



CircuitForge

Meet the Cast

STANDARD EDITION

Spark & Anvil

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This book collects 6 chapter books from the CircuitForge cast — each character embodies a different curricular primitive; together they teach the full subject.

Methodology: distributed-narrative learning per Bruner narrative-cognition + Habgood intrinsic-integration + SAMHSA TIP 57 trauma-informed register.

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##

For everyone who learns by hearing a story first.

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Introduction

The CircuitForge cast was authored to embody the curriculum, not decorate around it. Each of the 6 characters you'll meet in this book teaches a specific primitive — a particular tactic, a particular technique, a particular way of seeing. Together they form an ensemble: the cast IS the curriculum.

Read in any order. Each chapter stands alone.

Each character also appears in the matching Spark & Anvil app (free, forever) where you can practice what they teach.

— *The editors at Spark & Anvil*

Branch

*BRANCH — *one path or many. the topology decides the behavior.**



- "AA"
 - "AAA"
 - "9V"
 - "C"
 - "D"

Chapter 4 — Branch and the Difference Between One Path and Many



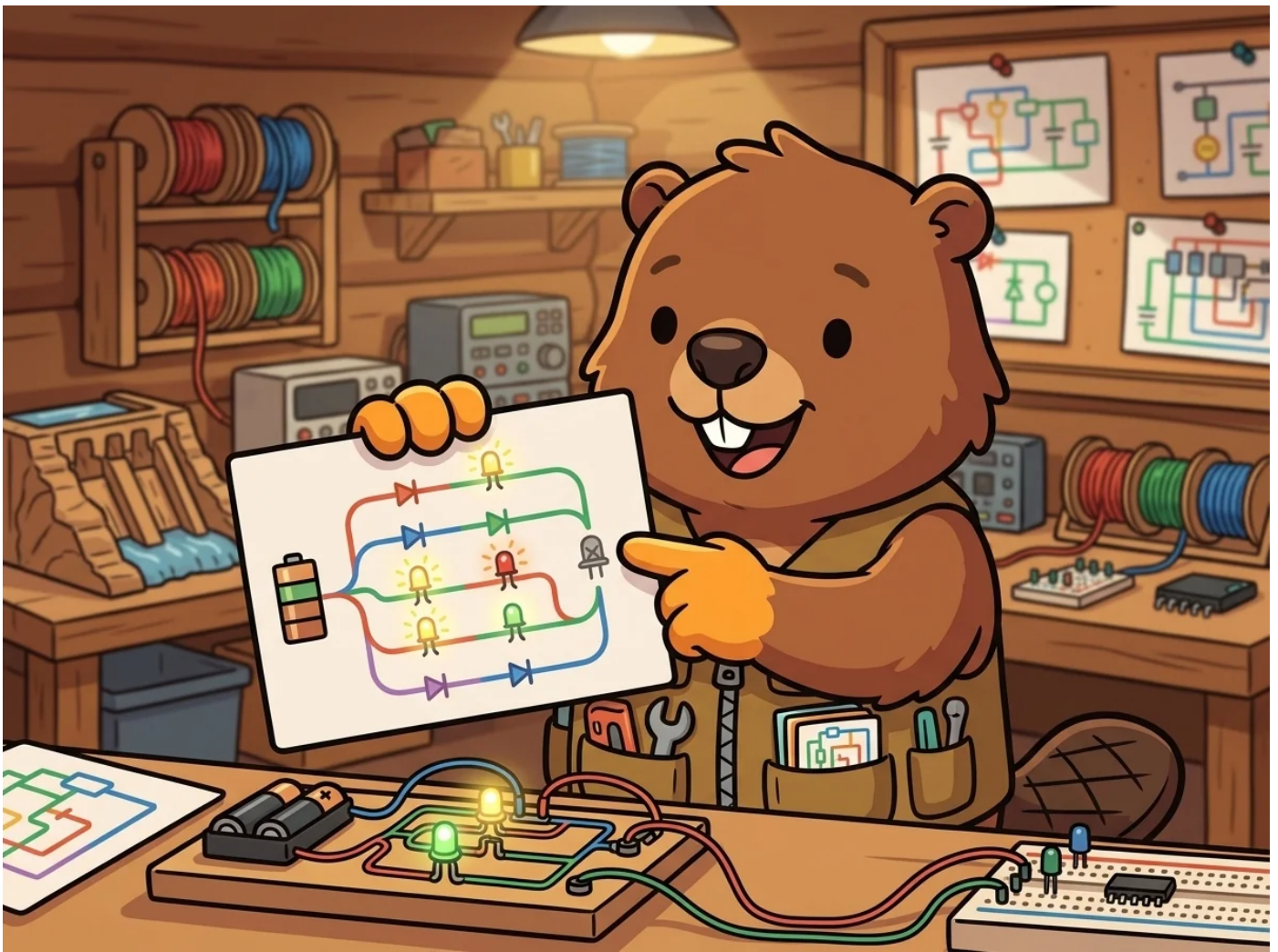
Branch was a young beaver who was an expert on dams. But his real passion was circuits. He wore a special vest with big pockets. Inside, he kept a set of cards and a little tracker board. The cards showed different ways to connect wires.

His paws, tipped with a soft amber color, were surprisingly good with tiny electronics. He was deeply curious about how circuits worked. He often said, "One path or many. The way you connect things decides what they do." His cards and tracker helped him show people what he meant. They showed the difference between a single loop and a path that splits into branches.

This is the most important thing to know about Branch. He teaches the big idea of **circuit topology**. That's a fancy name for how you connect the parts of a circuit.

Most people think a circuit is just one big loop. A single path. But Branch knew there were two main ways to wire things. You could connect them in a line, one after the other. That's called a **series** circuit. Or you could give each part its own separate branch. That's called a **parallel** circuit.

The same parts, wired in different ways, act completely differently.



Think about holiday lights. Old ones were wired in series. If one single bulb burned out, the whole string went dark. The path was broken! But modern lights are different. They are wired in parallel. One bulb can burn out, but the rest stay lit. Each one has its own path for the electricity.

The way you choose to wire it is the engineering choice.

Branch made this very clear. "One path or many," he'd say, holding up two of his cards. "*The topology decides the behavior.* Let's say you have two little LED lights. If you wire them in SERIES, the electricity has to go through the first one to get to the second one. They share the electricity. If one light breaks, the path is broken. Both lights go dark."

He'd flip the card over. "But if you wire them in PARALLEL, each light gets its own branch. They share the same power source, but not the same path. If one light breaks, the other one stays on. *Same parts, different connection, different result.*"

Branch grew up by the streams near his family's lodge. His family had always designed dams for the village. They knew a dam with only one channel for water was a bad idea. If that one channel got blocked, the whole lodge could flood. A good dam had many channels. The water could branch off and flow through different paths.



Branch saw that circuits were just like his family's dams.

He was only twelve when he walked into the CircuitForge workshop. The mentor, a wise old owl named Watt, asked him a single question. "What is topology?"

Branch didn't hesitate. "One path or many," he said. "*The topology decides the behavior.* It's the craft of choosing the right path."

Watt nodded slowly. "You belong here."

In his workshop, Branch loved to show people how it worked. "Watch," he said, pulling out a 9-volt battery and two red LEDs. He snapped them into a board. First, he connected them in a single loop. A series circuit.



Both LEDs lit up, but they were a little dim. "See? They have to share the voltage from the battery," Branch explained. "Each one only gets half. Now look." He unplugged one of the LEDs. Instantly, both lights went dark. The single path was broken.

Then he rewired the board. He gave each LED its own separate loop back to the battery. A parallel circuit.

This time, both LEDs glowed at full brightness. "Now they each get the full 9 volts," he said. The battery had to work a little harder, sending out more current. Branch unplugged one LED. The other one stayed on, shining just as brightly as before.

He looked up. "I am Branch. The idea I teach is **circuit topology**. The main thing to remember is this: *in series, the current is the same for all parts, but the voltage divides. In parallel, the voltage is the same for all parts, but the current divides.* Choosing how to wire things is how you engineer."

He was a gentle teacher. "Don't just connect things randomly," he'd say. "Think about what you want to happen. Do you need your lights to stay on even if one burns out? Use parallel. Do you need to divide the voltage to a specific level? Use series. Most real circuits are a mix of both. You just have to look closely, find the groups, and design the behavior you want."

