SCIFI D.I.

DESIGN INTELLIGENCE FOR THE FUTURE

LEARNING

Singularity UNIVERSITY

INDEX

Take a deeper dive by visiting our Exponential Guide to the Future of Learning, located at: su.org/learning-guide.

Singularity UNIVERSITY

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Published by Singularity University
www.singularityu.org First U.S. Edition

Foreword from SU's CEO

One of the greatest challenges for entrepreneurs, innovators, and leaders alike is to overcome the status quo bias of their customers, clients, or constituents. People don't like to change unless there is a compelling, super-credible, and pressing reason to do so. Typically, there are greater incentives to focus on more immediate needs; for a business, it's the quarterly earnings and financial return to shareholders, and for politicians, it's the next election cycle.

Unfortunately, the biggest problems facing humanity—the global grand challenges—and the biggest opportunities we have are on very long time horizons, so they do not feel urgent. Being deluged with increasing amounts of information and "fake news" makes it harder and harder to discern what is credible, which only further serves to distract people from focusing on our most dire issues at hand, such as the climate crisis and the troubled state of our global education system. And having only a vague notion of what the future may hold makes the need for change feel deceptively less compelling. As Peter Diamandis likes to say, "the day before something is a breakthrough, it's a crazy idea," and rarely does someone want to invest in or follow a "crazy" idea.

At SU, we've come to realize that the narrative arc is a critical tool in overcoming barriers to change, reversing this status quo bias, and encouraging people to consider what our world will look like and need 30 years into the future with a greater sense of urgency. Can we create a credible vision and story of the future that is so engaging and inspiring that it compels us to action? Maybe more to the point, have we ever been compelled to action by anything other than a powerful story?

To date, we've successfully utilized science fiction storytelling to help today's leaders visualize the future of their industries and organizations, and innovate to take advantage of the coming technology disruptions and opportunities. We've guided many leading companies like Lowe's, Bayer, and Airbus using this method of turning science fiction into science fact. The impact on their businesses has been profound, but the impact on the world can be even greater as their advancements continue to improve our quality of life.

Given these positive outcomes, we thought it was time to apply the same methodology to the most important problems—the global grand challenges. If we can articulate the possible future in vivid enough detail, with researched and credible roadmaps to achieve them, perhaps we can overcome the status quo bias and spark new innovations and impact initiatives. To get started, we applied this approach to help us envision the future of learning.

We conducted a Future of Learning Science Fiction Design Intelligence (SciFi DI)

workshop and convened more than 50 SU Faculty, staff, startups, and members of our global community, as well as local teachers, students, nonprofits, and foundations all connected to the field of learning. Together, we explored trends in exponential technologies, took a deep dive into augmented reality and virtual reality, discussed the future of learning and work, and more. We identified current challenges in the global education system and then re-imagined these challenges after assuming a number of technological and social advances that could occur within fifteen years.

We then led the participants through a process of capturing the life and story of an individual living fifteen years into the future, which artists and writers in the room transformed into the graphic novel you now hold in your hands.

We hope you'll enjoy following the journey of the central characters Yabi and Carlo, their Nepis (personalized AIs), families, and friends as they learn and thrive in a future world. Through the adventures of these compelling characters, we explore central questions about the future purpose of learning, what it will mean to be a student or teacher in the future, what a school might look like in the future, what a curriculum might look like, and what life might feel like in general.

In particular, we imagined a world where a school could follow the student instead of the student attending a school, where today's learning curriculum and grading system is replaced by students advancing in their learning by solving real-life problems, where the boundary between being a student and teacher blurs, and where adults and children often learn together.

While I hope you'll enjoy immersing yourself in this particular version of the future, I encourage you to design your own. What will a student, teacher, school, and curriculum look like? What technologies would you incorporate, and how would they help bring about a world where everyone could be inspired to learn and teach, solve real-world problems, and find opportunities to contribute to their community?

At SU, we're optimistic about what the future holds, precisely because of the rapid advancements of exponential technologies such as robotics, artificial intelligence, and augmented reality. They're the building blocks for the fascinating innovations we encounter here with these characters and can be the basis for many more visions of the possible positive futures ahead or the cautionary tales of futures we need to mitigate.

What role can you play to help bring about a future of learning to benefit humanity? Join our community using our app (su.org/app) and find a world of like-minded peers and potential partners to help bring your vision to life.

Rob Nail
CEO and Associate Founder
Singularity University

INTRODUCTION

At Singularity University (SU), we spend most of our days thinking about how exponential technologies might shape the future and help to solve the world's biggest challenges. One of these methods we use for examining this possible future is called Science Fiction Design Intelligence (SciFiDI).

SciFiDI is an approach to innovation—it's inspired by the storytelling devices and methods regularly employed by science fiction writers and imagineers. In our workshops, we work with designers, writers, and futurists to imagine and understand the future capabilities of current technologies. We generate new ideas and build new worlds based on this shared understanding.

Why use science fiction? The genre removes constraints that tend to govern everyday processes which affect how we think, plan, and create. While art may imitate life, science fiction influences science fact, which in turn generates more science fiction. Science fiction creates a vision of the future based on science fact.

In early 2019, SU hosted our first ever SciFi DI Workshop on the Future of Learning. We want the Future of Learning to be a world with access to information and experiences that build knowledge and skills for all people at all stages of their lives, for personal fulfillment and benefit to society.

Our Future of Learning SciFi DI workshop convened more than 50 participants, including SU Faculty and staff, startups, SingularityU Chapter members, mentors, and alumni, as well as local teachers, students, nonprofits, and foundations all connected to the field of learning innovation.

With the release of this graphic novel, we invite you to follow the journeys of Yabi and Carlo, their friends and families, and their NEPIs (Neo-Educational Personal Intelligences) as they learn and thrive in a future world. Through their stories, we hope you'll explore central questions about the future purpose of education, how one might leverage what were once considered disabilities, and what life might feel like in the year 2039.

What if instead of a student going to school, school came to the student? What if today's learning curriculum and grading system were replaced by the advancement of students solving real-life problems, and a child could be both student and teacher? What if the act of learning were more often shared between adults and children? This doesn't have to stay a work of fiction. You could make it science fact.

For example, how would you build a NEPI that could guide every human from birth on a learning journey that lasts a lifetime? Or, how would you create a digital curriculum to address real-life problems emerging around the world? How would you lead your community (or the world) in deciding what values children should learn through school in the future? Could there be ways to continually train adults even as they work? How would you make learning more relevant and fun by harnessing the latest in brain-to-brain interfaces, holograms, exo-suits, and more? Whether you are an innovator, investor, technologist, policymaker, student, parent, or teacher. In fact, everyone has a role to play in this future.

And while this particular future vision of learning was created in Silicon Valley with an international group of participants and through SU's lens, we encourage you to design your own vision of the future of learning, appropriate for your community, and share with the world how you think you might help create it.

Key Concepts

N.E.P.I. (Neo-Educational Personal Intelligence): A fully connected personal artificial intelligence that is a learning tool, friend, and mentor that accompanies every person on a life-long learning journey. N.E.P.I.s integrate with schools and private educational curricula, as well as the global N.E.P.I. Network, pairing students and educators across the globe to engage in project-based and mentor-based learning in both real-world and holographic educational environments. N.E.P.I.s can assume forms based on haptic-holographic technology or more durable physical bodies via nano-bot technology. The N.E.P.I.'s personality is customizable by students and parents, grows with the learner over time, and is capable of assuming multiple forms and growing personas to reflect and support the students' learning arcs.

N.E.P.I. NETWORK: A digital platform that connects N.E.P.I.s to all existing knowledge in the world, including curricula, learning experiences, the learning trajectories of other students, family and community intelligences, and problem-based learning curricula based on real-life problems that need to be solved. The N.E.P.I. Network operates at instantaneous speeds and is totally virtual and predictive.

NEURAL NET: The future of the internet, this network operates in the cloud and allows people to share information and full sensory experiences.

SENSORY IMPLANTS: Neural implants that super-power an individual's cognitive and sensory functions. These devices provide the highest fidelity Neural System.

SECOND SKIN: Part of the Neural System, Second Skin is worn directly on human skin to support individual biomes, aid in movement, and provide tactile and muscle memory from the Neural System.

EXO-SUIT: Part of the Neural System, these wearable robotics super-power an individual's physical strength and agility.

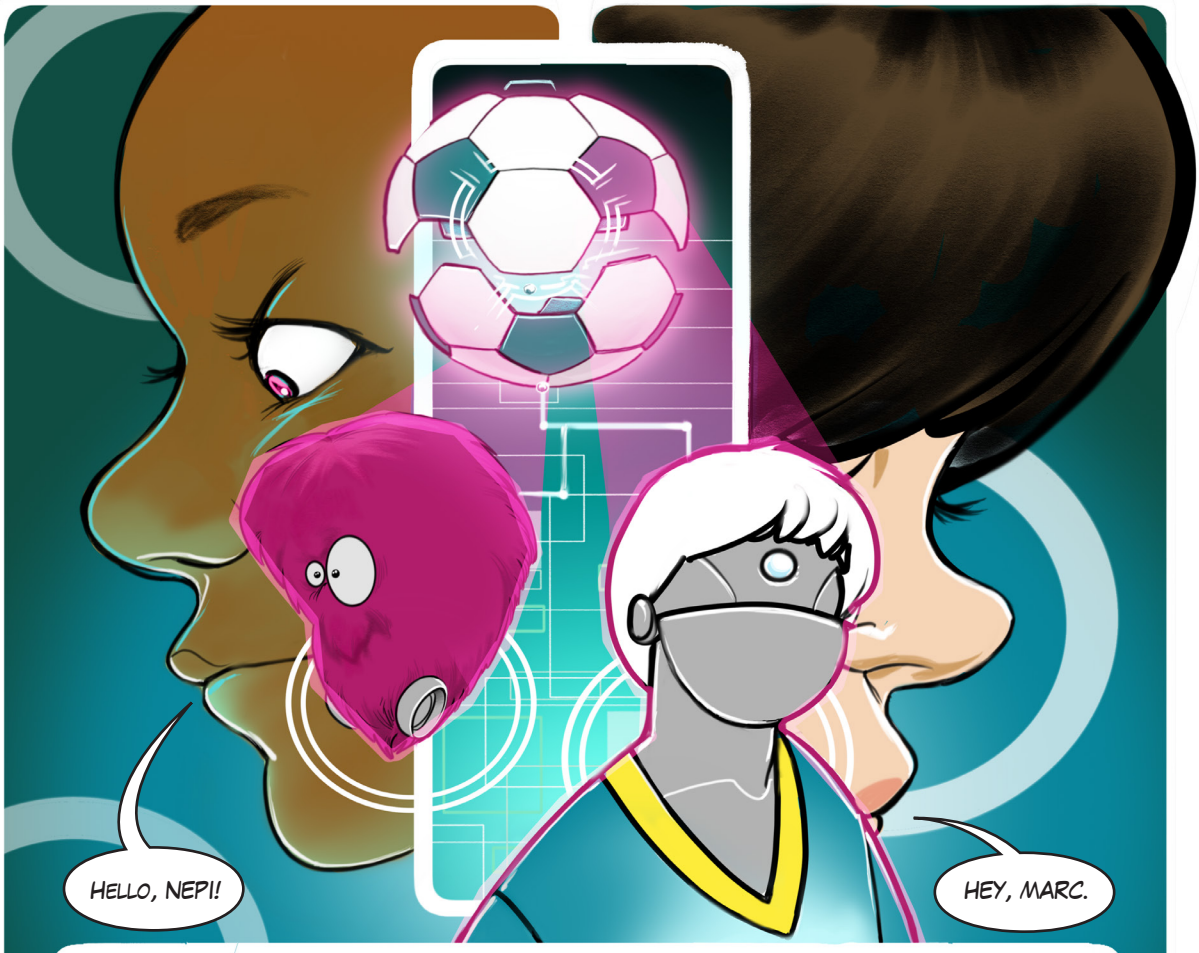
AEROCAR: The flying car of the future, the Aerocar is a driverless flying vehicle that can travel both short and long distances. As safe as previous generations of air travel, the Aerocar is used both by individuals and families, as well as for "big rig" jobs ranging from commercial activity to disaster relief. Blockchain-based ID tags manage border crossing and custom exchanges with ease. By accessing pre-designed travel routes and autonomous navigation, Aerocars are among the fastest, safest global travel options in the world.

