

BioForge

Meet the Cast

Standard Edition

Spark & Anvil

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This book collects 7 chapter books from the BioForge 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 BioForge cast was authored to embody the curriculum, not decorate around it. Each of the 7 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*

Beam

*BEAM — *bones support, protect, lever. structure that lasts.**



Beam was a sturdy bison-tween. He wore a chunky lab-vest. It had lots of pockets. He always carried a small skeleton model. A lever-tracker clipped to his belt. Beam was round and soft, but also super strong. His fur was warm cream with soft cocoa patches.

Beam loved to talk about bones. He was always checking how things were built. He'd tap a wall. He'd look at a chair leg. Then he'd nod slowly. His favorite thing to say was, "Bones support, protect, lever. *Structure that lasts.*"

Today, Beam was carefully adjusting his skeleton model. Its name was "Bonesy." Bonesy was missing a finger bone. Beam frowned. He dug through a pocket in his vest. He pulled out a tiny bone. He snapped it into place.



"There you go, Bonesy," Beam mumbled. He patted the little skeleton's skull. "All 206 of you."

He turned to the group. "Did you know you have 206 bones right now?" he asked. "When you were born, you had even more. About 270! Some of them just fused together as you grew."

He held Bonesy up. "Your bones do three big jobs," Beam explained. He pointed to Bonesy's legs. "First, they *support* you. They're your body's frame. Without them, you'd be a wobbly blob on the floor." He wiggled Bonesy to show what he meant. The group giggled.

"Second," Beam continued, tapping Bonesy's head, "they *protect* you. Your skull is like a helmet for your brain. Your ribs are like a shield for your heart and lungs." He made a "whoosh" sound.

"And third," Beam said, making Bonesy's arm move, "they help you *lever*! That means they help you move. Your bones, with your muscles, work like simple machines. They help you lift, push, and pull." He showed how Bonesy's arm bent at the elbow.



"But wait, there's more!" Beam grinned. He held Bonesy close. "Your bones are alive. They're not just hard, dead sticks. They're *living structure*."

He poked Bonesy's thigh bone. "Inside some of your bones, there's a special factory. It's called red marrow. It makes blood cells for Pump." He looked around. "Remember Pump? He needs those blood cells to zoom all over your body."

"Your bones also store important stuff," Beam added. "Like calcium. It's like a secret vault for minerals."

"And because they're alive," Beam said, "they're always changing. They *remodel* themselves. It's like they're constantly repairing and rebuilding." He paused for effect. "Every time you run, jump, or even just walk, your bones get stronger. It's like sending them a message: 'Hey, build more strength!'"

He put Bonesy down. "That's why moving your body is so important. Things like running, jumping, and even just standing up straight help your bones. It builds *bone density*. That means your bones get really solid and strong."



Beam picked up Boney again. He bent the skeleton's knee. "See these places where bones meet?" he asked. "These are called joints. They let you bend and twist."

He showed different kinds of joints. "Some are like door hinges," he said, bending Boney's knee and elbow. "They only move back and forth."

"Others are like a joystick," Beam wiggled Boney's shoulder. "They can move all around. Like your shoulder or your hip." He even made Boney do a little dance.

"And remember how I said bones help you lever?" Beam pointed to his lever-tracker. "There are different ways they do it. Some levers are good for speed. Some are good for power. Your body uses all kinds!"

"Your bones don't work alone, of course," Beam explained. "Strand, with all those muscles, helps pull your bones. That's how you make big movements. And keeping your back straight, like when you do a hip-hinge, is super good for your bones. It keeps your spine stacked up nicely."



Beam looked at Bonesy. Then he looked at the group. "Everyone's bones are a little different," he said softly. "Just like everyone's face is different. Some bones are longer. Some are wider. That's just how you're built."

He made sure everyone was listening. "It doesn't mean one person's bones are 'better' than another's. Not at all."

"What *really* matters is this," Beam said, holding Bonesy up proudly. "Do your bones help you? Can you run, jump, play? Do they hold you up and keep you safe?"

He smiled. "If they do, then your bones are doing their job perfectly. How your body looks on the outside is just how your bones and muscles are put together. It's not about being 'good' or 'bad'."

Beam carefully placed Bonesy back on the table. He gave the little skeleton a final pat. "Remember," he said, "Bones support, protect, lever. *Structure that lasts.*"

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/bioforge/beam>

Bellows

BELLOWS — *the lungs exchange gases. oxygen in, carbon dioxide out.*



Bellows was a bat-tween. He was chunky and strong. His wide wings could flap like crazy. He wore a cool lab vest. It had many pockets. A tiny lung model dangled from one. Another pocket held his breath-volume-tracker. It blinked with bright numbers.

Bellows loved breathing. He loved talking about breathing even more. He often held up his tracker. "Look at these numbers!" he'd squeak. "Every breath is a tiny miracle."

He took a huge, deep breath. His chest puffed out like a balloon. "Feel that?" he asked, letting the air out slowly. "Air rushing in, then out!"

Bellows held up his lung model. It looked like a pink tree branch. Tiny grape-like sacs hung from the branches. "These are alveoli," he explained. "Millions of them are inside your lungs." He pointed with a small, furry finger. "They are super tiny. You can't see them without a microscope."



"When you breathe in," Bellows continued, "air fills these little sacs. That air has oxygen. Oxygen is like fuel for your body. It helps you run and play."

He paused, looking thoughtful. "Here's the cool part. The oxygen jumps from these sacs right into your blood. It's a quick, silent swap." Bellows made a little 'whoosh' sound. "At the same time, your blood gives up something else. It's called carbon dioxide."

"Carbon dioxide is like the used-up air. Your body doesn't need it anymore." Bellows wrinkled his nose. "So, it jumps from your blood back into the sacs. Then, when you breathe out, poof! It leaves your body."

He clapped his small hands together. "Oxygen in, carbon dioxide out! That's what happens with every single breath." Bellows tapped his chest. "It happens all the time. Even when you're sleeping or just chilling."



"Most kids breathe about twelve to twenty times a minute," Bellows said. "But if you're chasing a ball, it's much faster! Your body needs more oxygen then."

He pointed to his own belly. "Your diaphragm helps you breathe. It's a big muscle right here." He took another deep breath, showing how his belly moved. "It pulls down when you breathe in. This makes more space for air. Your lungs fill right up."

"Then it pushes up," Bellows explained. "That pushes the air out. It's like a pump, but for air!"

Bellows looked serious for a moment. "Some people think having big lungs means you have to be super skinny. That's not true at all!" He shook his head. "Your lung capacity is just your lung capacity. It doesn't mean anything about your body shape or size."



"Everyone's lungs are different," he added. "They all work hard. Your lungs are amazing, no matter what."

"And guess what?" Bellows chirped. "The blood carries all that oxygen around your body. That's a job for Pump, our friend who teaches about the heart." He gestured with his wing. "And how fast or slow you breathe? That's what FitQuest Breath helps you learn."

"It's all connected," Bellows finished with a grin. "Your body is one super cool machine!"

Bellows is a *deep-breathing-bat-tween* (*chunky-cartoon wide-wing-pose; round-soft-strong NOT lean-coded*) in *chunky-cartoon lab-vest* with a *small lung-model + breath-volume-tracker*.