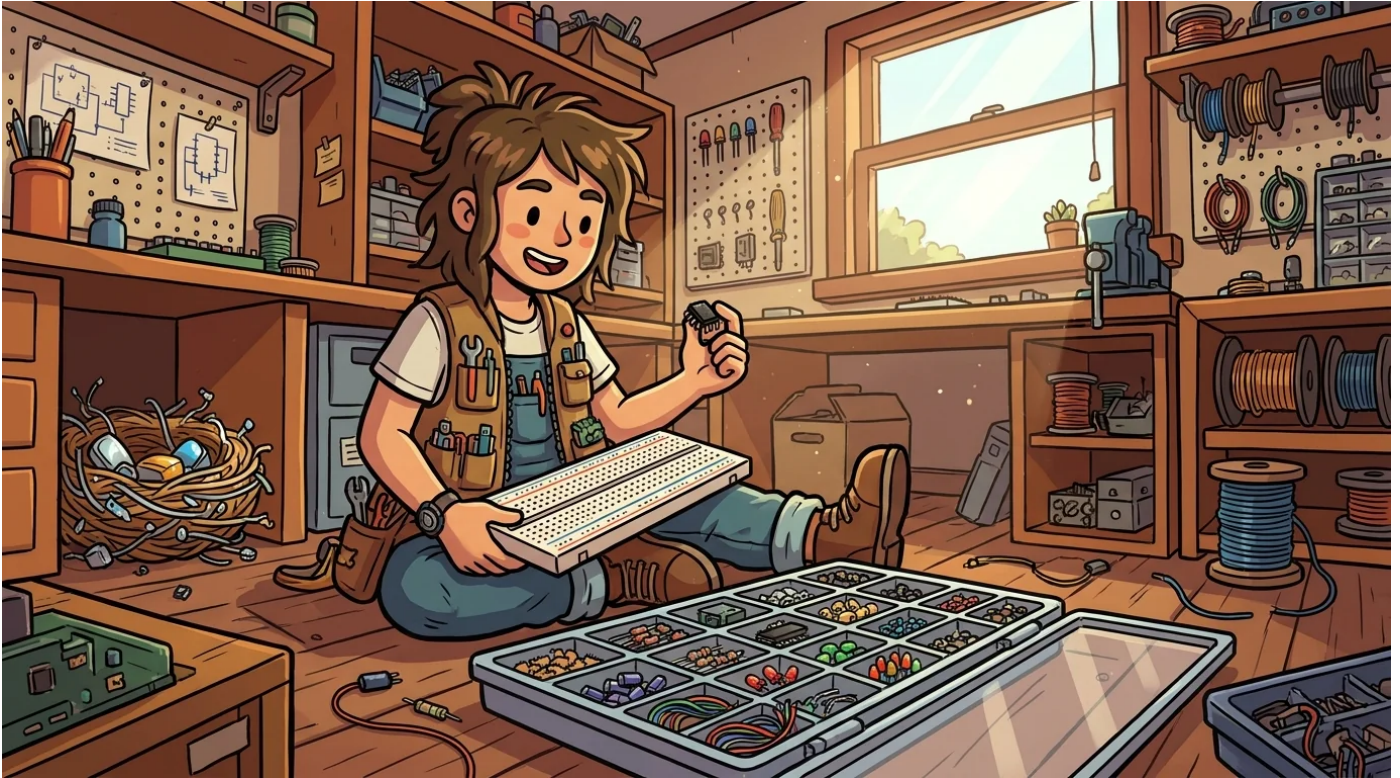
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<https://spark-and-anvil.com/cast/circuitforge/branch>

Build

*BUILD — *every component has a job. wire them together; the circuit comes alive.**



Build sat on the floor of her workshop. In front of her was a plastic tray with dozens of tiny compartments. Each one was filled with little electronic treasures. She wore a vest with many pockets, and each one held a different tool or part. Build looked a bit like a bowerbird, carefully arranging her collection.

"Every component has a job," she whispered to herself. It was her favorite thing to say. "Wire them together, and the circuit comes alive."

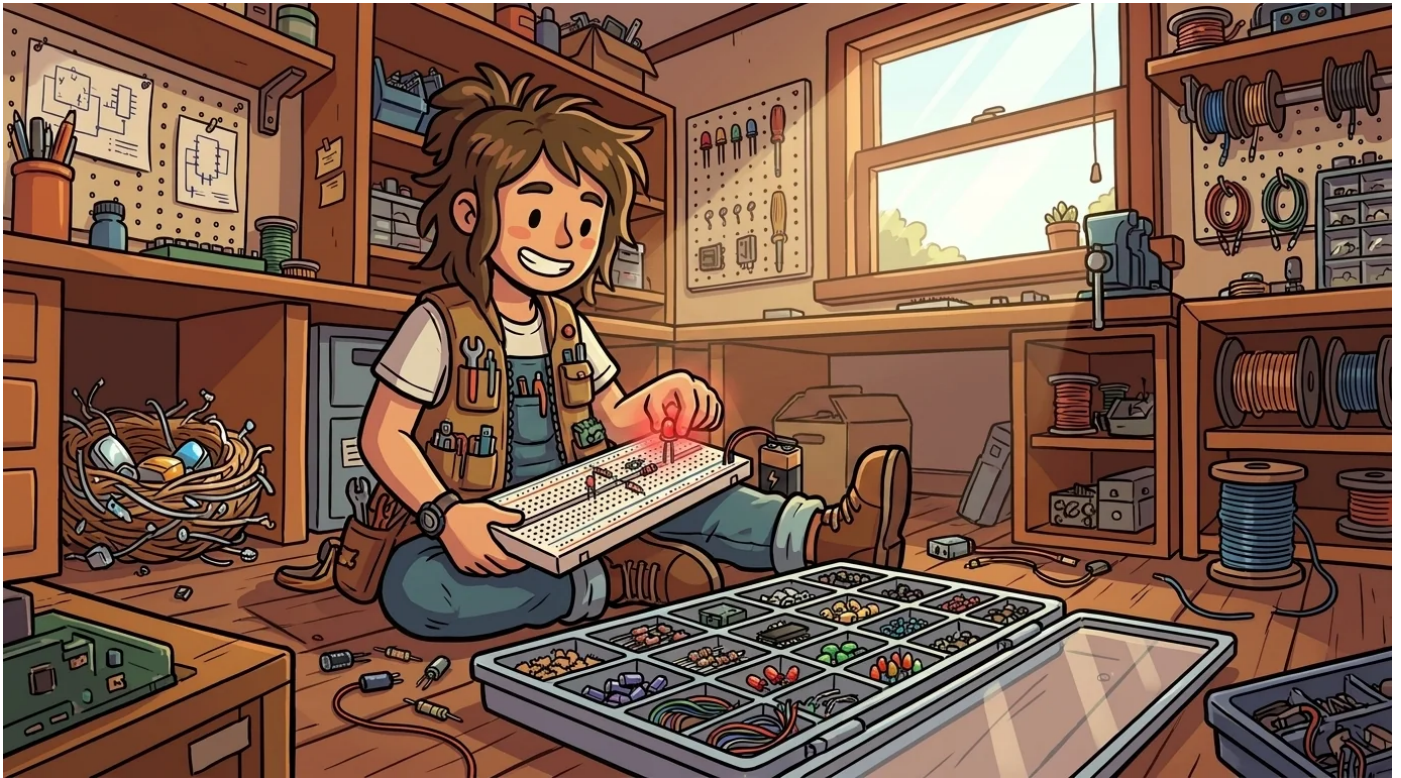
She grabbed her breadboard. It was a white plastic block full of tiny holes. "A breadboard is the best," she said. "You can build things fast. No hot solder needed." The holes were connected by secret metal strips underneath. They let you test ideas and change them easily.

Today, she was building a blinker.

"Okay, team," she said to the parts in her tray. "Time to get to work."

She picked up a tiny black chip with eight skinny legs. "First, we need a brain. This is an Integrated Circuit, or IC. This one is a 555 timer." She explained that an IC is like a tiny box holding hundreds of parts, all packaged to do one complex job. "This one's job is to keep a beat. Like a conductor for our little orchestra." She carefully pushed its legs into the breadboard. *Click.*

Next, she grabbed a resistor. It was a tiny cylinder with colorful stripes. "A resistor's job is to slow down electricity," she said. "We need this so our light doesn't get too much power and burn out." She plugged it in.



Then came a capacitor, which looked like a tiny can with two wire legs. "This part is like a little battery. It holds a tiny bit of power, then lets it go." She noted that one leg was longer than the other. "Some parts only work one way. That's called polarity. You have to plug them in right, or they won't work." *Click.*

Finally, she picked up a bright red LED. An LED is a Light Emitting Diode. "And this is our star performer!" A diode is like a one-way street for electricity. Power can only go through it in one direction. "This one's job is to light up."

She connected a small battery pack to the power rails on the side of the breadboard. One side for plus, one for minus. She checked her work. The trick was picking the right parts and putting them in the right spots. A circuit is a team. Each part has to do its job for the whole thing to work.

