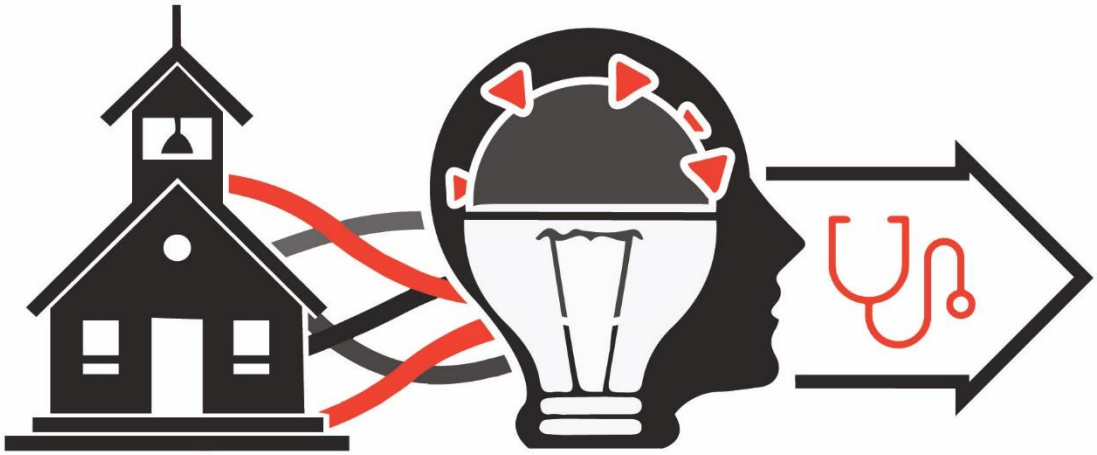
AIA OHIO



LEARNING ENVIRONMENTS IN A POST-COVID-19 WORLD

IDEATION CHARRETTE

Final Presentations

June 26, 2020

The Coronavirus pandemic has disrupted standard processes surrounding how we educate students at every level. This spring, all Ohio schools were ordered to transition to a virtual platform by the Ohio Department of Health out of concern for the safety of the students, their families, educators, and administrative personnel. As we enter the summer of 2020, the effects of the pandemic have not disappeared, and we remain concerned about an uncertain future. Current policy and protocols for how we interface with the current educational environment need to be reshaped, and our local and statewide leaders need valuable information to inform pressing decisions.

Over the month of June, AIA Ohio hosted an online Design Charrette to develop ideas to help school administrators understand what opening up in the fall for the 2020-2021 school year might look like. Ideas and concepts were developed into presentations, which were juried and constructively analyzed for improvements. The top five submissions were presented virtually to an audience of architects, administrators, district officials and other stakeholders. You can watch these presentations here:

Following are the presentations from the five finalists:

Mollie McNally and Julia Bohlen, Miami University 2

Erin Achille, Michael Bednar, Ashley Kerwood, Lauren Miller and Paige Schmeling
WSA Studio 10

Eric Pros, DS Architecture 31

Stephen Gastright, Doug Marsh, Noah Pennekamp and Lynn Zuch,
KZF Design 70

Alexandra Bohler, Hatch Architects and Aaron Kuck, Ohio State University 92

AIA Ohio

Safe Schools Charrette

Mollie McNally & Julia Bohlen

Maintain contained cohorts

-Control interaction between groups

-Minimize spread by creating classroom communities

-Maximize opportunities for individual student spaces

Enhance educational experiences

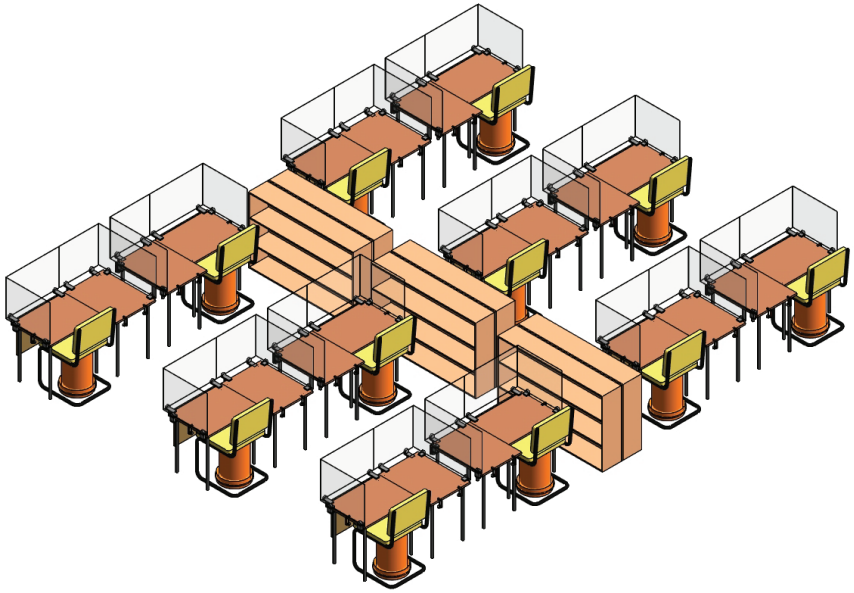
-Provide outdoor learning opportunities

-Increase physical and mental wellbeing

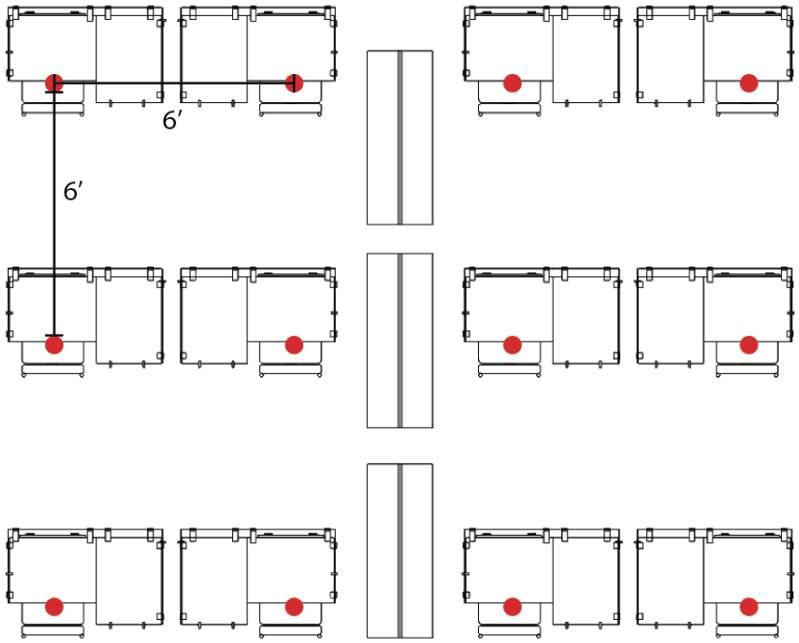
-Foster sustainable mindsets

Connect Create Community

Connect Create Community

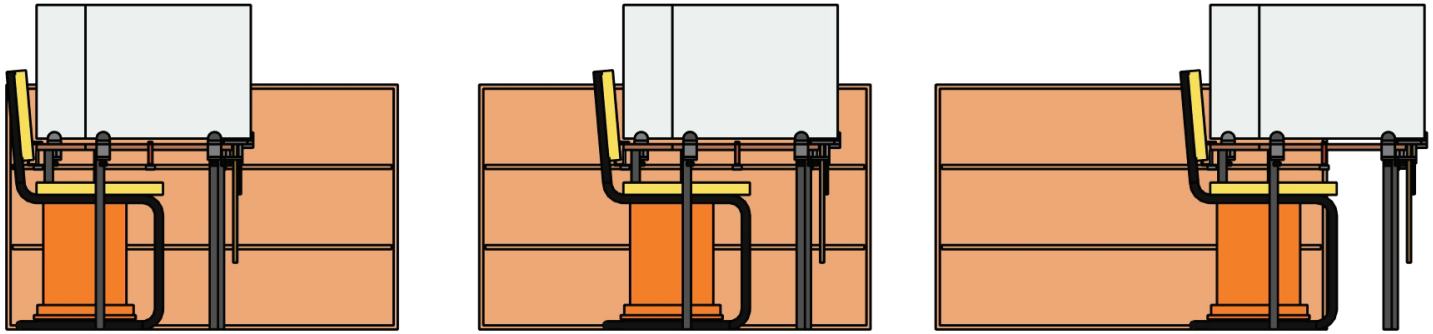


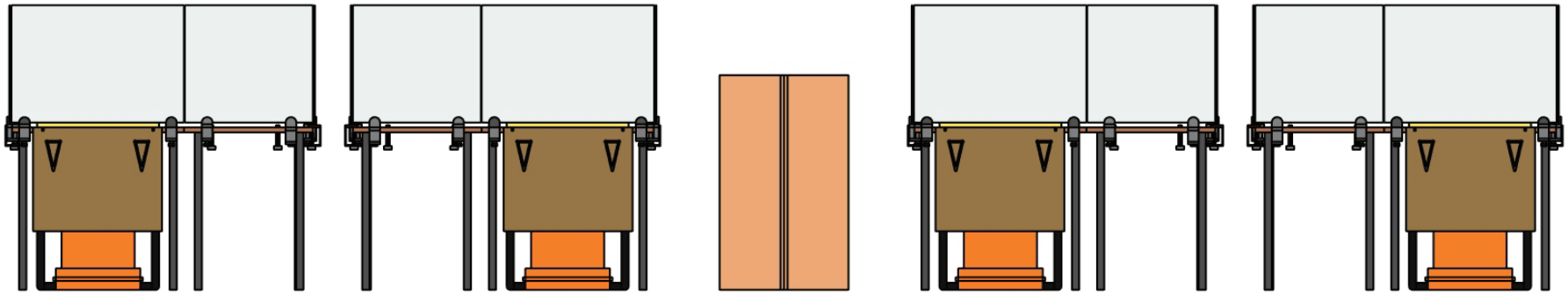
Repurposing of existing classroom items to facilitate social distancing



