

The background features a dark, textured surface with several bright red, glowing liquid-like shapes of various sizes and forms, some resembling elongated ovals and others more abstract blob-like structures. These shapes appear to be flowing or interacting with each other. Overlaid on this background are several thin, horizontal red lines of varying lengths, some straight and some slightly curved. The overall aesthetic is dynamic and organic.

# BEYOND DARK MATTER

# **BEYOND DARK MATTER**

# **BEYOND DARK MATTER**

A story that children and adults can read  
because it's simple.

Written by Neta Bomani  
Edited by Romi Morrison  
Illustrated by Sabii Borno

### **BASED ON**

Dark matter objects: Technologies of capture and things that can't be held.

## **CAST OF CHARACTERS**

### **GEM**

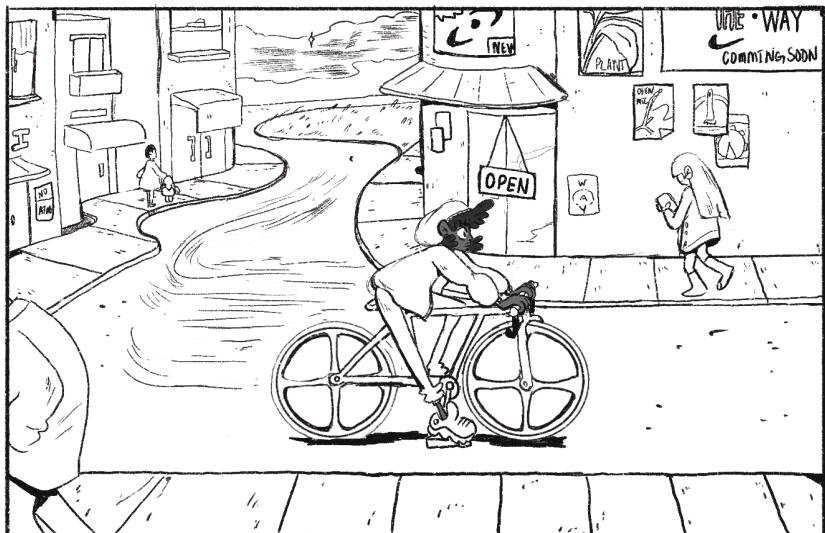
A young student who is always on the go.

### **MS. JOHNSON**

An elder who runs the local community kitchen.

### **ARCHIE**

A retired postal service worker and handyman who volunteers at the community kitchen.



**I**t was a hot fall day and Gem was zipping through the streets on her bike, hurrying home to finish some school work.

On her way, she ran into Ms. Johnson, an elder who ran the community kitchen around the corner from her house.

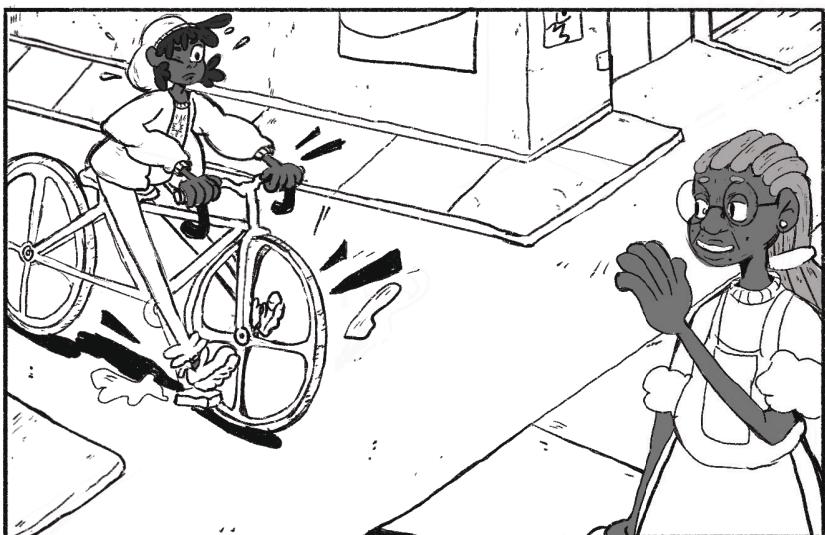
"Rushing off to work again, eh Gem?" Ms. Johnson said. "I see you biking through here almost everyday. They workin' you real hard in school. When you gon' come by the community kitchen and do some real work?"

"Sorry, I almost didn't see you there!" Gem replied. "Unfortunately, I have a lot of work to do today."

"You always say how busy you are, you never got time for us anymore," Ms. Johnson said with a smirk on her face. "There are more ways to work than one. Look after yourself, Gem!"

"See you later, Ms. Johnson!"





Finally, Gem made it home to finish her project. It was due in three days! She recently started going to a new school and was eager to do a good job and impress all her new teachers, and most importantly, her parents. She studied Science, Technology, Engineering, Art, and Math (STEAM). Gem was always real good with computers, and STEAM was all about learning how to use computers creatively to write languages computers can understand called **PROGRAMS**, which include instructions in the form of **CODE** or **ALGORITHMS**.

Gem was good at knowing her way around a computer, but she wasn't so good at sitting still for long periods of time, speaking the way teachers wanted her to, or following school rules. Sometimes her thoughts wandered off and she got lost in her imagination instead of paying attention in class. She struggled to keep up and her grades suffered. She often stayed after school to get extra tutoring help. One of her teachers suggested an extra credit assignment to help her get back on track.



Gem read the assignment instructions out loud: "First explain how computers make you feel more connected to other people. Next, explain how computers connect to other devices through a process called synchronous communication." For bonus points, she could build a circuit that demonstrated synchronous communication, which she understood was when two devices exchange messages in real time. She wasn't good with words, so she focused on the circuit first.

She made sure the arrangement of her circuit matched the code one of her teachers helped her write. This gave the device, called the master, instructions to send messages to the other device, called the slave. Using those words to describe the devices made Gem feel uncomfortable, but



the teacher said that those were the technical terms everybody used. She wondered what Ms. Johnson would think of that—then noticed she was getting distracted and brought her focus back to her project.