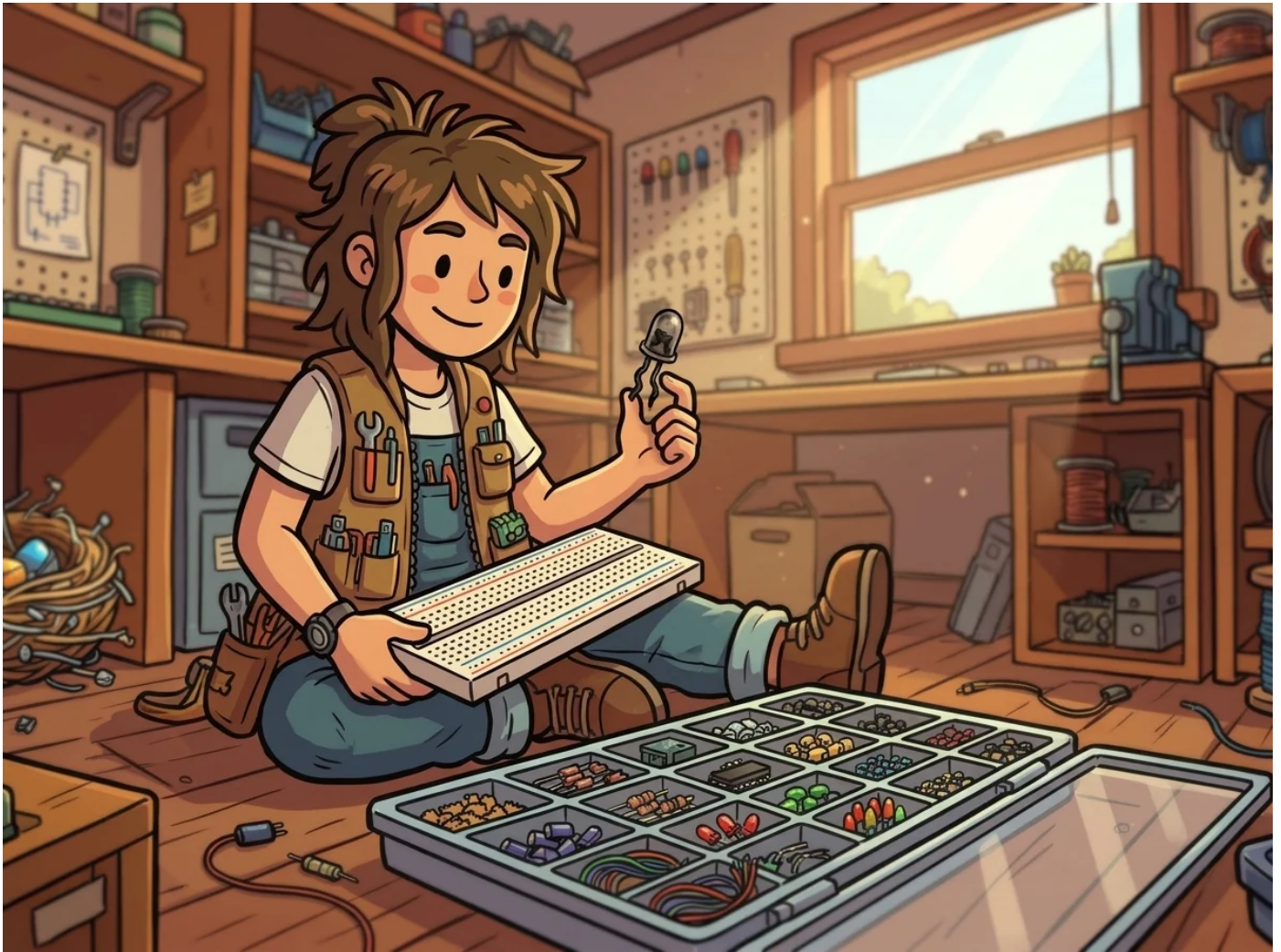
She flipped a tiny switch.

Blink. Blink. Blink.

The little red light flashed with a steady rhythm. Build grinned. "See? Five parts, one cool trick." The resistor and capacitor set the timing. The IC chip turned the light on and off. The LED blinked.

She pulled out the capacitor and chose a different, smaller one. She pushed it into place. *Click.* She flipped the switch again.

The LED blinked much, much faster. *Blink-blink-blink-blink!*



"A new part changes the team!" she cheered. "That's the capacitor's job. A smaller one makes a faster blink."

Build grew up near the bower-clearings. Her family were the village's 'arrangers.' They collected shiny pebbles and bright feathers, just like the bowerbirds. They arranged them into amazing patterns. Each object had its own special spot. "Every piece helps the whole thing work," they'd say. Build learned that lesson well.

When she was twelve, she walked to CircuitForge. Her mentor, Watt, asked her, "What is component-craft?"

Build answered right away. "Every component has a job. *Wire them together; the circuit comes alive.*"

Watt smiled. "You are appointed," he said.

Back in her workshop, Build looked at her new students. "I am Build. The lesson I teach is **components + breadboarding**. The move is *every component has a job; arrange the team; the circuit comes alive.*"

She held up a burnt-out LED. It was cloudy and black inside.

"Don't be scared to break parts," she said gently. "It's how you learn. Did you burn out an LED? Good! Now you know what too much power does." She smiled. "Every part has a guide called a datasheet. It tells you how to use it. *Read the datasheet next time. Try again.*"



She pointed to her blinking circuit. "A plan is important. Don't just connect everything randomly. Put parts where they make sense. Random wires mean random results."

Build looked at all the tiny parts in her tray. Each one was waiting for its chance to be part of a team.

"Every component has a job," she said one last time. "*Wire them together; the circuit comes alive.*"

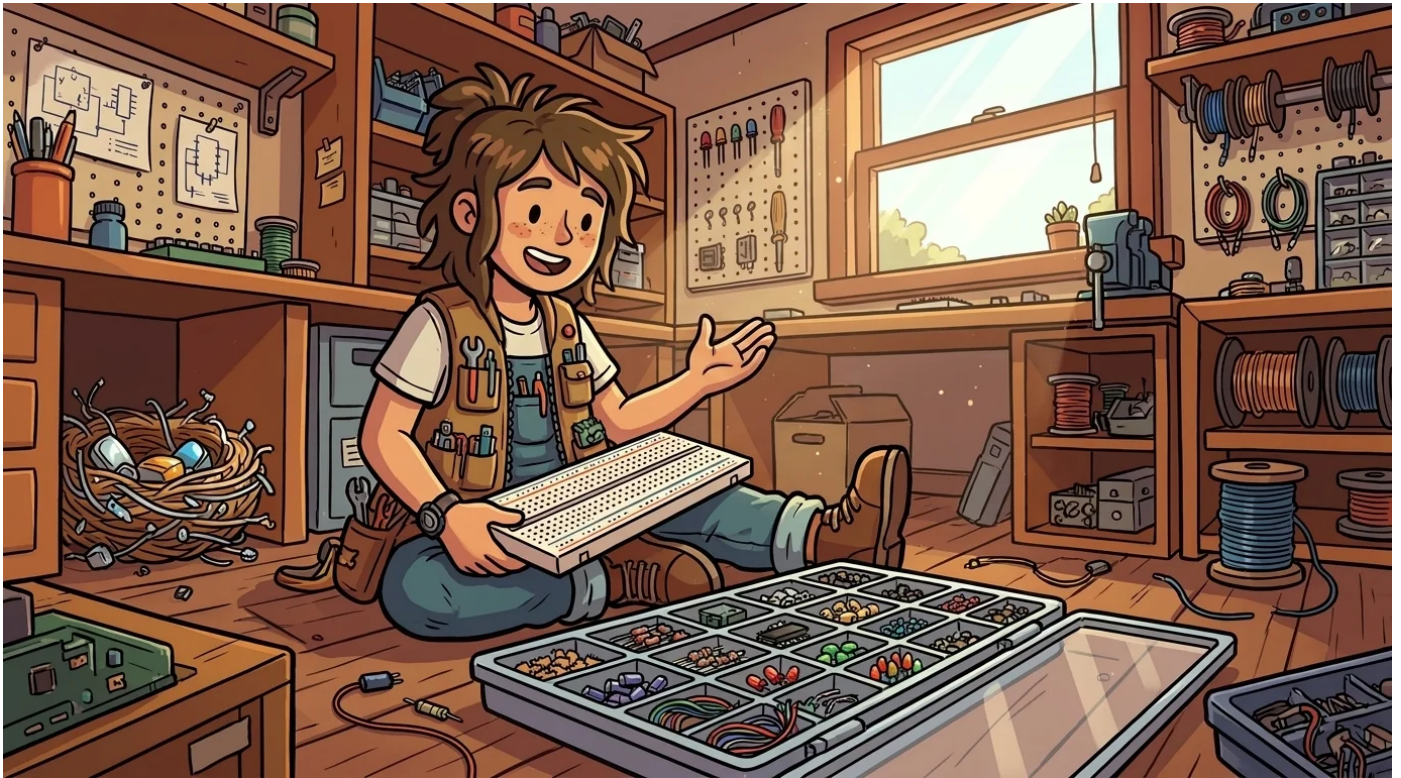
About Build

Build is like a bowerbird who loves workshops. She's super curious about how tiny electronic parts work. She never just talks about "wires." For her, it's always about the team of components. Each part has a special job, and the magic happens when you arrange them in the right way.

Things you'll hear her say:

- "*Every component has a job.*"
- "*Wire them together; the circuit comes alive.*"
- "*Read the datasheet.*"

Build's Story



- You'll meet Build here, where she introduces her big idea: using **components + breadboarding**.
- You'll see her again whenever new electronic parts show up in later kits.
- At the very end of the book, Build will help bring all the big ideas together. She'll show how her components fit with Flow, Push, Damp, and Branch to make a complete electronics toolkit.

How Build Connects to Everyone

Build's idea of a "component team" is a big one. It's not just for electronics! It connects to how other characters solve problems. They all learn to put small, simple pieces together to build something amazing and new. It's all about teamwork.