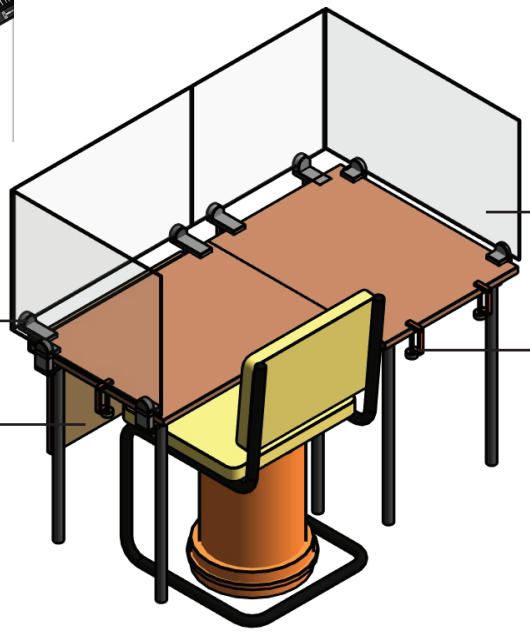
-Enlarge individual student space
-Maintain distance in familiar classroom environment
-Allow for safe student interaction

Connect Community Create





Modifications to existing desk



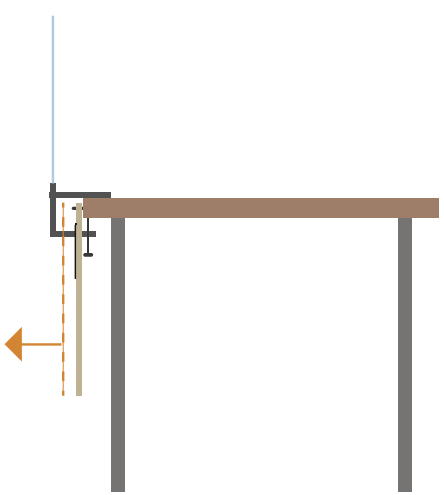
Plexiglass Dry Erase Board

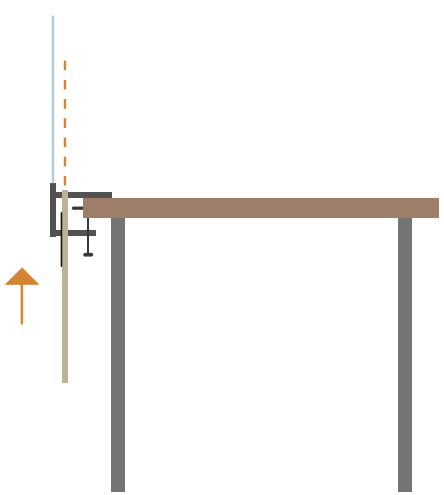
Adjustable Bracket

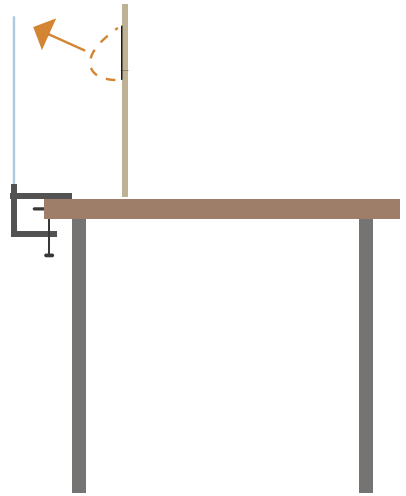
Moveable C-Clamps

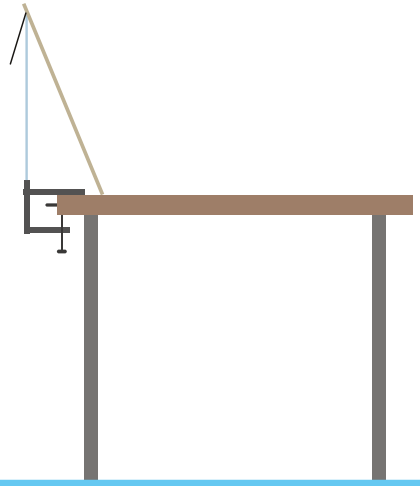
Special Activities Particle Board

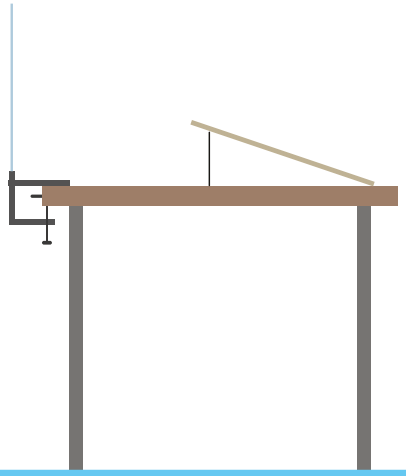
Connect Create Community





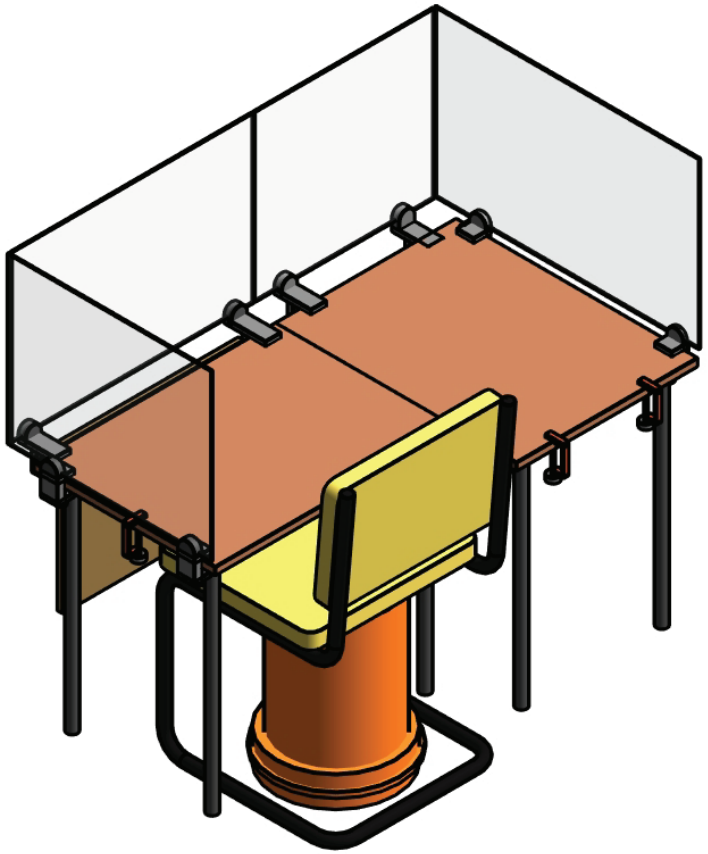






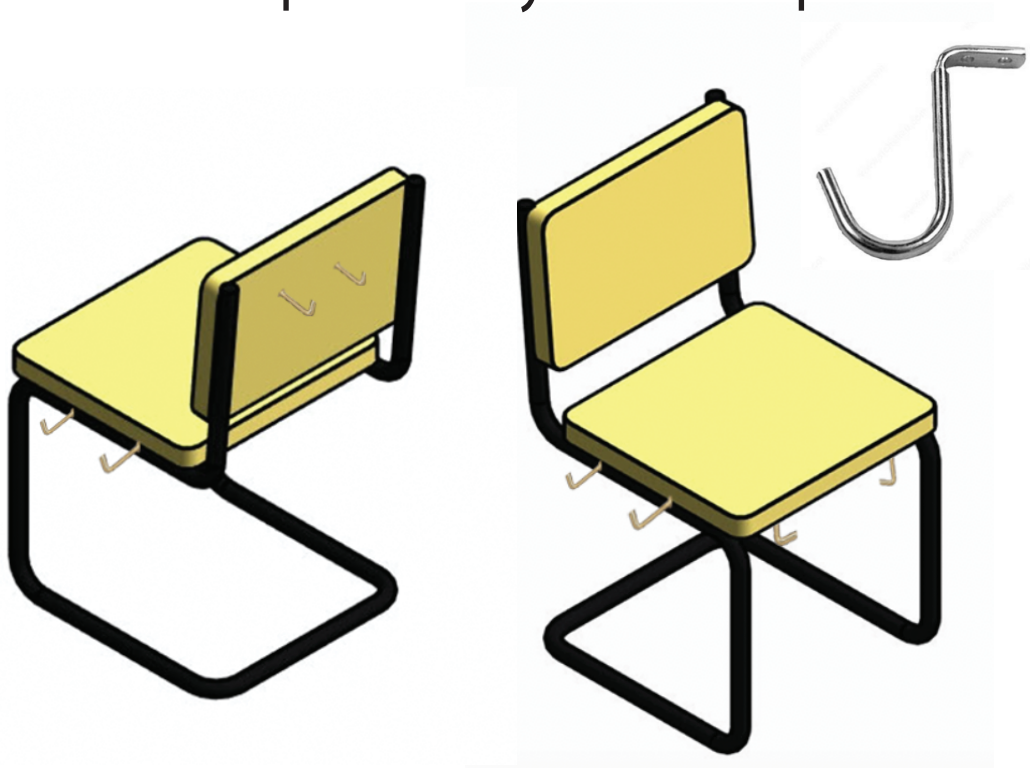
music stand

art easel



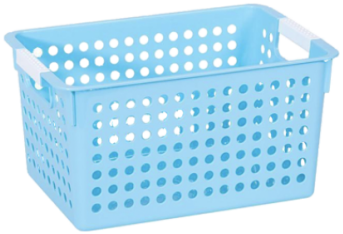
Facilitate pride and ownership in students

- -Provide ability for customization
- -Personalize learning space to suit needs
- -Take responsibility for own space



Connect Create Community

Connect Create Community



Emphasize sustainable practices through customization
- -Incorporate elements from classroom and home
- -Teach students to reimagine existing items
- -Foster a sustainable mindset in future generations

AIA Ohio

Learning Environments in a Post-COVID-19 World

SAFE SCHOOLS CHARRETTE

JUNE 26, 2020

PREPARED BY

WSA STUDIO
982 S FRONT ST
COLUMBUS, OH 43206

614.824.1633

WSASTUDIO.COM

PREPARED FOR

AIA OHIO

GOALS

PROVIDE A **FLEXIBLE FRAMEWORK** FOR ALL SCHOOL DISTRICTS...

TO PROVIDE **EQUITABLE ACCESS** TO EVERY STUDENT IN ANY SITUATION...

UTILIZING **EXISTING ASSETS** TO THEIR FULL POTENTIAL.

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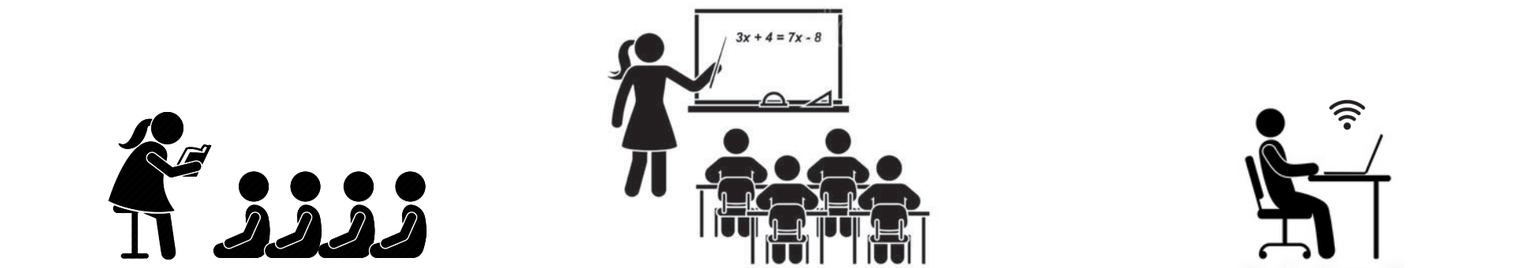
THE SHIFT IN LEARNING



K — 12

COMMUNAL

GUIDED