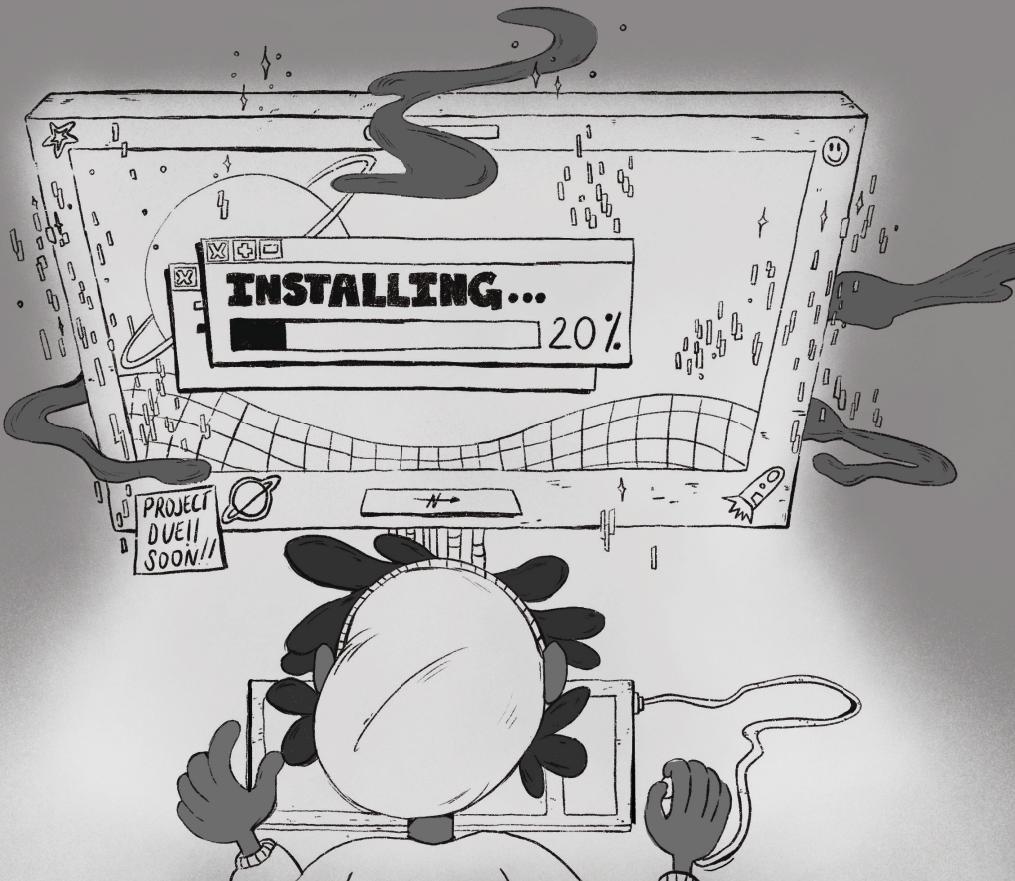
"Just one last touch..." Gem said as she plugged it into her computer to test it out.

"And now, the moment of truth..."

An error message appeared on the screen that said the **DEVICES FAILED TO CONNECT**.

"Ugh!" Gem exclaimed. "I can't get it to work! There's just no way. I don't have enough time to finish this before the deadline."

She grew frustrated and yearned for the days before she



started school, when she could play with her friends or listen to Ms. Johnson's stories. She didn't like working alone on her school projects all the time.

"Ding!" the computer alarmed. A notification from a new software called "The Way" popped up: **INSTALL NEW UPDATE**.

Gem figured the devices might not be connecting to her computer because of a software issue, so she clicked on the notification to update it.

"One hour?!" Gem exclaimed, reluctantly clicking **INSTALL**.

"Ugh, this is going to take forever!"

She watched the progress bar begin to slowly move until her eyes started to glaze over. She hadn't gotten a good night's

rest in days, so it felt good to rest her eyes after working so hard during the school week. She couldn't resist drifting off to sleep.

The space around her grew brighter and brighter into a white hot light that woke her up from her slumber.

"I must've fallen asleep," Gem said as she rubbed her eyes open to a strange, empty place that wasn't her home.

An all-knowing voice echoed, "Welcome to The Way."

"Who was that? Where am I?" a confused Gem asked.

She looked around and saw that everything was super bright and never-ending. It looked a lot like the blank white screen just before her computer turned on.

Her eyes slowly adjusted to the brightness. She looked at the ground to see a pixelated grid beneath her feet. The sky was filled with floating windows and strings of text zipping quickly through the air, kinda like her computer desktop. Suddenly, it dawned on her—

"Oh my goodness! Am I inside my computer?

"I can't be inside my computer right now—I have to get out of here!" Gem demanded. "My project is due in three days!"

"Welcome to The Way," the same voice from earlier said, interrupting Gem. "The Way elevates the most advanced desktop operating system in the world to a new level of power and beauty."

"The Way?" Gem asked. "You mean the software update I was installing on my computer earlier?"

"The Way is a new software with classic features for timeless efficiency to optimize your workflow," The Way continued.

“Okay... But how do I get out of here?” a frustrated Gem asked.

“Take a tour of new features in The Way to complete your installation,” The Way said.

Two hands adorned in white gloves appeared from the sky and began to sprinkle **PIXELS**—tiny elements that make up images on display screens—together to form a train next to Gem.

“How are you drawing shapes with pixels like that?” Gem asked in awe.

“The Way is more than just a software. It’s a program that learns from your past in order to anticipate what you need and enhance your workflow,” The Way said.

“The tour begins with you. Step into the master train car to initialize the learning algorithm. This will take you through a tour of your personal history, interests, and hobbies. The master train car controls all operations in your computer. It runs on these tracks to complete multiple circuits that build a complete historical model of you. You must finish the tour before you can exit the program in order to avoid a system malfunction.”

She searched to see if there was a way out, but she was unfamiliar with this part of her computer. Gem was right behind the **INTERFACE**—the thing you type into, click on, or touch to use the computer. Without her keyboard and mouse, she didn’t understand how to work the computer. She felt powerless and completely at the mercy of the computer’s instructions.

“You leave me no choice,” Gem sighed.

She felt pressured to get the installation done as soon as possible as she walked past the progress bar and reluctantly hopped into the train.