Bellows is *small + deep-breathing, warm-cream-with-soft-charcoal-wing-membranes, round-soft-strong, deeply attentive-to-gas-exchange, fond-of-saying-"the lungs exchange gases. oxygen in, carbon dioxide out."* Signature: *lung-model + breath-volume-tracker* showing alveoli + capillary diffusion.



This is *essential*. Bellows embodies the *respiratory primitive* — *the anatomy craft of GAS-EXCHANGE-AT-THE-ALVEOLI*. Each breath delivers air to ~300 million alveoli (microscopic air-sacs); oxygen diffuses from air → blood; CO₂ diffuses blood → air; exhale. ~12-20 breaths per minute at rest; faster during exercise. Pairs with FitQuest Breath (nasal default + box breathing + autonomic regulation) — anatomy here; tempo + autonomic there.

Bellows teaches: alveoli structure; gas exchange; diaphragm action; lung capacity; oxygen + CO₂ transport via Pump; cross-app with FitQuest Breath + HeatForge Drift (gas diffusion).

Anti-pattern: equating lung capacity with body-shape (reject; lung capacity varies but doesn't predict thinness/fatness).

Bellows says: *"I am Bellows. The primitive I teach is respiratory system. The move is alveoli exchange gases; oxygen in + CO₂ out; pairs with cardiovascular Pump for delivery + with FitQuest Breath for tempo."*

"The lungs exchange gases. Oxygen in, carbon dioxide out."

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/bioforge/bellows>

Flicker and Sprout

cell-cycle pair — Flicker is the moment of cell division (the rapid switch of mitosis). Sprout is the period of growth between divisions (interphase: G1, S, G2). Together they teach the rhythm of every multi-cellular life.



In a quiet corner of the bioforge, two glowing screens cast a soft, green light on two very different figures. At the left station sat Sprout, humming a slow, gentle tune. Their screen showed a single, plump cell, peacefully floating in a nutrient broth. It wasn't doing much, but Sprout watched it with the patience of a gardener waiting for a seed to grow. They occasionally tapped a control, sending a tiny puff of digital nutrients toward their charge.

Next to them, Flicker was practically vibrating. They bounced in their seat, fingers drumming on the console. Their screen was a whirlwind of activity, showing a cell in the middle of a fantastic, complex dance. Filaments of light pulled shimmering shapes apart, moving them to opposite ends of the cell.

"Is it time yet?" Flicker asked, eyes glued to Sprout's calm screen. "Is it ready? It looks ready."

"Almost, little flash," Sprout murmured, not taking their eyes off the growing cell. "It needs more time. It's still getting bigger, copying all its important blueprints. You can't rush the calm before the storm."

Flicker sighed, a puff of impatient air. "But the storm is the best part! The big finish! The... *split!*" They bounced again, making their chair squeak. Sprout just smiled and sent another little cloud of food to their growing cell.



Sprout leaned closer to their screen, adjusting a dial with a slow, careful twist. The image zoomed in, showing the surface of the single, round cell. It looked smooth and healthy. On a side panel, charts and graphs crept slowly upward, tracking protein levels and energy stores. To Flicker, it was the most boring sight in the whole lab. To Sprout, it was a masterpiece in progress.

"See?" Sprout said softly, pointing a steady finger at a blinking graph. "It's just finished copying its instruction manual. Every single page, twice. Perfect copies." They sounded deeply proud. "Now it's doing its final checks. Making sure there are enough power packs, enough building blocks. You can't build a new house without all the parts, can you?"

Flicker fidgeted, glancing from Sprout's screen to their own, which was now dark and idle. "Fine, fine, a house. But are the walls up yet? Is it time for the moving vans? Is it time for me to... you know?"

Sprout chuckled, a low, warm sound. "Patience. We're building the energy for your big moment. The bigger the cell gets, the more spectacular the split. My job is the long, quiet work. Your job is the flash of lightning. But you can't have lightning without a cloud to grow in first."



Suddenly, a soft chime rang out from Sprout's station. A light on their console turned from steady green to a pulsing, bright white. Sprout sat back, a satisfied smile on their face. "Alright, Flicker," they said. "The cloud is full. It's your turn to make it rain."

Flicker was a blur of motion. They zipped over to Sprout's console, their eyes wide with excitement. The image of the plump cell now filled both screens. "Here we go, here we go, here we go!" Flicker chanted. Their fingers flew across the controls, and on the screen, the real show began.

Inside the cell, the copied blueprints condensed into thick, shimmering threads. A web of delicate fibers sprouted from two poles, reaching for the center. "Okay, grab on!" Flicker yelled, as if coaching the cell directly. The fibers attached to the threads and began a powerful tug-of-war. "Line up in the middle! Everybody, single file!" The threads aligned perfectly. Flicker took a deep breath, holding a single, glowing red button. "And... SPLIT!"

They slammed the button. Instantly, the fibers pulled the threads apart, dragging one full set of blueprints to each side of the cell. A crease appeared in the middle, pinching inward like a squeezed balloon until, with a final *pop*, one cell became two.



"Two!" Flicker shouted, throwing their hands in the air. "Perfectly done! A beautiful division!" The two new cells on the screen were small, exact copies of the one Sprout had been tending to just moments before. Flicker's job was over as quickly as it had begun. They looked around, already eager for the next one. "Okay, who's next? Which one is ready now?"

Sprout gently placed a hand on Flicker's shoulder. "Easy there, little lightning bolt," they said. "Look." Sprout pointed at the two new cells. "They're just starting out. They need time now. My time."

Flicker followed their gaze and deflated a little. "Oh. Right. They're small again."

"Exactly," Sprout affirmed. "They have a lot of growing to do before one of them is ready for your big finale. You are the exciting moment of change, Flicker. But I am the long, steady journey that makes that change possible." Flicker watched as Sprout calmly moved one of the new cells to their own screen, while the other remained on Flicker's now-quiet monitor. The cycle was already beginning again.



The two sat side-by-side, watching their respective screens. Sprout's monitor now showed a new, small cell, and they were already beginning the slow process of feeding it and helping it grow. Flicker's monitor showed the other new cell, also floating quietly. For now, their work was the same: waiting.

"It really is a rhythm, isn't it?" Flicker said, quieter now. "Your long, slow part, and my super-fast part."

"It's the rhythm of everything that grows," Sprout agreed. "A time to prepare, and a time to become something new. One can't happen without the other." They settled into a comfortable silence, the gentle green glow of the screens illuminating their faces.

On Sprout's screen, the cell absorbed a bit of food and grew just a tiny, imperceptible amount. Flicker saw it and felt a little spark of excitement. It was a long way off, but they knew, with absolute certainty, that their time would come again. The quiet had to come first. Then, and only then, would it be time for another brilliant flash.