INDEPENDANT

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WHERE LEARNING CAN TAKE PLACE

SCIENCE

HISTORY

SOCIAL INTERACTION

MUSIC

LANGUAGE ARTS

SPORTS/ P.E.

ART

MATH

PHYSICAL → VIRTUAL

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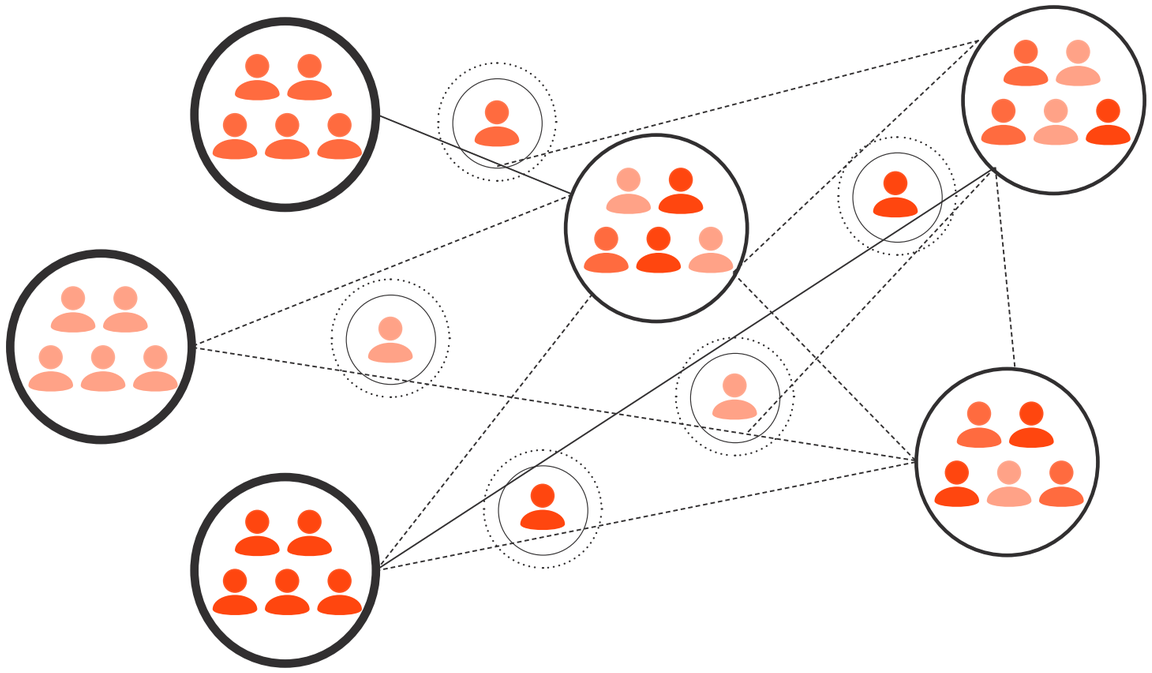
SOCIAL DISTANCING ISSUE



HOW CAN
WE MINIMIZE
STUDENT
CONTACT DAILY?

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CURRENT SPACE ISSUE

MULTI CLASSROOM
SCHEDULE

SINGLE CLASSROOM
COHORT

HOW CAN WE DIVERSIFY THE STUDENT'S EXPERIENCE?

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PROPOSED SCHOOL YEAR

TERM 1

2020

JANUARY

Su	Mo	Tu	We	Th	Fr	Sa
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

FEBRUARY

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
1	2	3	4	5	6	7

MARCH

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

APRIL

Su	Mo	Tu	We	Th	Fr	Sa
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2
3	4	5	6	7	8	9

MAY

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

JUNE

Su	Mo	Tu	We	Th	Fr	Sa
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4
5	6	7	8	9	10	11

JULY

Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

AUGUST

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

SEPTEMBER

Su	Mo	Tu	We	Th	Fr	Sa
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

OCTOBER

Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

NOVEMBER

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5
6	7	8	9	10	11	12

DECEMBER

Su	Mo	Tu	We	Th	Fr	Sa
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

(5) 2 MONTH TERMS
(2 week quarantine)

STUDENT COHORT

CHANGE COHORT
EACH TERM

HOW CAN WE ACCOUNT FOR THE ADDITIONAL NEEDED SPACE?