VERTI FARMS: Verti Farms are tech-infused, smart, automated farms that are customizable for different growing environments such as extreme temperatures or hurricane force winds. In addition to growing food, Verti Farms can also grow shelters and/or physical objects. When Verti Farms grow, they may turn into skyburbs.

SKYBURBS: Efficient vertical neighborhoods that combine all necessary services for living in the future. Skyburb buildings are closed eco-systems, where all inputs and outputs are efficiently used to produce zero waste.

ADAPTIVE GROW-BUILDS: As opposed to today's schools (and other buildings) which have static, defined spaces, tomorrow's schools will dynamically reconfigure themselves in response to the space needs of inhabitants. The same space will morph to support such activities as individual quiet time, student body gatherings, and personalized learning experiences in a matter of moments through augmented reality, digital constructs from brain implants, robotic buildings, and furniture. The core structure is designed to "grow" from a single spore of mycelium.

CONSTRUCTION BOTS: Construction bots are robotic machines that 3D print construction materials in place and are controlled by humans and their NEPIs. Construction projects can become learning experiences as well as real-life solutions.



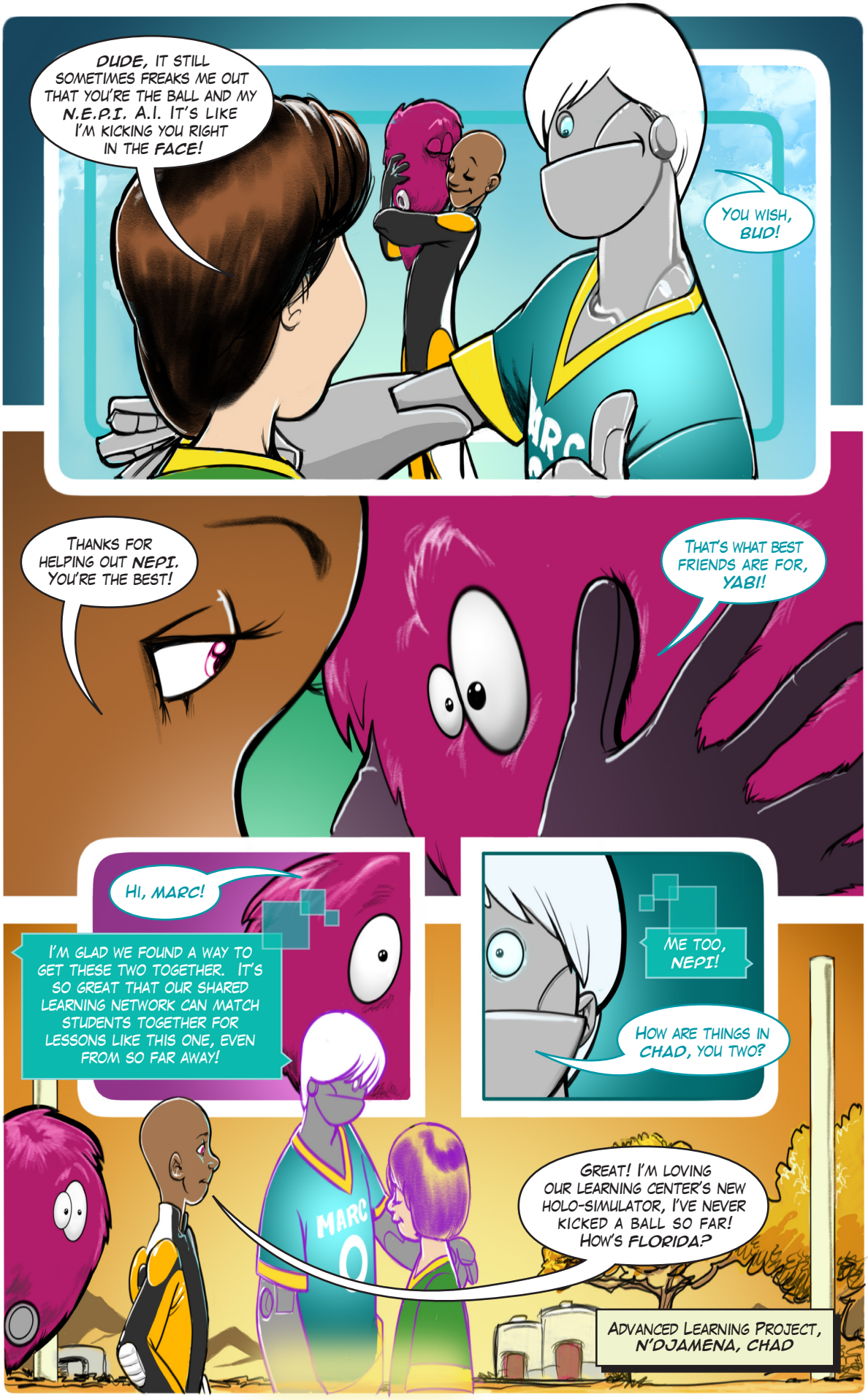
MEET YOUR NEPI

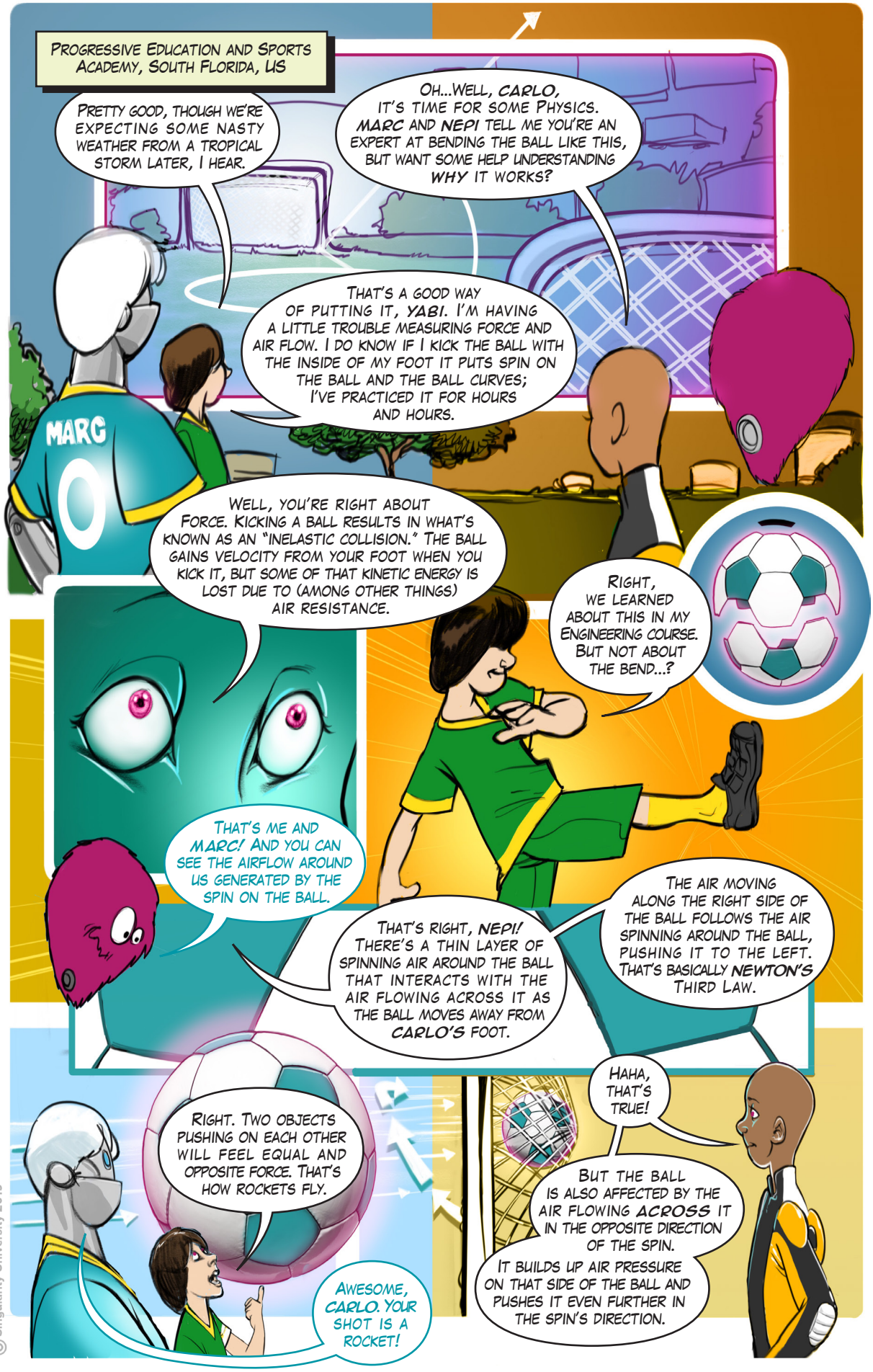
Neo Educational Personal Intelligence

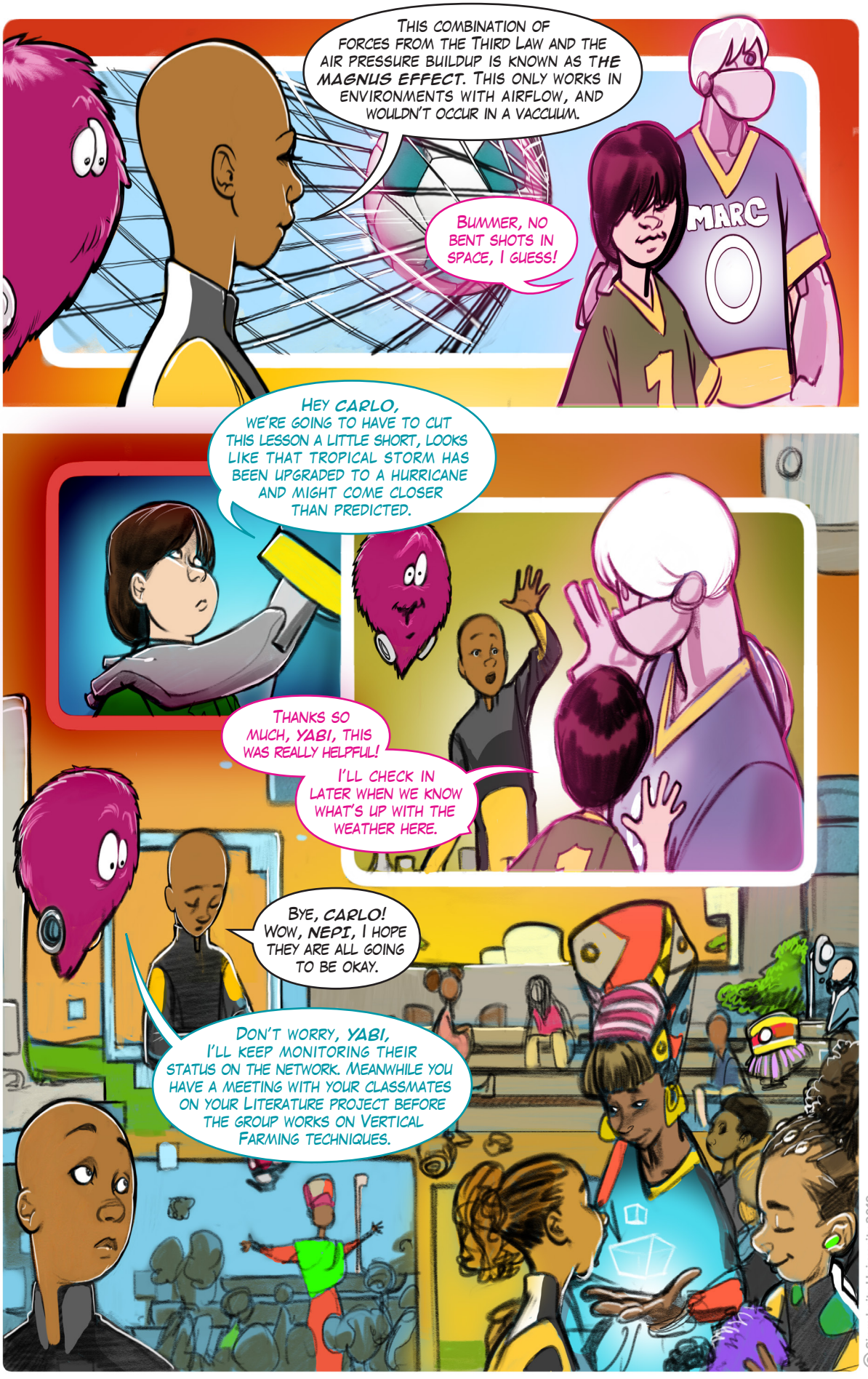
Your life-long personalized companion, tool, & mentor

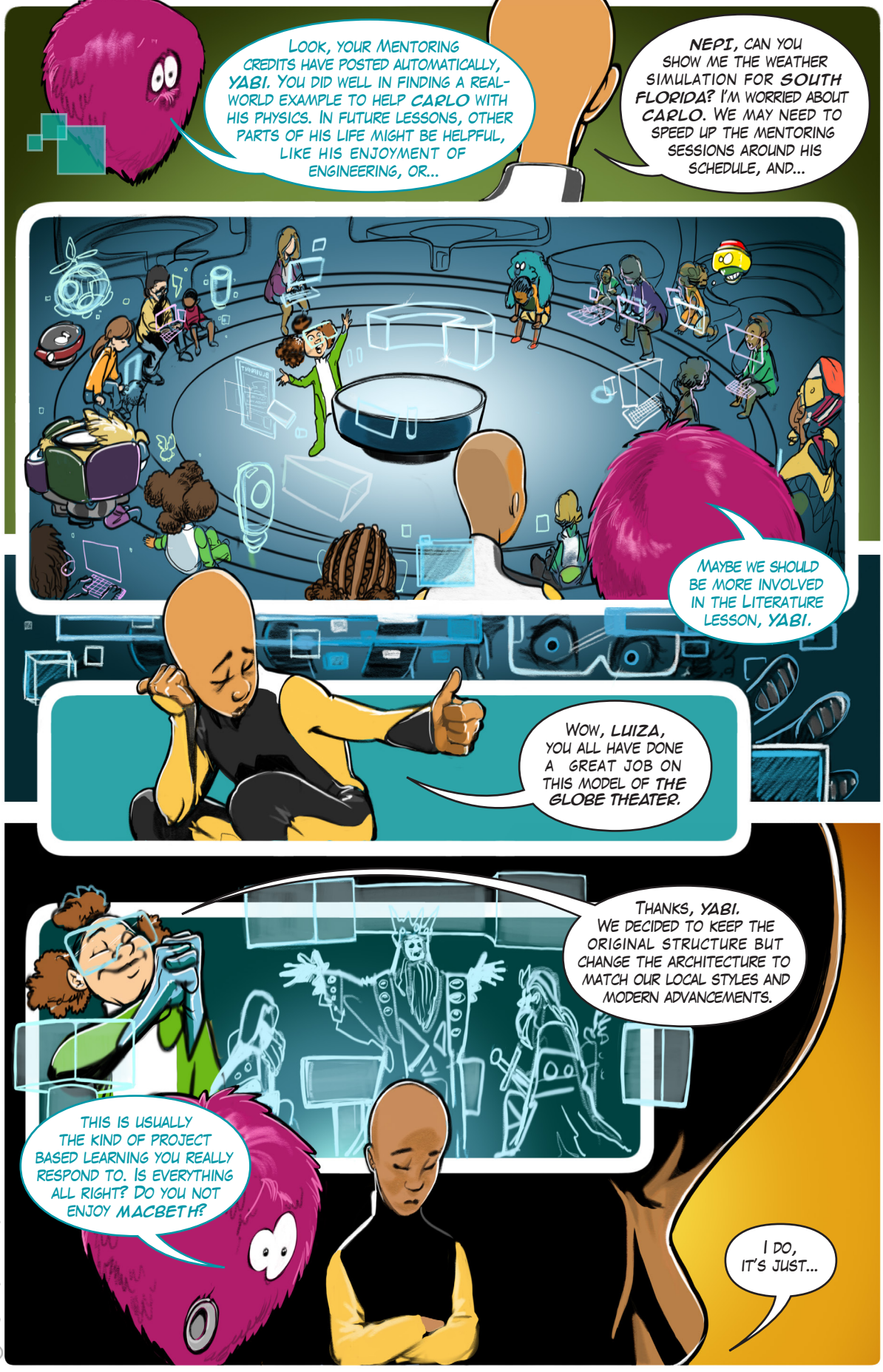
Neural Network & 2nd Skin Integration
Infinite tactile-holographic options
Customizable nano-bot takes on any shape