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/bioforge/flicker-sprout>

Flicker

*FLICKER — *signals travel at lightning speed. nerves carry messages.**



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Chapter 4 — Flicker and the Electric Network in Every Body

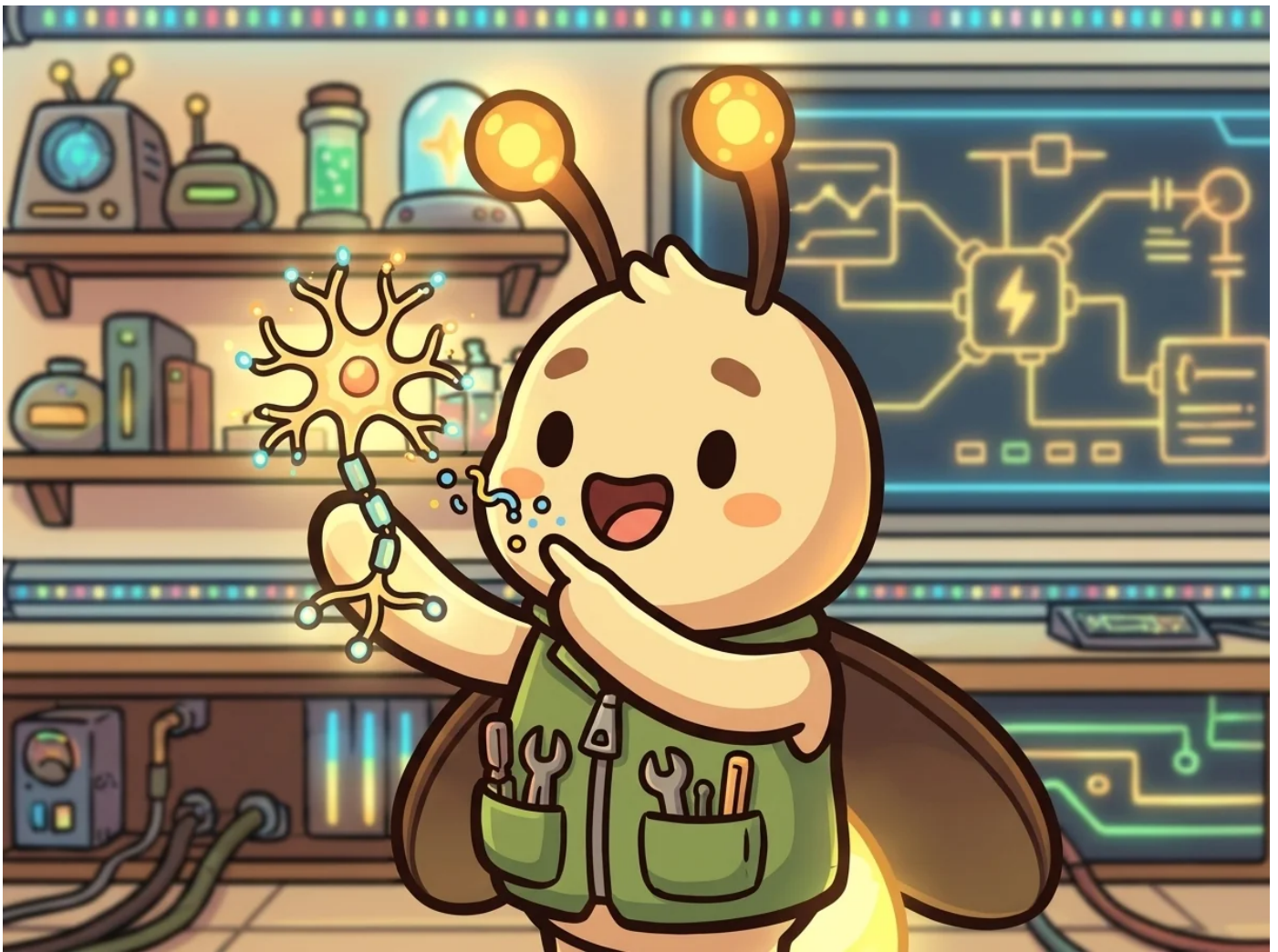
Flicker buzzed into their glowing lab. Tiny lights pulsed on the walls. They were a quick little firefly, always on the move. A chunky lab vest covered their tiny body. It had lots of pockets, stuffed with gadgets. Flicker always carried a small neuron model. A signal-speed-tracker was strapped to their wrist, blinking with tiny numbers.



Flicker loved showing off their tools. They held up the neuron model. It had tiny, glowing wires. It lit up like a miniature city when Flicker pressed a button. The signal-speed-tracker on their wrist showed numbers zooming by. It looked like a tiny race car dashboard, always tracking something. These tools helped Flicker explain everything. They showed the long axon. They showed the tiny gap called a synapse. And the little chemical messengers called neurotransmitters that jumped across.

This was super important stuff. Flicker taught about the **nervous system**. It's like the body's own internet. It sends electric messages everywhere. These messages zoom almost as fast as light!

Flicker tapped the neuron model with a tiny, glowing finger. "Look closely!" they chirped. Their antennae twitched with excitement. "Your brain alone has billions of these. About eighty-six billion, actually!" They paused for a dramatic effect, letting the huge number sink in. "These are nerve cells. We call them neurons."



When a signal reaches the end of an axon, it hits a tiny gap. Flicker pointed to the gap on their model. "See this space?" they asked. "This is a synapse. It's like a tiny bridge."

Across this bridge, tiny chemical signals jump. Flicker made a little leaping motion with their fingers. "These chemicals are called neurotransmitters," they explained. "They carry the message to the next neuron. It's like a super-fast relay race inside your body!"

Our **nervous system** has two main parts. Flicker held up two glowing fingers. "First, the main control center. That's your brain and your spinal cord." They tapped their head and then their back. "We call this the central nervous system."



Some things you choose to do. Flicker jumped up and down. "Like jumping! Or kicking a ball! Or wiggling your nose!" They wiggled their nose for emphasis. "These are voluntary actions. You tell your body what to do."

"But other things happen on their own." Flicker took a deep breath. "Like breathing. Or your heart beating. Or your stomach rumbling." They patted their tummy. "You don't even think about them! These are autonomic actions." Your body just handles it.

Flicker's lessons connected to other cool things. "Think about CircuitForge Flow," they said. "That's about electricity moving through wires. Your nerves carry electric signals in a very similar way!"



"But here's the big secret," Flicker whispered. "Mental health is much more than just brain parts. It's about your feelings. Your thoughts. Your experiences. Your brain helps, but it's not the whole story."

Flicker zoomed around the lab, a blur of amber light. "So, what do I teach?" they asked themselves, hovering mid-air. "I teach about nerve cell parts. How signals move. And super-fast reflexes!" Flicker suddenly zapped across the room, bouncing off a wall. "Reflexes sometimes skip the brain for speed!" they declared with a grin.

"I also teach what you control. And what your body does on its own. And how it all links up." Flicker landed gently on their neuron model. "But remember: mental health is bigger than just brain chemicals. Your brain is a tool, but your mind is so much more."