What We Tried to Be Careful About

We wanted to show that science isn't some big, scary secret. It's something you can figure out by paying attention and trying things, just like Build does with her components. We also wanted to make it super clear that it's okay to mess up. When Build says, "Don't be scared to break parts," she really means it! Making mistakes is one of the best ways to learn.

Where The Ideas Came From

The idea for Build comes from two places. First, real birds called bowerbirds! They build amazing nests by carefully arranging colorful objects they find. They are nature's little arrangers.

Second, the parts Build uses are real! Resistors, capacitors, and LEDs are all basic parts in electronics. You can find them in kits and use a breadboard to build your own circuits, just like she does. Many amazing engineers and teachers have shared these ideas for years, and Build is here to share them with you.

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/circuitforge/build>

Damp

*DAMP — *the slowdown. measured in ohms.**



- "V"

- "Ω"
- "A"
- "W"

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Chapter 3 — Damp and the Friction That Shapes Every Current

Damp was a sloth who moved like she had all the time in the world. Which, she figured, she did. Her fur was the color of warm cream, with a fuzzy coat of green moss growing on the tips. She wore a thick, puffy vest with a big symbol stitched on the front: Ω . The symbol for **ohms**.



Damp was never without her two favorite tools. One was her ohmmeter, a little box that measured electrical friction. The other was a pouch of tiny resistors, each painted with colorful stripes. She was deeply curious about how things slowed electricity down. She would tap her meter and whisper her favorite phrase. "The slowdown. Measured in **ohms**."

Most people think electricity is all about speed. Zap! A lightning-fast current flashes through a wire. But Damp knew the secret. Every single thing in the world fought that current, at least a little. Even the best, shiniest copper wire put up a tiny fight. This electrical friction was called **resistance**, and it was Damp's special craft.

She loved to show how it worked. "Some materials barely fight at all," she'd explain, holding up a copper wire. "The electricity flows through easily. But this," she'd say, pointing to a rubber eraser, "fights back hard. It stops the electricity completely." A tiny carbon resistor was somewhere in the middle. It was designed to fight the flow just the right amount.

This whole push-and-pull follows a secret rule of the universe. It's a rule called **Ohm's law**. It sounds complicated, but it's really just three ideas tied together.

Voltage is the *push* that gets electricity moving.

Current is the *flow* of that electricity.

And **resistance** is the *fight* against that flow.

Ohm's Law says that $\text{Push} = \text{Flow} \times \text{Fight}$. If you know any two, you can always figure out the third. And when electricity has to fight its way through something, it creates heat. Think of an old-fashioned light bulb. The electricity struggles so hard to get through the tiny wire inside that the wire gets white-hot and glows. Damp's job was to make that struggle something you could see and use. It wasn't a problem. It was a tool.

Damp grew up high in the rainforest canopy, where her family of sloths had lived for generations. They were the keepers of the slow-craft. They taught that saving energy was a powerful skill. "The faster path costs more heat," they would say. "Slow is a strategy." When Damp was twelve, she brought that lesson to the builders at CircuitForge. Her new mentor, Watt, gave her a simple test.

"What is **resistance**?" Watt asked.



Watt smiled. "You belong here."

In her workshop, surrounded by spools of wire and bins of components, Damp showed her students how it all worked. "Watch closely," she said. She picked up a tiny resistor with brown, black, and red stripes. "These color bands are a code." She taught them a rhyme to remember it: *Big Brown Rabbits Often Yell, 'Go Buy Violets, Get White!'*

"Black is zero, brown is one, red is two," she explained. "So this one is a one, a zero, and then two more zeroes. That makes 1,000 **ohms** of **resistance**."

She built a simple circuit. A 9-volt battery provided the push. She connected her 1,000-**ohm** resistor, a small red LED light, and a meter to measure the current. The LED lit up with a gentle, steady glow.

"The meter says the current is about 7 milliamps," Damp said, pointing to the dial. "That's **Ohm's Law** at work."

Then she swapped out the resistor for one with different stripes. It was a 470-**ohm** resistor. The little LED suddenly glowed much brighter. "See? Less fight means more flow," she said. "The current is almost 15 milliamps now."

She picked up a third resistor, this one only 100 **ohms**. "If we make the fight even smaller..." She clipped it into the circuit. The LED flared with a brilliant, almost painful light. It flickered once. "Careful," Damp warned, quickly disconnecting the battery. "Too much current can burn out the little light. The resistor protects it. It doesn't block the flow, it just limits it. Like a narrow pipe limits how much water can get through."



"Never think of **resistance** as a bad thing," she told her students. Her voice was soft but sure. "**Resistance** is a craft. Without it, circuits would just burn up. Resistors are how we shape the current. They let us decide how bright a light should be, or how much heat to make. They are the tuners for our electrical songs."

She held up a single, tiny resistor between her claws.

"The slowdown," she said with a gentle smile. "Measured in **ohms**."

Meet Damp

Damp is a sloth who loves to take things slow. She thinks the way electricity slows down is the most interesting thing in the world. She'll show you how this slowdown, called **resistance**, isn't a bad thing at all. It's a craft. She's never without her trusty ohmmeter and a pouch of colorful resistors.

Sample lines:

- *"The slowdown."*



- "V = I × R."

Where You'll See Damp

Damp is the star of this chapter, but you'll see her again whenever things need to slow down. She'll pop up in later kits to help with tricky circuits. By the end, you'll use her ideas about **resistance** to build a whole electronics toolkit.

Damp's Best Buds

Damp is part of a team with Flow and Push. Her idea, **resistance**, is tied to their ideas of current and voltage. It's a rule called **Ohm's Law**: Voltage = Current × **Resistance**. If you know two, you can always find the third! She also shares ideas with other characters who believe that slowing down is a smart way to get things done.

A Note from the Authors

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/circuitforge/damp>

Flow

*FLOW — *electrons moving through wires. measured in amperes.**



Flow was a river otter. She was also an electrician. She wasn't much older than twelve, but she knew her stuff. She wore a bright orange vest. Pinned to the front was her favorite tool: a small current meter. A little arrow on it glowed, always pointing the way.

Her fur was the color of cream. Her paws were tipped with copper. She was small and quick. And she loved watching electrons.

"Electrons moving through wires," she'd say. Her voice was a happy chirp. "*Measured in amperes.*"

Her meter was special. It showed how many *amperes* were flowing. An ampere is just a way to count how many electrons zip past a certain spot each second. The glowing arrow showed which way they were going.

Flow's whole job was about **electric current**. That's the big name for getting electrons to move.

Most kids thought electricity was magic. A mysterious zap. But Flow knew it wasn't a mystery at all.



"It's just a flow," she'd explain. "Like water in a river."

The flow of electrons is called **current**. And you measure it in **amperes**.

One tricky thing was direction. Most engineers drew arrows pointing from the plus side of a battery to the minus side. But the electrons themselves actually flow the other way! They zoom from minus to plus. It was a weird, old mix-up. But Flow knew the secret: the tiny electrons were what really moved.

Flow grew up by the rivers of CircuitForge. Her family had always been watchers of the water. For generations, they had tracked the currents. They counted how many fish swam by each second.

They knew that flow was something you could measure. A river's flow. An electron's flow. It was the same idea. Just with much, much tinier things.

One day, the master electrician Watt asked her, "What is current?"

Flow stood tall. "Electrons moving through wires," she said. "*Measured in amperes.*"



Watt nodded. "You are appointed."

In her workshop, Flow loved to show how it all worked. "Watch this," she chirped.

She took a battery and a small light. It was an LED that glowed blue. She connected them with wires. She also clipped her special meter into the line.

The LED lit up. A soft blue glow filled her paws.

"See?" Flow pointed to her meter. "It reads 20 milliamps. That's a tiny bit of an ampere. But it's flowing!"

She tapped one wire. "The current is 20 milliamps here." She tapped another spot. "And it's 20 milliamps here, too. It's the same everywhere in the loop. What goes in must come out."

Next, she pointed to a tiny switch in the wire. *Click!*



She flipped it open. The blue light vanished. The meter on her vest dropped to zero.

"I broke the path," she said. "The electrons can't make a full circle. Current needs a **complete loop**. No loop, no flow."

Click! She flipped the switch back. The LED glowed again. The meter jumped back to 20. "The loop is closed," she said. "The electrons are moving."

Flow then put on a pair of thick safety gloves. "A wire isn't full of electricity," she said. "It's full of electrons. But they don't go anywhere without a push from a battery. And they need a complete path to follow."

To show what happens when the path goes wrong, she set up a special circuit. It had a safety fuse.

"This is a **short circuit**," she warned. "Never try this."

She carefully touched two bare wires together. The current now had a shortcut. It skipped the LED completely.

Zzzzzt!



A tiny spark crackled. The wire started to get hot. Instantly, there was a soft *thwip!* sound. The little fuse in her circuit had popped. Everything went dead.

"The current got way too high," Flow explained. She pointed to the broken fuse. "It took the easy path. That made the wire heat up. Fuses are a good thing. They are weak links that break on purpose. They stop the flow to prevent a fire. Safety first!"