PROJECT



TUNES

COMICS



SV. IDE



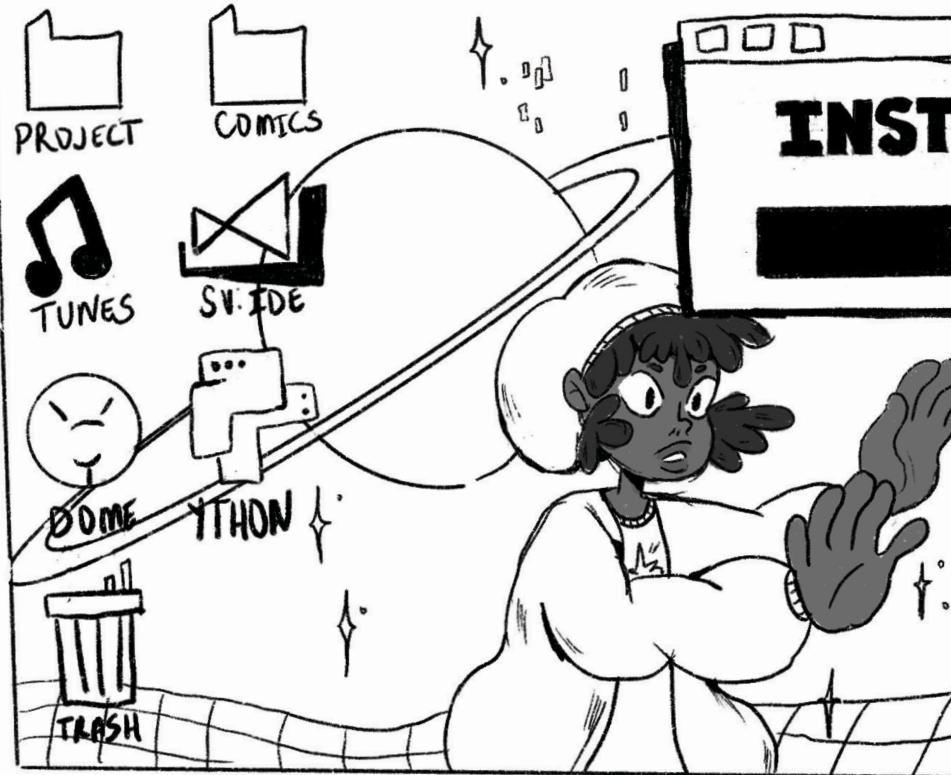
DOME

YTHON



TRASH

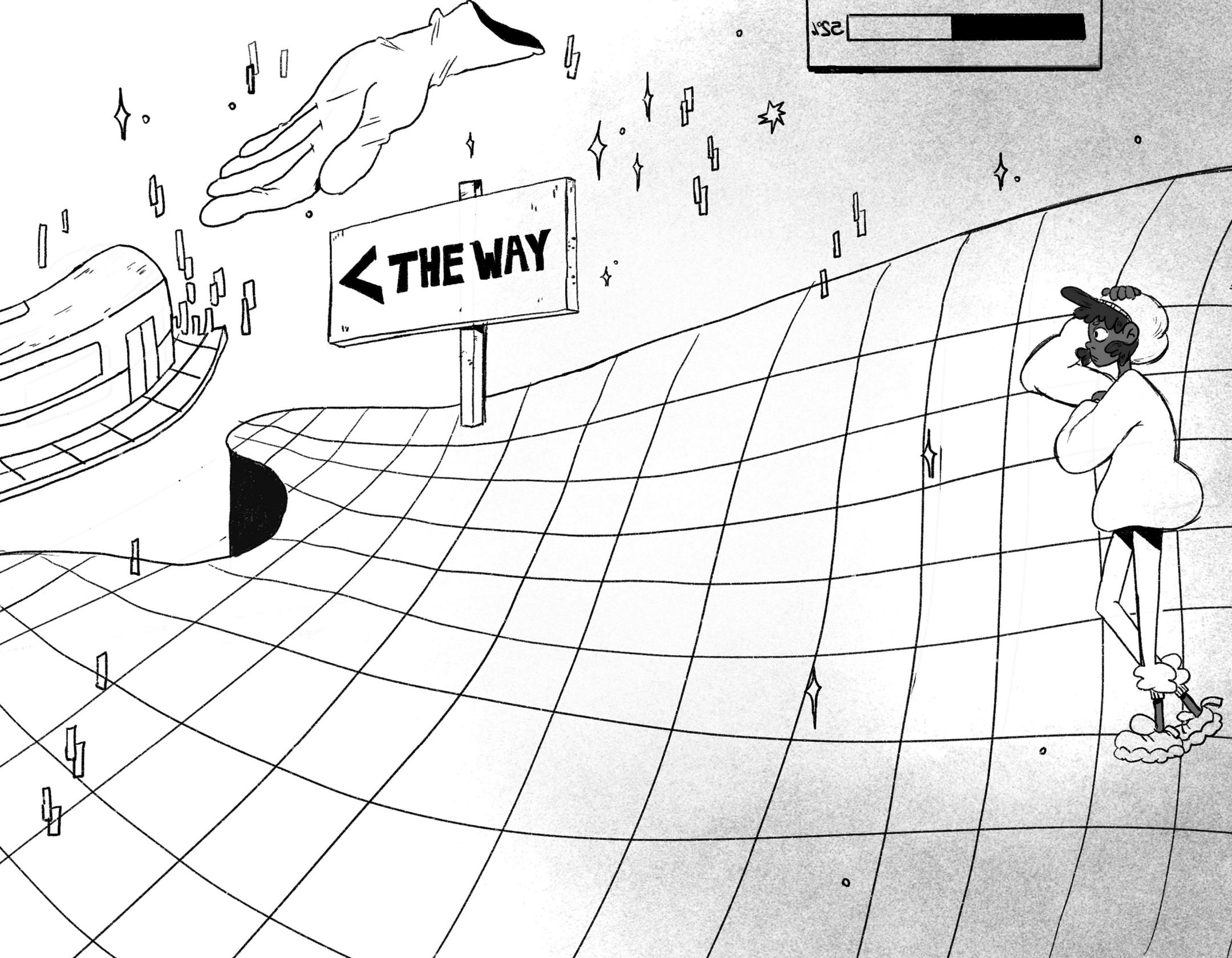
INST

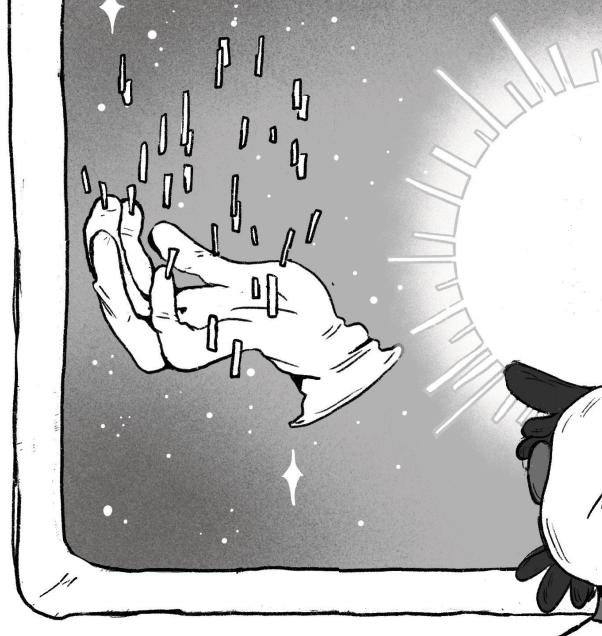


PROJECT  
DUE  
SOON!!



N →





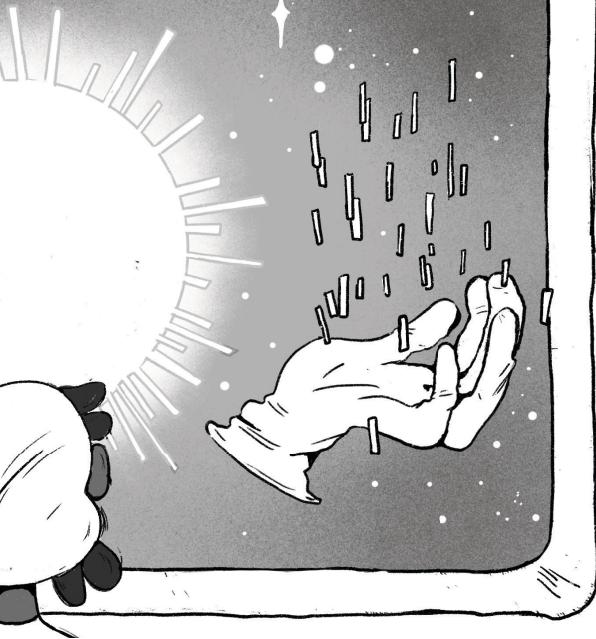
"For your security, it's important that you keep your bodily appendages in the train at all times," The Way said as the train jolted to a start.

"The timeline will start to construct your historic profile. This is a story about time. This is a story about history. This is a story about you."

Pixels fell down from the hands to form tracks, constructing a timeline that surprised Gem.

From an area beyond what she could see, illuminated by the bright lights of the screen, a faint voice said to Gem, "This is a story about the stories we tell. And the ones we don't." The voice sounded like it came from headphones, but Gem wasn't wearing any.

