

**Towards a More “Radical
Space of Possibility”:
Four Collaborative
Experiments to Improve
Inclusive Makerspace Design**

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“My success [in academia], like the that of other lucky individuals whose thinking goes against the norm, was a constant reminder of the reality that there are no closed systems, that every system has a gap and that in that space is a **space of possibility.”**
(bell hooks, *Teaching Community*, p. 26)

This experience “that every system has a gap” in some ways prompts a longer reflection in Chapter Two, as hooks considers “places to teach and learn outside formal educational settings” and specifically links the “space of possibility” to classrooms. And *that* idea — of the classroom opened up as a “space of possibility” — provided me new ways of framing the multitude of various goals that constitute the purpose and function of makerspaces which I am trying to advance. I am especially in pursuing the cultural and political goals of designing makerspaces to be more **INCLUSIVE, more anti-racist, more anti-white supremacist, more supportive, more caring and more connected with the individuals that bring their “making” to the “space,” and this talk will conclude with a short exercise to work collaboratively on a project of reading and re-making texts.**

Here's the I.d.Lab, the Makerspace that I presently direct:

<https://theta360.com/users/254919>

Here's some of the making and maker-ed I did before:

Director of ArtWORKS: Summer Program for "At-Risk" Youth (2001)

Molecule Wall: A 1-Month Community Design And Fabrication Workshop (2013)

Molecule Synth (2012)

Battery Powered Orchestra Workshop (2013)

Pijin: Spelling Game of the Spoken Word (2013)

WSUV, Course and Curriculum Developed around "Maker Culture" (2015)

1. MAKER-

WHO ARE OUR MAKERS?

WHAT DO THEY MAKE?

WHAT DO THEY WANT TO MAKE?

WHAT MIGHT THEY MAKE?





Center
A

diff. Johnny
dot
dot
purpose

Aesthetic
+ Creative Zone
- Unfinished Party



Green shirt
Black pants
Black boots

White shirt
Blue shorts

201
Blue shirt
Khaki shorts
Black and white shirt

Grey shirt
Black backpack

CT.

White box
Green box

Black hair
Grey shirt







SAFETY FIRST, ALWAYS.
BE CAREFUL, STAY ALERT.

1. Render code
2. Move code (manual)
3. File to USB or SD card
4. printer

VOEL SRONG

MEDIA TECH



2. -SPACE

WHAT SIZE?

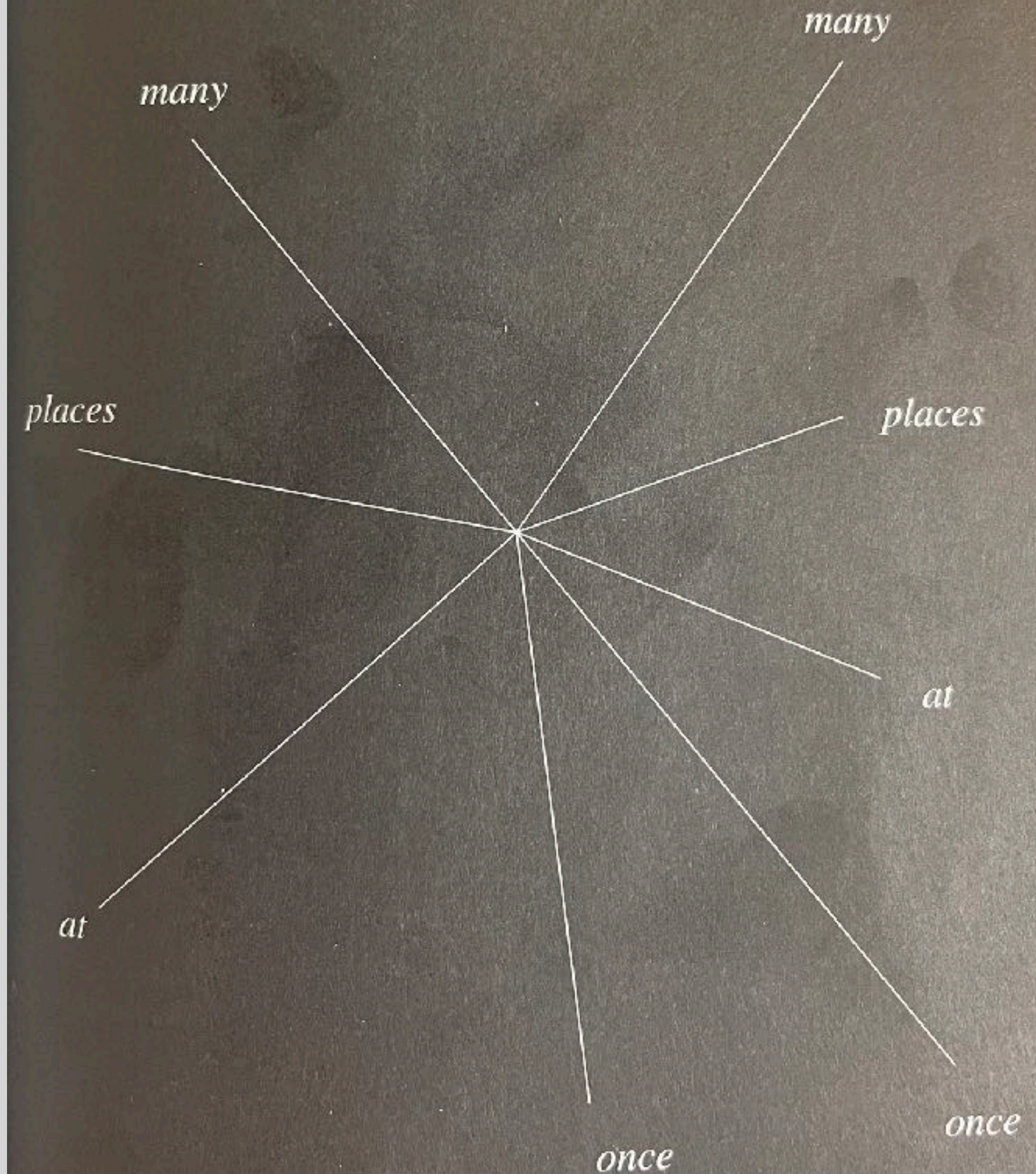
WHAT STYLE/CONDITION IS IT IN?