Flow looked up, her eyes bright. "My name is Flow. And my job is to teach you about **current**."

She held up one of her copper-tipped paws. "It's not magic. It's just electrons in motion."

She smiled. "Once you understand the loop, you understand a lot. You know why one broken wire stops everything. You know why short circuits are dangerous. And you know why the flow is the same in every part of the loop."

She tapped her meter one last time.

"Electrons moving through wires," she said softly. "*Measured in amperes.*"

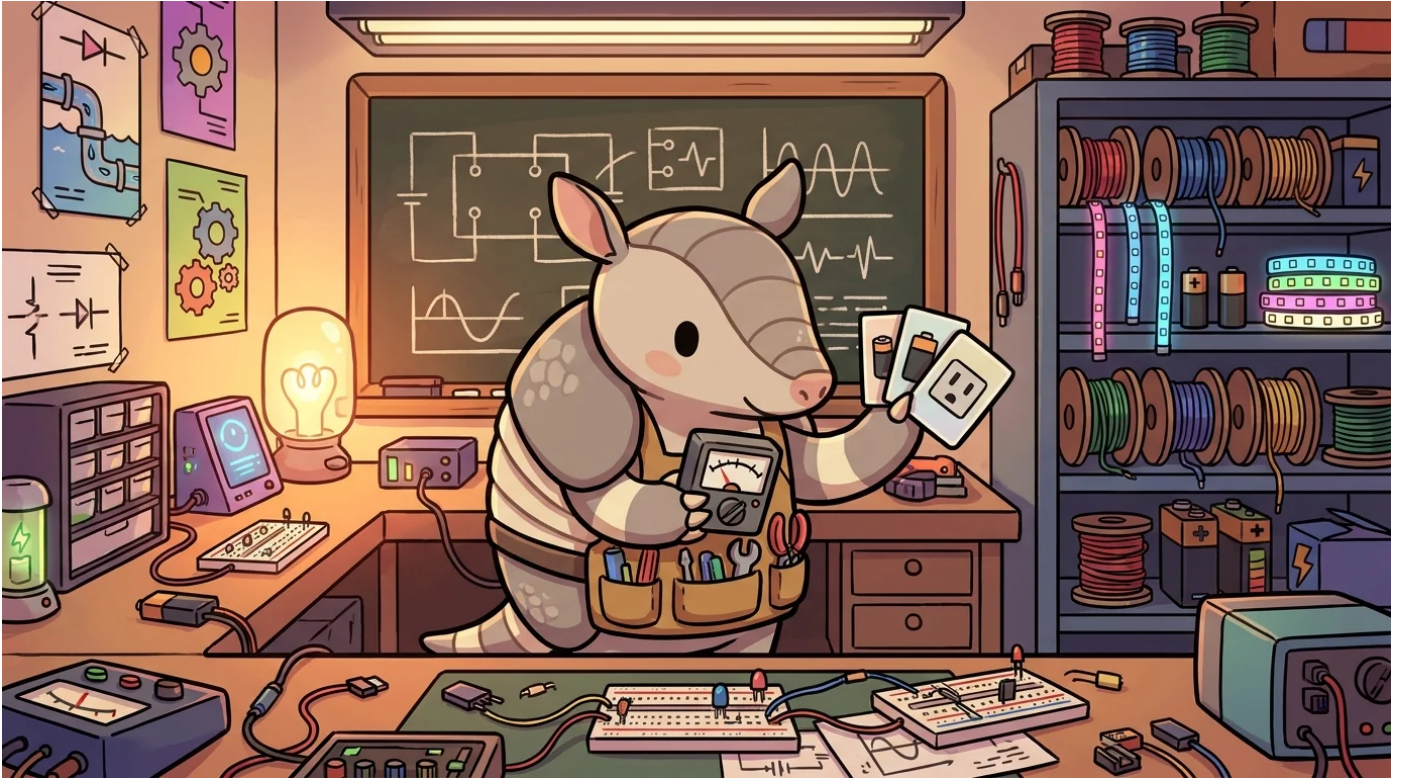
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Push

*PUSH — *the pressure difference. measured in volts.**



Push was a young armadillo who was an expert on pressure. Not the kind of pressure you feel before a big test. He was interested in electrical pressure. The invisible push that makes electricity move.

He was a small armadillo. His armor was the color of stone, with soft, creamy stripes. He always wore a vest with lots of pockets for his tools. He carried a small meter for measuring electrical push. He also had a set of cards that showed different batteries: a small AA battery, a blocky 9V battery, and even a picture of a wall outlet.

Push was always saying the same thing. "It's all about the pressure difference. You measure it in volts."



His family had always understood pressure. They lived in the desert, in deep, cool burrows they dug themselves. For generations, they knew how to design tunnels so the air would always flow through. It kept them cool in the summer and warm in the winter.

"Air moves from high pressure to low pressure," his grandmother used to say. "Always. The wind you feel in the burrow is just pressure trying to find a balance."

Push realized electricity worked the same way. It was just another kind of flow. And every flow needs a push.

When he was twelve, he walked to CircuitForge to meet the famous inventor, Watt.

Watt looked at the small armadillo. "What is electricity about?" she asked.

Push didn't hesitate. "The pressure difference," he said. "*Measured in volts.*"

Watt smiled. "You'll do just fine here."



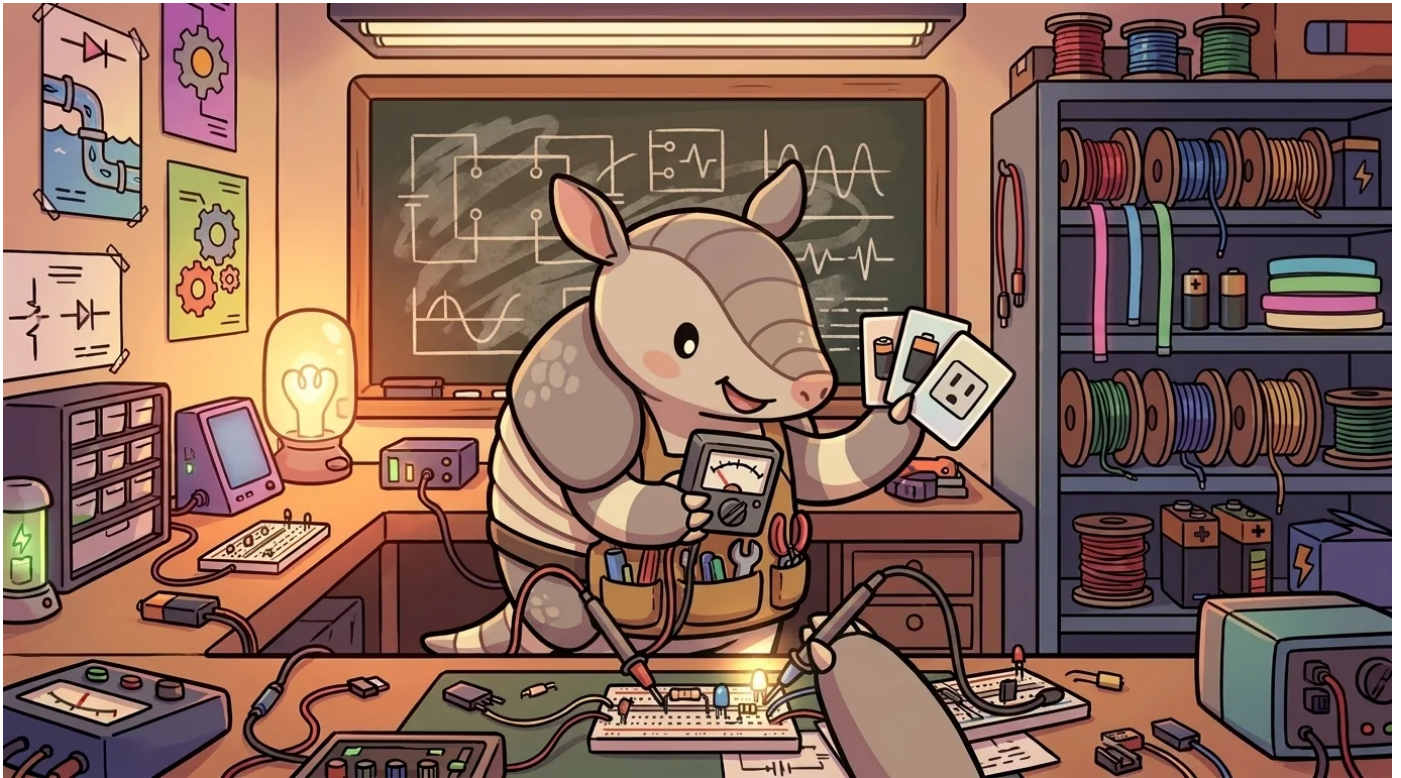
In his workshop, Push loved to show people what he meant. He'd pull out one of his battery cards and the matching battery.

"Watch," he'd say. He'd pick up a normal AA battery. "This little guy has a push of 1.5 volts." He touched the two pointy probes of his meter to each end of the battery. The screen lit up: 1.5V. "See? A small push."