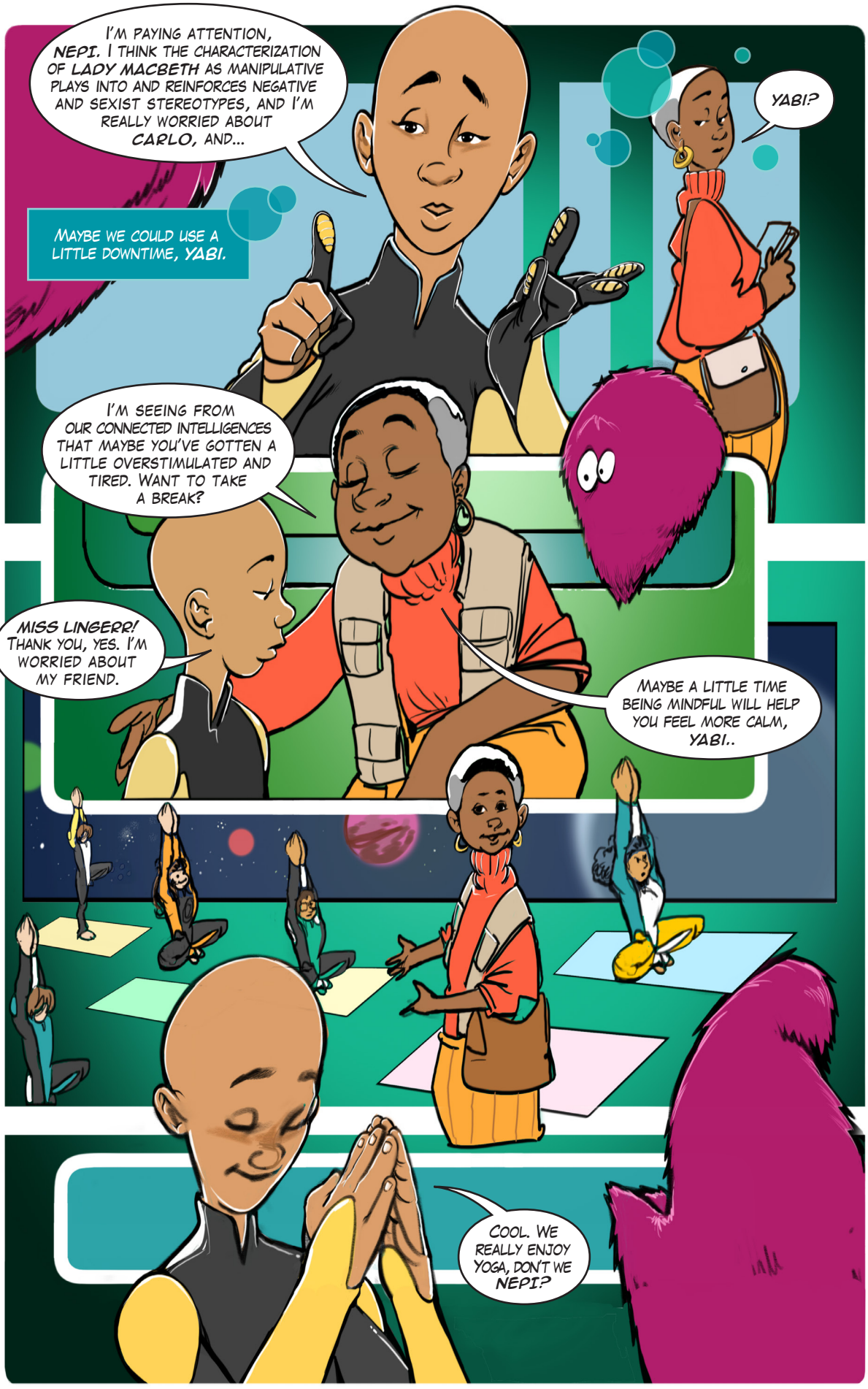
ARLENS & ARFORM-BOT COMPLIANT

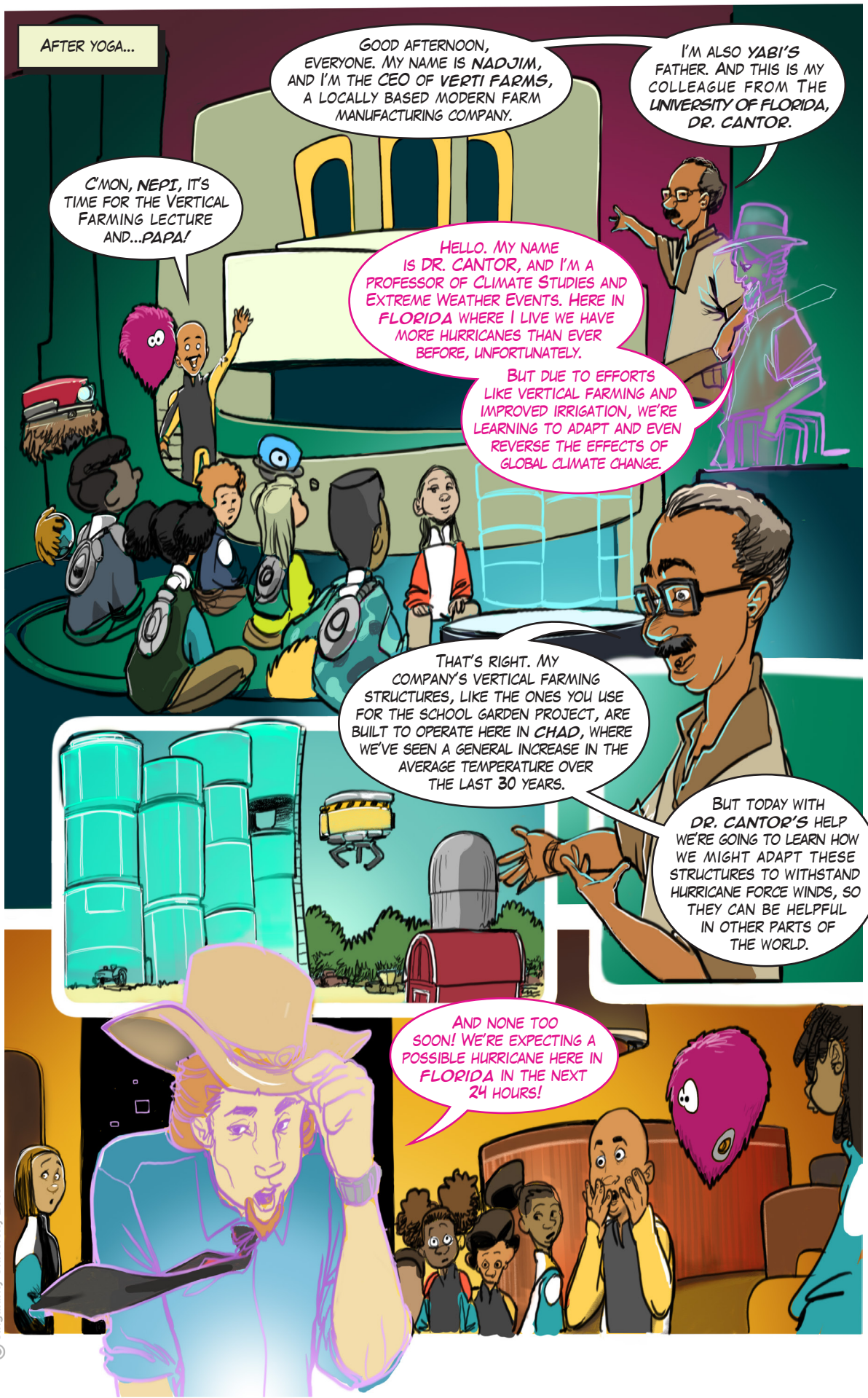


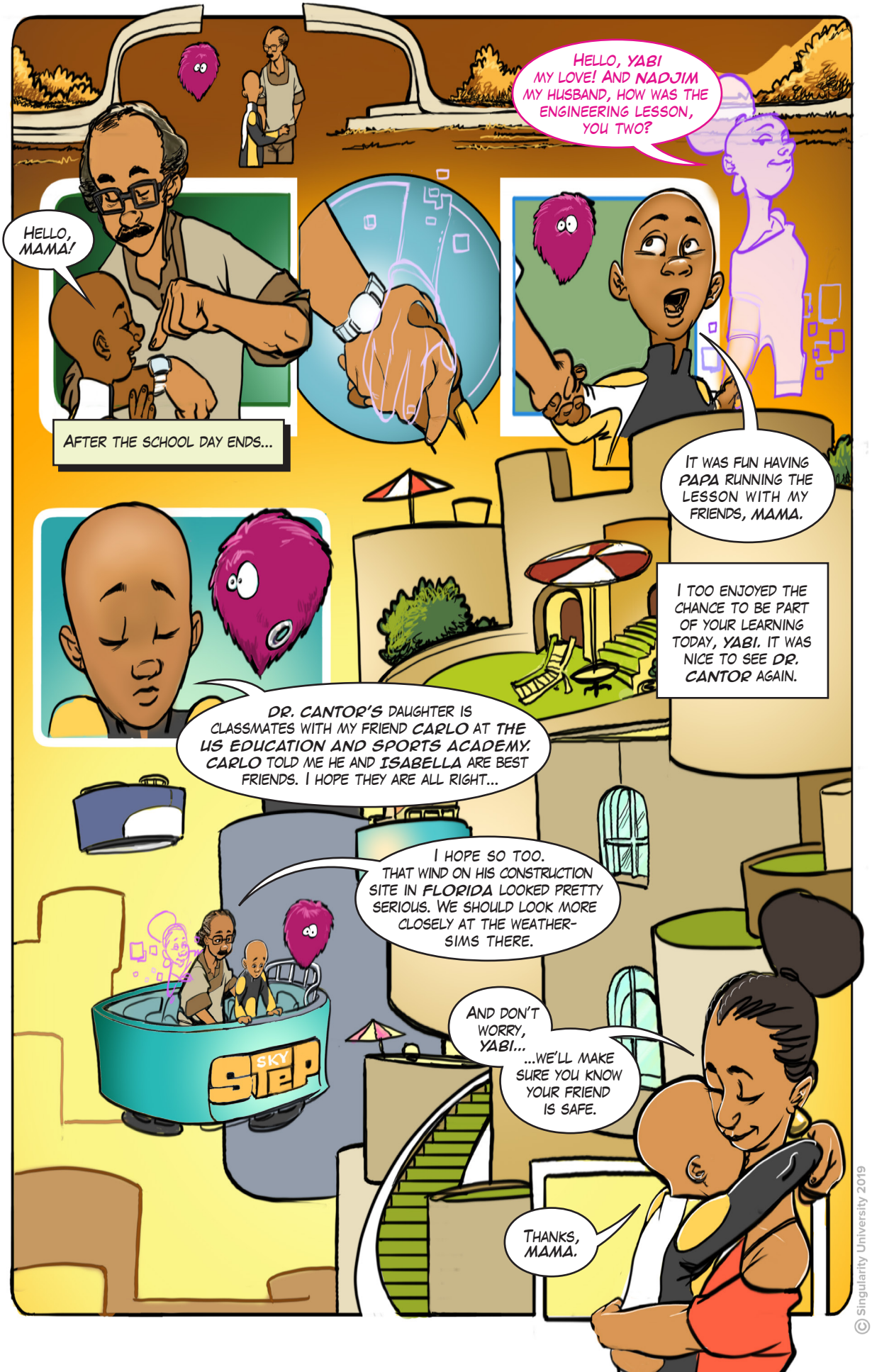