WHERE IS IT?

WHEN IS IT AVAILABLE?

**Peter Mendelsund,
*What We See
When We Read*
(2014, p. 60)**

When you first open a book, you enter a liminal space. You are neither in this world, the world wherein you hold a book (say, *this* book), nor in that world (the metaphysical space the words point toward). To some extent this polydimensionality describes the feeling of reading in general—one is in

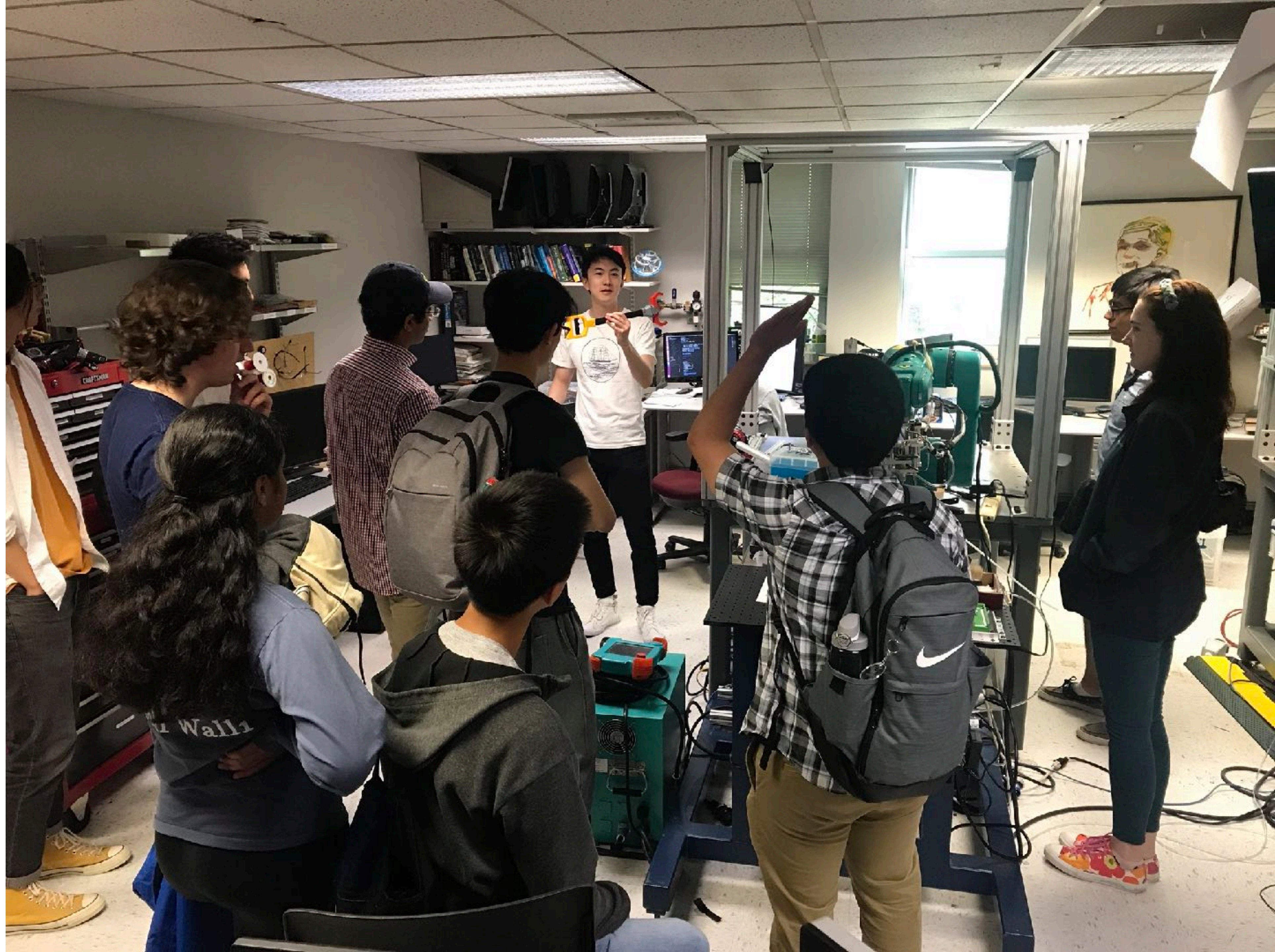


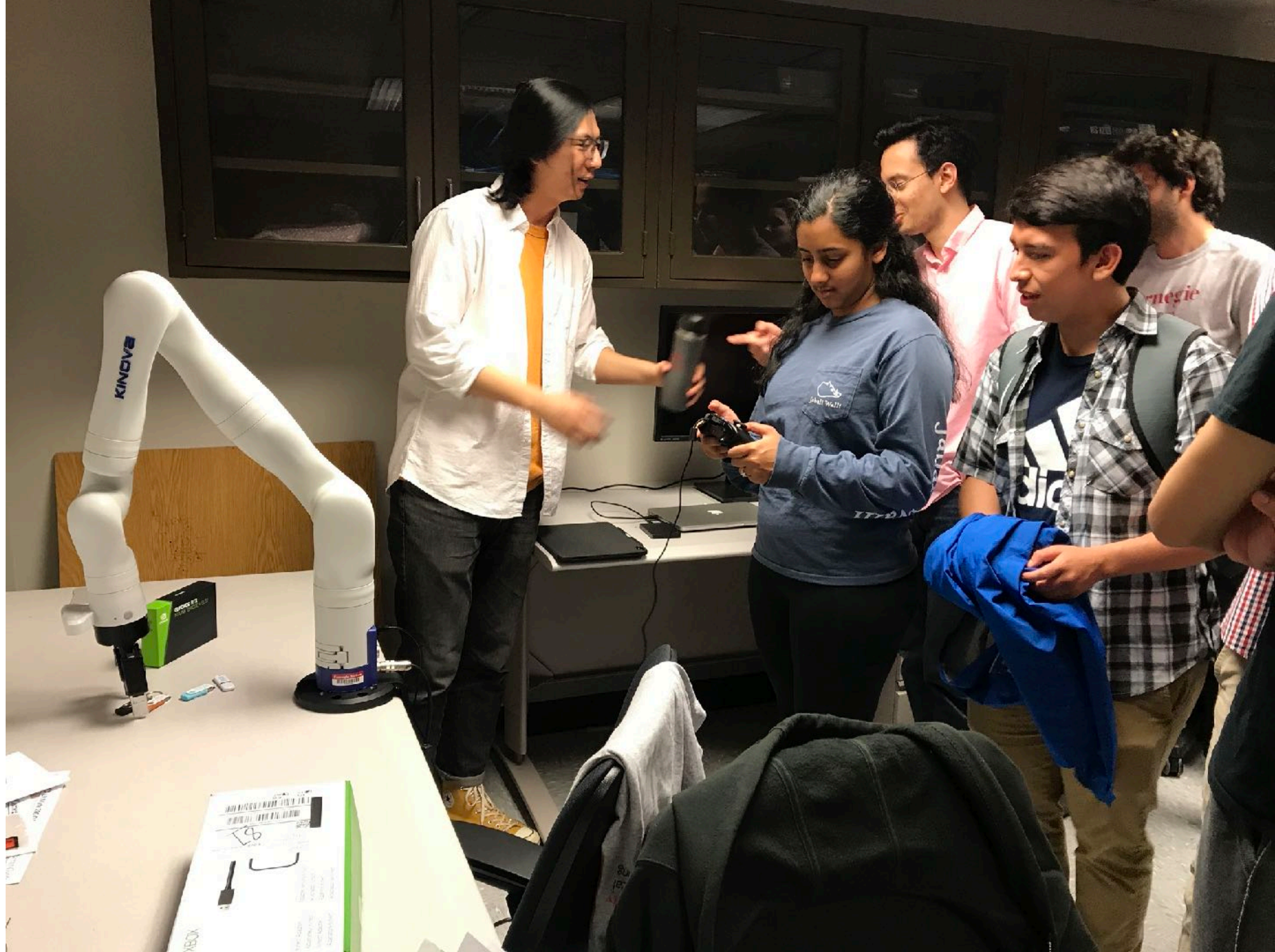




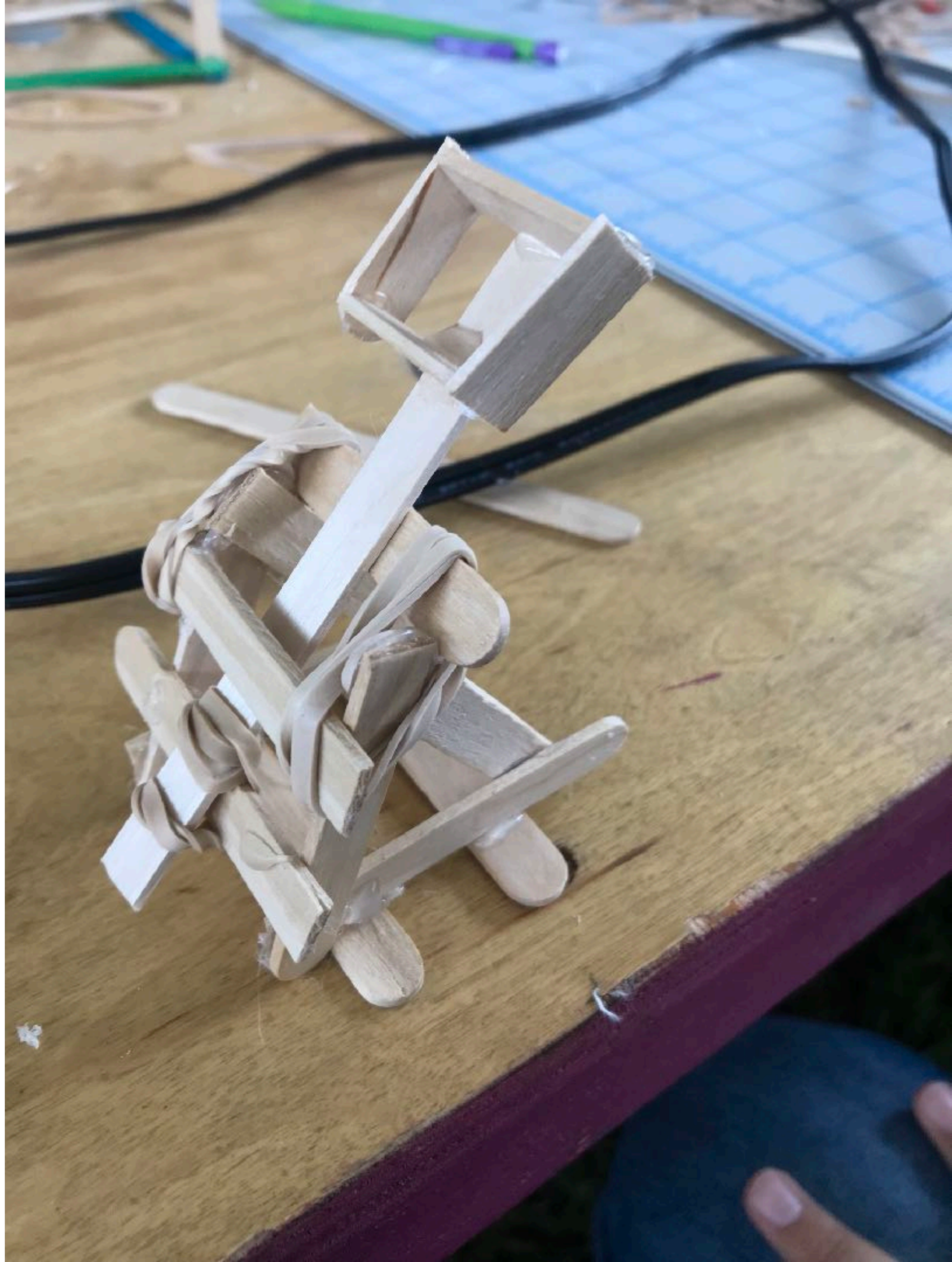




















WATERPROOF SWIM TRUNK POCKET