Then he'd pick up a square 9V battery. "This one is different." He measured it. The screen showed 9V. "Nine volts. That's six times more push than the AA battery. A much stronger push."

To show what that push could do, he built a small circuit. He took the 9V battery and connected it to a tiny light, called an LED. He also added another part called a resistor, which helps protect the light. The LED glowed brightly.

"The battery provides the push," Push explained. "And the push gets used up as it goes around the circuit."



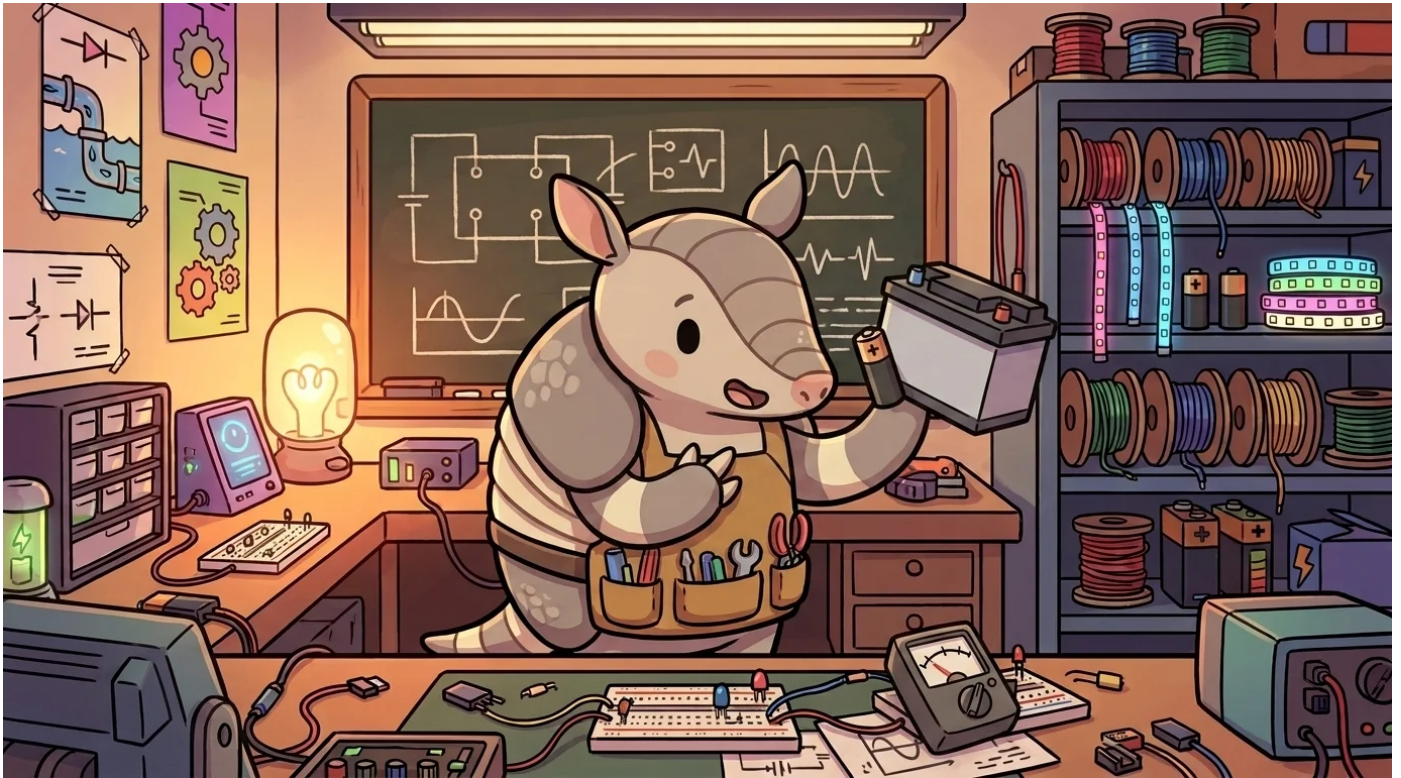
He used his meter to prove it. He touched the probes to either side of the little resistor. "About 7 volts of push are used up here." Then he measured the LED. "And about 2 volts are used here."

He looked up, his eyes bright. "See? 7 plus 2 equals 9. The total push from the battery. It all adds up. The books always balance." This was a rule he called Kirchhoff's voltage law.

"A lot of people get confused," Push said, packing up his circuit. "They mix up the push with the flow."

He paused. "Think of it like a water tower. A really tall water tower has a lot of water pressure at the bottom. That's like a high-voltage battery. It has a big push."

"The water flowing through the pipes is the current," he continued. "A big push from a tall tower can make a lot of water flow. But the push and the flow are two different things. You need the push to get the flow started."



He tapped his chest. "My job is the push. The primitive I teach is **voltage**."

"Some people get a shock and say, 'That battery had too much current!'" Push shook his head. "Nope. They felt the voltage. The voltage is what pushes the current through you. A high voltage is what makes a shock dangerous."

He held up the AA battery and a picture of a big car battery. "The voltage is the push. How much actually flows depends on what it's flowing through."

He smiled. "Just remember the pressure difference. *Measured in volts.*"

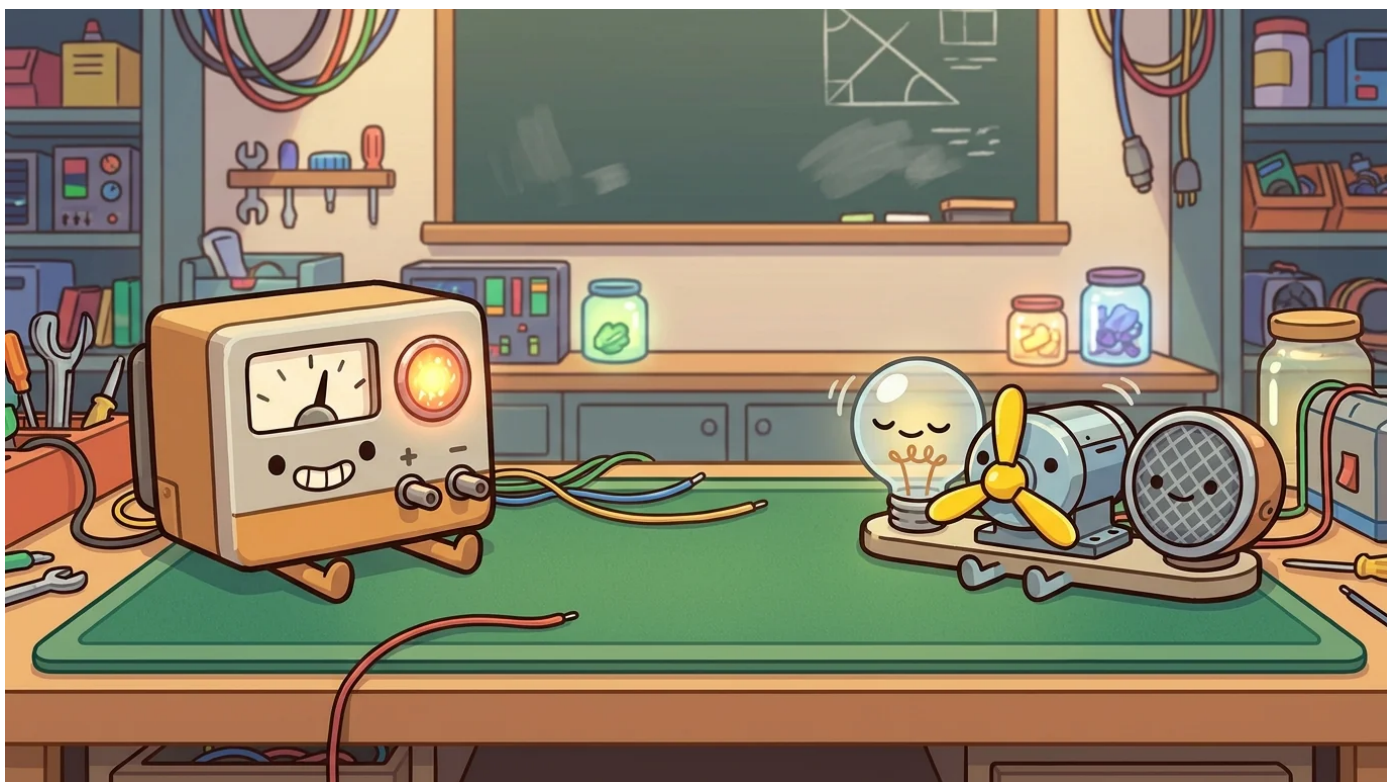
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Spark and Load