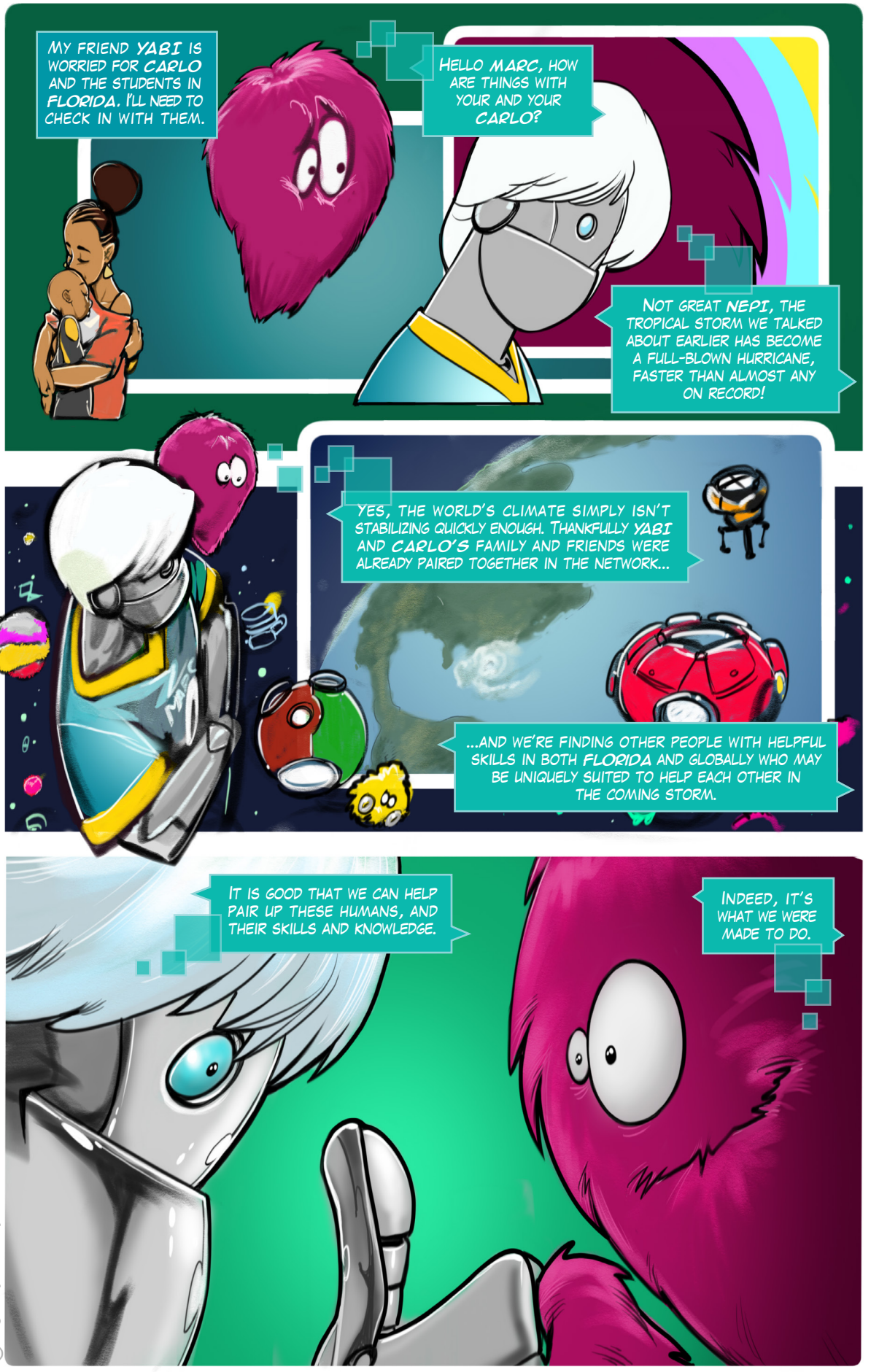


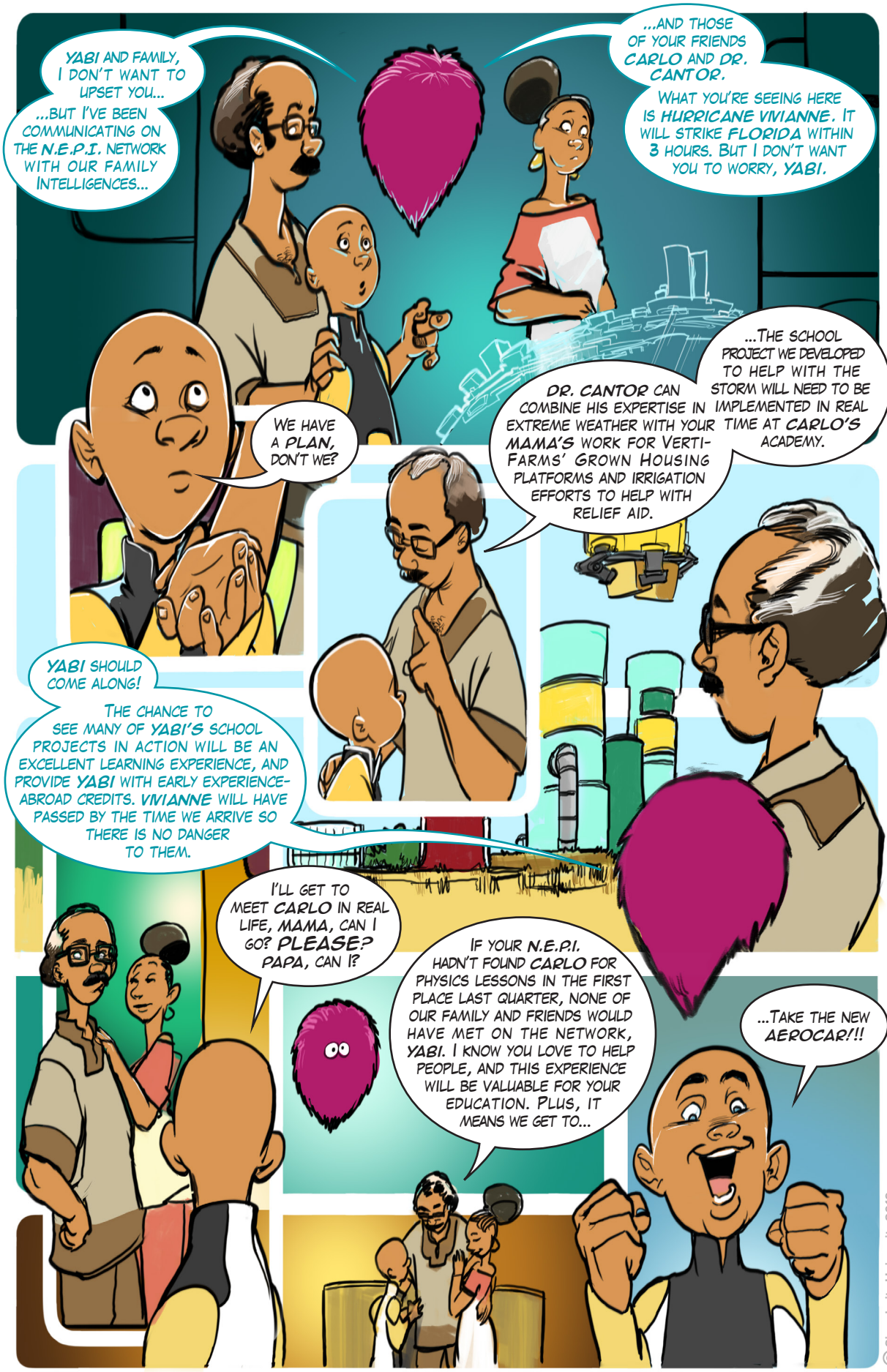








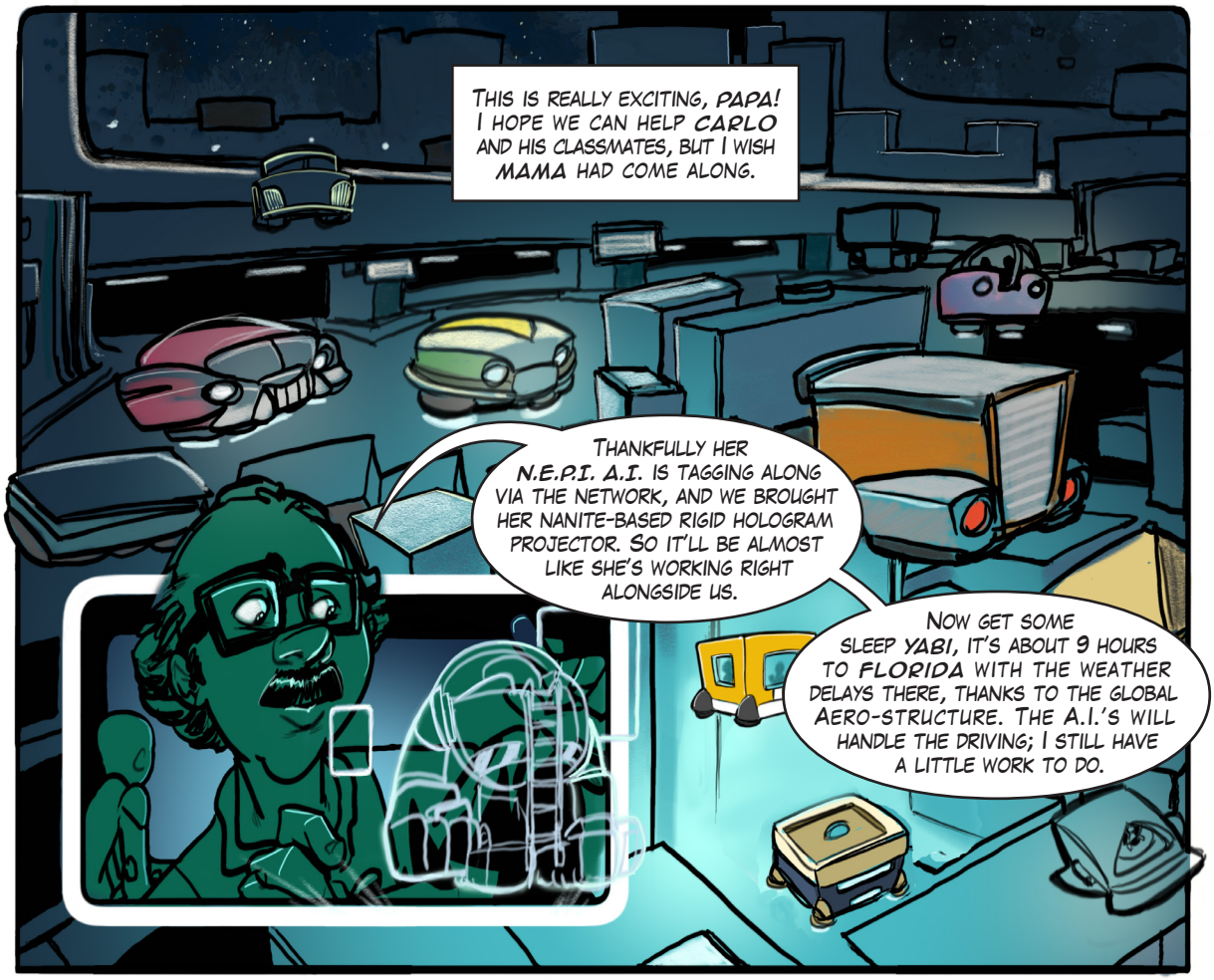


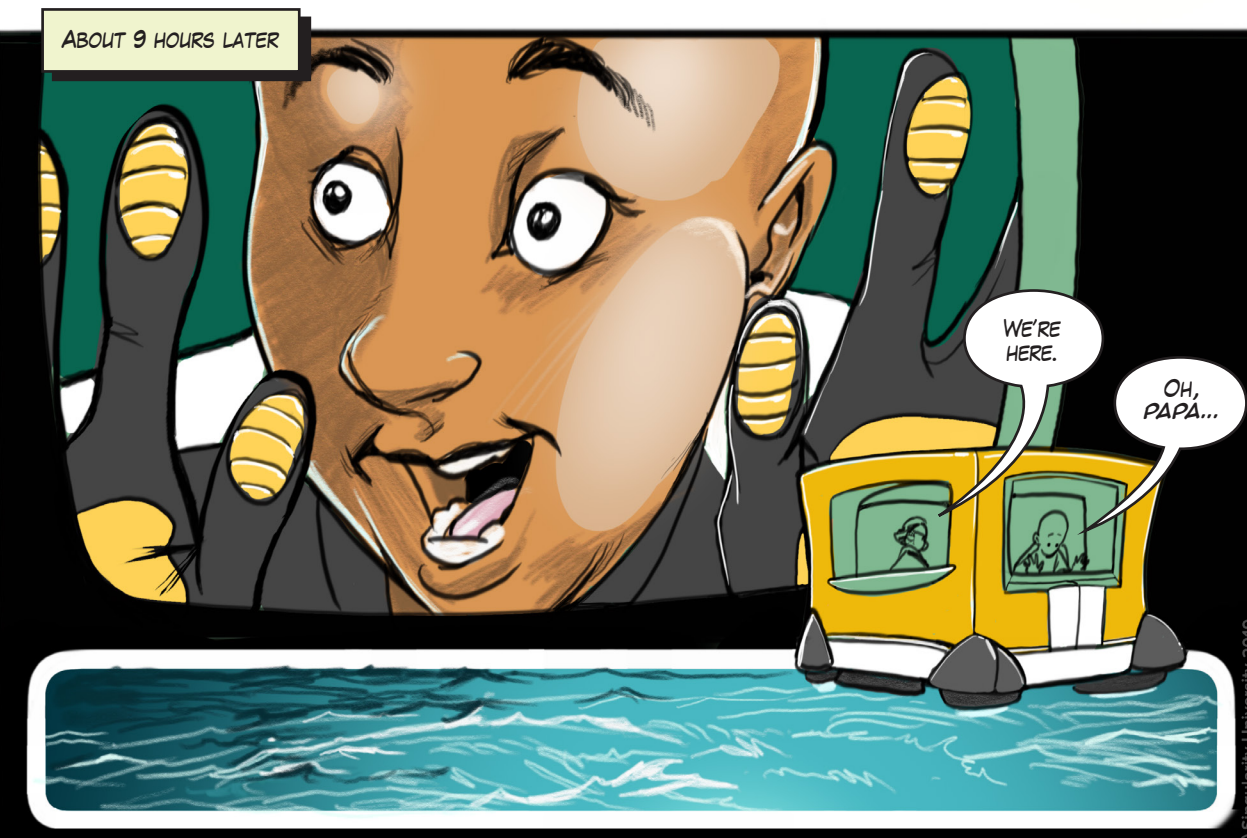