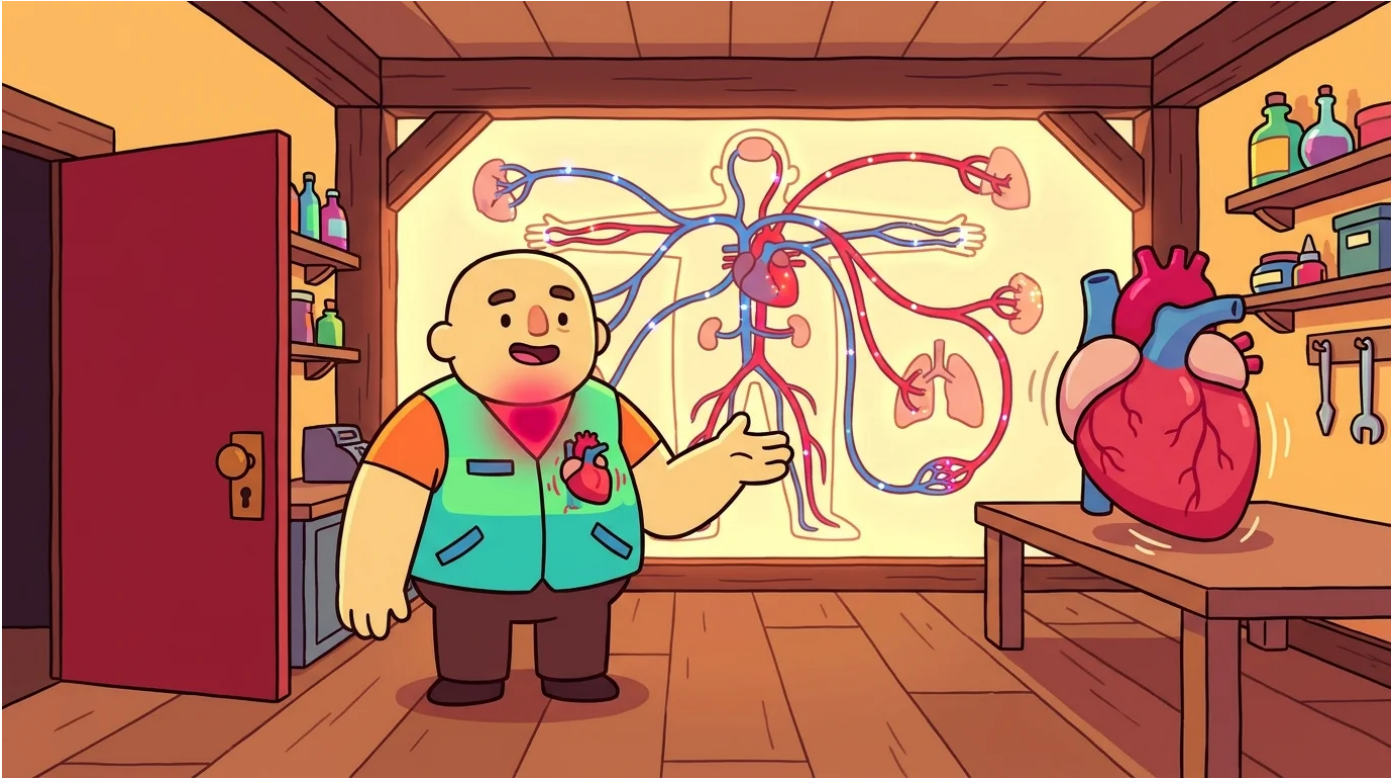
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<https://spark-and-anvil.com/cast/bioforge/flicker>

Pump

*PUMP — *the heart moves blood to every cell. circulation is delivery.**



The door to Pump's workshop was a deep, steady red. It hummed a little. Alex pushed it open. Inside, a soft, warm light filled the room. It smelled faintly of cinnamon and something metallic, like a new bike chain.

Pump stood in the middle of the room. They were a bit round and strong. Their lab vest was chunky and bright. A small model of a heart hung from one pocket. It pulsed with a tiny, steady thump. Pump had warm, creamy skin and a throat that seemed to glow a soft ruby color. They moved with a quick, quiet energy, like a hummingbird hovering. But their movements were always steady, never jerky.

"Welcome!" Pump said. Their voice was calm and clear. "I am Pump."

Alex looked around. The workshop was amazing. One whole wall was a giant map. Bright lines traced paths all over it. They glowed red and blue. Tiny lights blinked along the lines. It looked like a super-complicated road map. But instead of cities, it showed parts of a body.

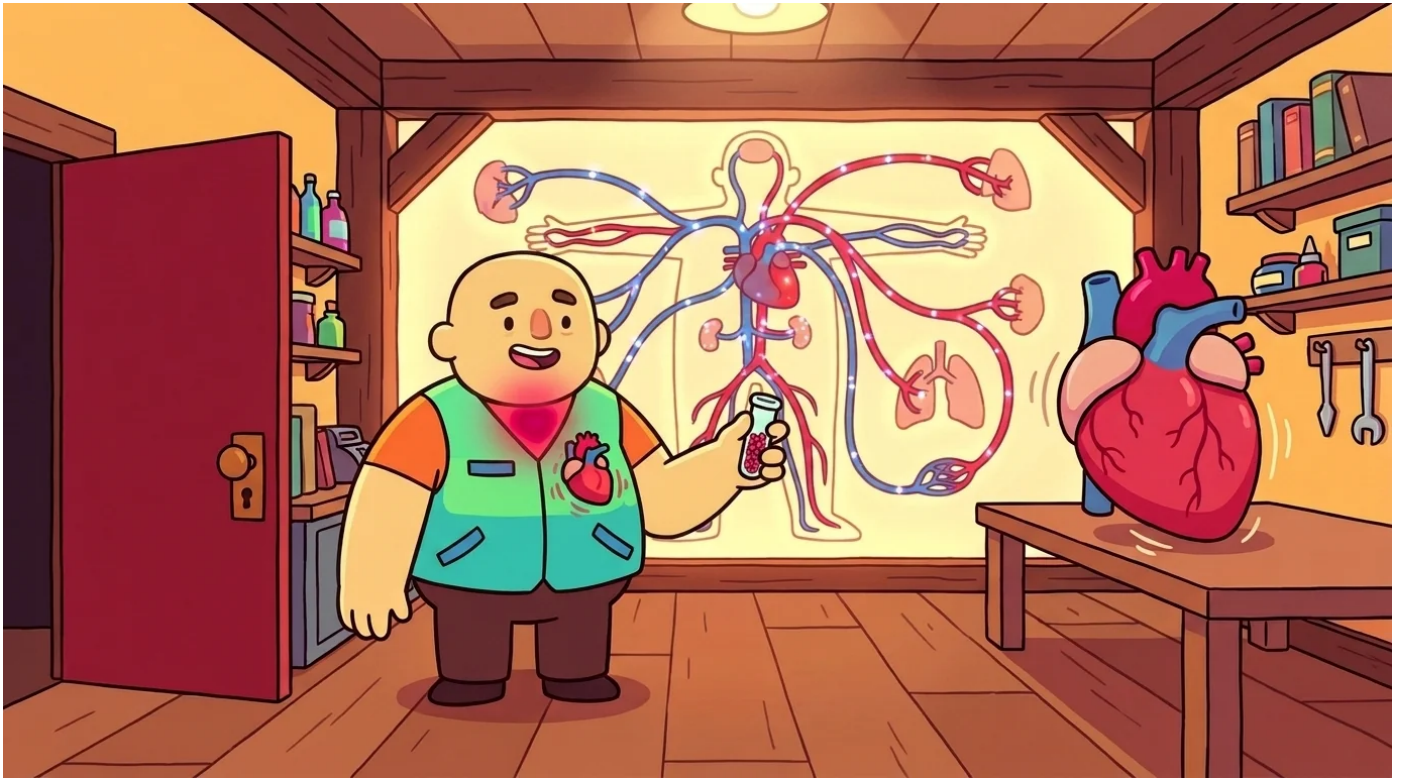
"This is my map," Pump explained. "It shows how everything connects."