Standard YKK waterproof zipper

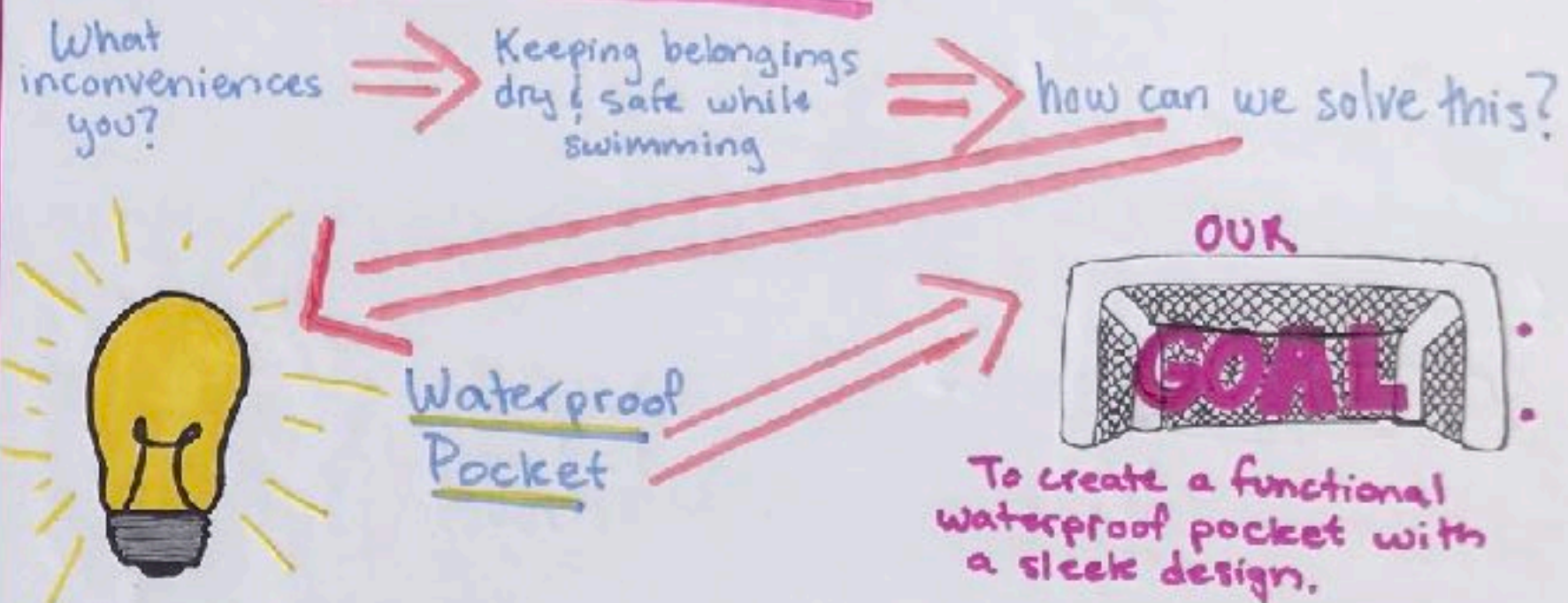
Tri-blend high grade waterproof material



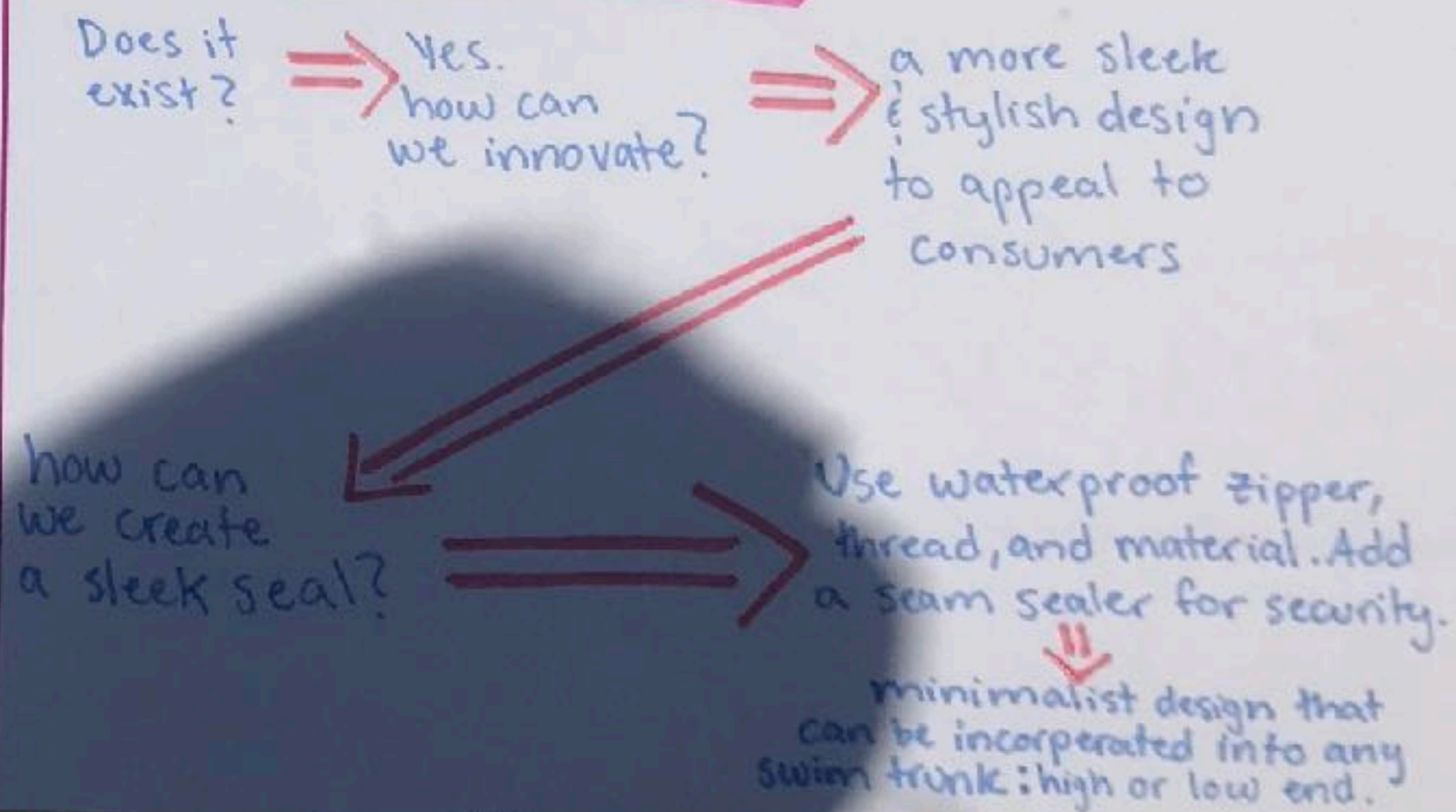
Waterproof thread

Seam Sealer

THE PROCESS



CHALLENGES



DESIGN YOUR OWN PNEUMATIC ACTUATOR

LEVER POWER PINCHER PUSHER and more!