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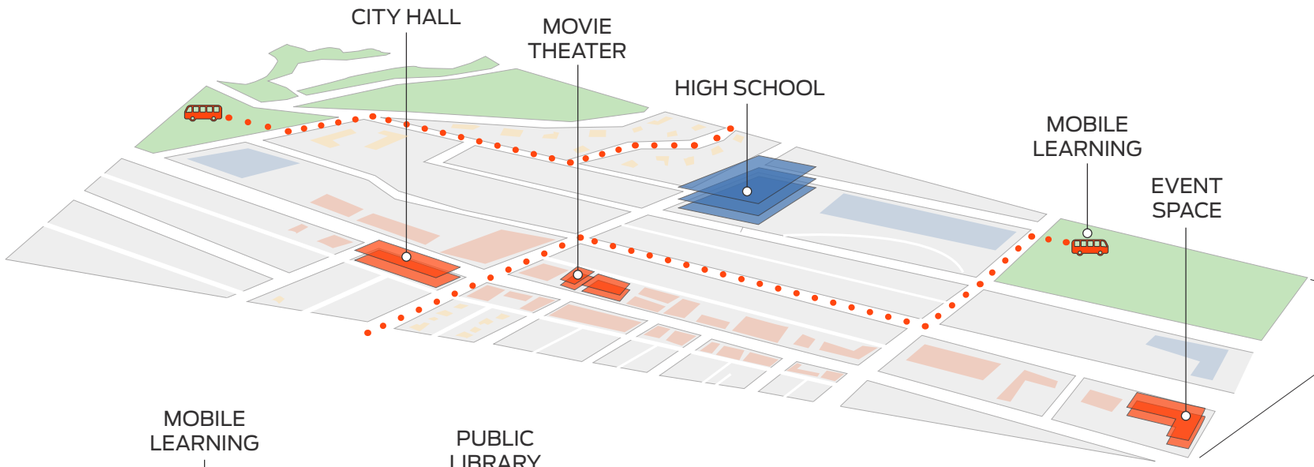
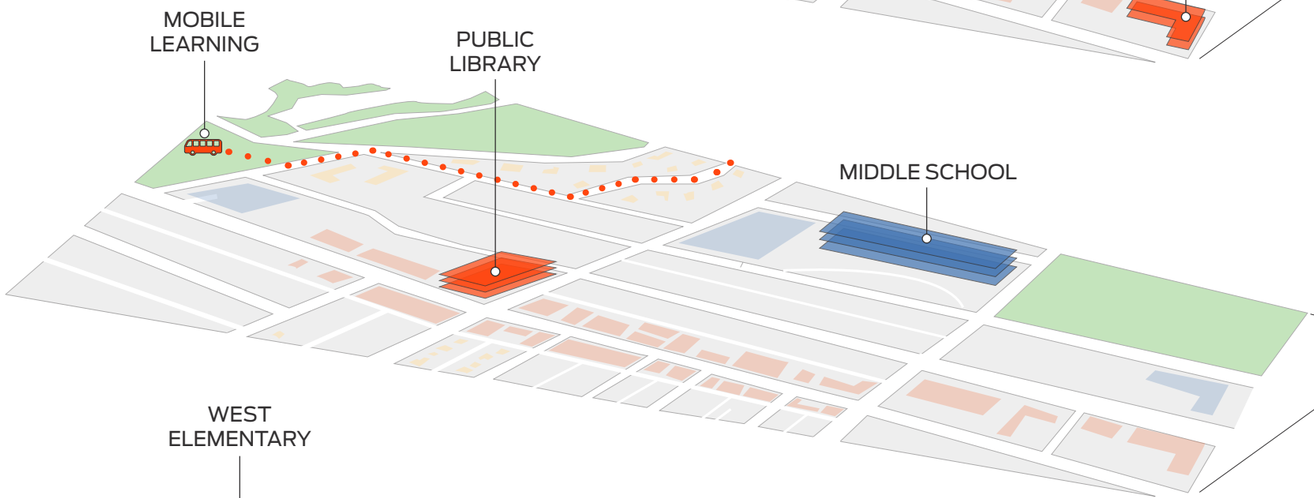
ALTERNATIVE LEARNING LOCATIONS



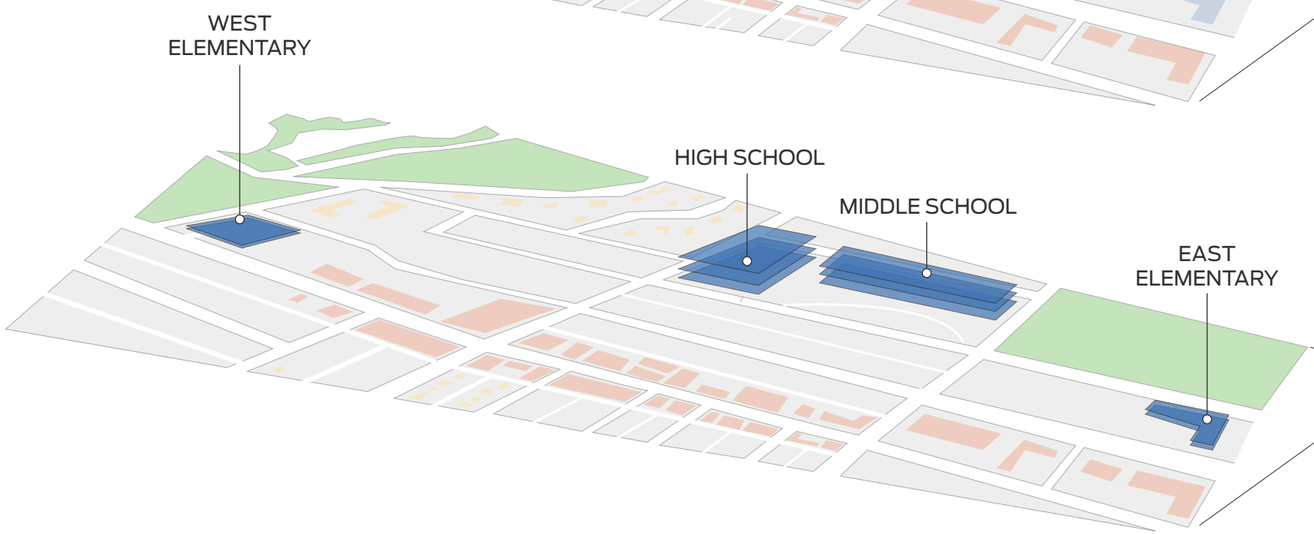
9 - 12

- LIMITED USE OF EXISTING SCHOOL BUILDINGS TO “SPECIALTY SPACES”:
  - SCIENCE LABS
  - WORKSHOPS
  - ART ROOMS
- USE OF COMMUNITY SPACES WITH LESS TRADITIONAL CAPABILITIES
  - SPACES FOR INDEPENDENT LEARNING
  - RELIABLE WIFI, A SPACE TO WORK AND A SPACE TO SERVE FOOD
- MOBILE LEARNING OPPORTUNITIES: SEE MAGIC SCHOOL BUS



6 - 8

- OVERFLOW INTO COMMUNITY SPACES AS REQ’D BY (K-5) REDISTRIBUTION
  - PUBLIC LIBRARY
  - OR OTHER SPACES WITH GUIDED LEARNING CAPABILITIES
- MOBILE LEARNING OPPORTUNITIES: SEE MAGIC SCHOOL BUS



K - 5

- 100% IN EXISTING SCHOOLS
- REDISTRIBUTED TO ALL SCHOOLS AS REQ’D TO MEET POST-COVID REC.S
- ROTATE USE OF SPECIALTY ROOMS (ART / GYM)