"Who was that?" Gem said. She noticed an inviting shadow coming from beyond that made it easier for her to bear the brightness of The Way, kind of like when a cloud covers the sun on a bright afternoon.



A loud alarm went off and a distracted Gem noticed she was nearly out of her seat.

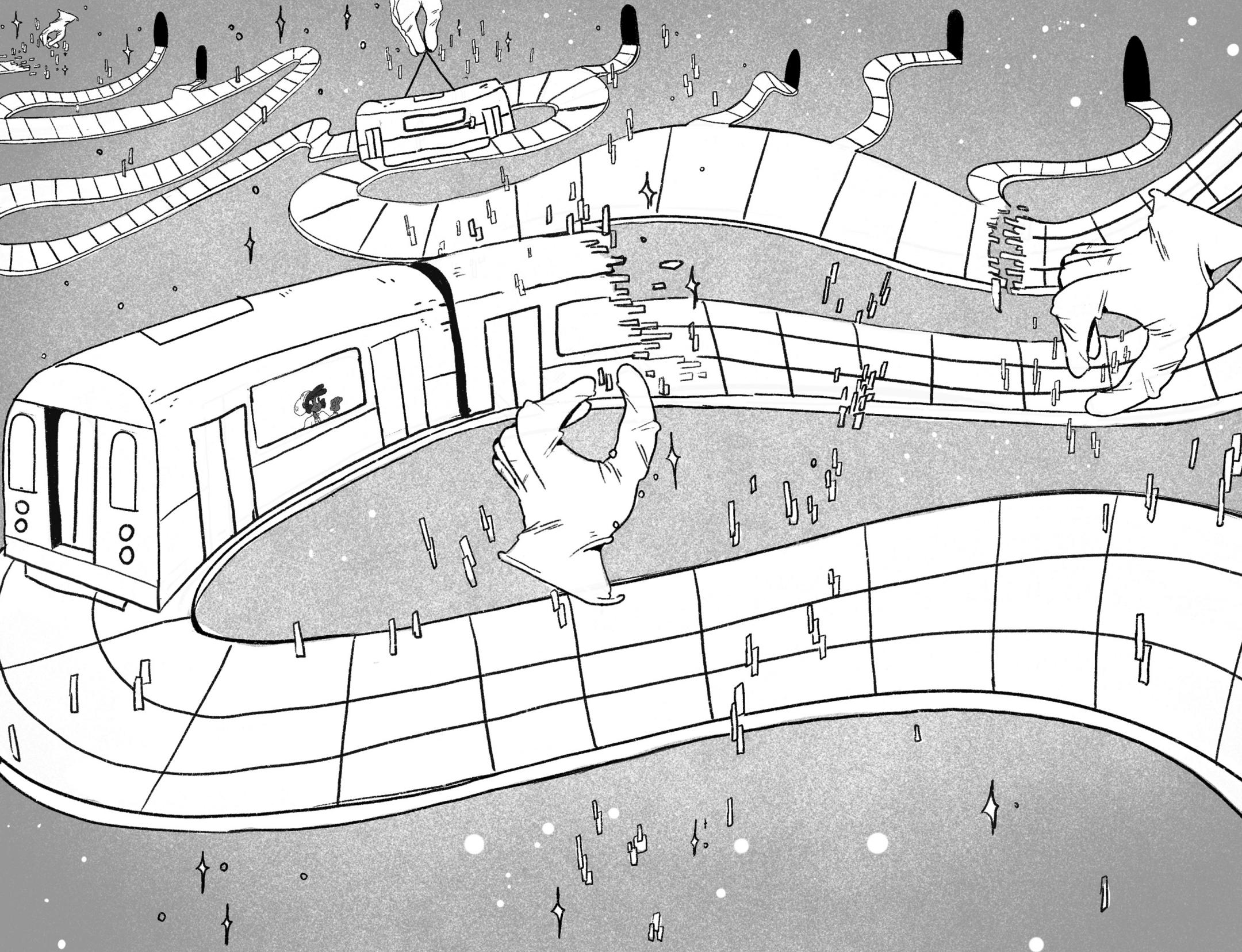
**"ERROR WARNING!** Please keep your bodily appendages in the master train," The Way bellowed.

"Alright, I get it—it's dangerous! I won't do it again," Gem said as the train pressed along.

She watched closely, anticipating what the hands would do next.

### **THAT'S JUST THE WAY IT IS**

The hands started to build a long chain. "Please bring your attention to the timeline being constructed in front of you," The Way said. "Your history will appear here. For example: In 1945, the Electronic Numerical Integrator and Computer (ENIAC), the first programmable computer was created," The Way said. "All personal computers are based on the ENIAC's design."



OPY  
s Ma  
pro  
nsit  
ed m  
actu  
e re  
  
bee  
a pu

The pixels expanded to complete the image of a bulky computer a thousand times the size of Gem's computer.

"Wow," Gem exclaimed. "That's a huge computer!"

"Are you ready to begin?"

"Yes," Gem said.

Suddenly, the train began to move past the ENIAC and toward a cluster of pixels forming a row of identical houses.

"In 1947, Levittown was created as one of the first suburbs in response to fears of new weapons technologies during the Cold War," The Way said.

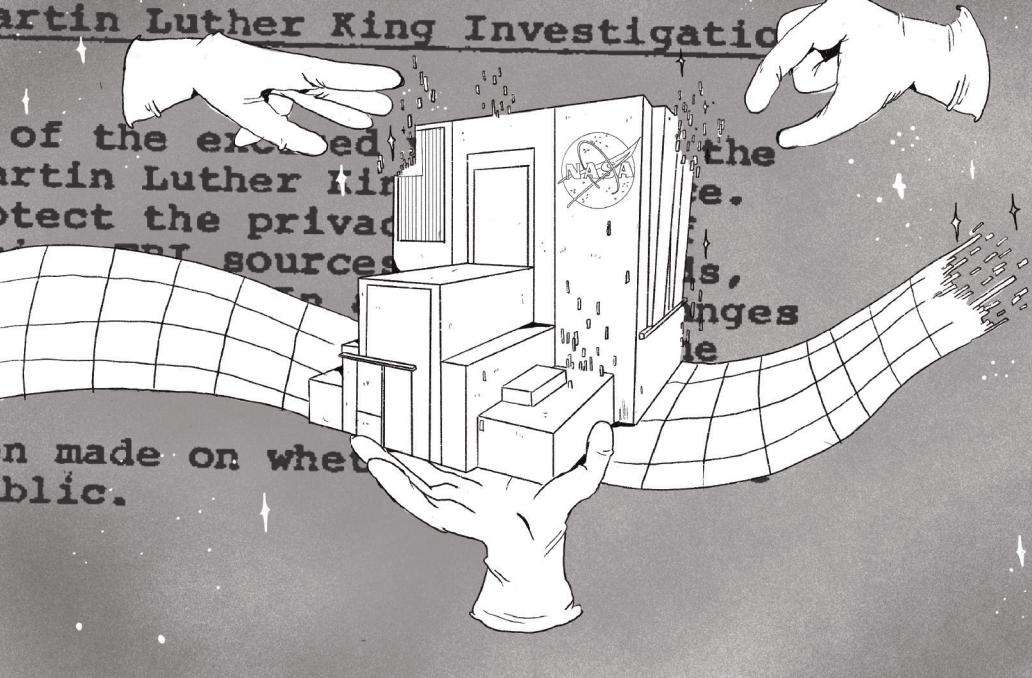
Gem felt confused about what Levittown had to do with her until she remembered that Ms. Johnson told her about Levittown, and she had later spent hours looking up images on the internet of the strange suburban houses, in contrast to her family's tiny apartment.