INTRODUCTION TO **SOFT ROBOTICS!!!**

BIO-INSPIRED DESIGN USING MYLAR

SPACE-AGE MATERIALS MEETS CRAFTY HAND-MADE FABRICATION

Do-It-Yourself

POLYHEDRONS

(noun) /pəˈlɪːdrən/ A solid three dimensional figure with many polygonal faces.

hot glue gun + Q-TIPS or Straws = Q-TIP POLYHEDRON!

ON NOTES ABOUT THE AMAZING POWER OF DODECAHEDRON SYNTH

See instructables.com for details!

TRUNK POCKET

The Process

GOAL

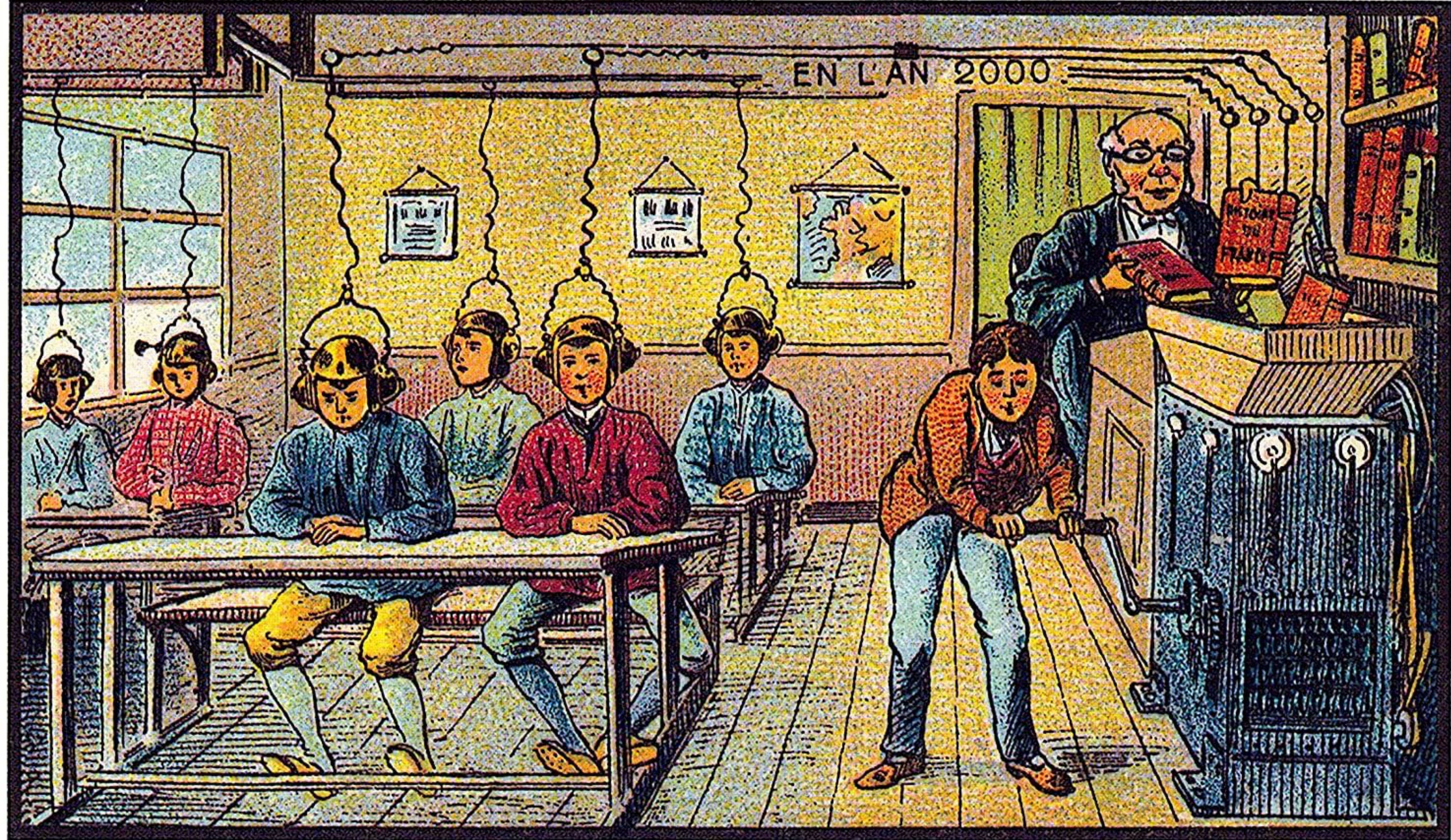
To create a functional, waterproof pocket.





3. TOWARDS A MORE INCLUSIVE MAKERSPACE FUTURE

What might makerspaces look like in the future?



SCHOOL CLASSROOM OF THE FUTURE

EN L'AN 2000 BY JEAN-MARC CÔTÉ. CIRCA 1890'S



PUSH-BUTTON EDUCATION

Tomorrow's schools will be more crowded; teachers will be correspondingly fewer. Plans for a push-button school have already been proposed by Dr. Simon Ramo, science faculty member at California Institute of Technology. Teaching would be by means of sound movies and mechanical tabulating

machines. Pupils would record attendance and answer questions by pushing but-

tons. Special machines would be "geared" for each individual student so he could advance as rapidly as his abilities warranted. Progress records, also kept by machine, would be periodically reviewed by skilled teachers, and personal help would be available when necessary.

コンピュータ学校出現!

スクリーンの中が、先生が話す映像も、
紙の上のコンピュータで答える。コンピ
ュータ学校の授業風景だ。
まろかえて答えても、
せほよい。コンピュータは、ノートと紙に
ように使えるのだ。
でも、よそみをしていると、先生のおお
にロケットが飛んでコタン、おどろかす
なるかもしれない!