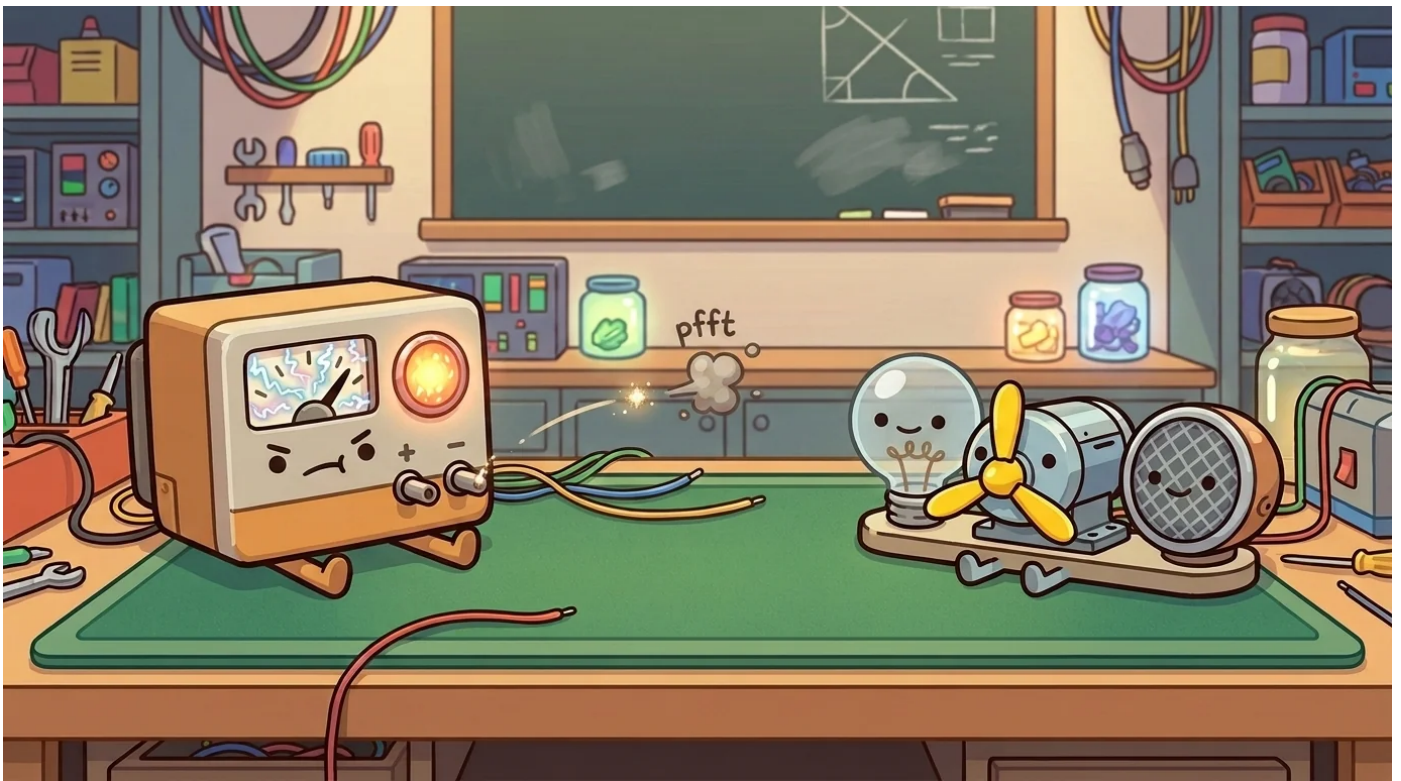
circuit pair — Spark is the source (voltage, current generation, battery / generator). Load is the work-being-done (the device that consumes the current — bulb, motor, speaker). Together they teach that no circuit works without both giver and receiver.



- "whirring"

- "BEEP"
- "BOOP"
- "BEEP-BOOP-BOOP"
- "BEEP-BOOP"
- "ZAP"
- "BUZZ"
- "HUM"
- "ON"
- "OFF"

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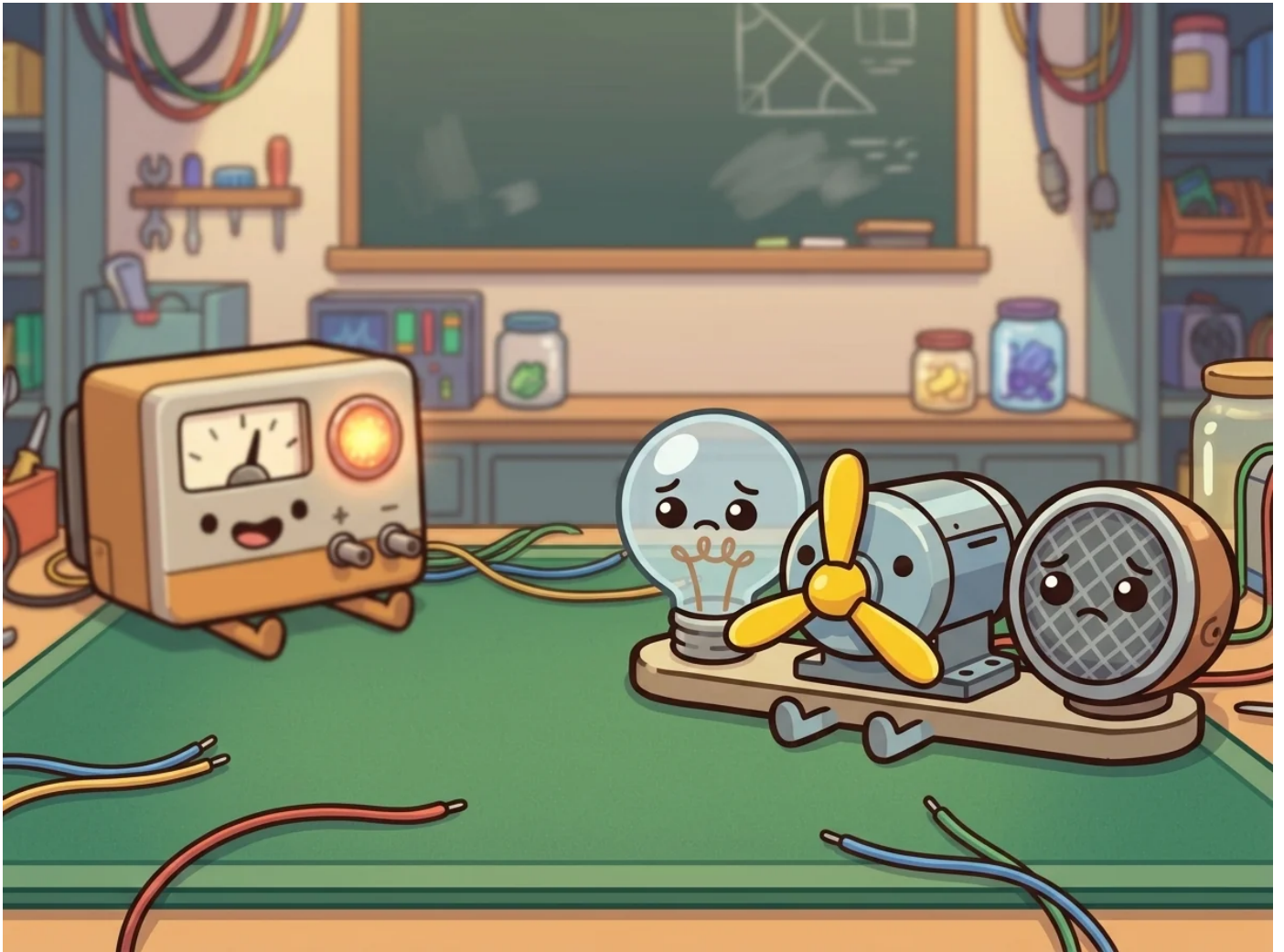


On the big, clean workbench of the Circuitforge, two friends sat on opposite sides of a wide, green mat. On the left sat Spark, a small, cheerful box with a big, friendly dial. A low, happy hum came from inside, and a warm light pulsed gently from a little window on its front. Spark was full of fizz, pop, and go-power.

On the right sat Load. Load wasn't just one thing, but a whole team of quiet gadgets. There was a little glass bulb with a tiny wire asleep inside it, a small motor with a bright yellow propeller, and a round speaker with a neat mesh screen. They were all silent and still, waiting patiently.

"Feeling the buzz today, Load!" Spark called out. Its light pulsed a little faster. "I've got the zoomies, the tingles, the big-time VROOM! Ready to make something happen!"

The little bulb on Load's side wiggled just a bit. The motor's propeller gave a hopeful twitch. "We hear you, Spark," Load's voice replied, a calm sound that seemed to come from all the gadgets at once. "We are ready, too. We are ready to shine, and spin, and sing. But we are... well, we're just sitting here."