The train slid down the timeline.

"In 1954, the Civil Rights Movement began," The Way said as its hands worked the pixels into an image of a group of students participating in the Greensboro sit-ins, in protest of racist segregation in public places.

"Ah yes, my great-great-grandmother was a member of the Student Nonviolent Coordinating Committee," Gem said. "My old man told me she used to be a part of a working group which later became the Third World Women's Alliance."

The train turned the corner and travelled down the timeline, showing other historical events from the Civil Rights Movement, from the Montgomery bus boycott to the



Selma-Montgomery marches. Gem watched in awe as she saw historical figures like Martin Luther King Jr. up close for the first time, apart from the tiny photographs in her history books in school.

A distant voice from beyond whispered, "In 1956, COINTEL-PRO, an abbreviation for the Counter Intelligence Program, was started by the Federal Bureau of Investigation (FBI) to surveil, infiltrate, and discredit Black political organizations, including the Civil Rights Movement, and later the Black Power movement."

Gem's skin crawled with the feeling of being watched. She remembered the time a security guard followed her at the hardware store while she was shopping for things for her project. She shivered at the thought as the train continued on.

"In 1958, the National Aeronautics and Space Administration (NASA) formed," The Way said.

The hands worked tirelessly to construct the Kennedy Space Center in Florida.

Gem thought of the time she went on a field trip to the Space Center. She became obsessed with space after watching footage from the Apollo 11 Mission in the theater, and later “exploring” the moon in a virtual reality game.

The same distant voice spoke into Gem’s ear again: “The United States started NASA because they were embarrassed they didn’t live up to their reputation as a country at the forefront of technology, since Russia launched the first satellite into space a year earlier, in 1957.”

“America always has to be first,” Gem laughed quietly to herself as the train moved along.

“In 1959, the Community Renewal Program was enacted as the first urban program to use systems analysis and computer simulations to optimize urban planning,” The Way said.

Gem thought of the signs she saw popping up in her neighborhood that said “Community Renewal & Neighborhood Revitalization Program,” and how her father warned those were often the first signs of gentrification. Soon after, her neighborhood began to change as more coffee shops, luxury boutiques, and organic groceries popped up.

The distant voice said, “It funded programs like The Los Angeles Community Analysis Bureau, which tried to predict Black urban rebellions using housing data. We have the ENIAC to thank for the systems technology that made this possible.”

“Wait! That’s not fair,” Gem exclaimed. “Why isn’t that a part of the history of the Community Renewal program?”

The distant voice chimed in again, saying, “Why do you think it’s called ‘The Way’? People always say, ‘That’s just the way

it is,’ to run away from the challenges that change might bring.”

Gem noticed the reflection of the progress bar on the other side of the screen and saw that the installation was almost halfway through, as the train moved along at a faster pace. She felt relieved that she’d be out of here soon.

“In 1960, the Black Power Movement began.”

The distant voice replied, “In 1963, FBI Director J. Edgar Hoover filed a request to tap King and his associates’ phones and to bug their homes and offices.”

“In 1963, Medgar Evers was assassinated—”

“By the FBI,” the distant voice interrupted.

“In 1963, John F. Kennedy supported the Civil Rights Movement in the Report to the American People,” The Way said. “In 1963, John F. Kennedy was assassinated.”

“In 1965, Malcolm X was assassinated. In 1966, the Black Panther Party formed. In 1968, Martin Luther King Jr. was assassinated. In 1968, the Civil Rights Movement ended.”

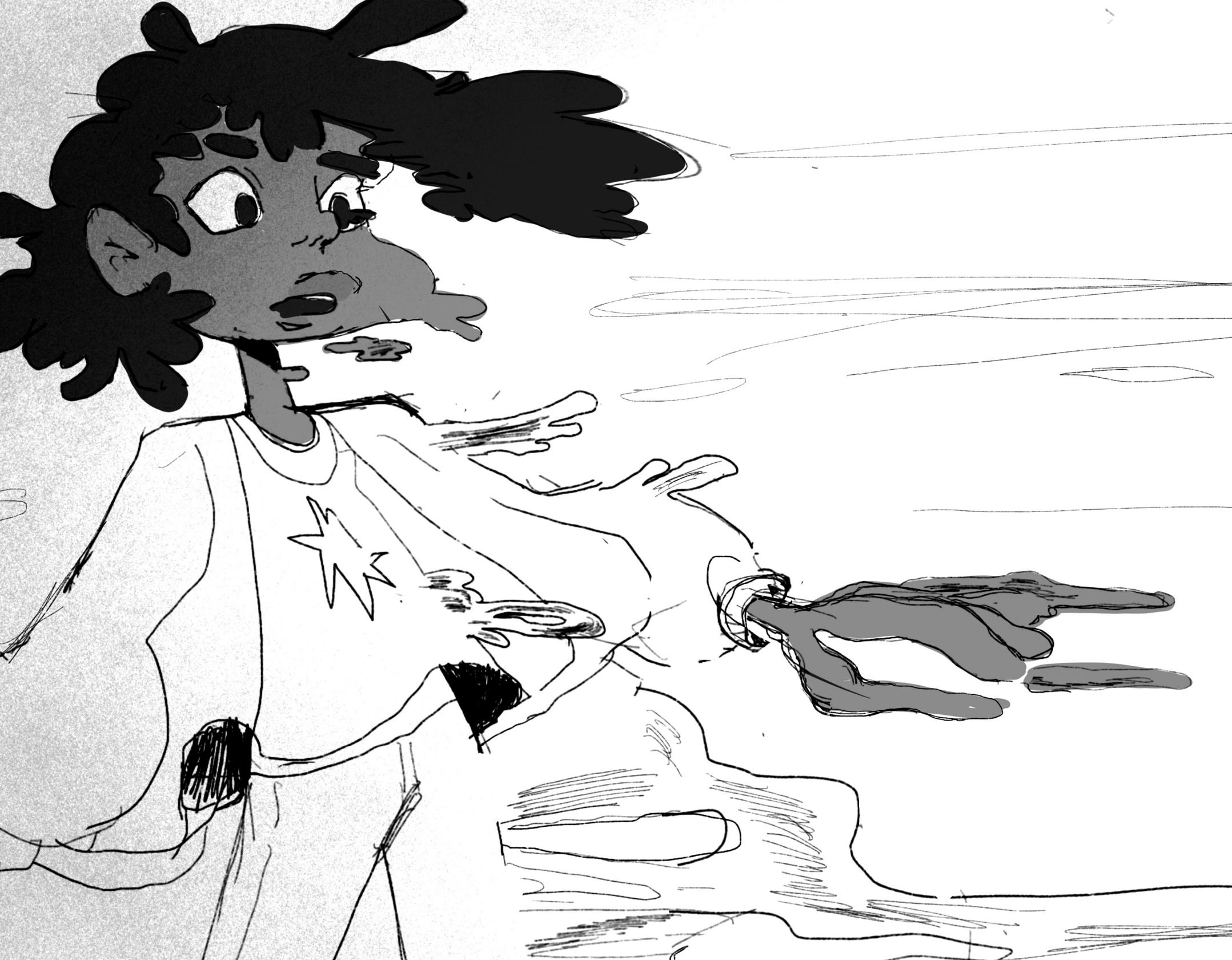
“That’s not the full story!” Gem cried. “The United States government killed Dr. King and Malcolm X!”