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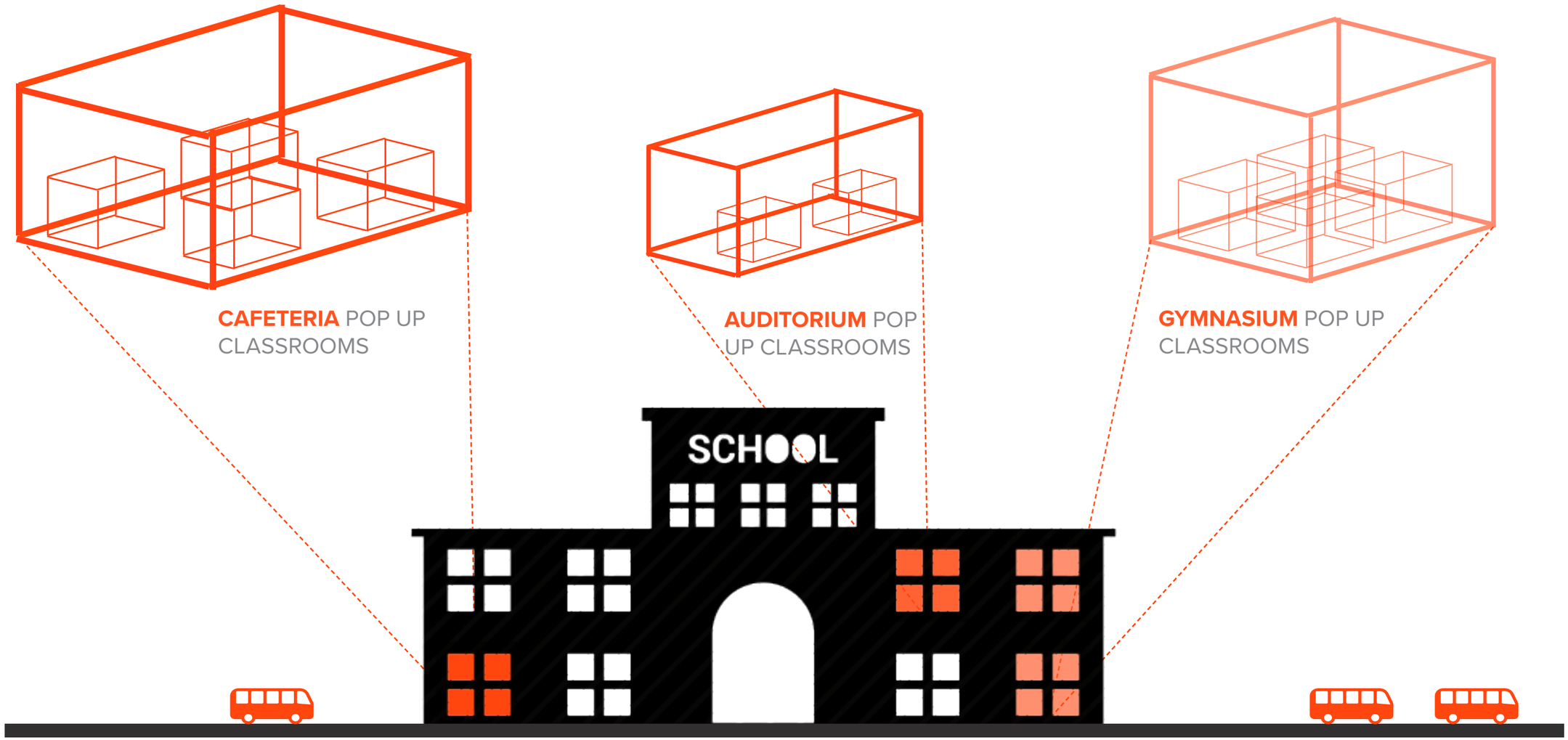
ALTERNATIVE LOCATIONS WITHIN THE SCHOOL



CAFETERIA POP UP CLASSROOMS

AUDITORIUM POP UP CLASSROOMS

GYMNASIUM POP UP CLASSROOMS

MUSIC ROOM USE AS COHORT CLASSROOM

ART ROOM USE AS COHORT CLASSROOM

SCIENCE LAB USE AS COHORT CLASSROOM

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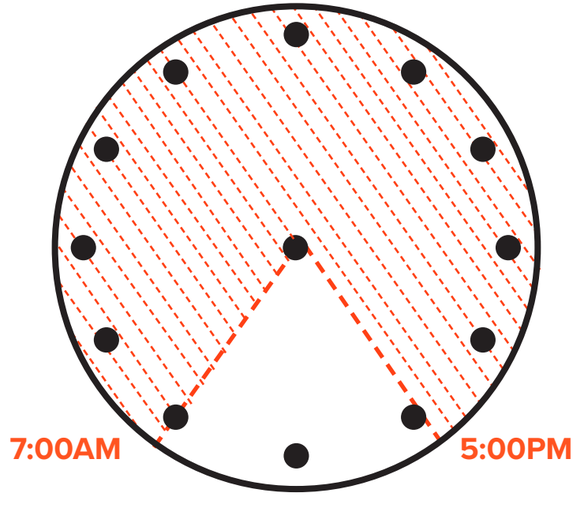
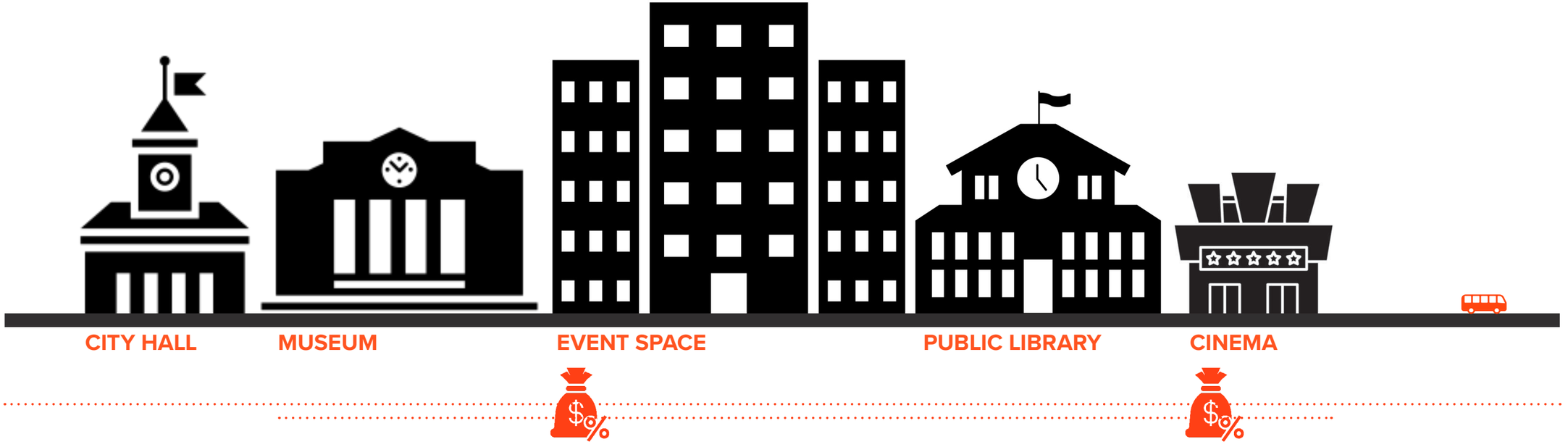
ALTERNATIVE COMMUNITY LOCATIONS





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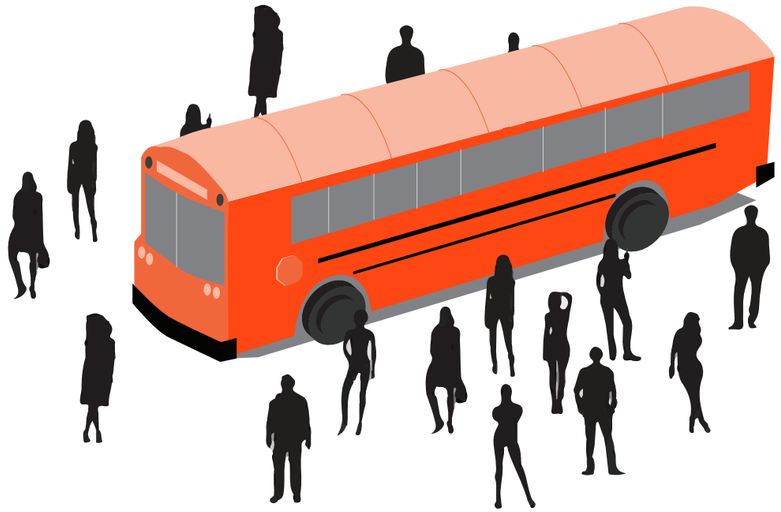
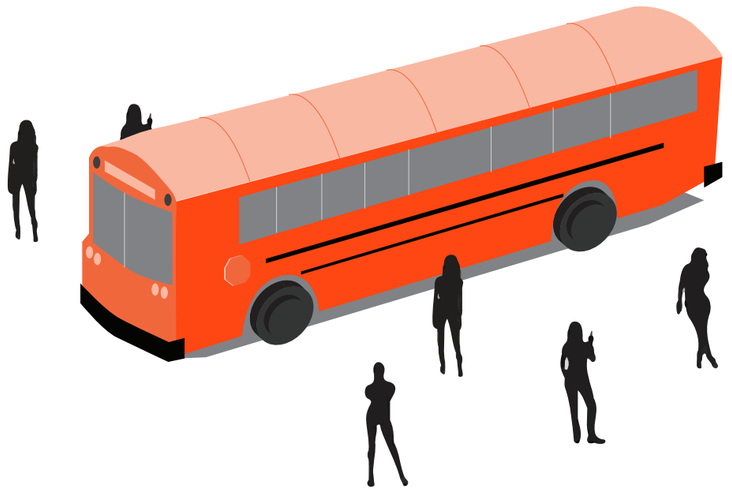
CURRENT TRANSPORTATION ISSUE



TRADITIONAL SCHOOL BUS

66-90 STUDENTS



SOCIALLY DISTANCED SCHOOL BUS

16-22 STUDENTS

HOW CAN WE ACCOUNT FOR THE NEW TRANSPORTATION NEEDS?

