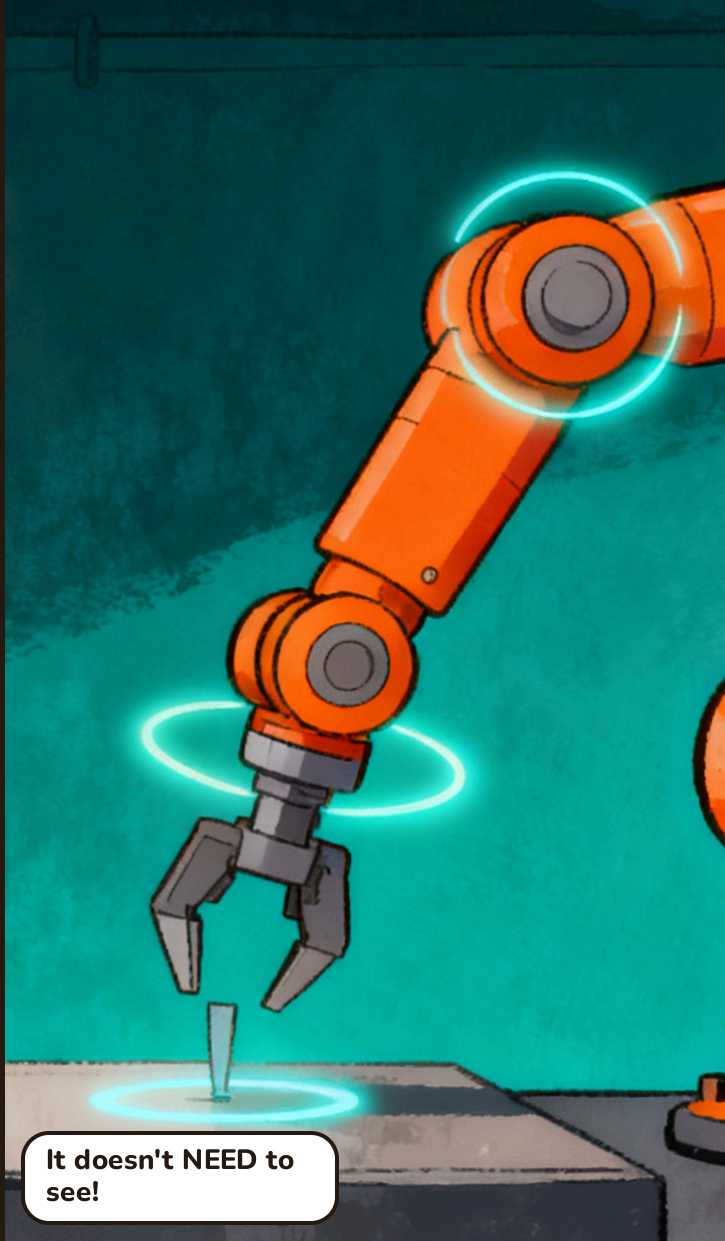
It's... counting the stripes?

★ WORTH REMEMBERING

Every joint hides a **counting wheel** — an encoder — with thousands of tiny stripes. Count the stripes as it turns and you know the exact angle, finer than a whisker. The arm can't see. It **counts**.

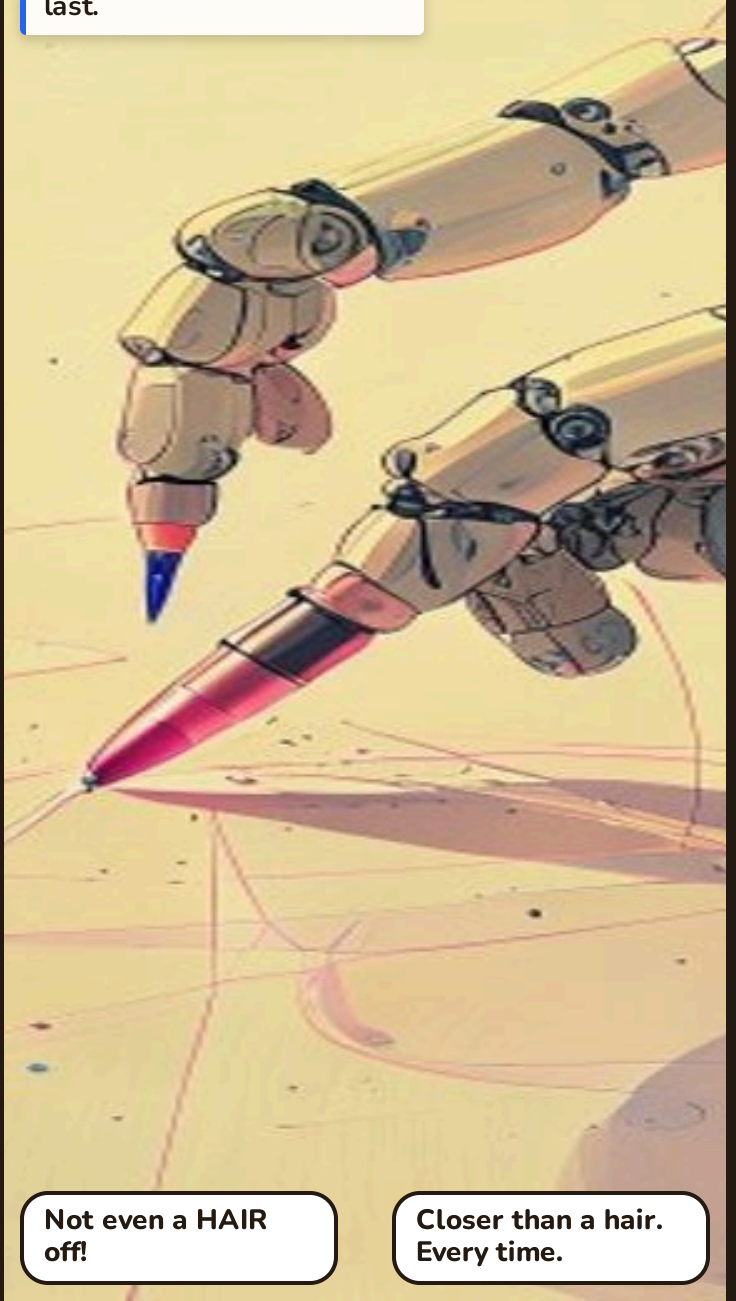
1 2
3 4

Jonas flicked the lights off.
The arm kept working,
perfectly, in the dark.
Glowing rings at each joint.



It doesn't NEED to
see!

It stamped the same dot
ten thousand times. Every
dot landed exactly on the
last.



Not even a HAIR
off!

Closer than a hair.
Every time.

 SIRI'S SECRET NOTEBOOK · DOOR 4, HALF OPEN

No eyes — the arm COUNTS stripes on a wheel to feel each joint's angle.
Works with the lights OFF. That's how it always knows exactly where its
hand is. 

NEVER MISSING

The tip hovered over a glowing cross. Check. Nudge. Check. Nudge. A thousand times a second.

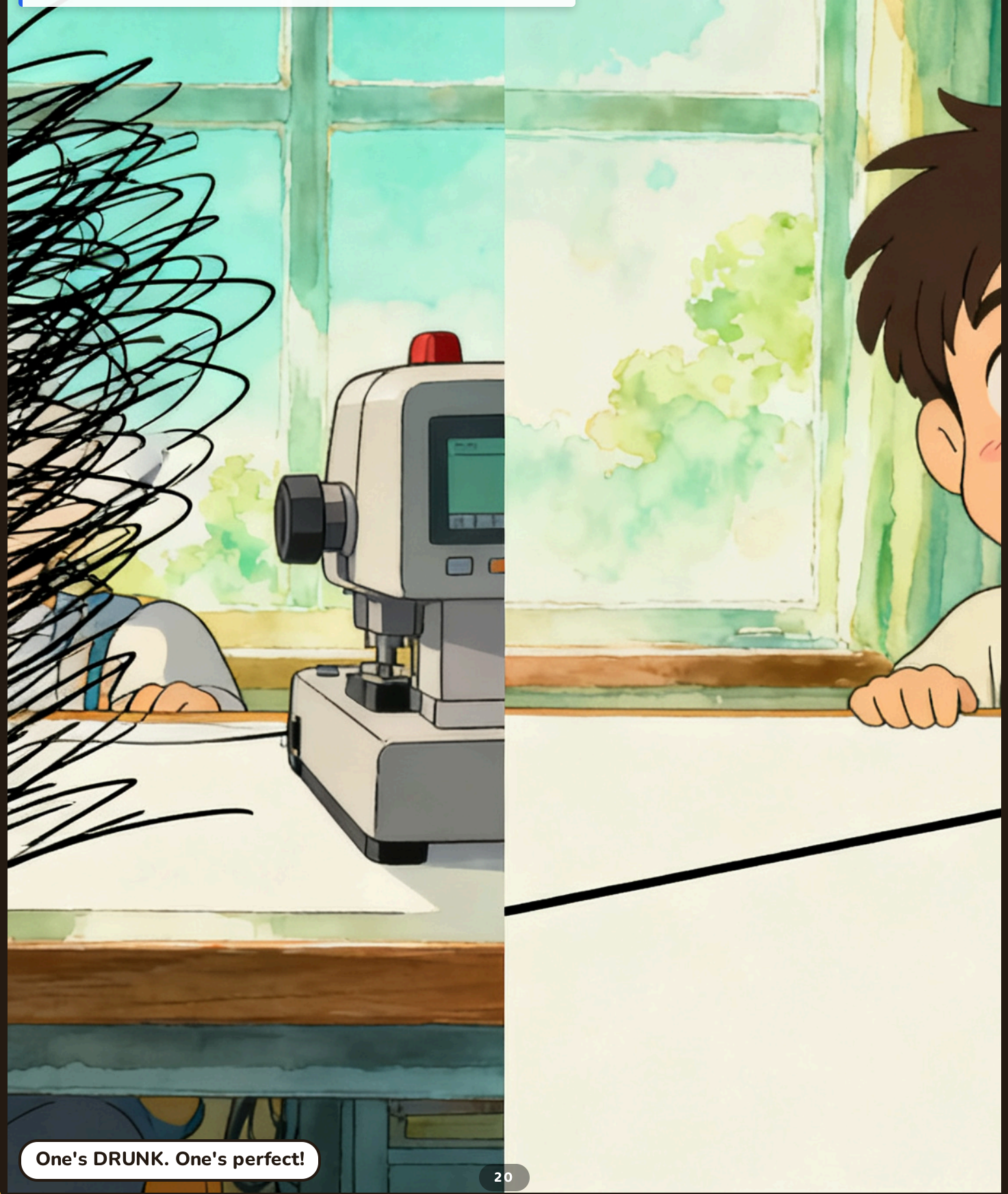


It keeps CORRECTING itself!