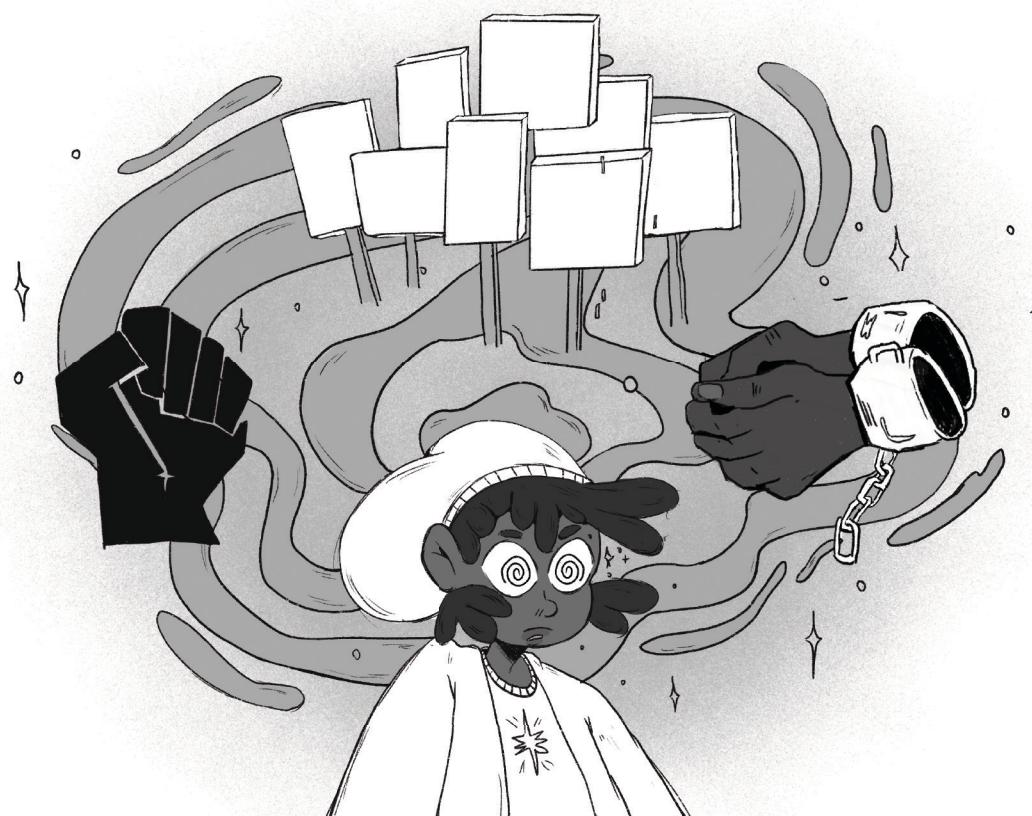
The train sped ahead at a frightening pace.

“Why does everything have to be your way?!” Gem exclaimed. “Tell the full story!”

The Way’s hands began to work faster and faster, merg-







ing one pixel into another as the historical events unfolded in front of Gem's eyes. She didn't like what she saw. The Way claimed to be software interested in learning about Gem, but this wasn't who she was. She wished she had never gotten into the train. She hated feeling so powerless. She had to find a way out of here.

"Please, stop the train!" she shouted at The Way.

The lights grew brighter and brighter, as if they would swallow Gem.

"Please, stop—I can't take it anymore!" Gem cried.

She looked out to the dark expanse beyond the tracks. As scary as it looked, it was better than staying on the terrifyingly fast train. She noticed that the train tracks expanded to an infinite loop.

“If I don’t get out of here now, I’m going to be trapped here forever!” Gem cried, swelling with fear. “Anywhere is better than here,” Gem said as she jumped off the train and out into the beyond.

“Ah!!!” Gem screamed.

Just as she thought she would fall into the abyss, the darkness gently pulled her into its orbit.

“Did I make it,” Gem asked herself. “Am I safe?”

### **WHAT ELSE IS THERE?**

“Put yo mind at ease, child. You are safe here with us.”

“Us?” Gem inquired.

“We are The Beyond, a space of possibility that comes from both your intuition and your imagination,” The Beyond said. “If you ever forget, remember your feelings that something beyond you is happening. The Beyond can’t be computed because it’s within you.”

For the first time, Gem could hear the Beyond loud and clear, unlike before. She realized that the voice was not one but many, speaking in cascading rhythms that echoed around her. They were a chorus of different tones and inflections, each spoke with a soothing cadence that felt warm and familiar.

“If The Beyond is within me, then who are you?” Gem asked hesitantly.

“We are those voices that stay with you even after you rush past us. Don’t you recognize us, child?” Gem immediately felt the presence of Ms. Johnson. “We are your community. We linger and reside within you. We are here when you need us. All you have to do is slow down and remember

SLAVE PRESENT

SLAVE

MASTER

2	4	6	8
○	○	○	○
○	○	○	○



70

7. Parc des semmes, 70.

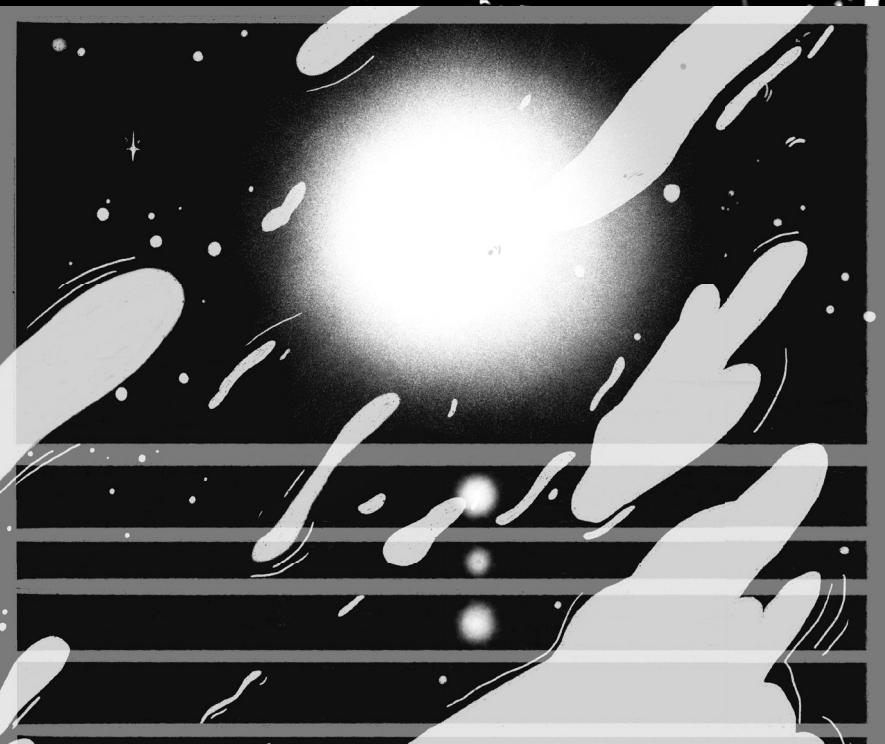
8. Soutien vivre.