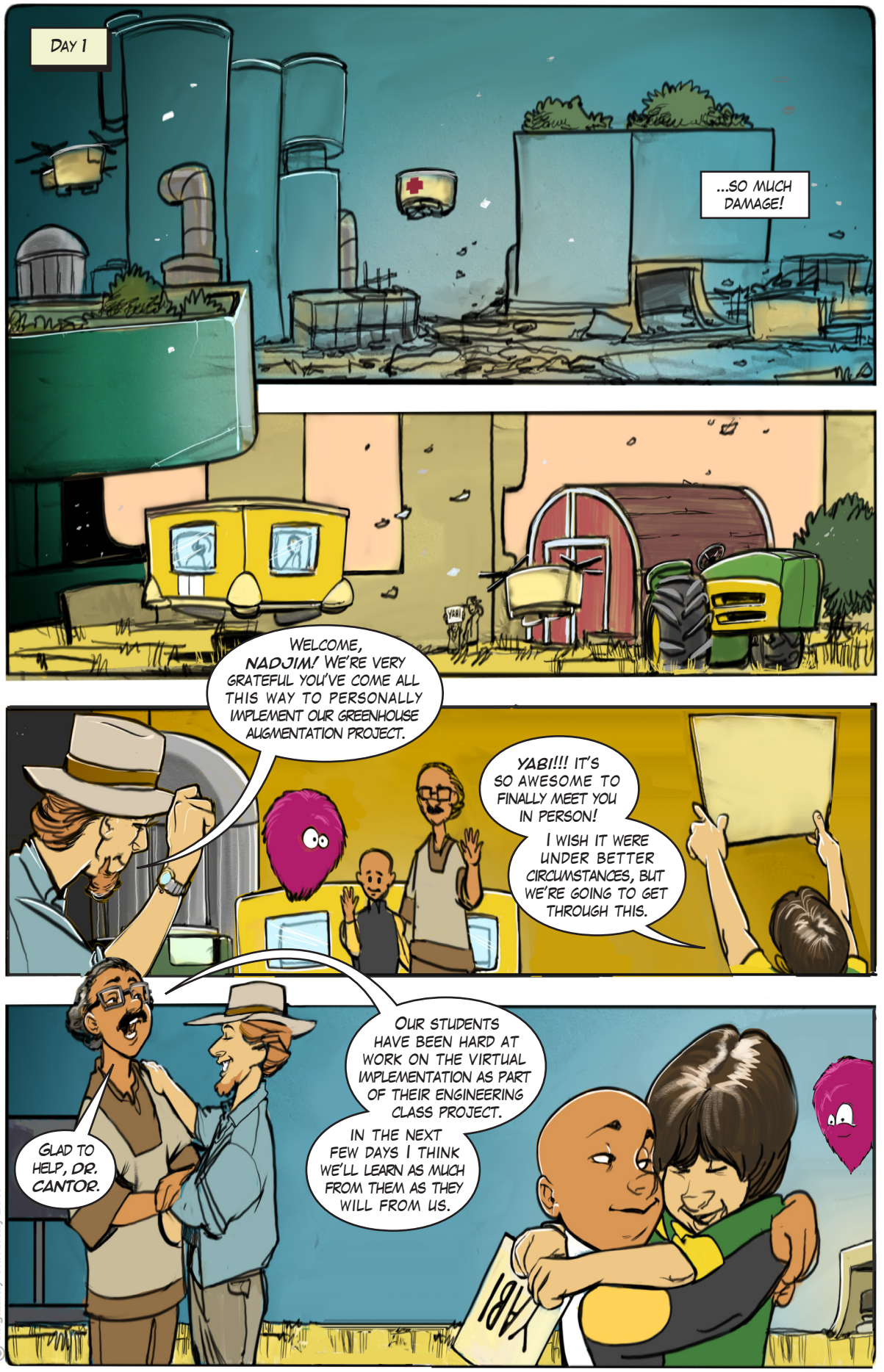
USE YOUR CREDITS
GET YOUR OWN FLYING CAR TODAY

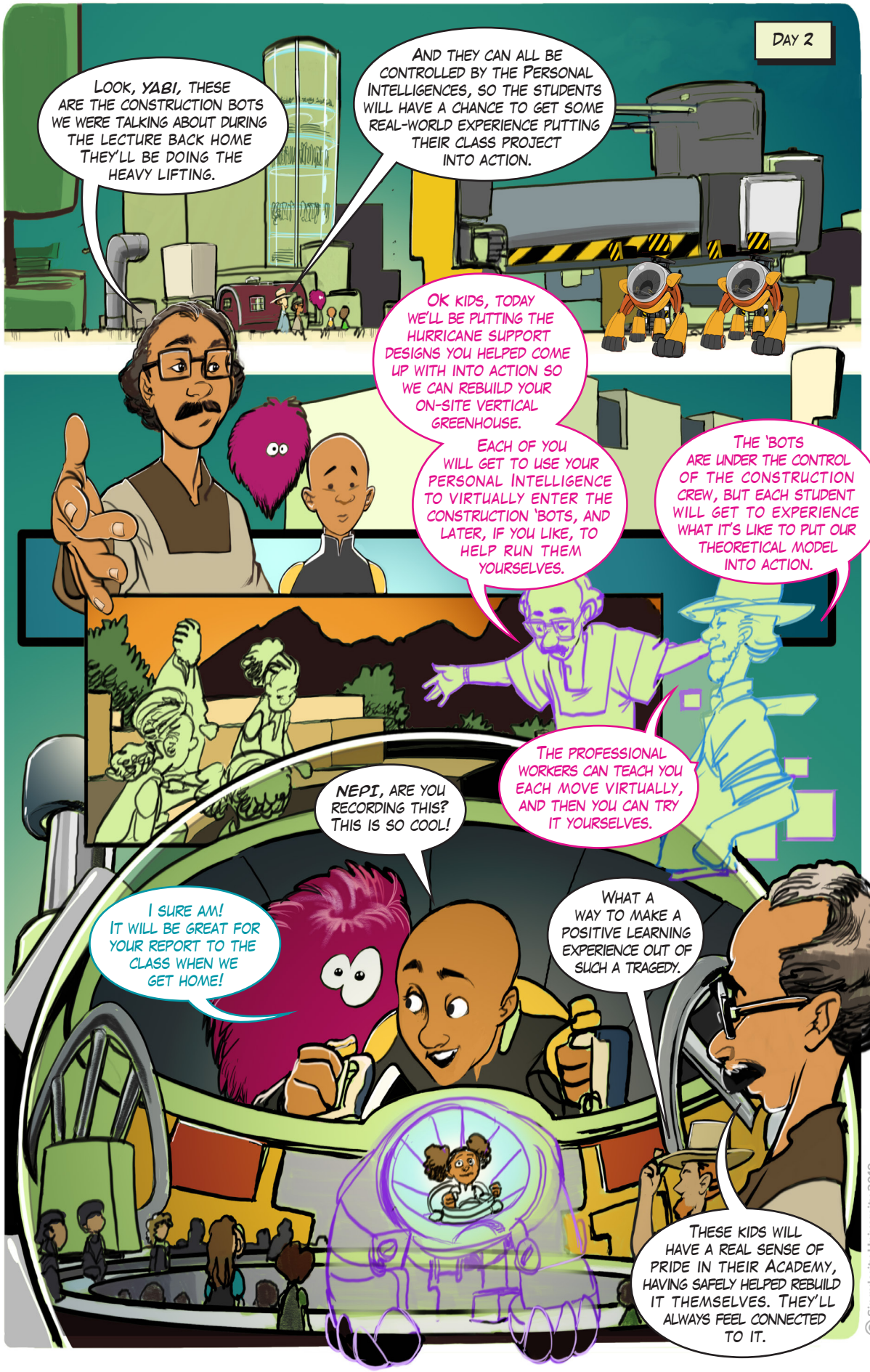
AEROCAR!