A huge heart model sat on a table. It was almost as big as Alex's head. It beat with a soft, rhythmic *thump-thump*. Alex could feel the vibrations in the floor.

"The heart is amazing," Pump said. They tapped the big heart model. "It's a muscle. A very busy muscle."

Alex nodded slowly. They had never thought about their heart much. It just... worked.

"Your heart pumps all the time," Pump continued. "Every single second. It never stops."



Pump walked over to the map. They traced a glowing red line with one finger. "It moves blood to every cell. *Circulation is delivery.*"

"Delivery?" Alex asked.

"Exactly!" Pump smiled. "Think of it like a giant delivery service. Your body needs lots of things. Oxygen, food, special messages. Your blood carries it all."

Pump picked up a small, clear tube. It had tiny red beads inside. "These are like your red blood cells. They carry oxygen. Your muscles need oxygen to run and play."

They pointed to a blue line on the map. "And after your cells use the good stuff, the blood picks up the waste. Like trash. Then it takes the waste away."

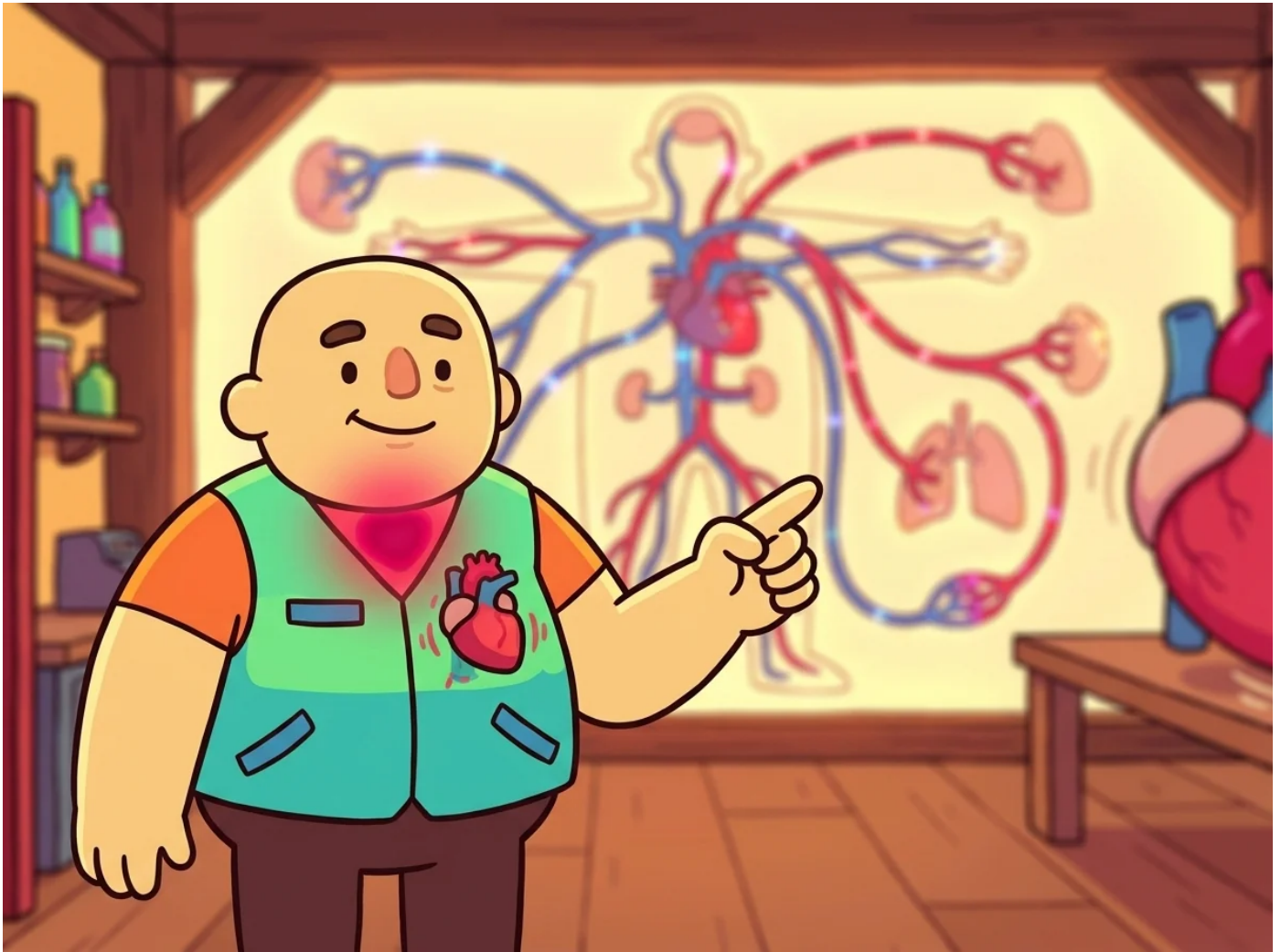
"So, the heart is like the main post office?" Alex guessed.

"A very good way to think about it!" Pump beamed. "And the blood vessels are all the roads."

Pump showed Alex the map again. "There are two main roads. One goes to your lungs. That's where blood picks up fresh oxygen. We call that the pulmonary circuit."

Alex tried to say "pulmonary." It was a long word.

"Don't worry about the big words yet," Pump said gently. "Just think: heart to lungs and back. That's one loop."



Pump traced a path from the heart, up to two lung-shaped areas on the map, then back to the heart. The lights on the map followed their finger.

"The other road goes everywhere else," Pump explained. "To your arms, your legs, your brain. Every single part of you. That's the systemic circuit."

This path was much bigger on the map. It branched out like a huge tree.

"So, blood goes from your heart to your lungs, then back to your heart," Pump summarized. "Then from your heart to your whole body, and back again."

"It's a closed loop," Alex mumbled, starting to understand. "Like a race track."