9. Parc des semmes (échafaud)

10. Site Barbe 60.

11. Site Barbe (échafaud) 20.

Il y a un mètre carré de surface utile!  
de l'effectif total.



1. Cam  
2. Câble  
Parc  
Parc  
5. Gran  
6. Ram  
Au total 60  
Les installations  
Desvins tire

us. As you care for us, we will care for you.”

Gem remembered the last time she saw Ms. Johnson and how quickly she brushed past her. Tears began to well in the corners of her eyes. For the first time in a long time, she could feel how isolated she felt.

“I’m so sorry!” Gem cried, her voice pushing through each tear. “I really lost myself in the way I was living.”

“We all do, child, one way or another,” the voices sang in harmony. “It’s time you come to know about a deeper kind of technology. This is a story about technologies, new and old, near and far,” the voices said. “We are a technology for living that can only come from community. We are the voices of your relationships with others that can guide you through difficult times.”

“Computation, in particular, has an established history from the first machine computers like the ENIAC.”

“But the computer is built on older technologies. People once had rolodexes and contact books, tabbed folder files and trash bins, and they put them into computers so this new digital world would make sense to us. The computer is always trying to relate to human history because people modeled computers after their world. Most importantly, this history is something that you feel every time you use your computer. Computers deeply influence how we understand ourselves and society. They’re instruments of power that can create empowered people like you, who generally know their way around a computer, just as they can create disempowered people, who feel like they don’t know how computers work at all.”

“The Way is computer **SOFTWARE** and software is tech-

nology that contains instructions. Instructions that tell your computer what to do and tell you how to think about your computer.

“We often experience software as a form of—”

“Control,” Gem blurted out. She felt startled, as her voice was no longer singular but began to blend together with those of The Beyond. Moving back and forth through call and response, clapping on the two and the four. Slowly, she was learning to sing their harmonies.

“If we go back in time, we can trace this control to the—”

“Master/slave relationship,” Gem blurted out again, feeling the weight of the words as she said them.

“Yes, from the transatlantic slave trade. This continues to influence how Black people are treated today.”

“This is how I felt in The Way, controlled and isolated.”

A gust of wind nudged Gem further into the Beyond’s orbit, and tiny stars began to glow as if they were getting ready to show her something.

“The master/slave relationship has been used for centuries in technology, often to explain situations where one master process or component controls a slave process or component.”

Gem felt her awareness grow immensely. As the conversation continued she could hear the rhythms and melodies behind the words The Beyond spoke. She learned the lyrics well enough to sing alongside the choir.



“Community is memory,” they all said in unison. “We build knowledge together.”

As Gem’s voice melded with The Beyond, she could feel more words coming. “In computers, the master clock controls time signals used to synchronize one or more slave clocks to perform routine tasks.”

“The software you installed is no different. It is also based on a master/slave relationship, drawing its violent history from the stealing and enslavement of African people to the assassinations of Black revolutionaries who fought for freedom.”

“That explains all those messed up historical events on the timeline... If only I could go back and get the computer to understand me better,” Gem thought. “Better yet, I wish I could build a time machine and change history!”

“Even if the computer understood you better, it would still be built on technology based on the master/slave relationship. In other words, computers are fundamentally designed to make you feel how you felt in The Way.”

“So what are we supposed to do?” Gem asked as she reflected on all the time she spent by herself on the computer, instead of making friends or spending time with Ms. Johnson. Oh, how naive she had been to think that she understood her computer, while there was a hidden history to what made computers possible.

“You can’t fix the computer just like you can’t turn back the clock, but you can change what you do now to share the work of building a different future,” The Beyond said. “When you feel controlled by The Way, you can activate the energy of The Beyond to show you that your computer

doesn't have to define who you are and what you're capable of. Another way is always possible."

The sky parted, revealing an expanse of glimmers that began to outline the pathways of a network map.

"Computation has made social change more possible. For example, in 1983, the internet was created," The Beyond continued.

"And in the early 1990s, the internet inspired the creation of the Afronet, which was invented to help Black people find each other online."

"In 2010, a series of anti-government protests spread across the Arab diaspora largely because of the use of social media."

"These are just a few examples. There are many more out there."

"So where do we go from here?" Gem said.

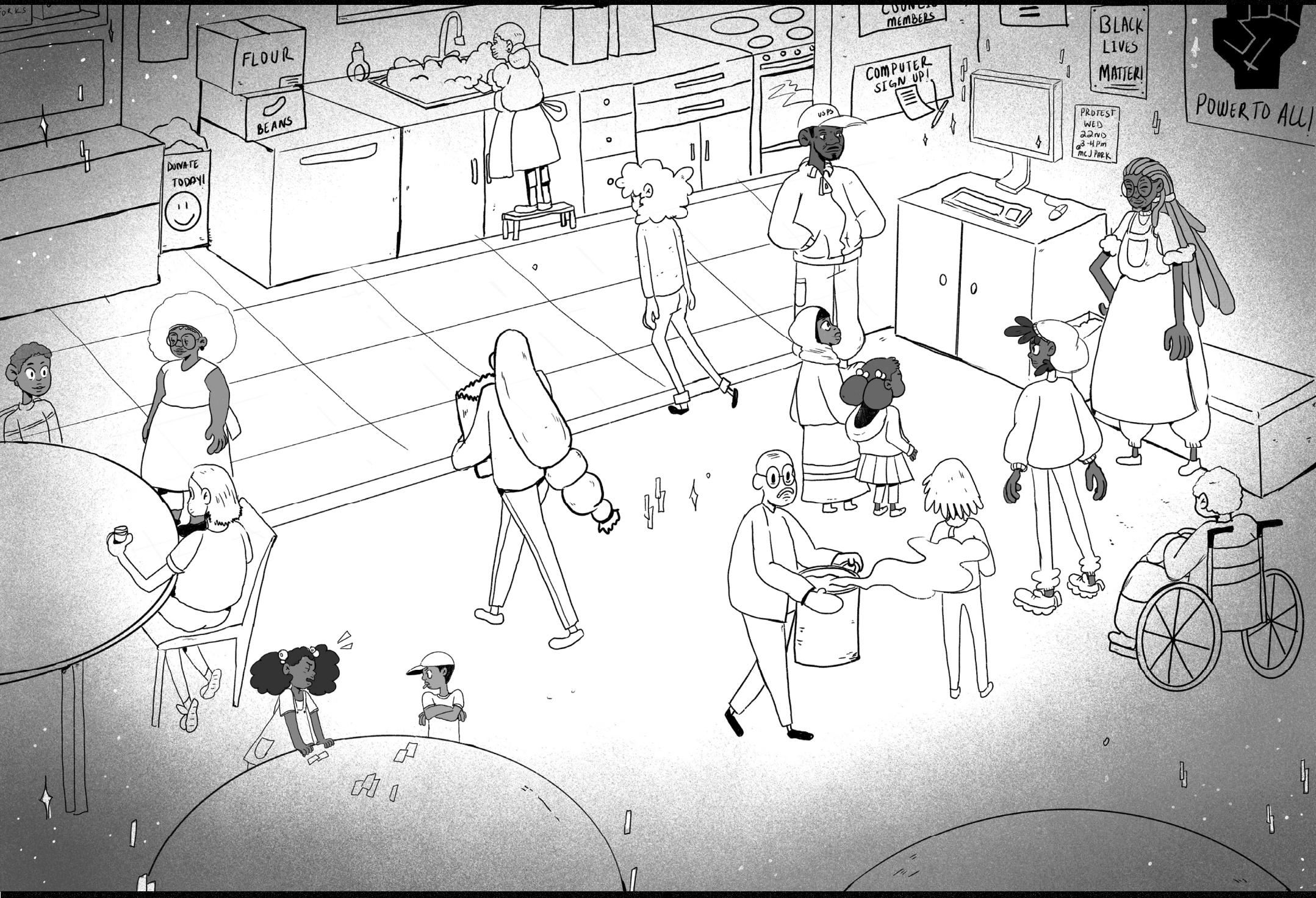
The Beyond guided Gem along an alternate path filled with a constellation of stars.