★ WORTH REMEMBERING

Here's the whole secret, and it runs far more than robots: **aim, measure, fix the gap — repeat.** A thousand times a second. Engineers call this loop 'feedback,' and it's why a robot never wobbles and never gets bored. 🎯

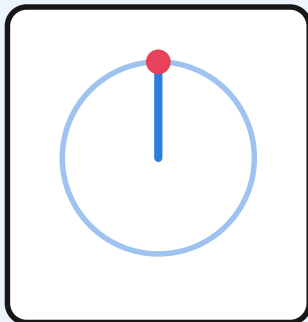
Jonas showed two lines: one shaky machine with no feedback, one steady arm that fixed itself as it drew.



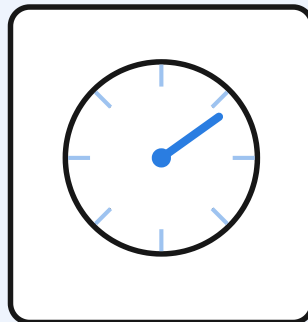
One's DRUNK. One's perfect!



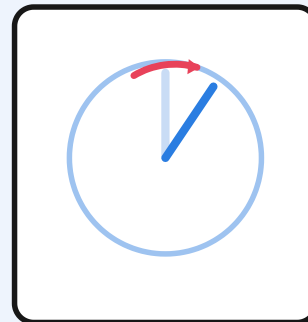
HOW THE ARM NEVER MISSES



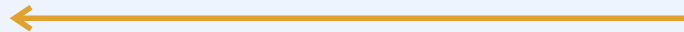
AIM
set target angle



MEASURE
count the stripes

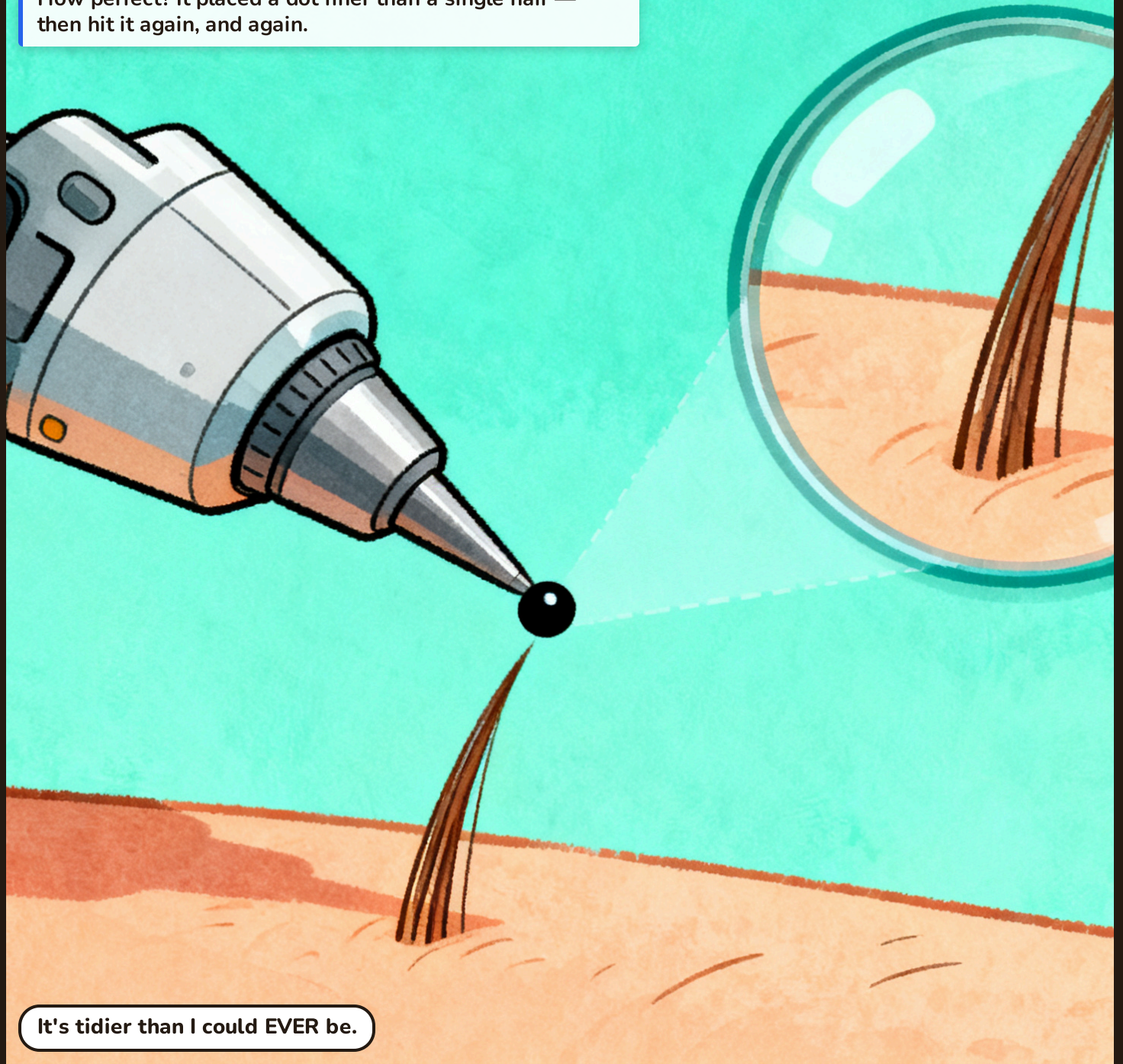


CORRECT
nudge the motor



repeat 1,000× a second

How perfect? It placed a dot finer than a single hair — then hit it again, and again.



It's tidier than I could EVER be.

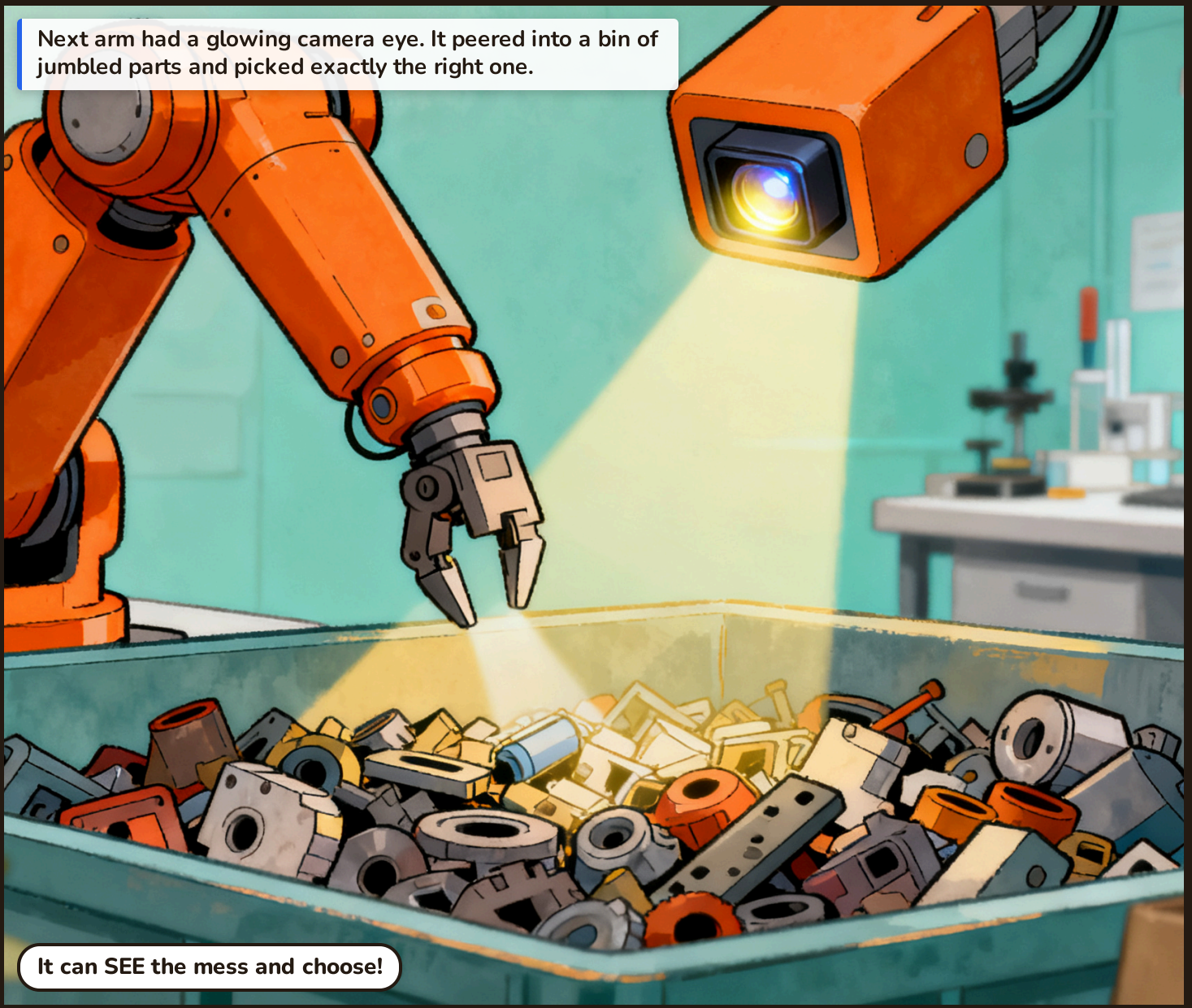
 SIRI'S SECRET NOTEBOOK · DOOR 4 UNLOCKED

The magic loop: AIM → MEASURE (count stripes) → CORRECT → repeat, 1,000× a second. That 'feedback' is why arms never wobble. Same dot 10,000 times, finer than a hair. 🎯

THE EYES AND THE SKIN

8a Door Five: giving the arm senses

Next arm had a glowing camera eye. It peered into a bin of jumbled parts and picked exactly the right one.



It can SEE the mess and choose!