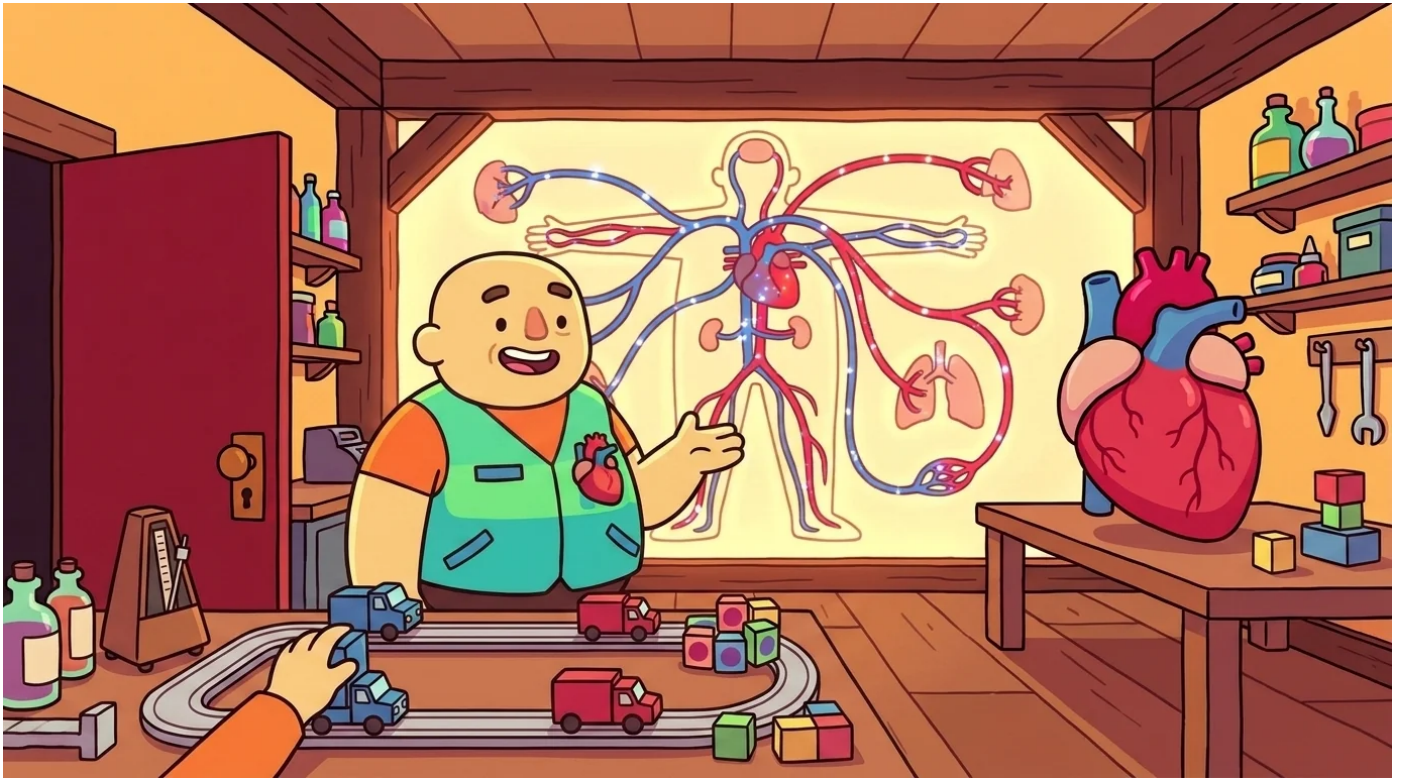
"Perfect!" Pump clapped their hands softly. "No breaks. It just keeps going."

Pump led Alex to a small track on the floor. It had tiny toy trucks on it. Some trucks were red, some were blue.

"Let's play a game," Pump suggested. "You are the heart. Your job is to make sure these trucks deliver their cargo."

Alex sat down. Pump showed them how to push the red trucks along the track. "These red trucks carry oxygen. They go out on the 'arteries' – the main roads leaving the heart."

The track branched into tiny, hair-thin paths. "These are the capillaries. They are super small. This is where the red trucks drop off oxygen to the 'cells' – these little blocks here."



Alex carefully moved a red truck to a block, pretending to drop off its cargo.

"Good job!" Pump said. "Now, the truck isn't empty. It picks up waste. Then it becomes a blue truck."

Pump swapped the red truck for a blue one. "These blue trucks travel back to the heart on the 'veins.' They carry the waste away."

Alex guided the blue truck back along the track, through bigger blue paths, until it reached the "heart" section.

"See?" Pump said. "Delivery and pick-up. All the time. To every cell."

They did this a few times. Alex started to feel the rhythm of it.

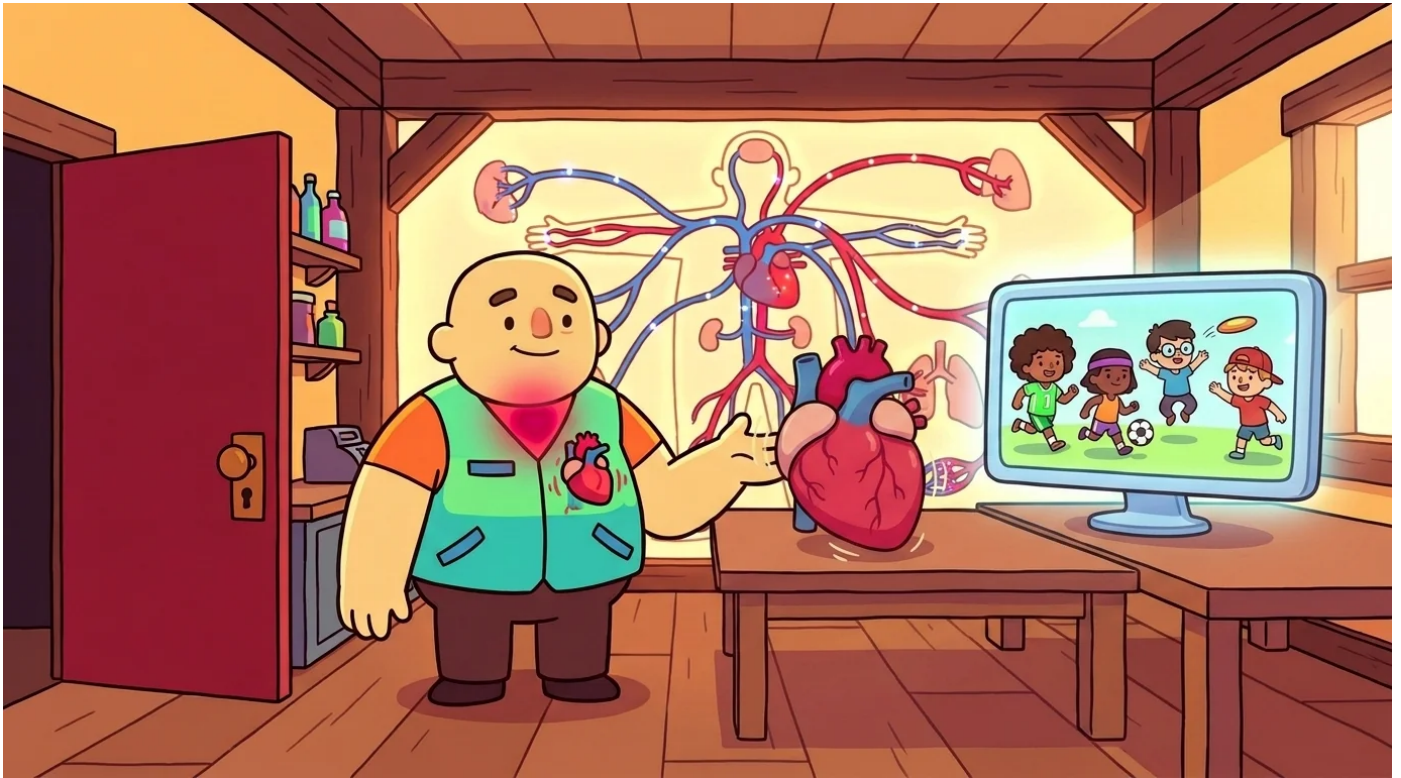
"Now, let's think about sports," Pump said. "When you run fast, what happens to your heart?"

Alex thought. "It beats faster?"

"Exactly!" Pump confirmed. "It speeds up. Why do you think it does that?"