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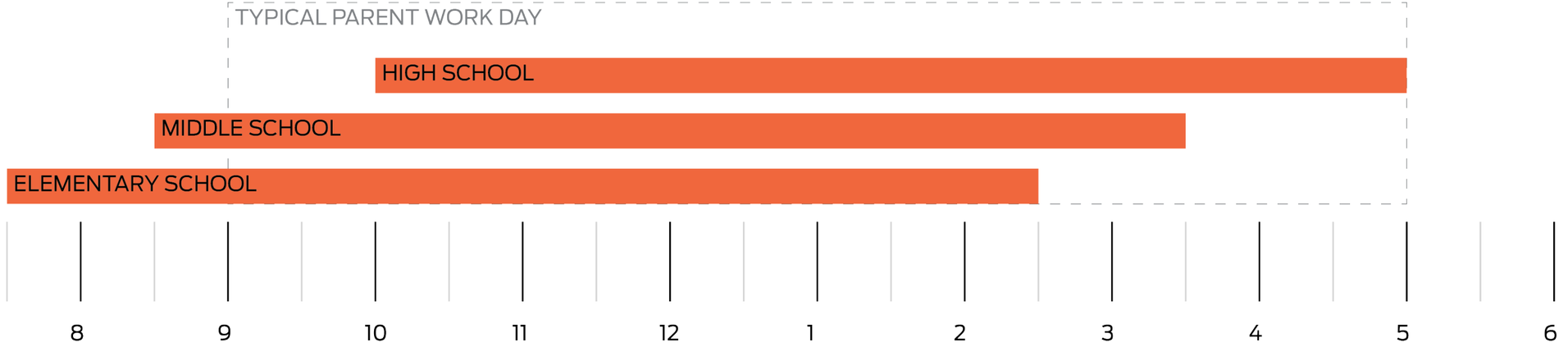
PROPOSED BUS SCHEDULING



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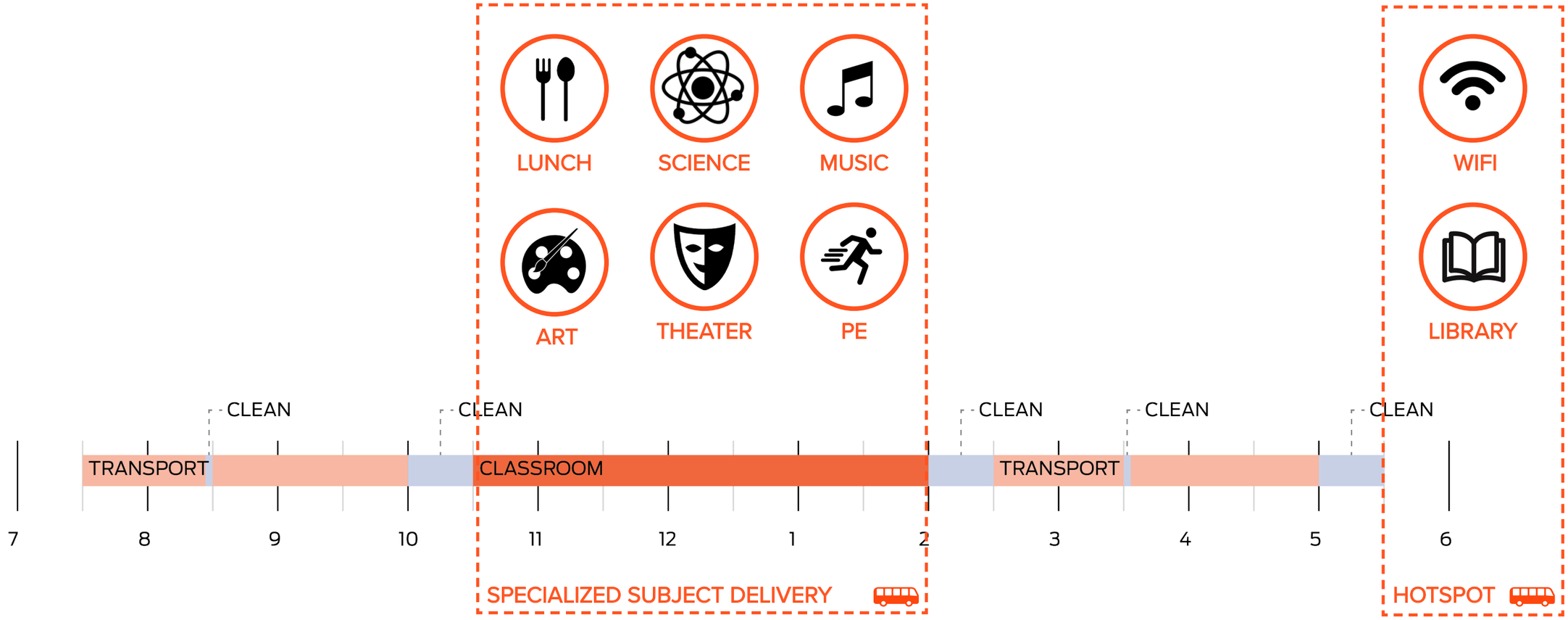
PROPOSED MAGIC SCHOOL BUS



HOW CAN WE BETTER UTILIZE THIS TIME?

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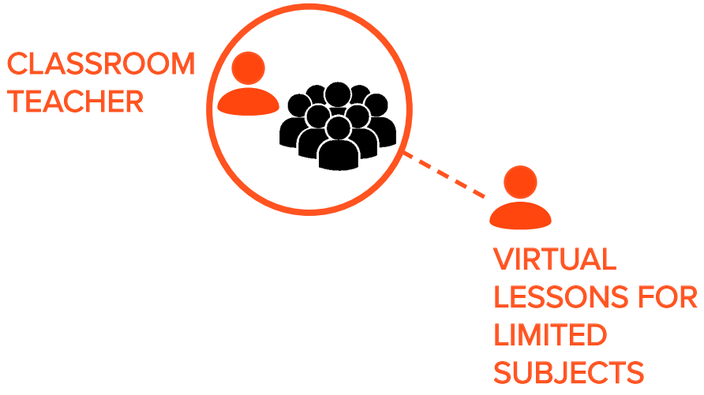
PROPOSED SCHOOL DAY

K - 5

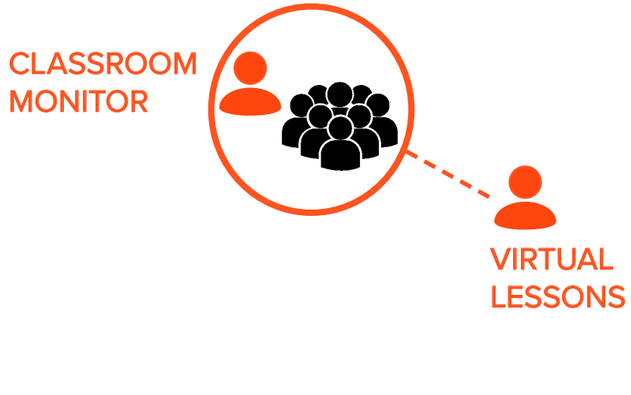
SCHEDULE
7:30 - 2:30

6 - 8



SCHEDULE
PERIOD 1 : 8:30am - 10:25am
LUNCH : 10:35am - 12:35am
PERIOD 3 : 12:40am - 1:20pm
PERIOD 4 : 1:35pm - 3:30pm

9 - 12



SCHEDULE
PERIOD 1 : 10:00am - 11:55am
LUNCH : 12:05am - 12:45am
PERIOD 3 : 12:55am - 2:55pm
PERIOD 4 : 3:05pm - 5:05pm

2HR CLASS BLOCKS

EXAMPLE MIDDLE SCHOOL SCHEDULE

LOCATION	SCHEDULE	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
COHORT ROOM	**PERIOD 1 :** 8:30am - 10:25am	MATH	GEOGRAPHY	MATH	GEOGRAPHY	MATH
	PERIOD 2 : 10:35am - 12:30an	ENGLISH	GEOGRAPHY	ENGLISH	**PE**	ENGLISH
	LUNCH : 12:40am - 1:20pm	----------	----------	----------	----------	----------
	PERIOD 4 : 1:30pm - 3:30pm	**SCIENCE**	**ART**	**SCIENCE**	**ART**	**SCIENCE**