★ WORTH REMEMBERING

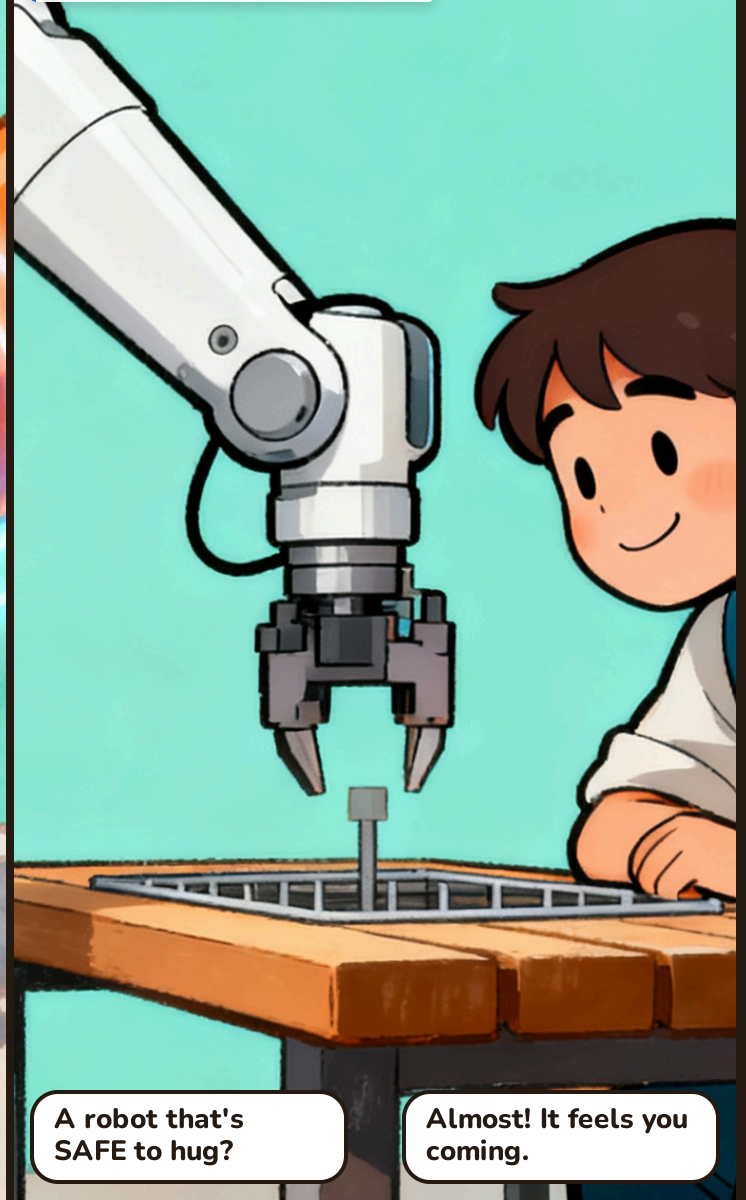
A camera plus a clever program gives the arm **eyes**: it spots a part in any tangle, works out which way it's turned, and grabs it. No more parts lined up in neat trays — the arm just looks. 👁

Another arm pressed a spongy block — then eased off the instant it felt resistance. Rings glowed at its wrist.



It can FEEL how hard it pushes!

And this one worked right beside a smiling worker — no cage — slowing the moment she leaned in.



A robot that's SAFE to hug?

Almost! It feels you coming.

 SIRI'S SECRET NOTEBOOK · DOOR 5 UNLOCKED

EYES: camera + brain → picks the right part from a jumble. SKIN: force sensors → feels how hard it pushes → eases off. That's how 'cobots' work safely beside people. 👁️👐

THE MIND THAT PLANS

“Who tells it what to do?” Jonas took the arm's hand and guided it once. It remembered every move.



You TEACH it like a puppy!

★ WORTH REMEMBERING

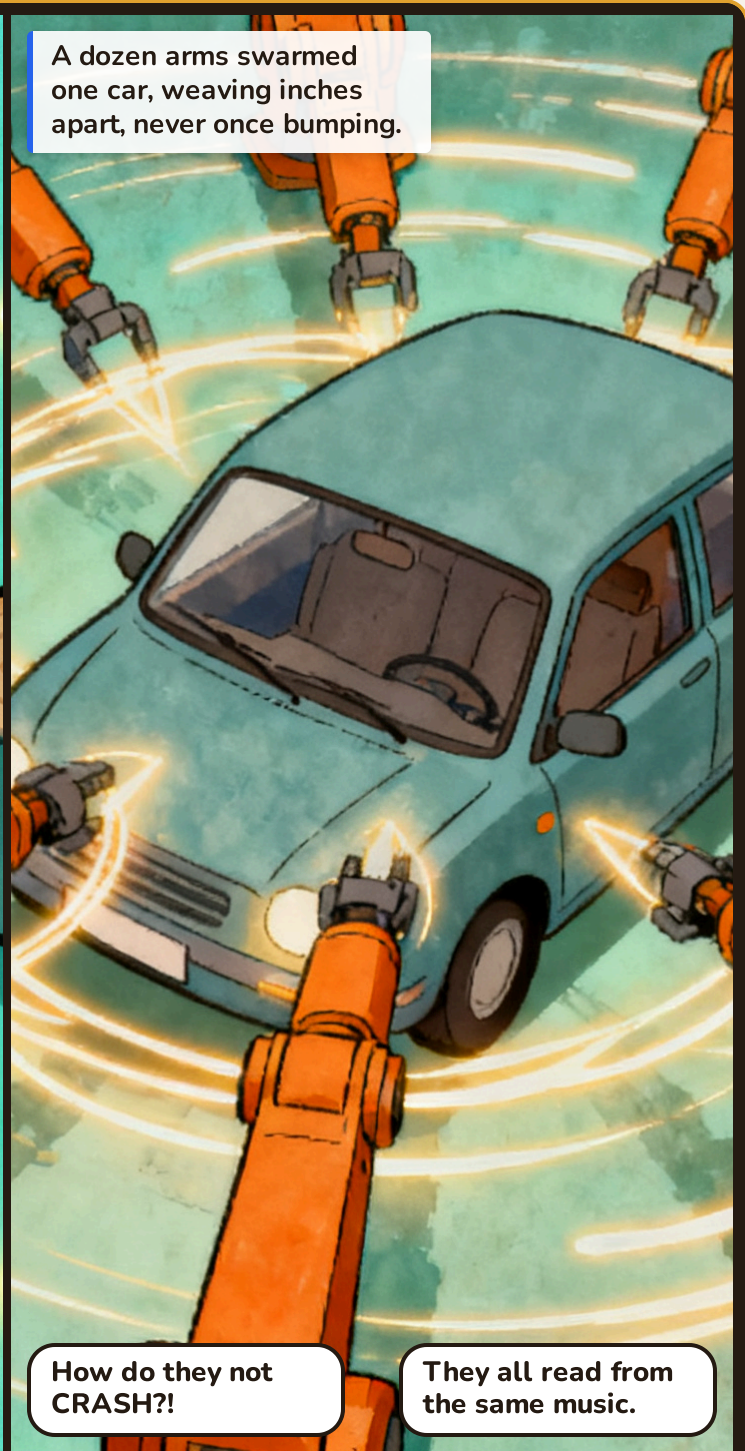
Two ways to teach an arm: write it careful instructions, or simply **guide its hand** and let it copy. Behind both, a planner draws the smartest path — smooth, quick, and never crashing into anything. 🧠

On a screen, a glowing path curved around obstacles from start to goal. "The plan comes before the move."



It solves the maze BEFORE it steps!

A dozen arms swarmed one car, weaving inches apart, never once bumping.



How do they not CRASH?!

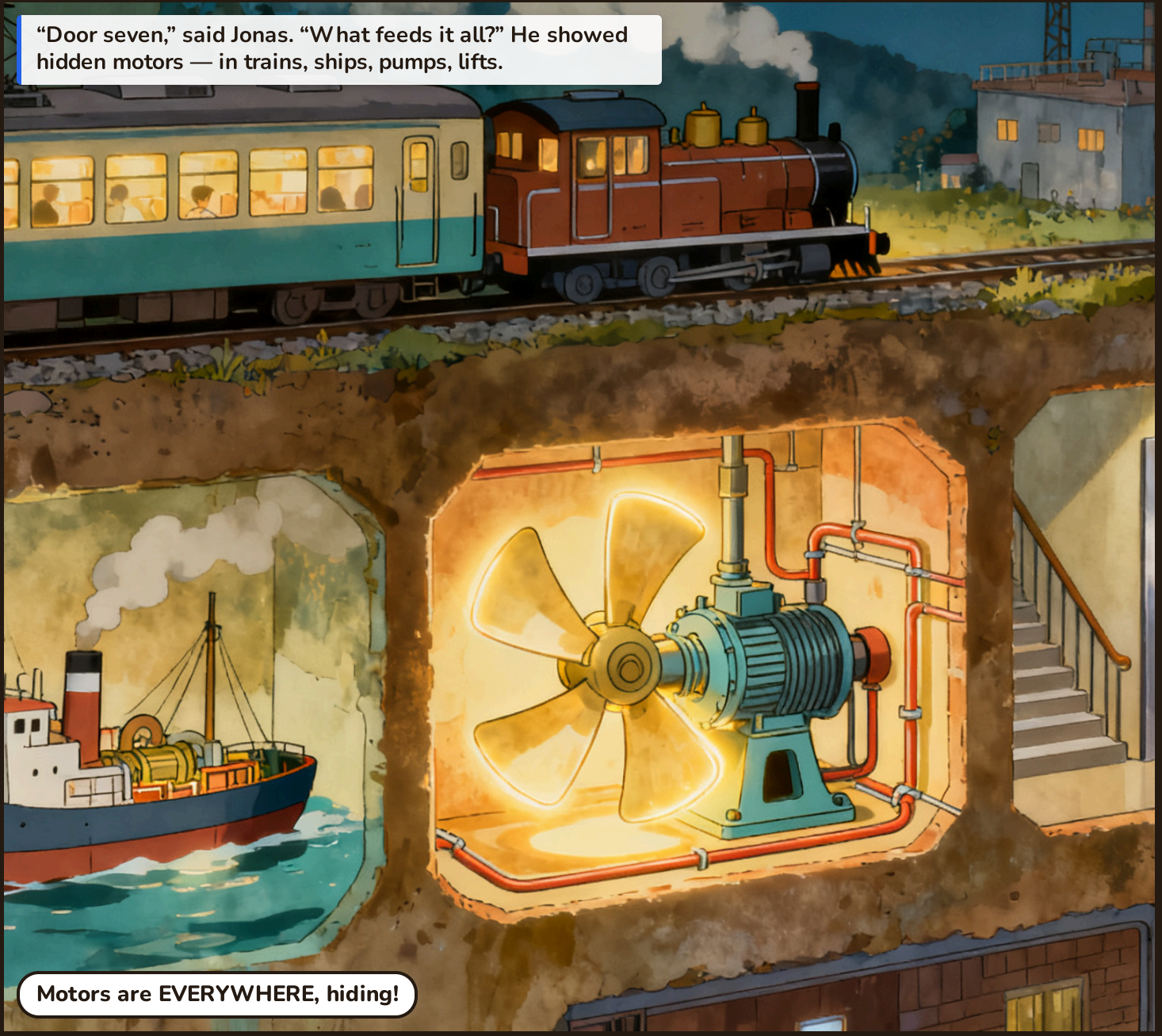
They all read from the same music.