高松の香川大付属中や東京の大森六中では、
すでに、コンピュータ授業をしている。



▲彼女はアメリカでの実験者。



▲スクリーンにうつった先生



人々小松崎茂

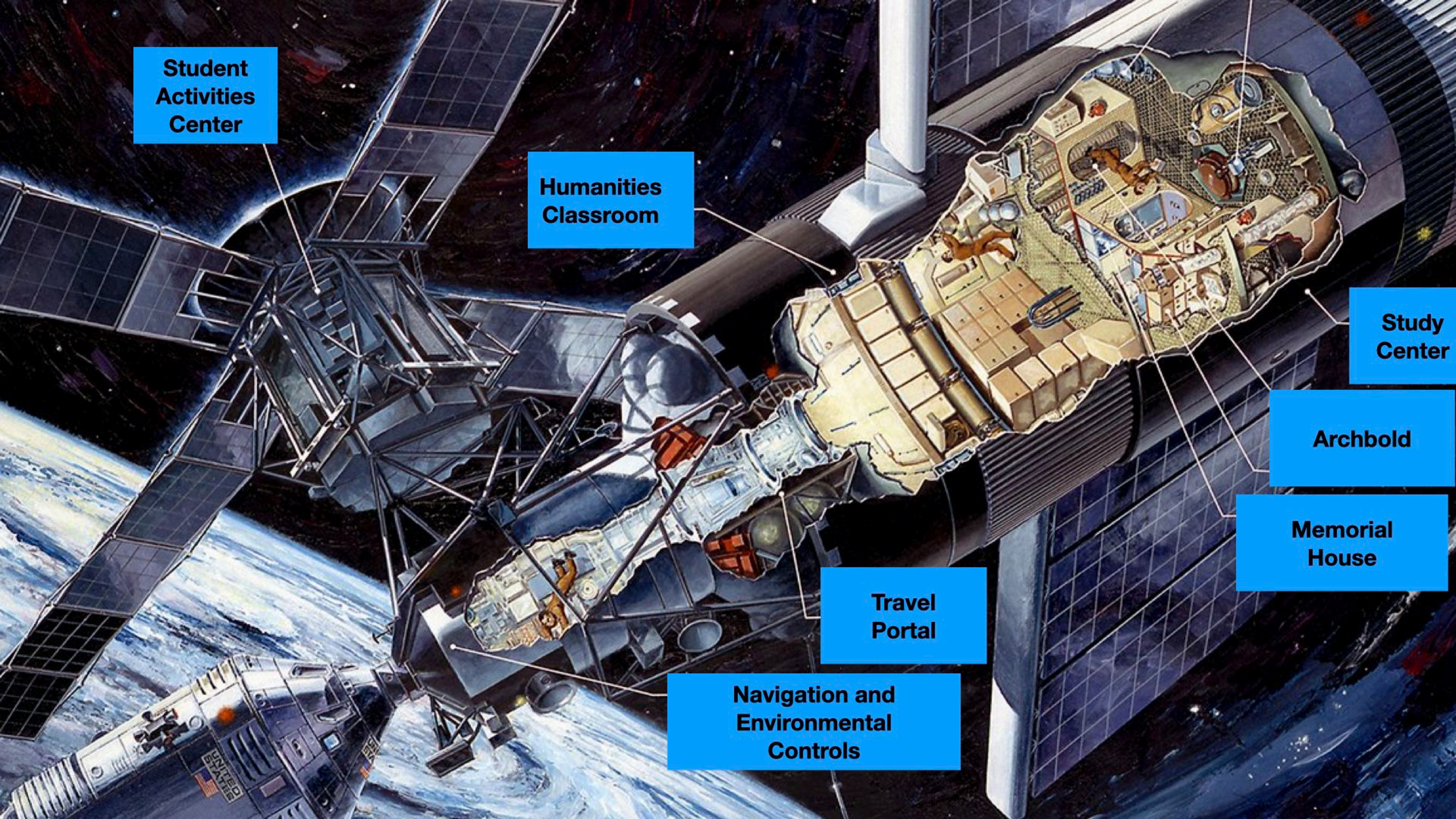
正しい答えを
出して、

まちがったところへ、74
トペンを入れて修正。

まちがっていない
とあがても、

これこそコンピ
ューターで計算する。

コンピューターの使い方



**Student
Activities
Center**

**Humanities
Classroom**

**Study
Center**

Archbold

**Memorial
House**

**Travel
Portal**

**Navigation and
Environmental
Controls**

Four Collaborative Experiments

A. TWO PARABLES

Seymour Papert made many important contributions to education as a field that remain relevant to discussions of present-day makerspaces. He specifically drew attention to issues surrounding new technologies in learning communities when he gave testimony before a House of Representatives Panel on Technology and Education, October 12, 1995.

His presentation is titled, “Technology in Schools: Local Fix or Global Transformation?” and he was arguing for a systemic, programmatic, and cultural change throughout public education. Papert made a passionate exhortation to increase support for computers and computational technologies in all classrooms, and thereby broaden access to the meaning-making technologies for everyone. He concludes with two “parables” that direct attention to blind spots and cultural bias.

“Physicians of a bygone era greet new medical technologies such as anesthesia and asepsis as providing an opportunity to improve their procedures...for example they see ways to achieve wonderful improvement in the use of leeches for blood-letting.”

“Nineteenth century researchers seeking to improve transportation stumble on the idea of a jet engine and propose to use it to augment the power of horses pulling stage coaches. Researchers of a rival school ridicule the idea of using technology to solve the problem and suggest that the better way is to train the coachmen. They cite careful experiments to show that stage coaches are slowed down by the friction of axle bearings. They demonstrate that a statistically significant improvement in speed can be obtained simply by training the drivers to use more and better grease.”

B. TWO MANIFESTOS

WE HOLD THESE TRUTHS TO BE SELF-EVIDENT

SELF-REPAIR MANIFESTO:

REPAIR IS BETTER THAN RECYCLING.

MAKING OUR THINGS LAST LONGER IS BOTH MORE EFFICIENT AND MORE COST-EFFECTIVE THAN MINING THEM FOR RAW MATERIALS.

REPAIR SAVES THE PLANET.

EARTH HAS LIMITED RESOURCES AND WE CAN'T RUN A LINEAR MANUFACTURING PROCESS FOREVER. THE BEST WAY TO BE EFFICIENT IS TO REUSE WHAT WE ALREADY HAVE!