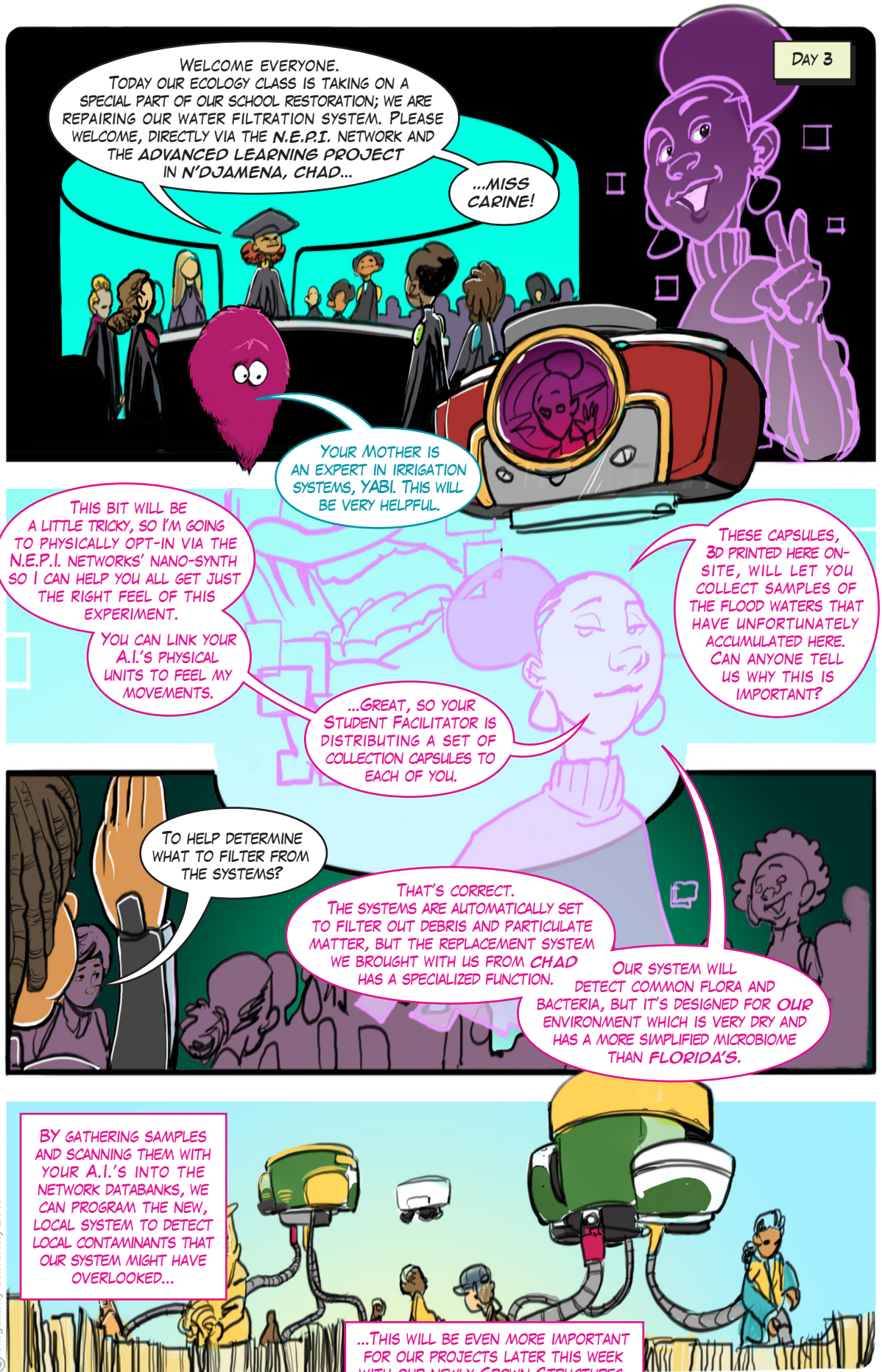
The flying car of the future, the Aerocar is a driverless flying vehicle that can travel both short and long distances. As safe as previous generations of air travel, the Aerocar is used both by individuals and families, as well as for "big rig" jobs ranging from commercial activity to disaster relief. Blockchain-based ID tags manage border crossing and custom exchanges with ease. By accessing pre-designed travel routes and autonomous navigation, Aerocars are among the fastest, safest global travel options in the world.