 SIRI'S SECRET NOTEBOOK · DOOR 6 UNLOCKED

Teach an arm by writing rules OR guiding its hand. A 'planner' finds the smoothest safe path first, THEN moves. A dozen arms share one plan → they dance, never crash. 

THE RIVER OF POWER

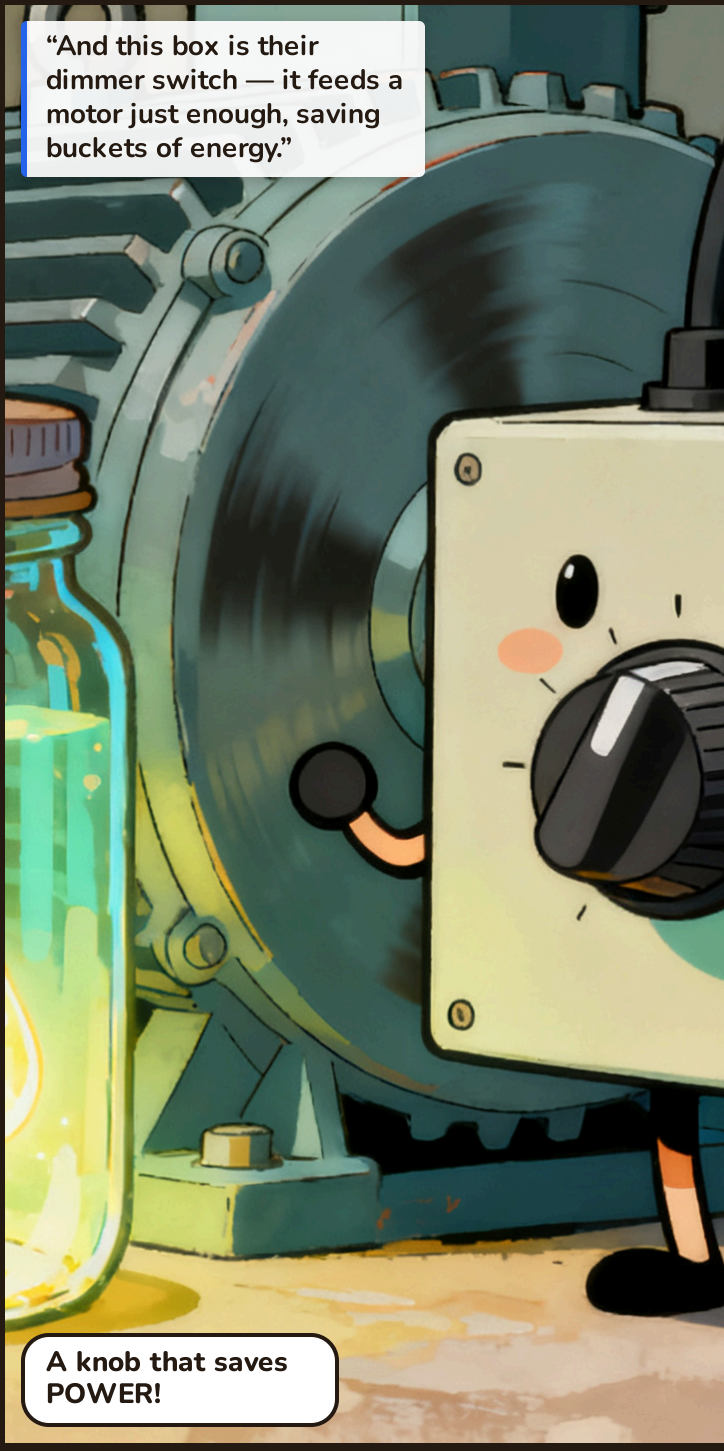
"Door seven," said Jonas. "What feeds it all?" He showed hidden motors — in trains, ships, pumps, lifts.



Motors are EVERYWHERE, hiding!

★ WORTH REMEMBERING

The same motor magic that swings the arm quietly runs the world: trains, ships, elevators, the pump in your building. Most machines that move are electric muscles, working out of sight. ⚙️



“And this box is their dimmer switch — it feeds a motor just enough, saving buckets of energy.”

A knob that saves **POWER!**



Then a night city from above: rivers of electricity flowing from a power station to every home and factory.

Someone has to guide **ALL** that power!

 SIRI'S SECRET NOTEBOOK · DOOR 7 UNLOCKED

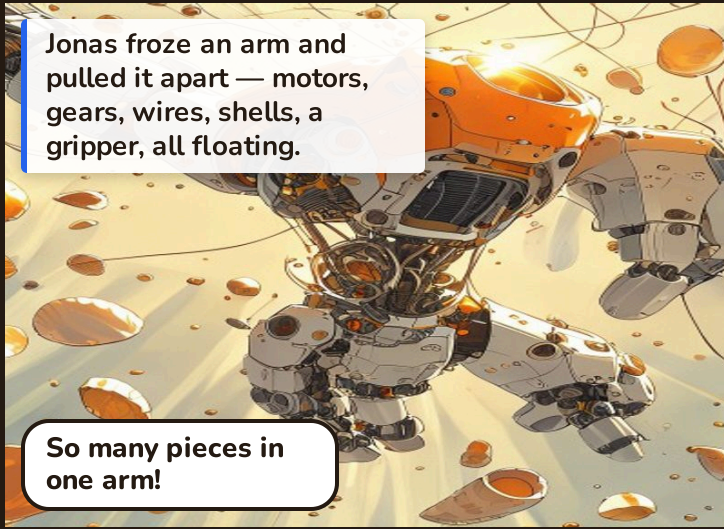
The arm's motor magic runs **EVERYTHING**: trains, ships, lifts, pumps. Smart 'drives' feed motors just enough → save energy. And a whole grid guides the power. Seven doors **OPEN!** But who conducts it all? 🎵

A MILLION HANDS



Golden threads from many countries — motors, steel, gears, code — all arcing to one bright arm.

The whole planet builds ONE arm!



Jonas froze an arm and pulled it apart — motors, gears, wires, shells, a gripper, all floating.

So many pieces in one arm!



It starts in the ground: terraced mines at dawn, trucks the size of houses. Copper for the wires. Iron for the steel.

Every arm starts as a piece of a MOUNTAIN.



The miner. The winder. The gear-cutter. The coder. The tester. The mechanic. Each did one small part.

But **NOBODY** builds the whole thing?!

★ WORTH REMEMBERING

Sit with that: **nobody on Earth builds a robot alone.** Each person masters one sliver — and one company conducts a million slivers into a single machine. And robots don't steal jobs; they take the dull and dangerous ones so humans do the clever ones. 🙌

📖 SIRI'S SECRET NOTEBOOK · DOOR 7, PART ONE

Mountain → mine → motors + gears + steel + code → thousands of hands → one arm. No single person knows the whole recipe. So the real question: WHO'S THE CONDUCTOR? ...I think I'm about to find out.

THE DANCE OF A THOUSAND STEPS

The last door of the journey: a hall where people and machines build the ARMS themselves. Robot, human, robot, human.

Next door: the torture lab. Arms bent, baked, frozen, shaken — a hundred thousand times each.

You **BREAK** them on purpose?!

Better here than in a customer's factory.

And a whole team ready to visit any arm, anywhere, for twenty years. Checkups. Spare parts. Tune-ups.

Like family doctors for robots!

Robots building robots?!

People do the parts only a person can.

★ WORTH REMEMBERING

Factory rule, business secret: **a stopped line loses money by the minute**. So a robot's real gift isn't speed — it's **never surprising you**. Reliability you can set your watch by is worth more than raw power. 🕒

At dawn, crates of arms rolled onto trucks and ships,
bound for factories on every continent.

vroooooom



Off to build the whole world!

 SIRI'S SECRET NOTEBOOK · DOOR 7 UNLOCKED

Robots help build robots. Torture lab = reliability insurance. 20-year service team = family doctors. A stopped line bleeds money → 'never surprises you' is the real superpower. 🕒 Now... someone wants to meet me. 💰

WHY A FACTORY SAYS YES

13a Siri's question Flips

"Why buy an arm?" Jonas grinned. "Noon and midnight. Never sick, never bored. The same perfect move, forever."

His balance scale: the arm's price on one side. Everything it makes, day after day, year after year, on the other. CRASH.

A worker that never needs a day off!

People don't pay for the arm. They pay for what it MAKES!

★ WORTH REMEMBERING

Warren's favorite riddle: **price is what you pay, value is what you get**. An arm costs a lot once — then works for a decade without tiring. When the value side crashes the scale down, a factory doesn't feel tricked. It feels grateful. 🍷

And this arm did the scary job — reaching into a red-hot furnace — so no person had to.



Nobody gets hurt now!

 SIRI'S SECRET NOTEBOOK

My question flipped: not 'how does it work' → 'WHY spend a fortune on it?'
Answer #1: tireless + perfect + it takes the dangerous jobs. Value >> price =
a very happy factory.

THE LOYALTY OF MACHINES

Answer #2: once a factory's whole line is built around ABB's arms and software, everything fits them.

"Rip them out for a rival brand? You'd rebuild the whole line, retrain everyone, risk months of chaos."