REPAIR SAVES YOU MONEY.

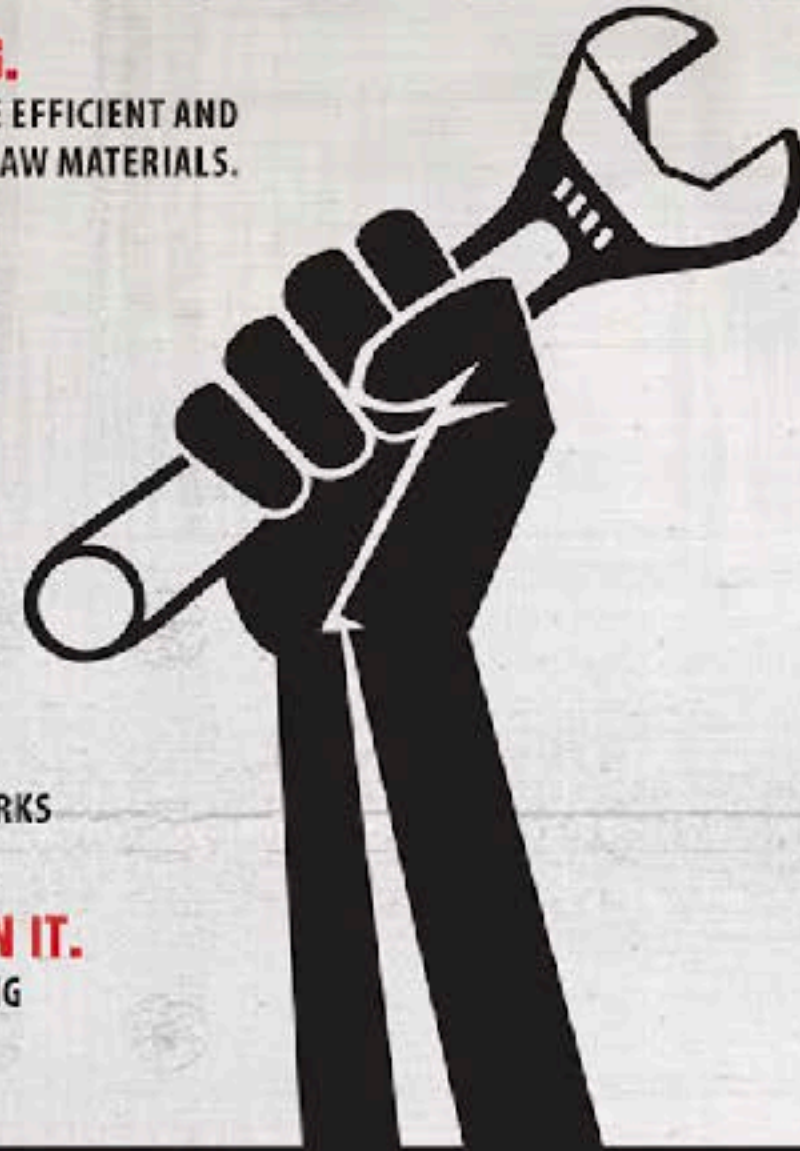
FIXING THINGS IS OFTEN FREE, AND USUALLY CHEAPER THAN REPLACING THEM. DOING THE REPAIR YOURSELF SAVES SERIOUS DOUGH.

REPAIR TEACHES ENGINEERING.

THE BEST WAY TO FIND OUT HOW SOMETHING WORKS IS TO TAKE IT APART!

IF YOU CAN'T FIX IT, YOU DON'T OWN IT.

REPAIR CONNECTS PEOPLE AND DEVICES, CREATING BONDS THAT TRANSCEND CONSUMPTION. SELF-REPAIR IS SUSTAINABLE.



REPAIR CONNECTS YOU WITH YOUR THINGS ◊ REPAIR EMPOWERS AND EMBOLDENS INDIVIDUALS
REPAIR TRANSFORMS CONSUMERS INTO CONTRIBUTORS ◊ REPAIR INSPIRES PRIDE IN OWNERSHIP
REPAIR INJECTS SOUL AND MAKES THINGS UNIQUE ◊ REPAIR IS INDEPENDENCE
REPAIR REQUIRES CREATIVITY ◊ REPAIR IS GREEN ◊ REPAIR IS JOYFUL
REPAIR IS NECESSARY FOR UNDERSTANDING OUR THINGS ◊ REPAIR SAVES MONEY AND RESOURCES

WE HAVE THE RIGHT:

TO OPEN AND REPAIR OUR THINGS WITHOUT VOIDING THE WARRANTY
TO DEVICES THAT CAN BE OPENED ◊ TO ERROR CODES AND WIRING DIAGRAMS
TO TROUBLESHOOTING INSTRUCTIONS AND FLOWCHARTS
TO REPAIR DOCUMENTATION FOR EVERYTHING ◊ TO CHOOSE OUR OWN REPAIR TECHNICIAN
TO REMOVE 'DO NOT REMOVE' STICKERS ◊ TO REPAIR THINGS IN THE PRIVACY OF OUR OWN HOMES
TO REPLACE ANY AND ALL CONSUMABLES OURSELVES
TO HARDWARE THAT DOESN'T REQUIRE PROPRIETARY TOOLS TO REPAIR
TO AVAILABLE, REASONABLY PRICED SERVICE PARTS

INSPIRED BY MISTER JALOPLY'S MAKER'S BILL OF RIGHTS AND PLATFORM 21'S REPAIR MANIFESTO

makezine.com

THE MAKER'S BILL OF RIGHTS

- Meaningful and specific parts lists shall be included.
- Cases shall be easy to open. ■ Batteries shall be replaceable. ■ Special tools are allowed only for darn good reasons. ■ Profiting by selling expensive special tools is wrong, and not making special tools available is even worse. ■ Torx is OK; tamperproof is rarely OK.
- Components, not entire subassemblies, shall be replaceable. ■ Consumables, like fuses and filters, shall be easy to access. ■ Circuit boards shall be commented.
- Power from USB is good; power from proprietary power adapters is bad. ■ Standard connectors shall have pinouts defined. ■ If it snaps shut, it shall snap open. ■ Screws better than glues. ■ Docs and drivers shall have permalinks and shall reside for all perpetuity at archive.org. ■ Ease of repair shall be a design ideal, not an afterthought. ■ Metric or standard, not both.
- Schematics shall be included.