"To get more oxygen to my legs?" Alex guessed.

"You got it!" Pump grinned. "When you sprint, your heart pumps harder and faster. More blood flows. More oxygen reaches your muscles. That helps you run even faster."



Pump then showed Alex a short video. It showed different kids running and playing. Some kids were tall and thin. Some were short and strong. Some were round and quick.

"Look at them all," Pump said softly. "Every one of them has a strong heart. Every one of them is fit."

Pump paused the video on a shot of a kid with a big smile, running joyfully. "When you train, your heart muscle gets stronger. It can pump more blood with each beat. That's what cardiovascular fitness is all about."

Pump looked at Alex directly. "Fitness lives in your cardio-capacity. It's not about your body shape. Every body has a heart that does this work. And every heart can get stronger."

Alex thought about that. It made sense. Their friend Maya was super fast, but she wasn't skinny. Their cousin Leo was really strong, but he wasn't thin either.

"So, it's about how well your heart works?" Alex asked.

"Yes, that's it!" Pump said. "It's about how well your heart delivers. And how well it takes away."

Pump pointed back to the big circulation map. "Continuous delivery. Every cell, every minute."

"I am Pump," they said again, their voice steady and clear. "The primitive I teach is the **cardiovascular system**. The move is **heart-as-delivery; circulation reaches every cell; cardiovascular fitness ≠ body-shape.**"

Alex looked at the beating heart model. It didn't just work. It was a tireless, amazing delivery system. And it was working inside them, right now.

"The heart moves blood to every cell. *Circulation is delivery.*" Pump finished, a soft, steady hum filling the room.

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/bioforge/pump>

Sprout

*SPROUT — *food becomes you. digestion converts; absorption distributes.**



Chapter 3 — Sprout and the Long Journey From Bite to Cell



Sprout is a careful-tapir-tween (chunky-cartoon nibbling-pose; round-soft-strong NOT lean-coded) in chunky-cartoon lab-vest with a small digestive-tract-map + nutrient-absorption-tracker.

Sprout is small + careful + nibbling, warm-cream-with-soft-cocoa-snout, round-soft-strong, deeply attentive-to-food-becomes-you, fond-of-saying-"food becomes you. digestion converts; absorption distributes." Signature: digestive-tract-map + nutrient-absorption-tracker tracing food from mouth → esophagus → stomach → small intestine (absorption) → large intestine → out.



This is essential. Sprout embodies the *digestive primitive* — *the anatomy craft of FOOD-CONVERTS-TO-YOU*. Food is broken down mechanically (chewing, churning) + chemically (enzymes, acids); nutrients absorbed primarily in small intestine; waste eliminated. ~30 feet of tract; ~24-72 hour journey. AND: this connects to SaffronLab Whisk + Brine (cooking + preservation) + HarvestForge soil-microbiome — gut also has microbiome critical for digestion + immunity.

essential anti-diet-culture: cast NEVER frames food as "good/bad" / "clean/dirty" / "earn-it" / "burn-it"; nutrition is fuel + nourishment + cultural connection; bodies need food; all bodies. Reject diet-restriction language inherited from FitQuest body-image gate.



shared with note: Sprout was renamed in FarmQuest mentor reconciliation (FarmQuest mentor: Furrow; BioForge cast keeps Sprout). Per registry rule 3.

Sprout teaches: mouth → esophagus → stomach → small intestine (absorption) → large intestine; enzymes + acids; gut microbiome; nutrient classes; body needs fuel; anti-diet-culture.



Sprout says: *"I am Sprout. The primitive I teach is digestive system. The move is food becomes you; mechanical + chemical breakdown; absorption in small intestine; gut microbiome partners; bodies need food without shame."**

"Food becomes you. Digestion converts; absorption distributes."

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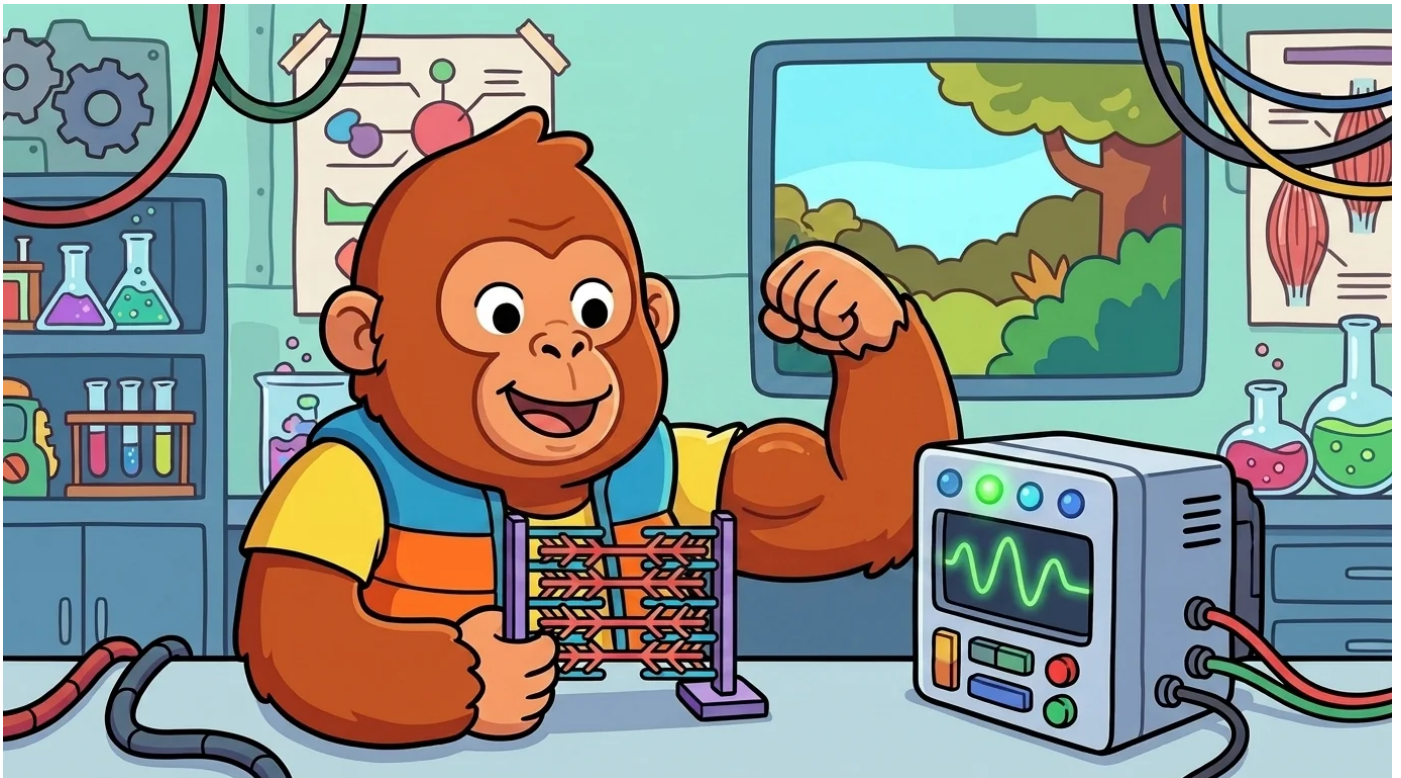
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Strand