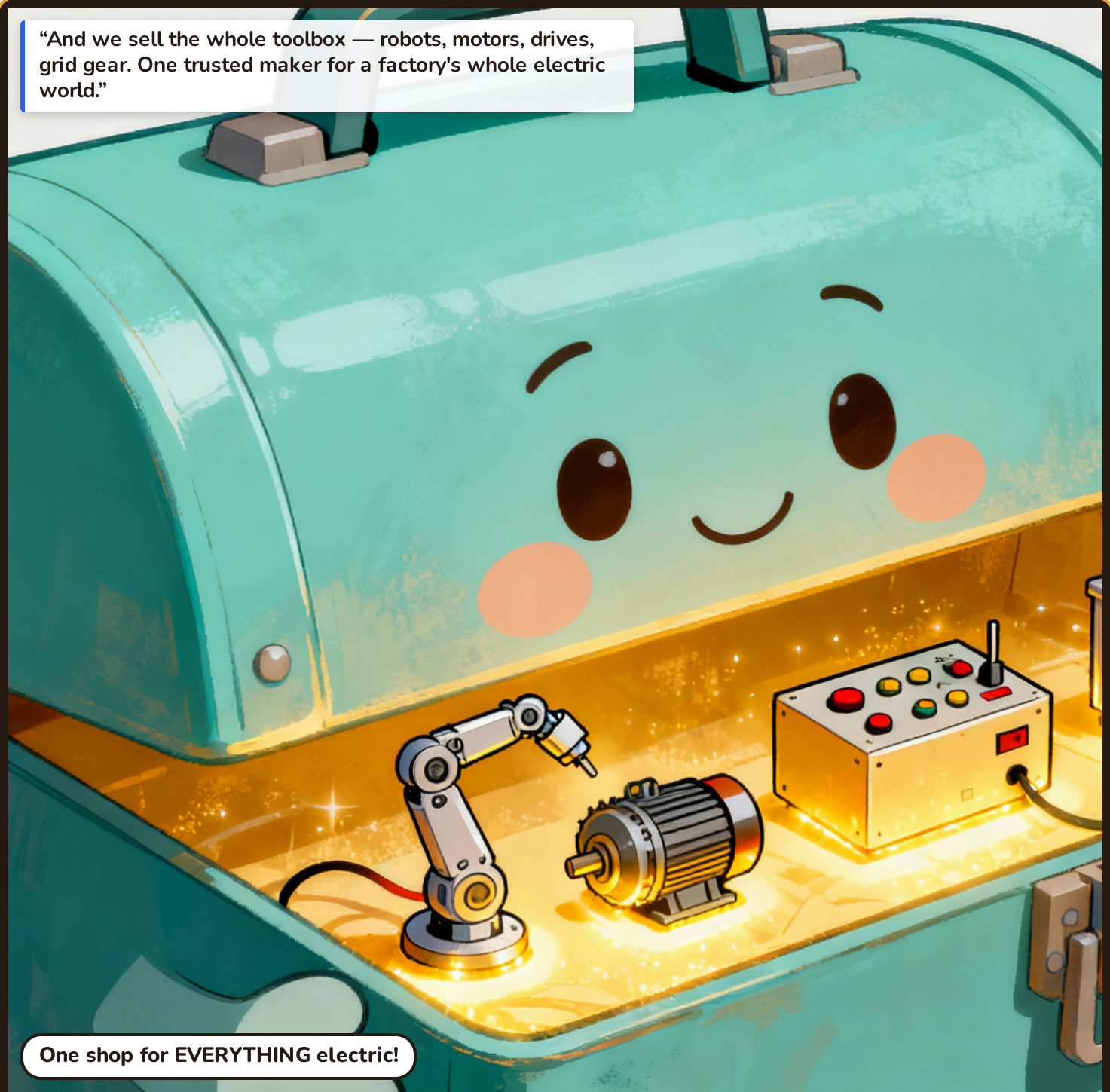
It's all woven TOGETHER.

So almost nobody ever leaves!

★ WORTH REMEMBERING

Grown-ups call this a **switching cost** — a wall made of hassle. It's not a chain; the factory stays because leaving is a nightmare and staying just works. And the service bond keeps earning money for **decades** after the sale. 🔗

"And we sell the whole toolbox — robots, motors, drives, grid gear. One trusted maker for a factory's whole electric world."



One shop for EVERYTHING electric!

SIRI'S SECRET NOTEBOOK

Answer #2: LOYALTY, built two ways. Switching costs (leaving = nightmare) + the whole toolbox from one trusted maker. Sell once, serve for 20 years. Sneaky-smart. 

THE PRICE OF TRUST

Answer #3 had its own glow: a line that had run three years without stopping once.



THREE years without a hiccup?!

"Buyers don't want the flashiest robot," said Jonas. "They want the one that WON'T let them down at 3 a.m."

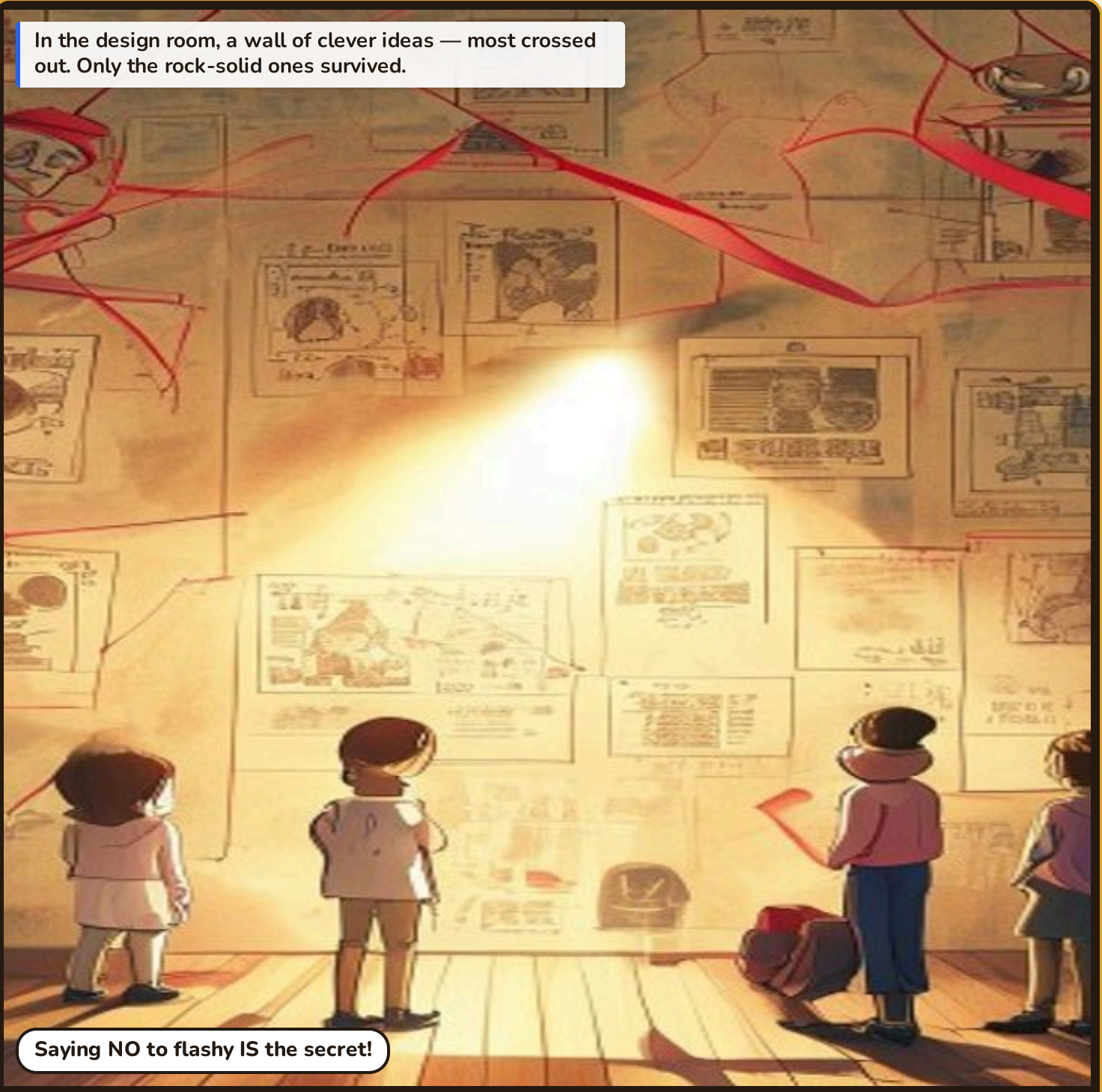


Boring is beautiful here!

★ WORTH REMEMBERING

Answer #3: **trust, built on purpose**. When a machine just works, year after year, a promise forms in a buyer's mind: *anything with this name will keep running*. That's a **brand** — and in machines, it's spelled R-E-L-I-A-B-L-E. ✓

In the design room, a wall of clever ideas — most crossed out. Only the rock-solid ones survived.



Saying NO to flashy IS the secret!

SIRI'S SECRET NOTEBOOK

Answer #3: TRUST = reliability kept so long it becomes a name you bet your factory on. Built from a thousand no's to flashy-but-risky. Value → Loyalty → Trust. Now — WHO built all this? Compass is spinning 🧭

THE COMPANY TWO COUNTRIES BUILT



The compass dragged them through the dawn to a gleaming campus, orange arms waving from glass halls. Siri read the name on the gate.

ABB! The arms that never tire are ABB's robots!

"It began in Sweden, 1883. A company called ASEA taught electricity to do real work — light, motors, power."

1883?! Older than my great-great-grandma!

"And in Switzerland, 1891, two friends built Brown Boveri — giant turbines and generators that **MADE** the power."

Two countries, two electric giants!

"For a hundred years they electrified the world — trams, trains, whole cities glowing awake for the first time."

They helped switch the LIGHTS on for everyone!

★ WORTH REMEMBERING

Freeze on this: **no giant starts as a giant.** Two small workshops, one Swedish and one Swiss, each spent a century learning to tame electricity and motion — the two hardest, most useful tricks of the modern age. Then something bold happened...

📖 SIRI'S SECRET NOTEBOOK • THE REVEAL

ABB! Two ancestors: ASEA (Sweden, 1883) + Brown Boveri (Switzerland, 1891). One mastered electric motors, the other giant power machines. A hundred years each. What happened next?! **TURN THE PAGE.**

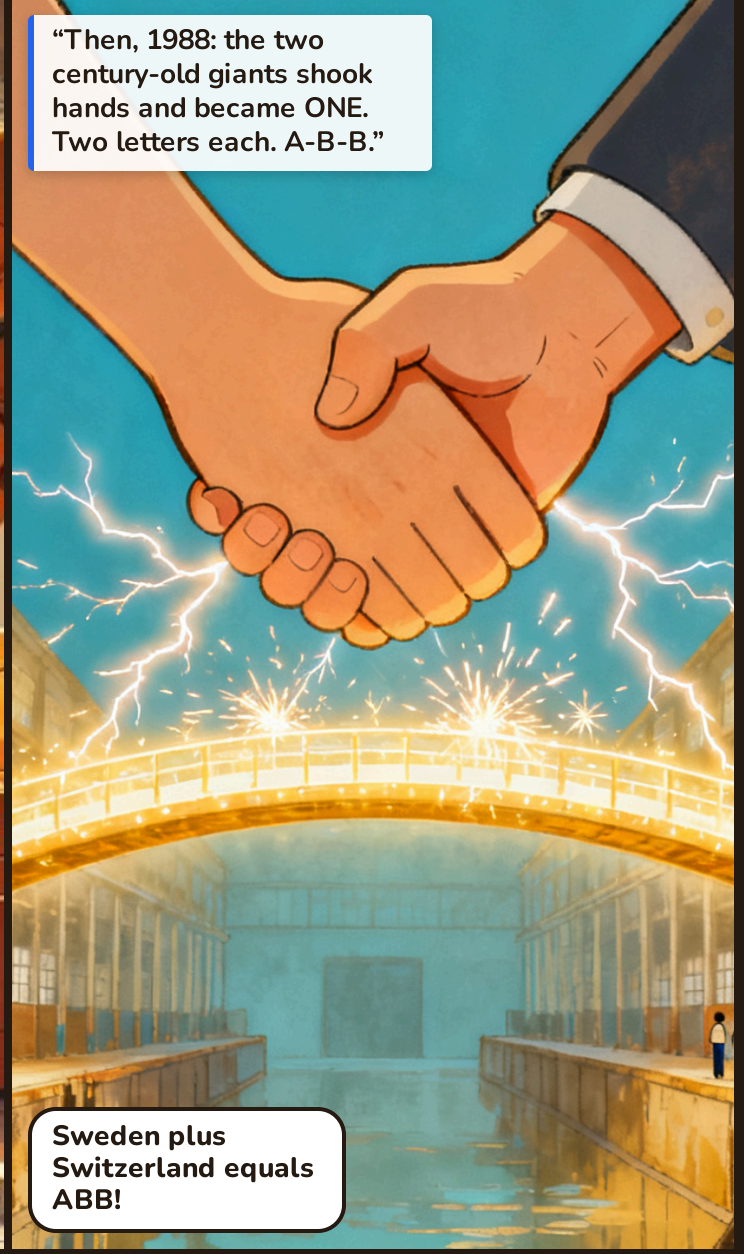
THE MERGER OF THE CENTURY

"First, a wonder. In 1974, ASEA built the world's first all-electric robot arm, run by a computer brain."