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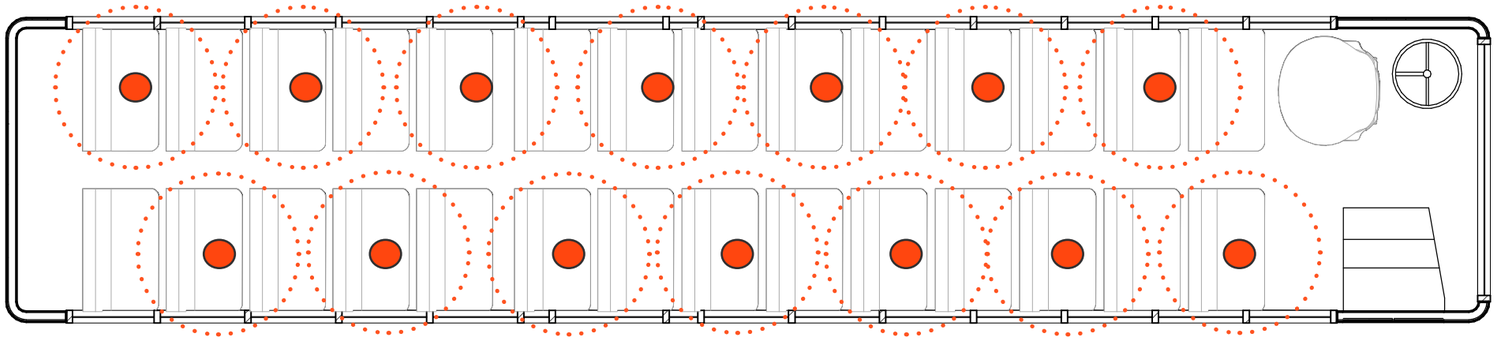
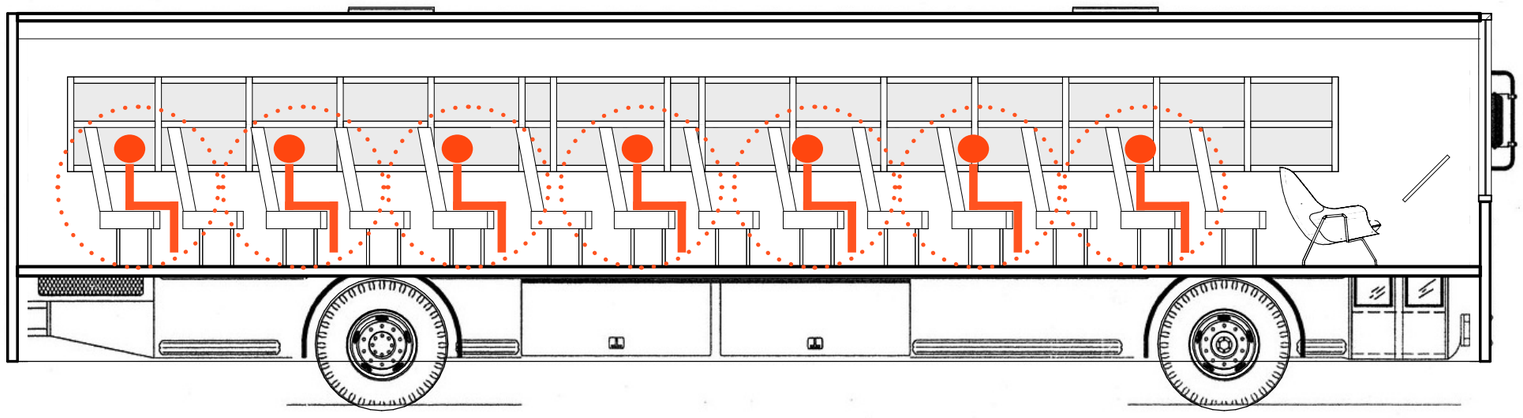
CURRENT TRANSPORTATION ISSUE



TRADITIONAL SCHOOL BUS - PLAN



TRADITIONAL SCHOOL BUS - SECTION

HOW CAN WE BETTER UTILIZE THIS SPACE?

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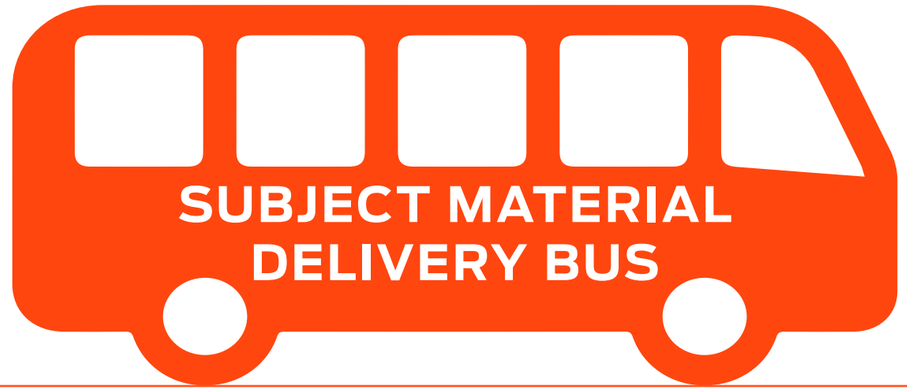
THE MAGIC SCHOOL BUS

1



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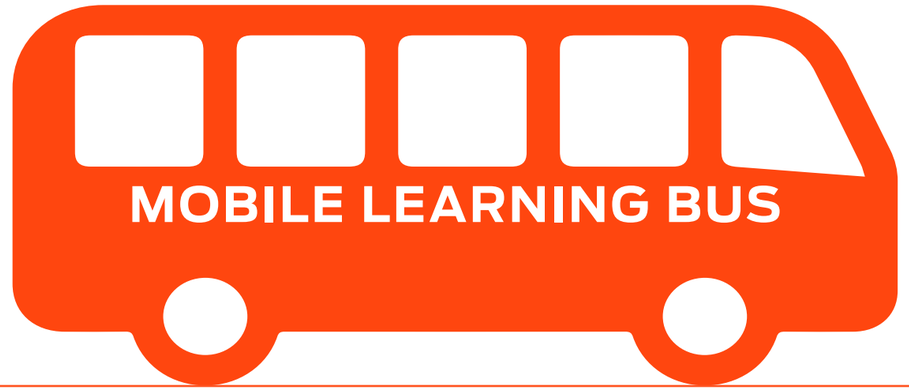