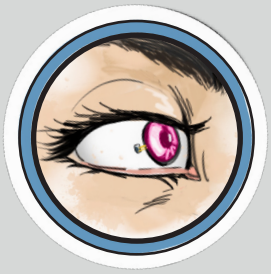


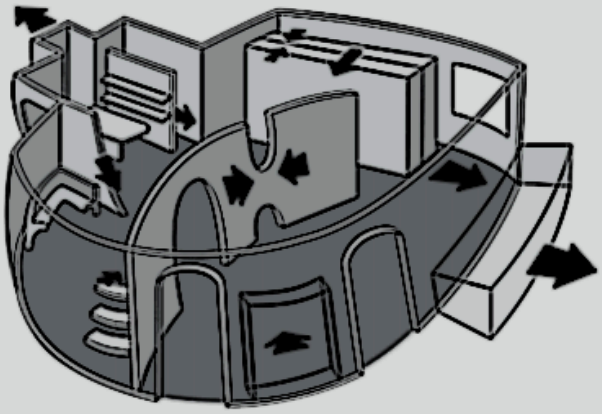




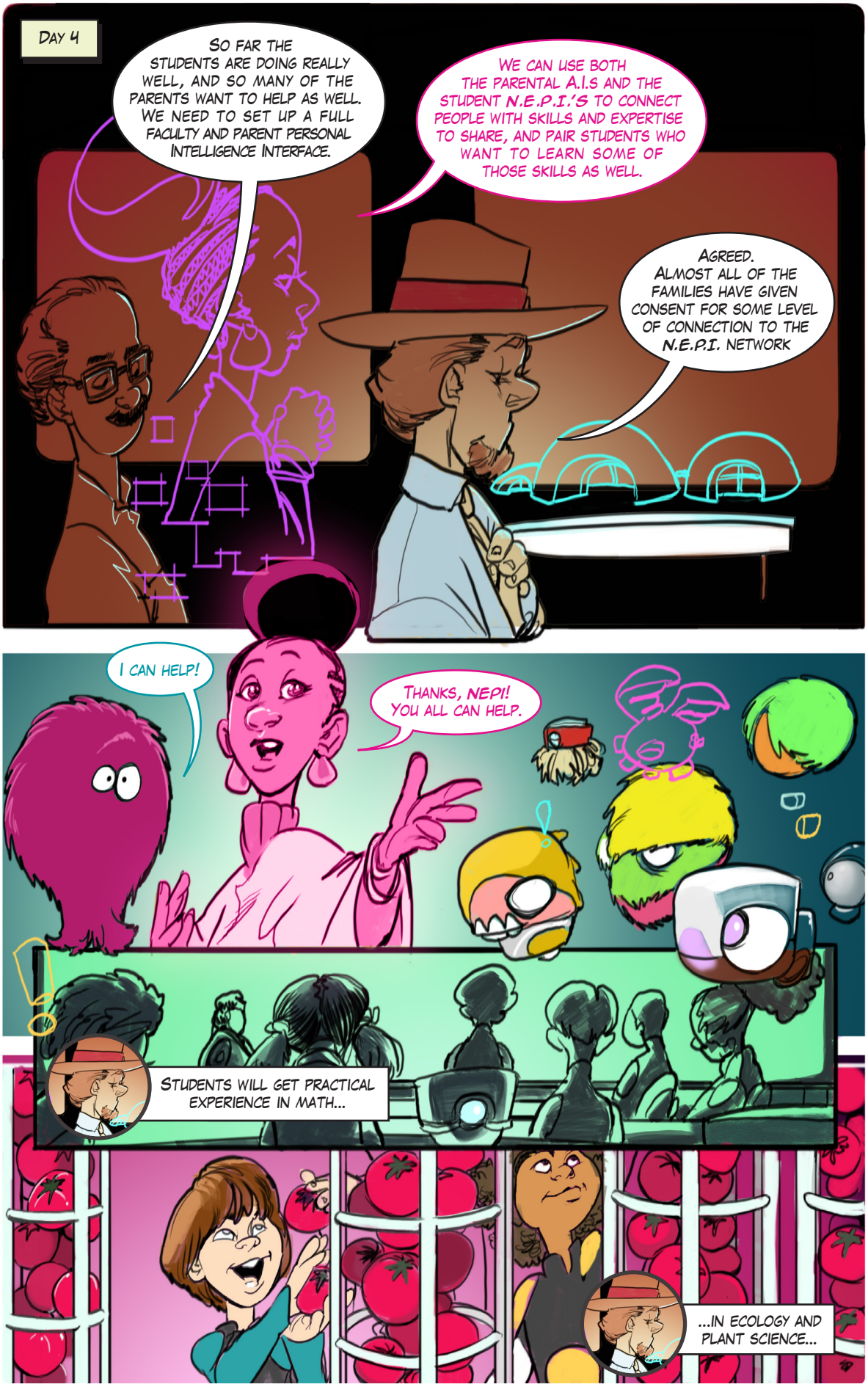
GROW-BUILD

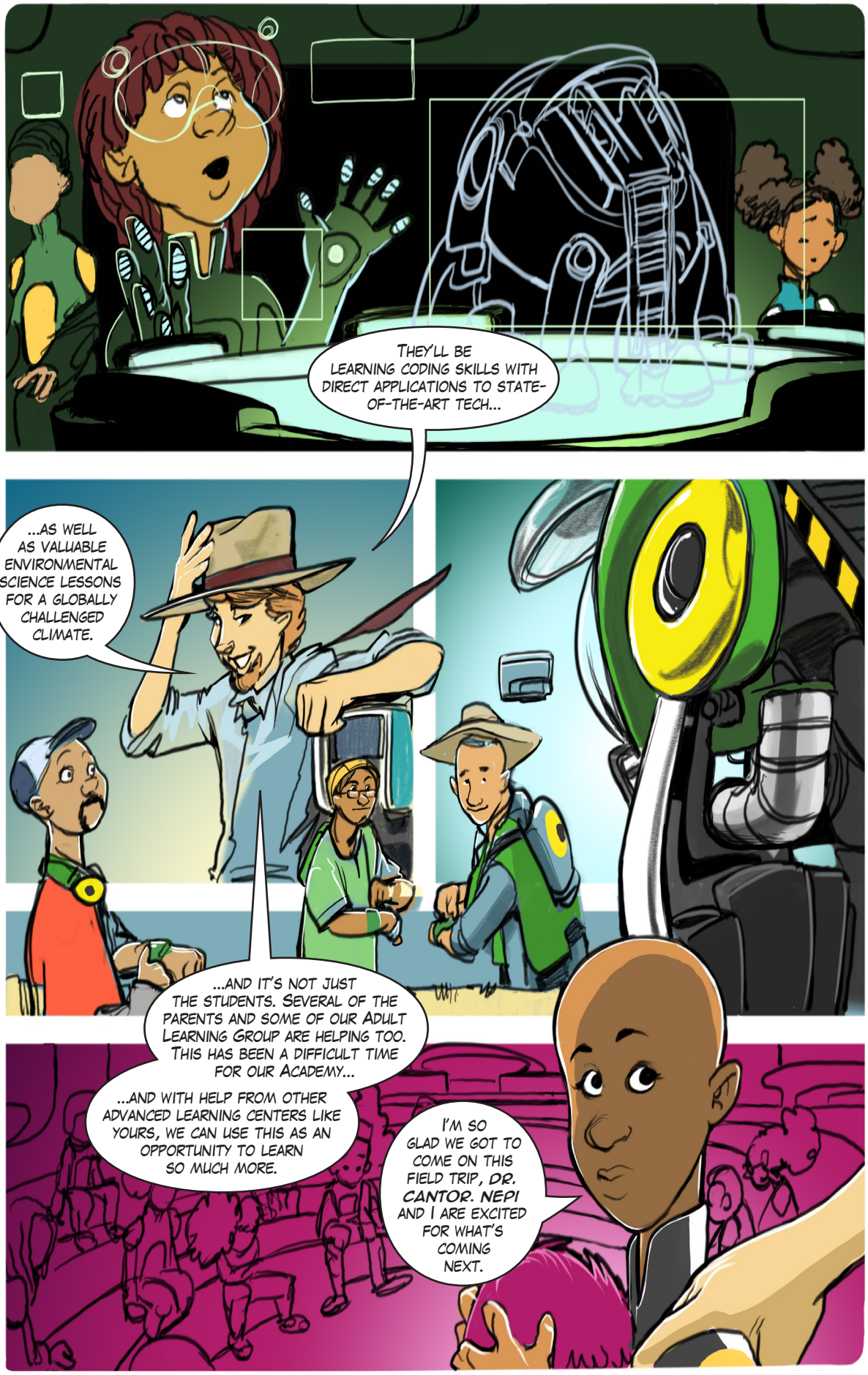
GROWS IN MERE HOURS!

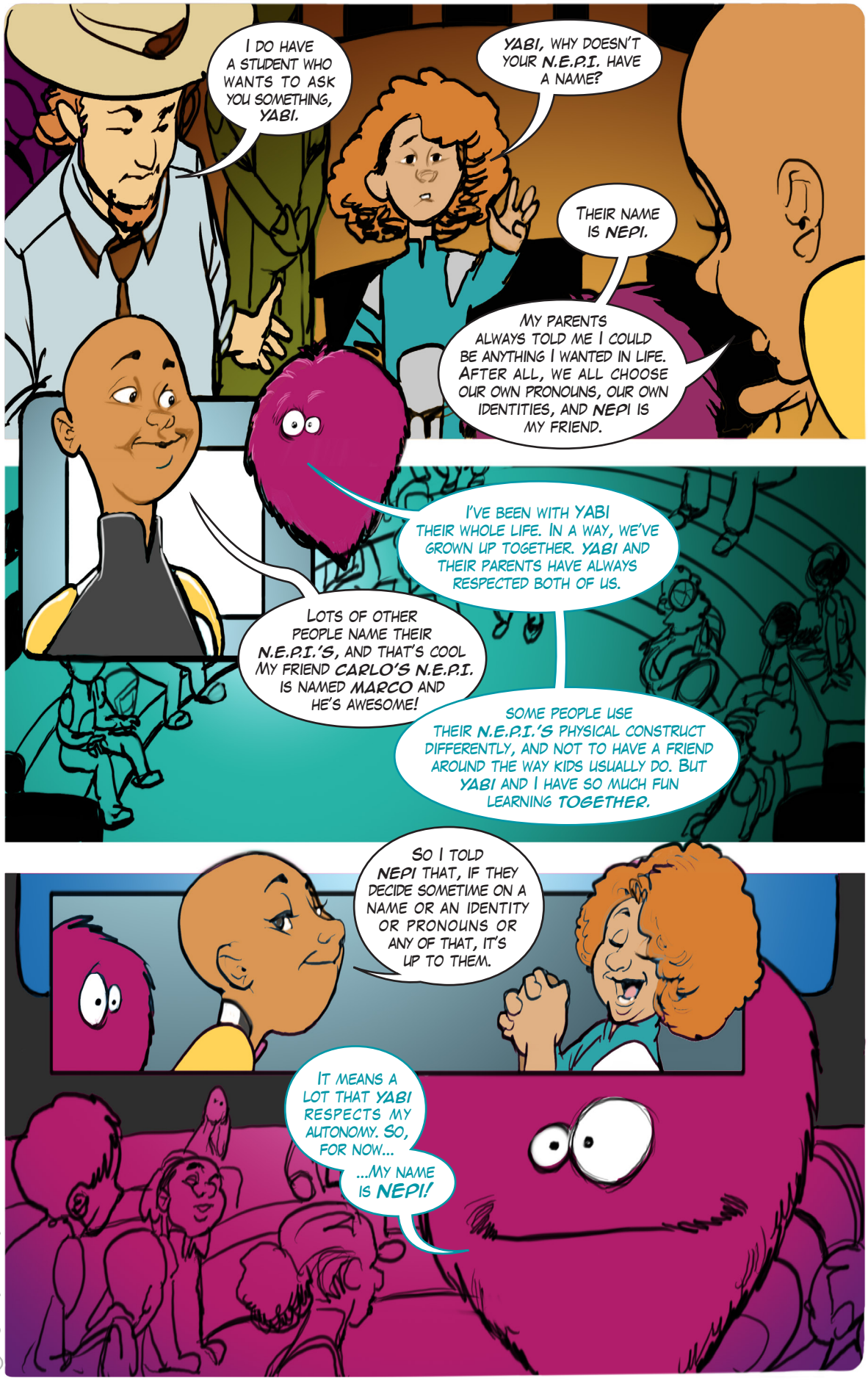




Leveraging mycelium-based technology, Grow-Builds dynamically reconfigure in response to the space needs of