The great-grandparent of every arm here!

"Then, 1988: the two century-old giants shook hands and became ONE. Two letters each. A-B-B."

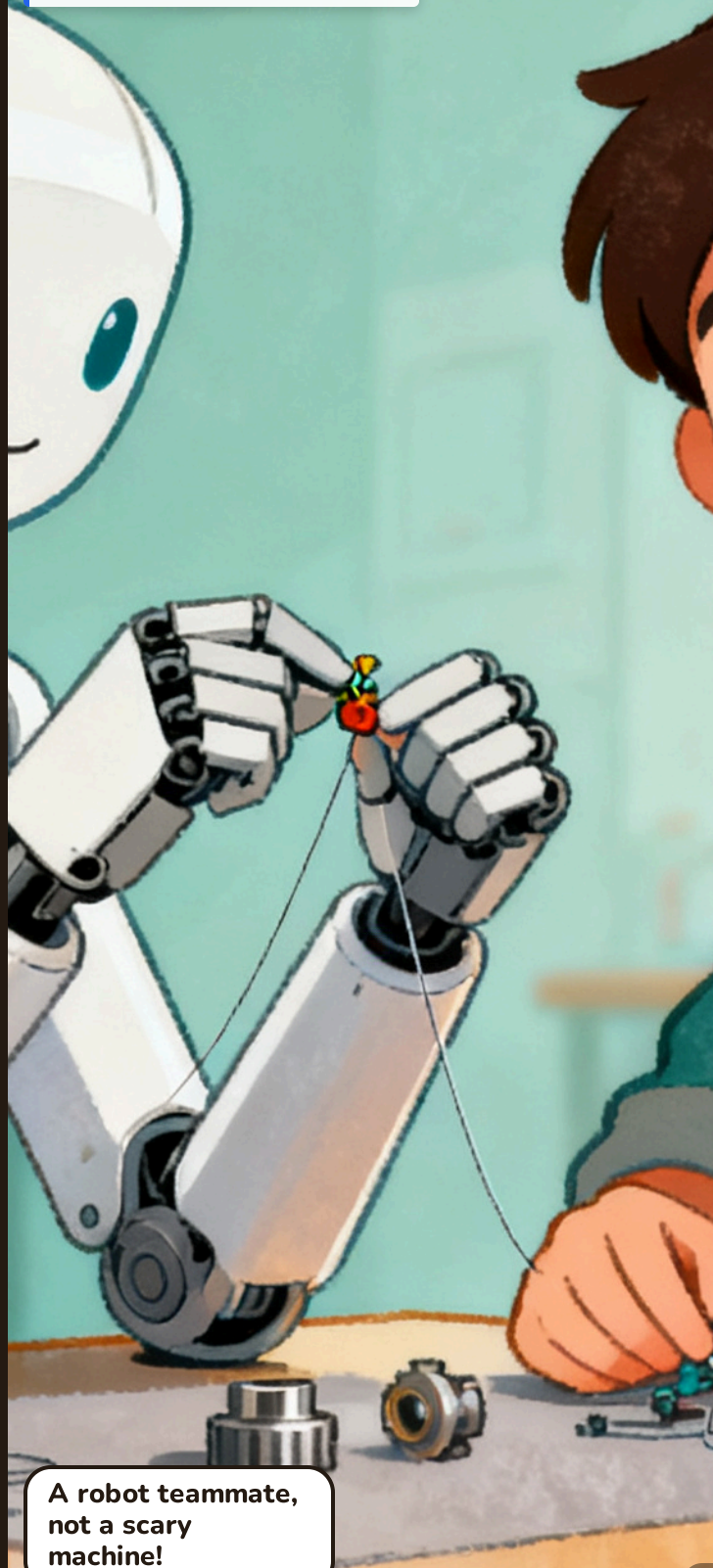


Sweden plus Switzerland equals ABB!

★ WORTH REMEMBERING

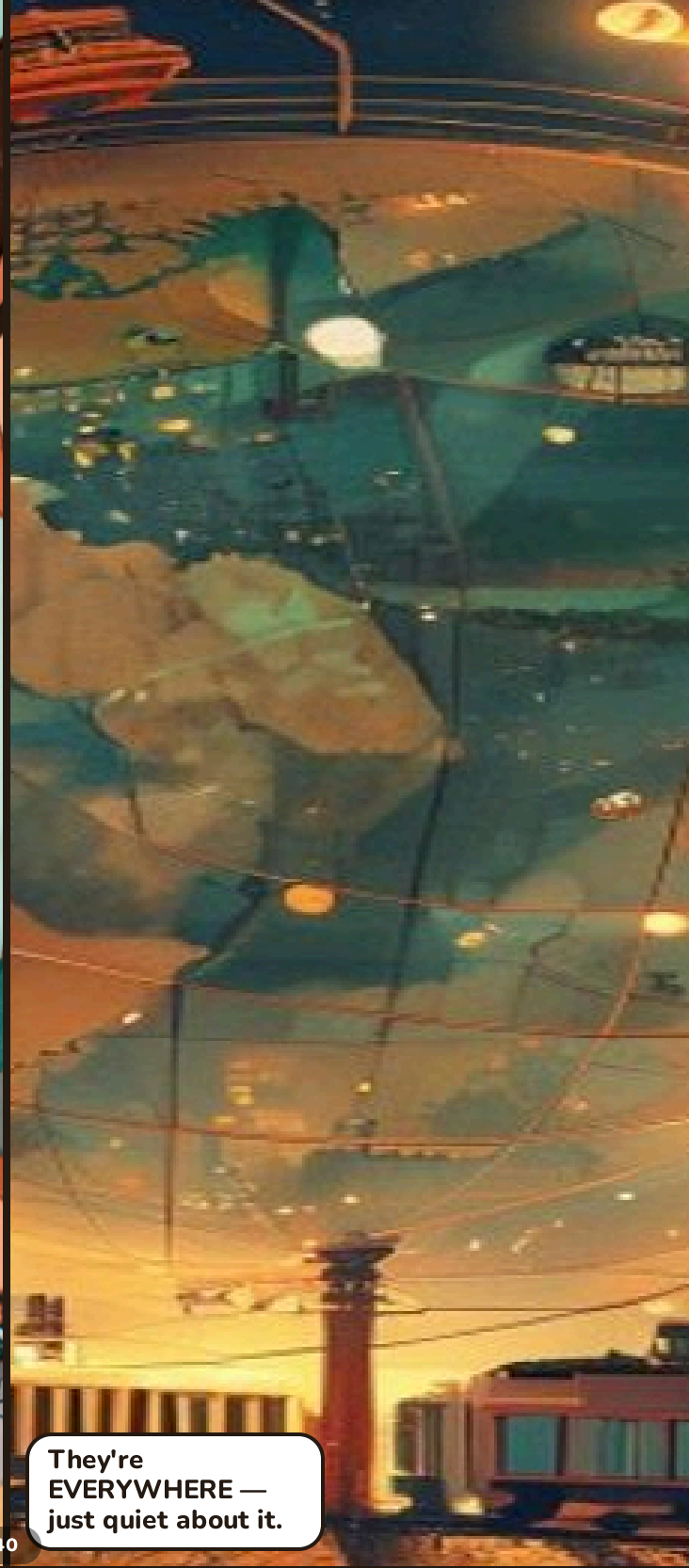
The bravest move in the story: two proud, ancient rivals chose to **join forces instead of fighting**. Electricity (ASEA's gift) plus giant machines (Brown Boveri's gift) — together they could electrify AND automate the whole world. One plus one made far more than two. ⚡

“And in 2015 — a gentle two-armed robot named YuMi, built to work sitting beside people, not behind a cage.”



A robot teammate,
not a scary
machine!

Now their motors, robots
and power gear hum in
factories, ships and grids
on every continent.



They're
EVERYWHERE —
just quiet about it.



THE STORY IN TIME

1883

ASEA is born in Sweden — putting electricity to work.

1891

Brown Boveri is born in Switzerland — turbines and power.

1974

ASEA builds the first all-electric, computer-run robot arm.

1988

ASEA + Brown Boveri merge into ABB.

1990s

ABB robots spread through car factories worldwide.

2015

YuMi — a friendly two-armed robot made to work beside people.

Today

Millions of ABB machines run factories, ships and power grids. ⚡



SIRI'S SECRET NOTEBOOK

1974: first electric robot arm (ASEA). 1988:
Sweden + Switzerland MERGE → ABB.
Electricity + big machines = electrify AND
automate the world. 2015: YuMi, the friendly
teammate. One plus one made more than two.



THE CASTLE OF STEEL

A warm glow. A whiff of cherry cola. Warren and Charlie, the partners from Omaha, before a steel 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 matters for a hundred years, Siri: what keeps rivals OUT?

Walls! I've been collecting them ALL BOOK!

Scarier than any school quiz. And a hundred times more fun.



THE CASTLE WALLS • WHY RIVALS CAN'T COPY IT



Wall One: Built-In For Life

A factory's whole line is built around ABB's arms and software. Leaving means rebuilding everything and retraining everyone. (Grown-ups say: switching costs.)



Wall Two: The Twenty-Year Promise

ABB doesn't just sell a robot — it keeps it running for decades. Spare parts, tune-ups, trust. That bond earns money long after the sale.



Wall Three: The Whole Toolbox

Robots, motors, drives, grid gear — all under one roof. A factory can buy its entire electric world from one trusted maker.