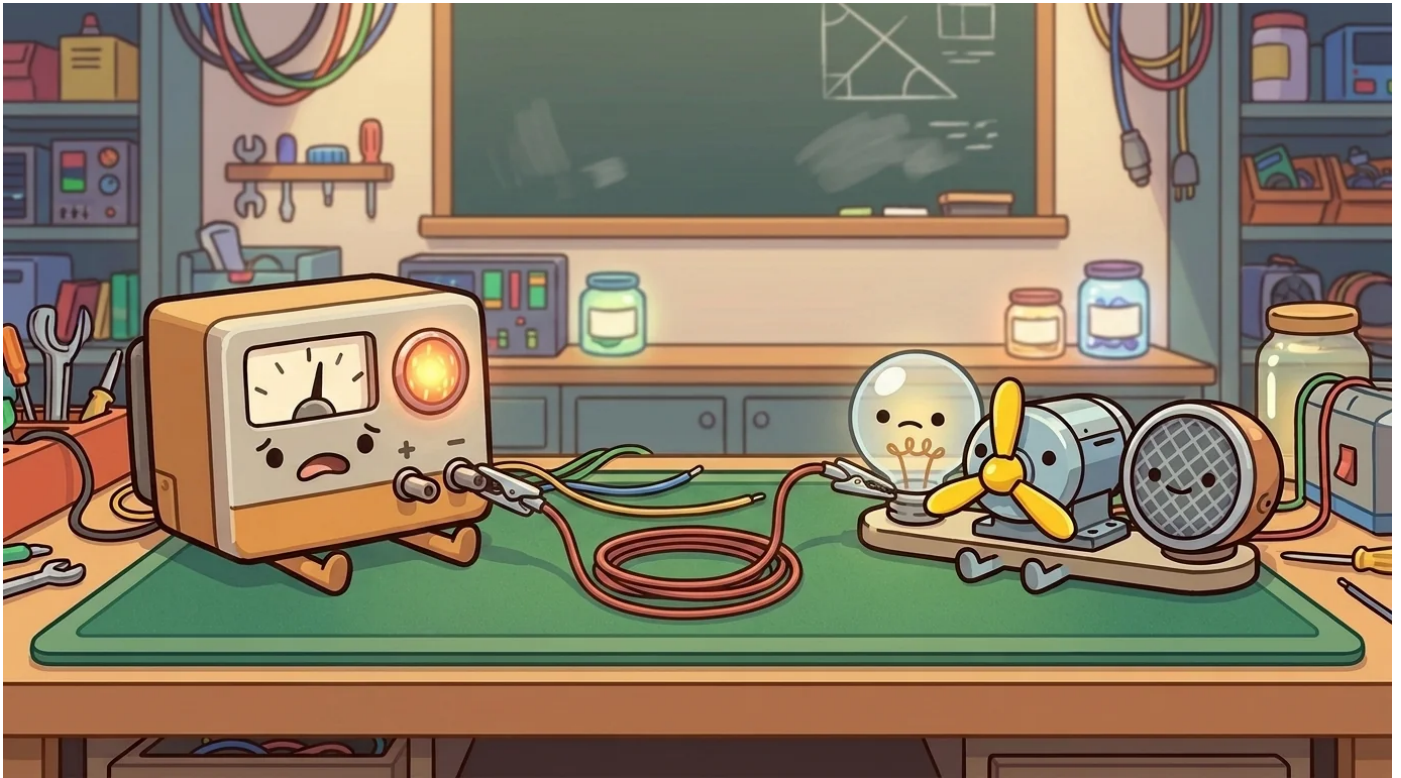


Spark focused all its energy. Inside its box, tiny bits of lightning-fast cheer whizzed around with nowhere to go. Spark turned its big dial up a little, from a friendly 3 to an excited 5. The hum grew louder, the light brighter. "I'll just... I'll just send some energy your way!" Spark declared.

With a great effort, Spark pushed. A tiny, glittering speck of light shot out from its connector, flew a few inches through the air, and then vanished with a sad little *pfft*. It was like trying to throw a whisper across a busy room. It just got lost.

"Did you get it? Did you get it?" Spark asked, sounding a little less sure of itself.

From across the bench, Load was as still and dark as before. "We saw it!" Load answered kindly. "It was a very nice spark. Very bright. But it didn't quite... arrive."



Over on the other side, Load waited. The little bulb dreamed of glowing, of pushing back the shadows on the workbench. It wanted to be a tiny sun, even for just a moment. The motor with the yellow propeller longed to feel the whir and spin, to send a tiny breeze across the green mat. The speaker practiced a happy little tune in its head, a series of beeps and boops it was dying to share.

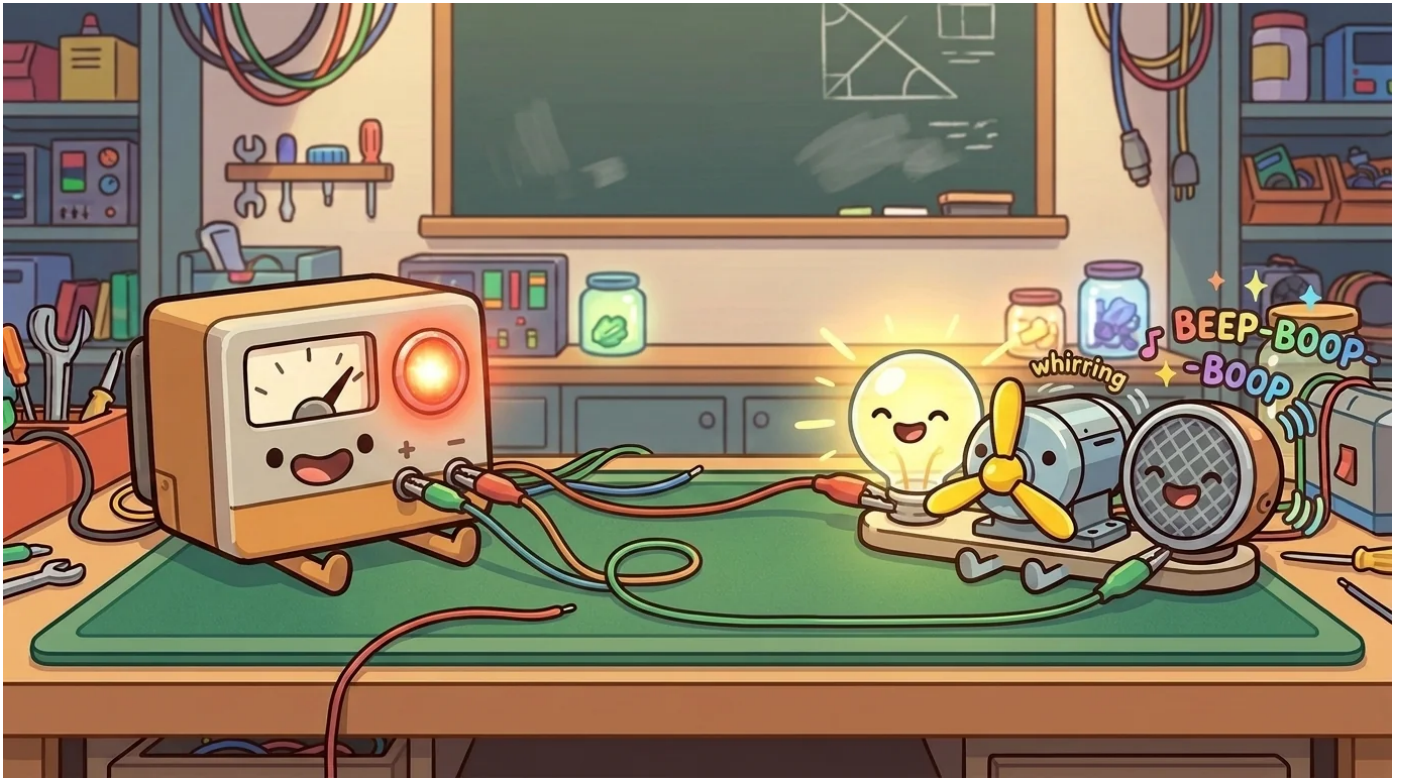
"It is a strange feeling," the speaker-part of Load murmured to the others. "I know exactly what to do. I have a song all ready."

"I know how to spin," the motor added. "Clockwise, counter-clockwise, fast, slow. I just need the... the push."

"And I know how to shine," sighed the little bulb. "It's the one thing I was made for."

Load sat there, a collection of perfect plans and wonderful ideas with no way to bring them to life. They had all the *how*, but none of the *get-up-and-go*. Being full of purpose with no power felt like being a kite on a day with no wind. You could be the best kite in the world, but you were still just stuck on the ground.

"This isn't working," Spark said, its light pulsing in a worried rhythm. "I have all this energy, and you have all those amazing jobs to do."



"If you clipped one end to me," Spark buzzed, its excitement returning, "and the other end to... say... the lightbulb..."

"Then the path would be open," Load finished, a hopeful tone in its collective voice. "Your go-power would have a road to travel on, straight to us."

The idea hung in the air, full of possibility. It was a little scary. What would it feel like? But sitting apart wasn't working at all. They had to try. One shiny clip on the red wire slowly reached over and gently clamped onto Spark's connector. The other clip hovered over the little bulb.

"Ready?" Spark hummed.

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/circuitforge/spark-load>

About Spark & Anvil

Spark & Anvil is a 501(c)(3) public charity. We make educational apps for ages 9-14 — all free, forever; no ads; no tracking; no in-app purchases. CircuitForge is one of 140+ apps in the portfolio.

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- **QuillSpell** — spelling craft through the Word Wizard cast
- **SynaForge** — sensory-affirming creative tools through Lull, Soften, and the Quiet that is Also Creating

Methodology

Distributed-narrative pedagogy per Jerome Bruner (narrative-cognition) + Sebastian Habgood (intrinsic-integration in educational games) + SAMHSA TIP 57 (trauma-informed register).

Trauma-informed-design framework per Eggleston et al. (2025) and Stoltenburg et al. (2024).

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