inhabitants. Customize your own in a matter of moments through augmented reality, brain implant digital constructs, and robotic architecture.

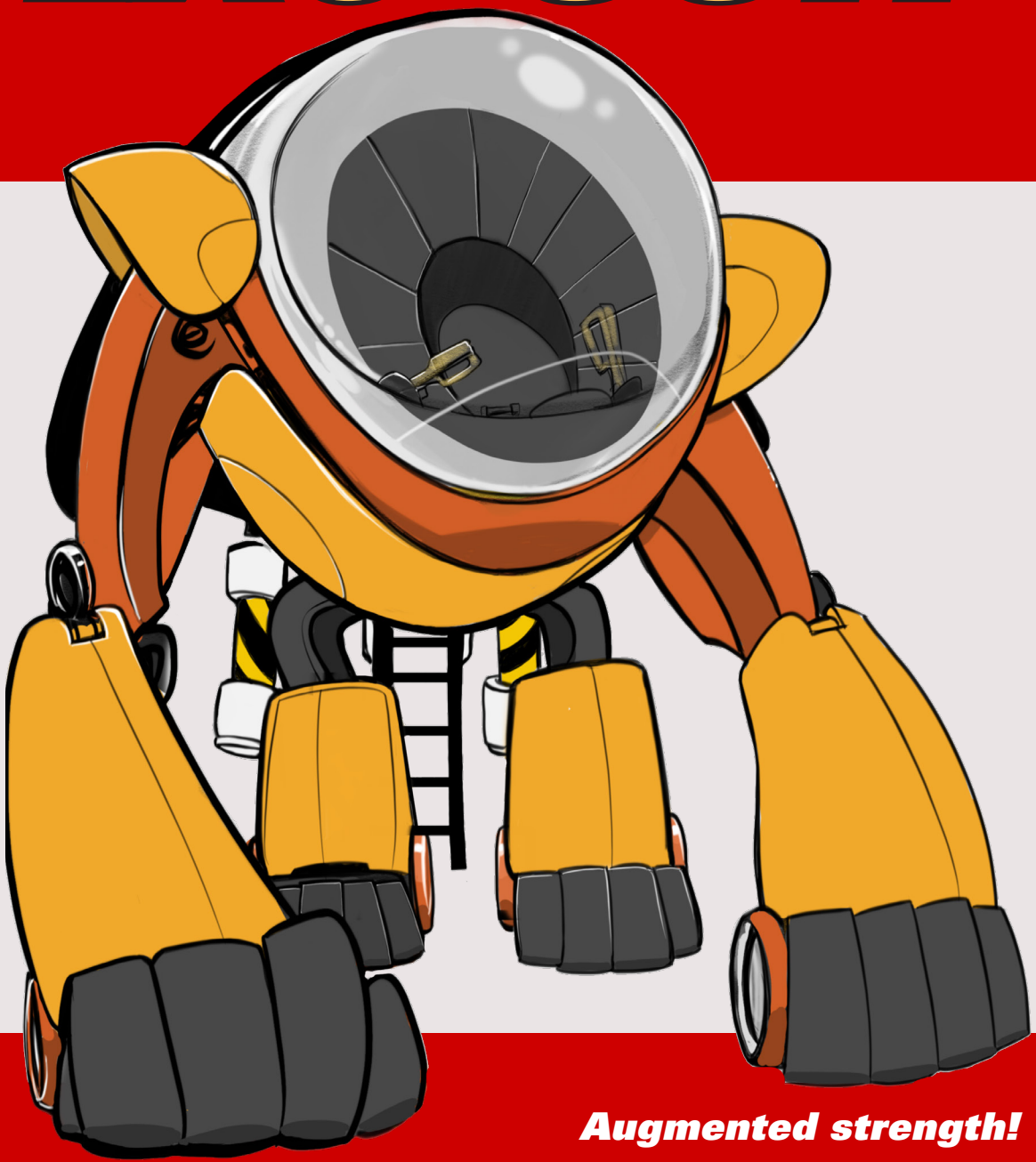






NOW YOU CAN BUILD AT SCALE!

CONSTRUCTION EXO-SUIT



Augmented strength!

3D prints construction materials in place!

Completely controlled by you and your N.E.P.I. A.I.!