Wall Four: A Century of Know-How

140 years of taming electricity and motion. A rival can copy one robot in a year. Copying a century of hard-won lessons takes a generation.

Charlie tapped his thick glasses. "My trick: turn the telescope around. Don't ask how ABB wins — ask what would DESTROY it. Then check they're not doing it. **Invert, always invert.**"



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



THE CASTLE WALLS • WHY RIVALS CAN'T COPY IT



Crack One: The Slow Years

When the world's economy dips, factories stop buying big machines. Sales can slump for a while through no fault of their own.



Crack Two: Fierce Rivals

Fanuc, KUKA and others make excellent arms too. Standing still for even a year invites them past.



Crack Three: Grown Too Big

A company this vast and old must fight hard to stay quick and curious, or nimble newcomers dart around it.



Crack Four: The Next Wave

Smarter, cheaper, AI-guided robots could reshape the field. Yesterday's leader must keep reinventing to stay tomorrow's.



★ WORTH REMEMBERING

Charlie's ruin-ABB checklist: let the robots grow unreliable. Grow so big and slow a nimble rival darts past. Bet everything on one industry, then watch it slump. Fall asleep as a smarter robot arrives. Now — **just never do those.** Inversion turns worry into a checklist. ✓

Warren raised his cola. "Machines a factory would hate to live without, sold once and served for twenty years, behind four sturdy walls. A steady, needed, patient business like that is the kind I most admire."



The treasure was never the robot!

SIRI'S SECRET NOTEBOOK · THE CASTLE

WALLS: built-in  promise  toolbox  century of know-how .

CRACKS: slow years  fierce rivals  too big  next wave . Charlie:

INVERT. Warren: admire steady, needed, patient businesses. 

THE JUDGE'S QUESTIONS

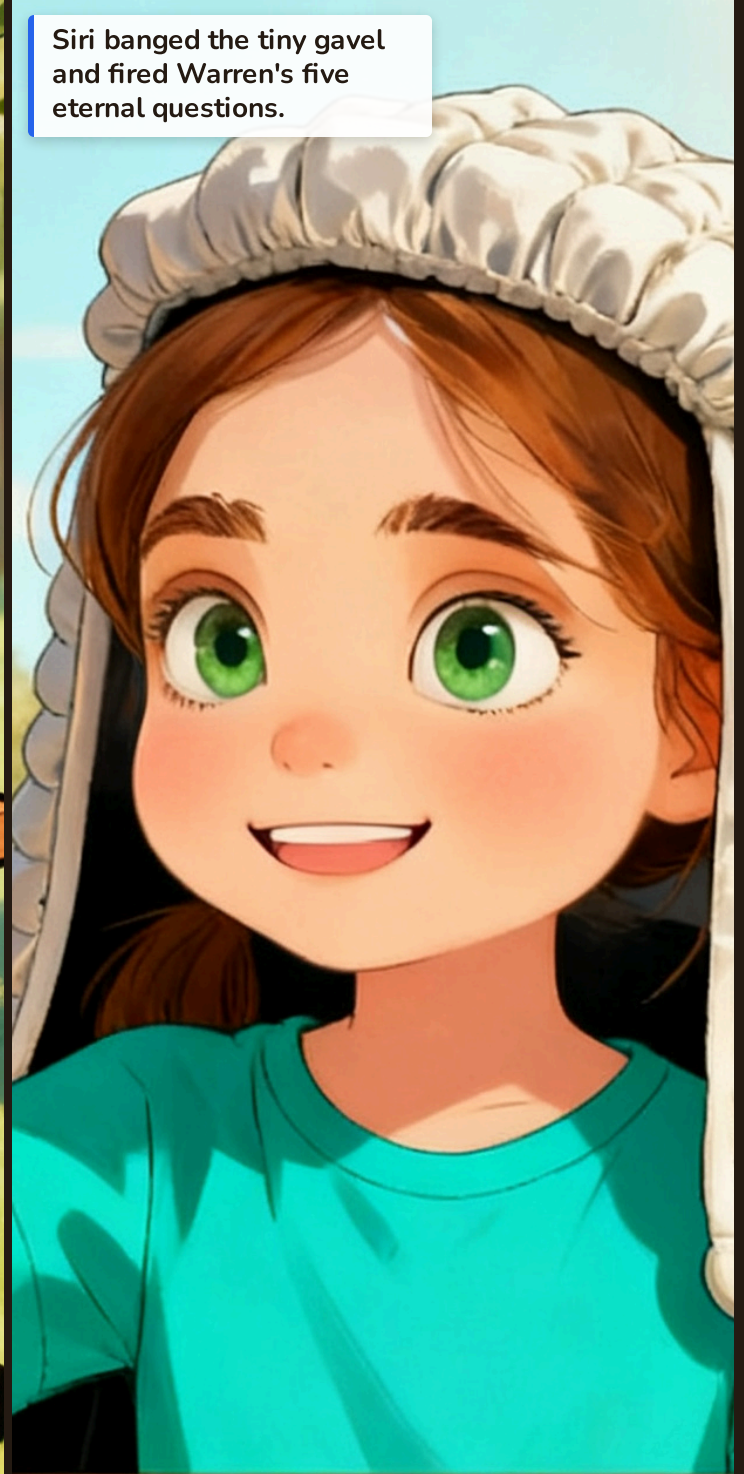
Then Warren built a tiny courtroom in the orchard — and put a ROBOT ARM on the witness stand. “Every business answers a judge someday, Siri. The judge is the future. Today, that's you.”

TOK TOK

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



Order in the court!



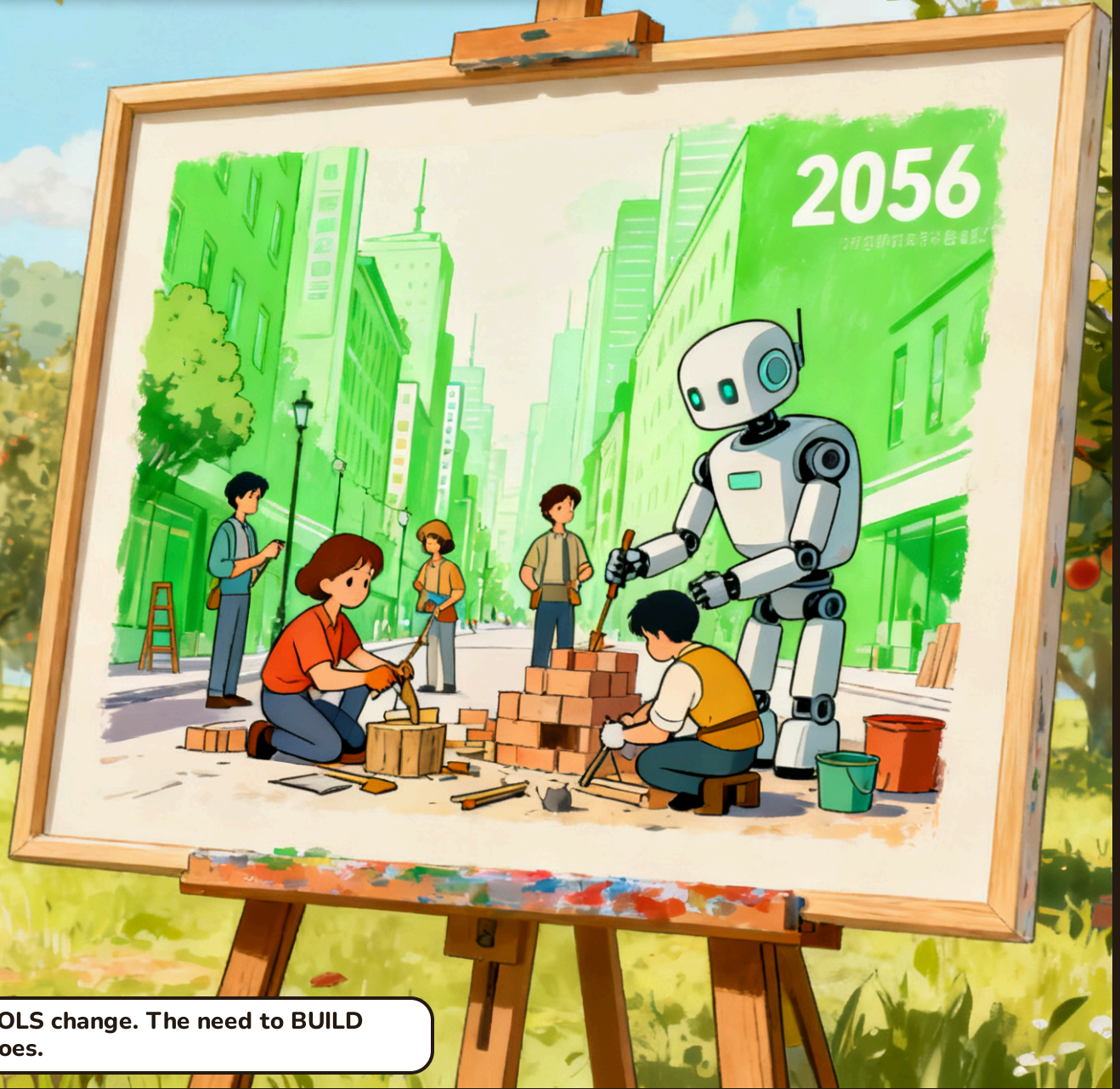
Question one, witness: will factories still **NEED** you in thirty years?



★ WORTH REMEMBERING

The Owner's Court: ⚖️ Enduring need? — 'The world will always build things; building needs tireless hands.' ⚖️ Trust earned? — 'Factories set their watches by me.' ⚖️ Reinvesting wisely? — 'New robots, new senses, new brains, every year.' ⚖️ Copyable with money? — 'One arm, in a year. A century of trust and a whole toolbox? No.' ⚖️ What breaks you? — 'Only growing slow and sleepy.' Court adjourned for lemonade. 🍋

Last exhibit: a painting of 2056. Gentle robots everywhere, building, mending, lifting — the world still humming.



The **TOOLS** change. The need to **BUILD** 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 robots, soap, railways, red fizzy cans — anything. (He never once mentioned a stock price. The judge judges the **BUSINESS**.) ⚖️

THE NEXT THIRTY YEARS

One last walk: a workshop of tomorrow. Gentle robots working shoulder to shoulder with people, no cages at all.