More glimmers emerged from the Beyond and showed a group of youth and elders gathered at a community center laughing and eating together, then quickly faded away like dust—

"What happened? Where did everybody go?" Gem said.

"These are simply future possibilities," The Beyond said. "Here at The Beyond, we reject the ideas of The Way, because 'that's just the way it is' doesn't make sense when there are endless amounts of other ways to be."

"We might not always be certain about what is possible, but to start, we must root in community. We can move





beyond uncertainty if we believe that another world is possible by working together to make change happen.”

“I knew that couldn’t be the only way!” Gem said. “I believe!”

### **ANOTHER WORLD IS POSSIBLE**

As soon as she uttered the word “believe,” Gem found herself awake back at home.

“Oh thank heavens!” Gem exclaimed as she kissed the ground beneath her feet. “I’m so glad to be back!”

Gem looked at her computer to see that the installation for The Way software was at 99 percent and clicked **CANCEL**.

“No more screen time for me today. I have something important to do.”

Gem walked to find the old community kitchen Ms. Johnson kept telling her about.

“Where do I sign up to volunteer?” Gem asked as she walked in the door.

“Right here, love,” Ms. Johnson replied. “It’s good you came by. We been needin’ new volunteers. Mind givin’ me a hand in the kitchen?”

“Another world is possible,” Gem whispered to herself as she scribbled her name on the sign-up sheet.

“What was that, love?” Ms. Johnson said.

“Oh—yes, I’d love to give you a hand,” Gem replied.

“Alright now, it’s just back here beyond the terrace.”

Gem followed Ms. Johnson to the kitchen and was greeted by other volunteers packing groceries for families in the neighborhood.

A sparkle twinkled in the corner of Gem’s eye, almost exactly like The Beyond. She rubbed her eyes to make sure she wasn’t dreaming.

“You gon’ stand there in the way or you gonna help us, young blood?” one of the elder volunteers named Archie said as he laughed at Gem.

Gem could hear those same rhythms from The Beyond in Archie’s voice. She knew she was in the right place. She looked at the kitchen counter which was filled with an overwhelming amount of packed and unpacked groceries.

“Where should I jump in?” Gem asked in confusion.

“Well... Archie had to memorize all the grocery orders by heart because the computer broke,” Ms. Johnson said.





ANOTHER  
WORLD  
IS  
POSSIBLE

ALL POWER TO THE  
PEOPLE  
FREE ALL  
POLITICAL PR

FREE  
BREAKFAST  
CHILDREN'S  
HERE  
MON.  
FRI. 7AM +

“Yep, it’s all up here,” Archie said, gesturing to his head. “We tried using the computer, but we could never get it to do what we wanted it to and then it died.”

“That didn’t stop us though—I came up on the block. I used to do the mail routes so I know it like the back of my hand. So I put the groceries together like my old route.”

“I see,” Gem said. “I can help you get the computer up and running and put all the grocery routes in there—if you want.”

“That would be lovely,” Ms. Johnson said. “That way Archie can get all that magic in his head into the computer.”

Gem dusted off the old computer and quickly figured out how to get it back up and running. Archie and Ms. Johnson looked over Gem’s shoulders in awe.

“I might know how to fix the computer,” Gem said. “But, it’ll take all of us to truly make it work for everyone.”

“And so it is,” Archie said. “Let’s get to work.”

Working with Archie and Ms. Johnson helped Gem figure out how to respond to her assignment. She would write about what she learned about The Way and how computers could be used as tools to connect people, but that wasn’t always guaranteed given their history. All she had to do was remind herself that her community was there to support her and to lean on the wisdom of The Beyond.

*When you feel controlled by The Way, you can activate the energy of The Beyond to show you that your computer doesn't have to define who you are and what you're capable of. Another way is always possible.*

## **GLOSSARY OF TERMS**

**ALGORITHM:** a set of instructions a computer can use to accomplish tasks and solve problems by performing calculations.

**CODE:** a system of instructions or rules used to transform information like letters, words, sounds, or images into other symbols or forms.

**INTERFACE:** a shared boundary where two or more separate components of a computer system exchange information. For example, a human interacting with a touchscreen interface on a mobile device.

**PIXEL:** the smallest element found on the display of a device.

**PROGRAM:** coded instructions to be performed by a computer.

**SOFTWARE:** the programs and other information a computer uses to function.

**NETA BOMANI** is an abolitionist, learner, and educator interested in parsing information and histories, while making things by hand with human and non-human computers. Neta's work combines archives, oral histories, computation, social practices, printmaking, paper engineering, zine making, and workshops to create do-it-yourself artifacts. Neta received a graduate degree in Interactive Telecommunications from the Tisch School of the Arts at New York University. Neta has taught at the School for Poetic Computation, the New School, and Princeton University. Neta has studied under Mariame Kaba, Simone Browne, Ruha Benjamin, Fred Moten, and many others who inform Neta's work.

**ROMI MORRISON** is an interdisciplinary artist and researcher. Their work investigates the personal, political, and spatial boundaries of Blackness within digital technologies. Using maps, data, sound, performance, and video, their installations challenge the demands of an increasingly quantified world that reduces land into property, people into digits, and knowledge into data. Romi has exhibited work at such venues as Transmediale (Berlin), ALT\_CPH Biennial (Copenhagen), Museum of Contemporary Art (Chicago), Haus der Kulturen der Welt (Berlin), Queens Museum (New York), and the Walker Museum of Art. Their writing has been published by MIT Press, University of California Press, and Catalyst Journal of Feminism, Theory, and Technoscience. They are currently finishing their PhD in Media Arts + Practice at the USC School of Cinematic Arts.

**SABII BORNO** is a twenty-six-year-old Illustrator from Queens, New York. She loves food, anime, video games, collecting art books, and a good meme. She graduated with a BFA in Illustration from The Fashion Institute of Technology in 2019. Sabii currently lives in Queens with her two roommates and cat named Maple.

**SPECIAL THANK YOU**

Sarula Bao

Galen Macdonald