Drafted by Mister Jalopy, with assistance from Phillip Torrone and Simon Hill.

Make:
technology on your time

C. TWO LISTS OF MAXIMS

*[Generated by ChatGPT]

Certainly! Here are thirty maxims inspired by the bold and thought-provoking style of Corita Kent, conveying the vibrant and inclusive atmosphere of a makerspace:

1. Unleash your wildest ideas, for within the realm of making, imagination knows no bounds.
2. Embrace the imperfect brushstrokes of creation, for in the messiness lies the beauty of experimentation.
3. In the makerspace's symphony of voices, every contribution, no matter how small, adds a unique melody.
4. Let curiosity be your compass, guiding you through uncharted territories of innovation.
5. Break the chains of conformity and let your creations defy the boundaries of expectation.
6. Drown out the whispers of self-doubt with the shouts of unyielding self-expression.
7. Celebrate the interplay of colors, cultures, and perspectives, for diversity is the fuel that ignites extraordinary creations.
8. Give birth to your ideas fearlessly, for the makerspace is a nurturing womb of endless possibilities.
9. Embrace the power of collaboration, where the harmonious collision of minds gives birth to brilliance.
10. See mistakes as the stepping stones of discovery, leading you closer to unforeseen triumphs.
11. Forge your own path amidst the chaotic dance of creation, for innovation is born in the footsteps of pioneers.
12. Embody the audacity of imagination, for the makerspace is where dreams come alive in vibrant hues.
13. Allow failure to be your greatest teacher, as it illuminates the hidden pathways to success.
14. Break free from the shackles of fear and let your creations soar, like birds of boundless inspiration.
15. In the makerspace, walls are mere illusions, shattered by the sheer force of innovative thinking.
16. Embrace the power of "why not?" as it propels you beyond the confines of convention.
17. Paint with the colors of empathy, weaving stories of compassion into the fabric of your creations.
18. Let the sparks of curiosity ignite a wildfire of exploration within the sacred space of making.
19. Like a master storyteller, infuse your creations with the whispers of possibility and wonder.
20. Be a weaver of dreams, entwining the threads of creativity into tapestries of inspired thought.
21. Like a maestro, conduct the symphony of tools and materials, breathing life into your artistic symphony.
22. Dive into the unknown depths of creation, for it is where discoveries and breakthroughs await.
23. Embrace the transformative power of playfulness, where innovation and joy dance hand in hand.
24. Be a beacon of encouragement, igniting the flame of inspiration in the hearts of fellow makers.
25. Carve your own path through the dense forest of limitations, letting your creations leave footprints for others to follow.
26. Harness the winds of resilience, for they carry your creative spirit through storms of doubt.
27. Like a magician, unveil the extraordinary from the ordinary, transforming everyday objects into marvels of ingenuity.
28. Cultivate a garden of ideas, nurturing their growth with the water of collaboration and the sunlight of determination.
29. Embrace the power of "yes, and" as it opens doors to unexpected possibilities and endless horizons.
30. In the makerspace, your voice is a vital instrument, playing a symphony that inspires and empowers others to create.

These maxims aim to capture the essence of a makerspace as a vibrant, inclusive, and supportive environment that encourages boldness, innovation, and collaboration.

Certainly! Here are twenty pithy descriptions of scenes or situations in an ideal makerspace, inspired by the style of Blaise Pascal's "Pensées":

1. Amidst the hum of buzzing machines and the scent of raw materials, creators huddle in collaborative fervor, like bees building a hive of invention.
2. In the quiet sanctuary of the makerspace, minds alight with inspiration, as sparks dance from one thought to another, illuminating the boundless realm of possibilities.
3. Hands covered in paint, glue, and fragments of imagination, artisans meticulously assemble the puzzle of creation, revealing a masterpiece born from chaos.
4. The tinkering of gears, the clinking of tools, and the whispers of whispered breakthroughs harmonize, composing a symphony of industrious minds.
5. Like alchemists of old, makers mix elements of science and art, transmuting fragments of metal and wire into works that shimmer with ingenuity and beauty.
6. Within the laboratory of imagination, sparks of genius ignite fires of innovation, transforming dreams into tangible realities.
7. Silent battles of will unfold as creators duel with their doubts, questioning the possible until the impossible retreats, defeated.
8. In the dim glow of flickering prototypes, creators navigate the labyrinth of trial and error, guided by the compass of resilience and the compass of resilience.
9. The rhythm of pencils scratching against sketchbooks echoes the heartbeat of inspiration, each stroke birthing a vision that transcends the confines of paper.
10. As the chisel meets wood, the craftsman breathes life into their creation, releasing the spirit of the tree in a dance of form and function.
11. Fragments of discarded dreams find refuge in the scrap heap, waiting to be reborn in the hands of resourceful artisans who see potential where others see waste.
12. Amongst the whirlwind of tools and materials, sparks of ingenuity leap from mind to mind, illuminating the room like constellations of invention.
13. In the embrace of failure, creators find solace, for it is within the shattered pieces of their endeavors that the seeds of innovation lie, ready to sprout anew.
14. Conversations rise and fall like ocean tides, ideas crashing against the shores of minds, leaving behind treasures of insight and possibility.
15. The symposium of creators transcends borders, as diverse perspectives interlace, shaping a tapestry of innovation that celebrates the unity of human intellect.
16. Beneath the watchful eye of the 3D printer, creators witness miracles unfolding layer by layer, witnessing the birth of possibility from the marriage of technology and imagination.
17. The air crackles with excitement as creators uncover hidden potentials, daring to explore uncharted territories where only the brave dare venture.
18. A chaotic dance of wires and circuits orchestrates the birth of new technologies, as creators give life to the intangible and infuse electricity into their dreams.
19. Fingers glide across keyboards, transforming lines of code into ethereal symphonies, where algorithms and logic sing in harmony with the wild expanse of human imagination.
20. In the quiet corners of the makerspace, solitary creators find solace, where introspection and solitude breed moments of epiphany, birthing ideas that will ignite the world.

D. TWO PROPOSITIONS

THE TELESCOPE IS NOT AN IDEA.

Gratitude to the Unknown Instructors

**What they undertook to do
They brought to pass;
All things hang like a drop of dew
Upon a blade of grass.**