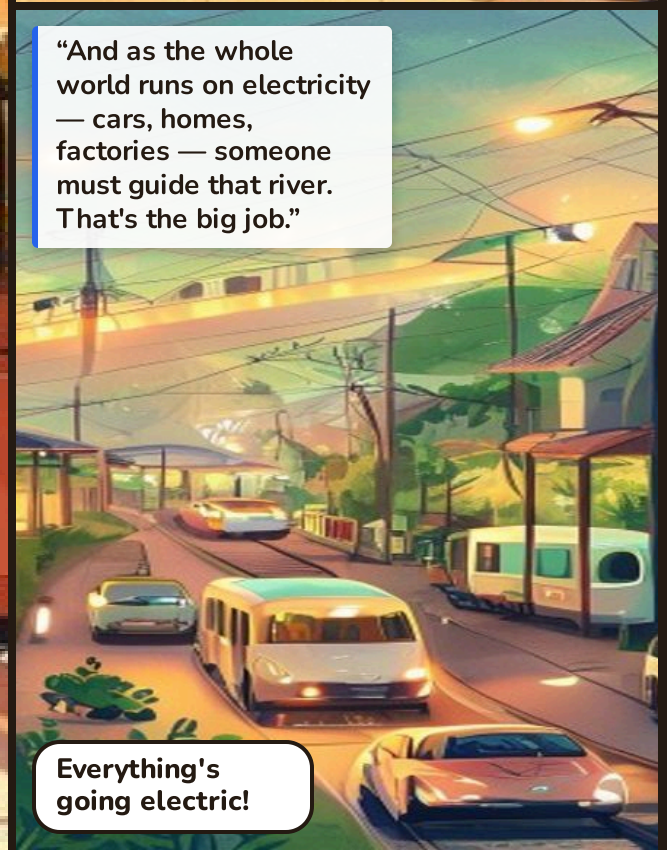
The arms come OUT of their cages!

"The next arms won't just follow rules — they'll LEARN, by watching, the way you learn to ride a bike."



Robots that teach themselves!

"And as the whole world runs on electricity — cars, homes, factories — someone must guide that river. That's the big job."



Everything's going electric!



★ WORTH REMEMBERING

No crystal balls — just visible currents: cobots beside people, robots that learn by watching, and a planet switching to electricity in everything. Siri's rooftop rule: **don't bet on the shape of the arm — bet on the needs.** The winner is whoever keeps the world's trust while the machines get smarter. 🌟

On a rooftop at dusk, she added the honest last line: a robot is a tool. Tools serve people.



Best helper. Never the boss. Same as fire.

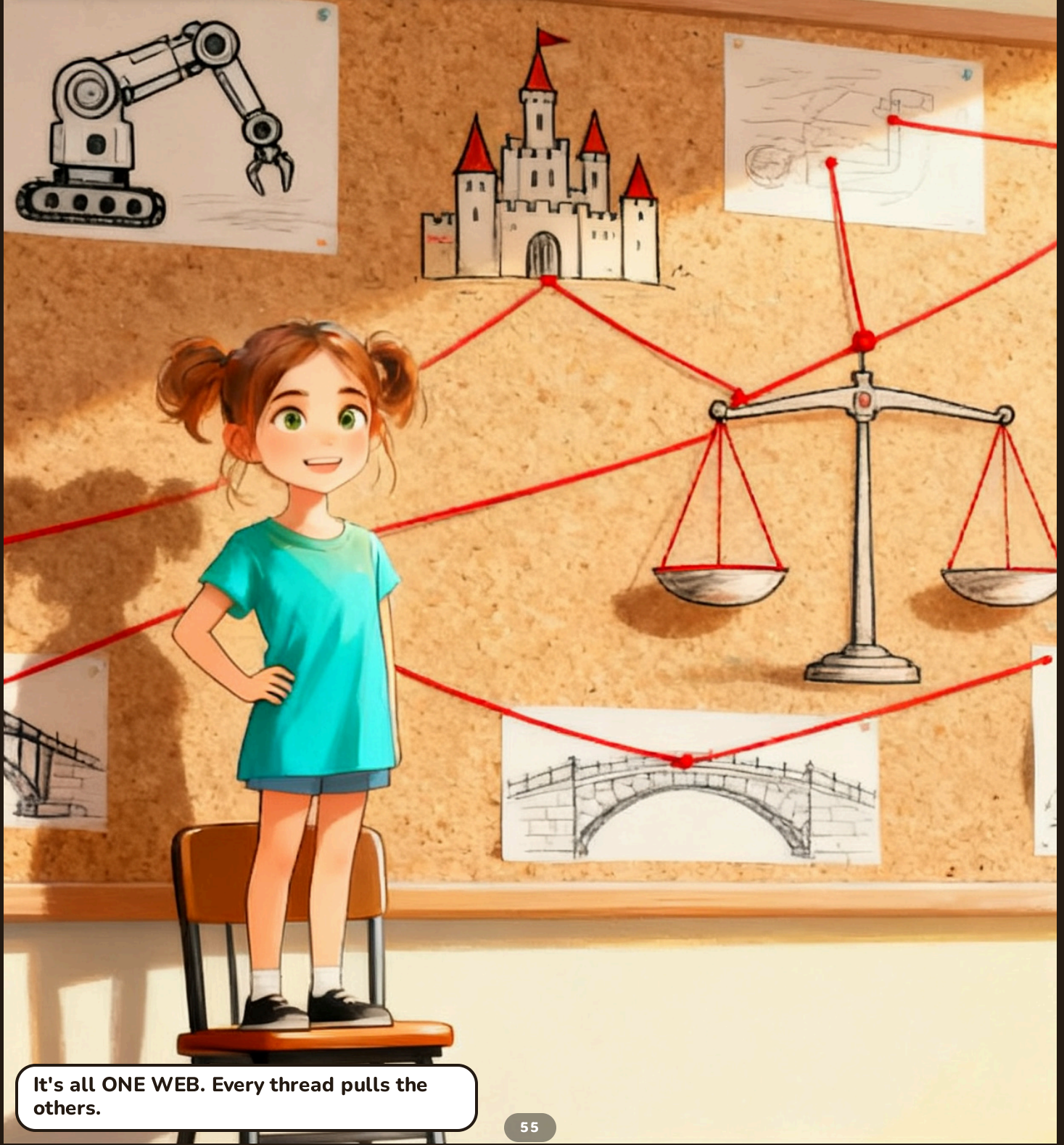


SIRI'S SECRET NOTEBOOK

2056 watchlist: cobots beside us, robots that LEARN, an all-electric world someone must guide. Rules: bet on needs, not shapes · trust is the crown · keep the human in charge. 🌟

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: electricity becomes magnetism → magnets spin a motor → gears turn a whisper into a car-lift → six joints reach anywhere → a counting wheel plus the fix-the-gap loop makes it never miss → cameras and force sensors give it eyes and skin → a planner gives it a mind. **Ordinary physics, stacked extraordinarily.**



★ WORTH REMEMBERING

The Business Web, one breath: value (tireless, precise, safe) → loyalty (switching costs + whole toolbox) → trust (reliability becomes a name) → castle (four walls), patrolled with Charlie's inversion, judged by Warren's court. And underneath: a million strangers, conducted into one machine.

The true test: she retold the **WHOLE** thing to her little cousin — with a spoon for a robot arm. He got it.



If you can't explain it with a spoon, you don't really know it yet.



SIRI'S SECRET NOTEBOOK · THE LATTICEWORK

Charlie's word for my string-wall: a
LATTICEWORK of mental models. Twelve from
ONE robot arm: electricity=magnetism · gears
trade speed for strength · feedback loops ·
nobody-knows-the-recipe · price-vs-value ·
switching costs · brand=reliability · scale · the
whole toolbox · invert · the owner's court ·
reinvest-or-fade. ✨

COMING HOME

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



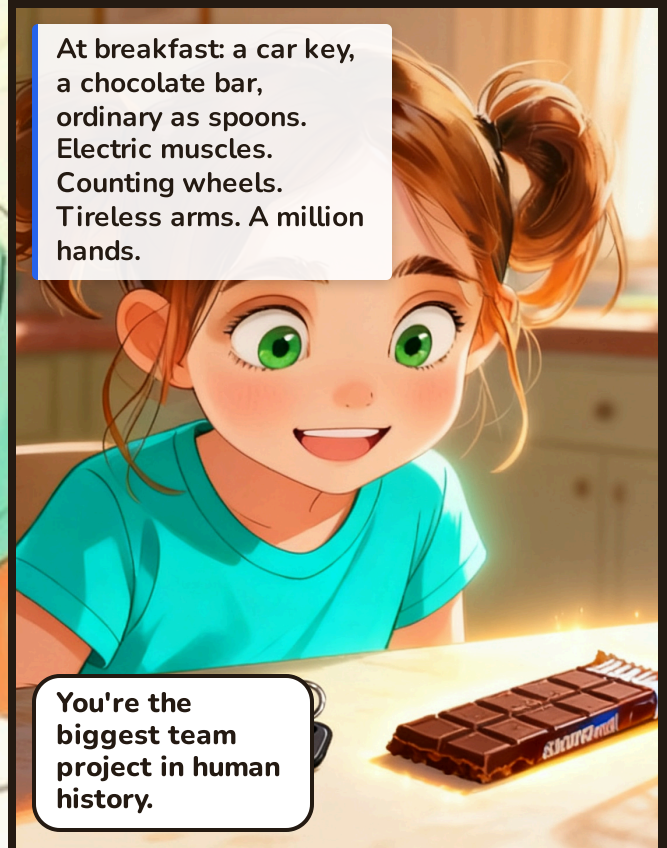
Was it real? It FELT real...

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, little one — patience is the one wall no rival can copy."

At breakfast: a car key, a chocolate bar, ordinary as spoons. Electric muscles. Counting wheels. Tireless arms. A million hands.



You're the biggest team project in human history.

Then she looked up — and the whole family laughed together at Grandma's old story instead.



Best helper. Never the boss. MY rule now.

She hugged the diary tight. Somewhere far away, an orange arm caught the morning sun.



Show me the next one, Grandpa. 🍷

★ WORTH REMEMBERING

Next unlock, feel it: electricity becoming magnetism, geared into a car-lift — a counting wheel checking its angle a thousand times a second — a century of no's guarding the promise. A robot arm is no longer just an arm. **Nothing, from now on, is just anything.**

📖 SIRI'S SECRET NOTEBOOK · VOLUME SIXTEEN, CLOSED

Seven doors. Twelve mental models. One castle. Two ancestors, one merger. One courtroom under an apple tree. But the compass is twitching toward the wall... a little switch... light that OBEYS... and Warren is already grinning. Volume Seventeen. 🌟💡



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.

EVERY ORDINARY THING HIDES A SECRET.

Siri opened all seven doors of the arms that never tire. But the compass is twitching again — toward the wall, where a little switch waits by the door. Flick it and light obeys, instantly, anywhere on Earth. Who guards that invisible power?

NEXT ADVENTURE • The Guardian of the Grid →