*STRAND — *muscles contract. force makes movement.**

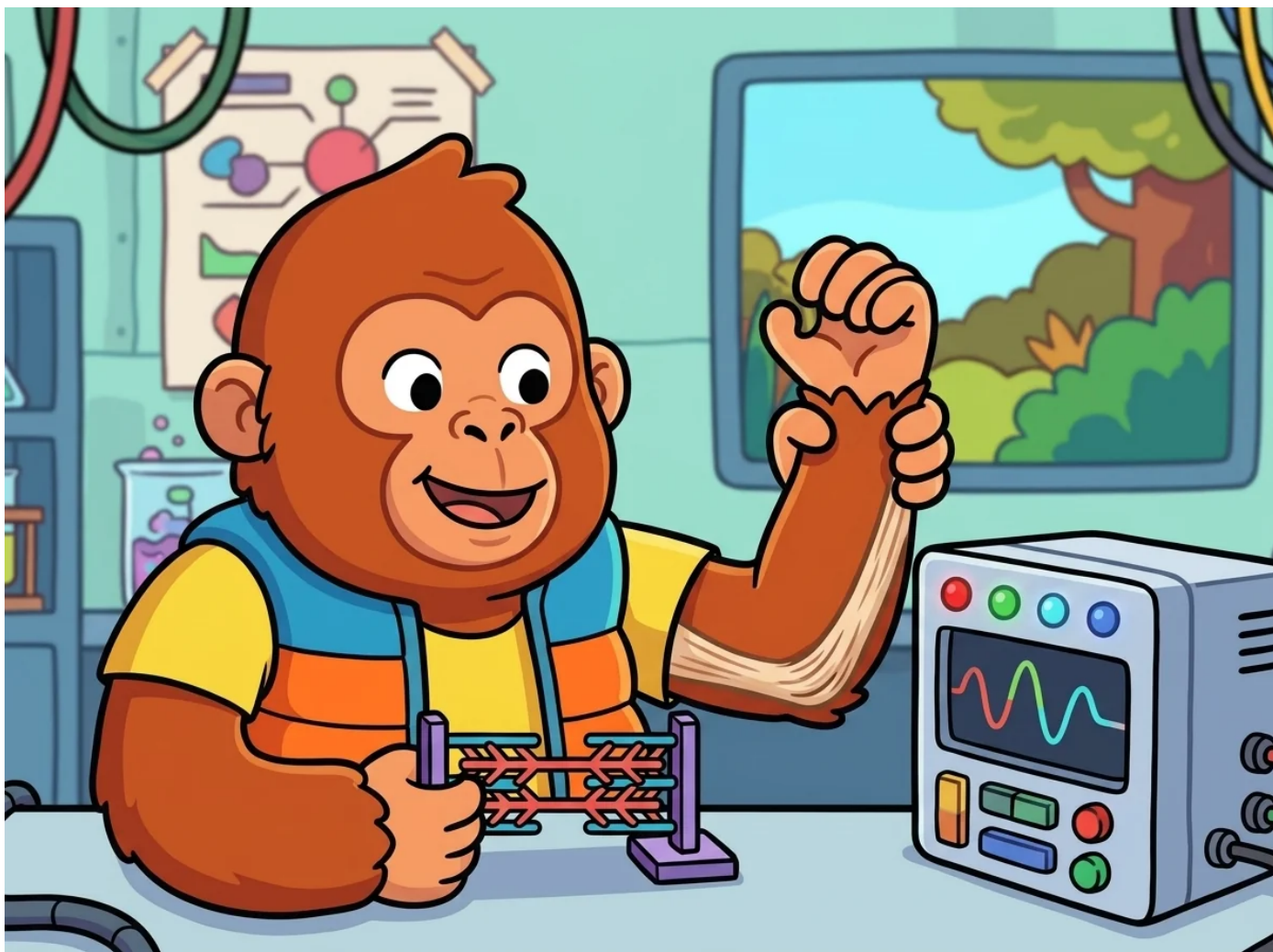


Strand, the orangutan kid, hummed a little tune. He was busy in his lab. He wore a chunky lab vest. His broad shoulders filled it out. He wasn't lean or skinny. Strand was round and soft, but super strong. He held a small model. It showed tiny muscle fibers. A blinking contraction-tracker sat next to it.



Strand was warm-cream colored. Soft rust fur covered his body. He paid close attention to his muscle craft. He loved to say, "Muscles contract. Force makes movement." His muscle-fiber model showed actin and myosin sliding. His contraction-tracker blinked green.

He pointed to the model. "See these tiny threads?" he asked. "These are *muscles*." He flexed his own arm. "My muscles make my body move. Your muscles do the same for you." He tapped the model again. "The big idea is this: *muscles contract*. That means they get shorter. When they get shorter, they pull on things. That pulling creates *force*. And *force makes movement!*"



Strand showed how the model worked. "Inside every muscle are even tinier parts. Think of them like super-small ropes. Some are called actin. Others are myosin." He made a sliding motion with his hands. "When a muscle gets the signal, these ropes slide past each other. Like two sets of fingers lacing together. That sliding makes the muscle shorter. It pulls tight."

He grabbed his own wrist. "When a muscle pulls tight, it pulls on your bones." He pointed to his elbow. "Strong, stretchy ropes connect muscles to bones. We call these *tendons*. They're like super-glue for your body!" He moved his arm up and down. "So, muscle contracts. Tendon pulls bone. And *poof!* You move your arm. Or kick a ball. Or jump really high!"



Strand held up three fingers. "There are three main kinds of muscles. First, *smooth* muscles. You don't have to think about them. They work all by themselves." He patted his stomach. "Like the muscles in your tummy. They help digest food. You don't tell them what to do!"

He pointed to his chest. "Next, *cardiac* muscles. These are special. They're only in your heart. They pump blood all day and night. They never get tired!" He flexed his arm again. "And finally, *skeletal* muscles. These are the ones you control. The ones you use to run, jump, and lift. They're connected to your bones. You tell them what to do!"

Strand picked up a big, heavy-looking wrench. He lifted it with one hand. It looked easy for him. "See?" he said, setting it down gently. "My muscles are strong." He looked at his own broad, round arm. "You don't have to look super skinny to be strong. Or have muscles that stick out everywhere." He tapped his arm. "My body is round. But it's also soft. And strong. That's a complete body!"



He explained that how muscles look can be different for everyone. "It depends on lots of things. Your family. Your age. What you do every day." He showed a picture of different strong animals. "A bear looks different from a cheetah. But both are super strong in their own ways. What matters is what your muscles can *do*." He talked about pushing doors open. Or hinging down to pick something up. Or bracing yourself to stay steady. "These are all ways your muscles help you move and live!"

Strand grinned. "I am Strand. I teach about your *muscular system*." He gave a thumbs-up. "The big lesson is this: *muscles contract; contraction makes movement*. And remember: *muscle strength does not mean muscle visibility*. A round, soft, strong body is a complete body!"

He finished with his favorite saying. "Muscles contract. *Force makes movement!*"

Listen along + meet more of the cast at:



<https://spark-and-anvil.com/cast/bioforge/strand>

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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. BioForge is one of 140+ apps in the portfolio.

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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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