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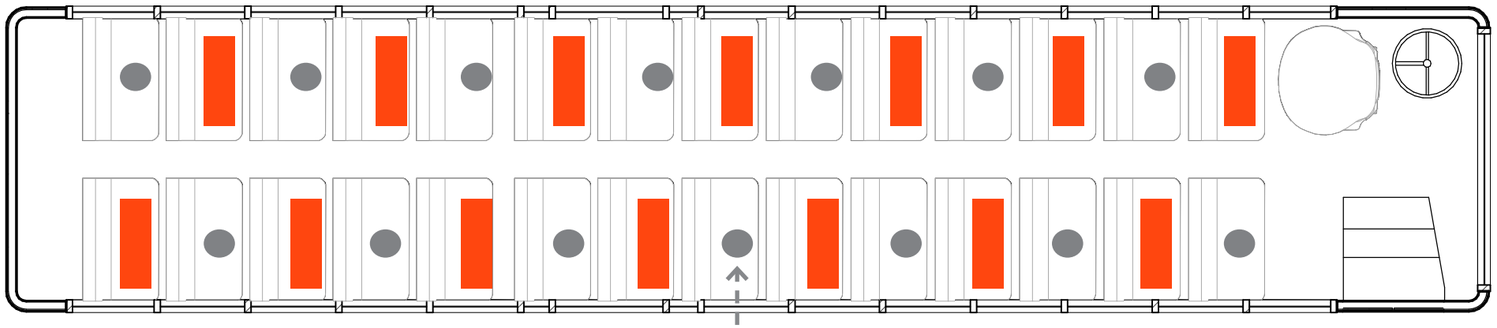
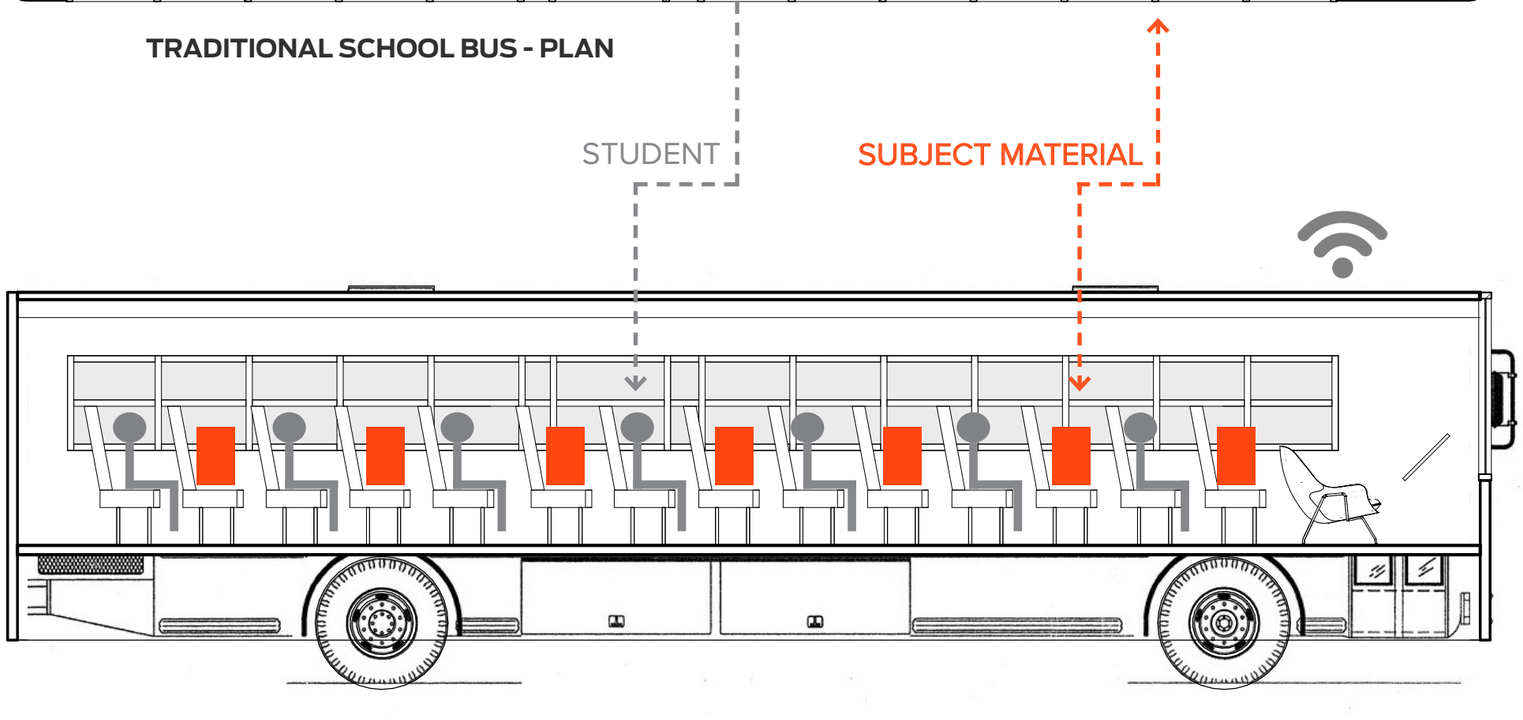
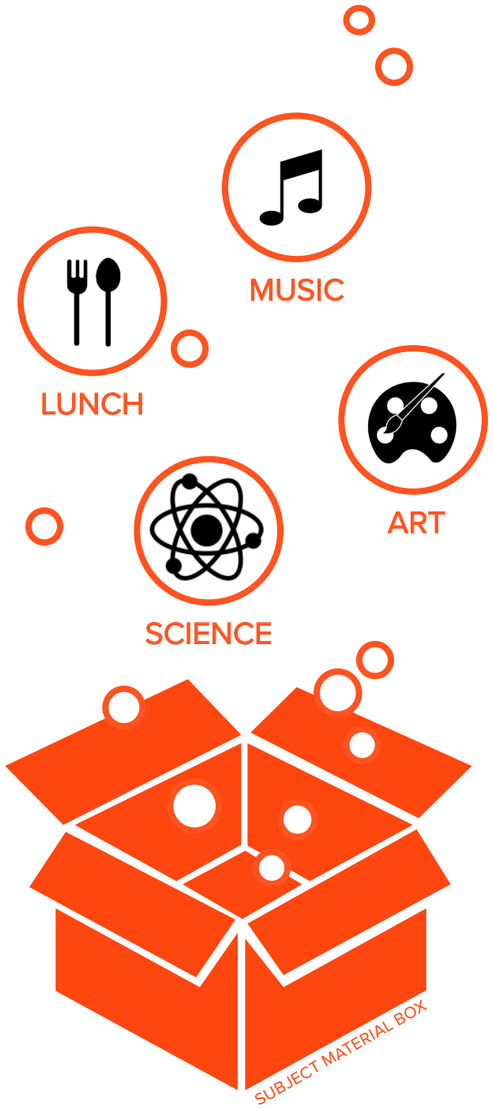
1 SUBJECT MATERIAL DELIVERY BUS



TRADITIONAL SCHOOL BUS - PLAN



TRADITIONAL SCHOOL BUS - SECTION



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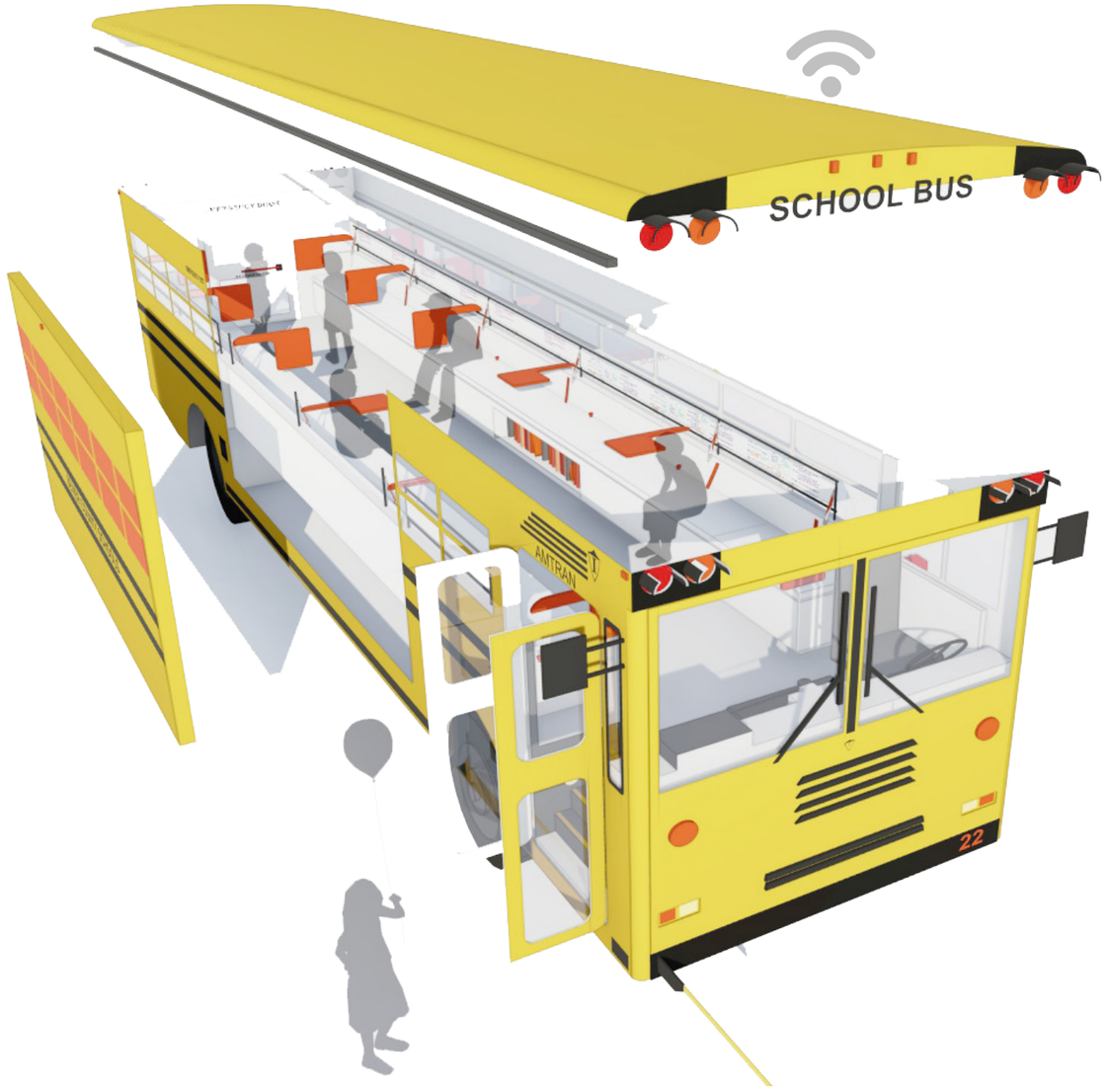
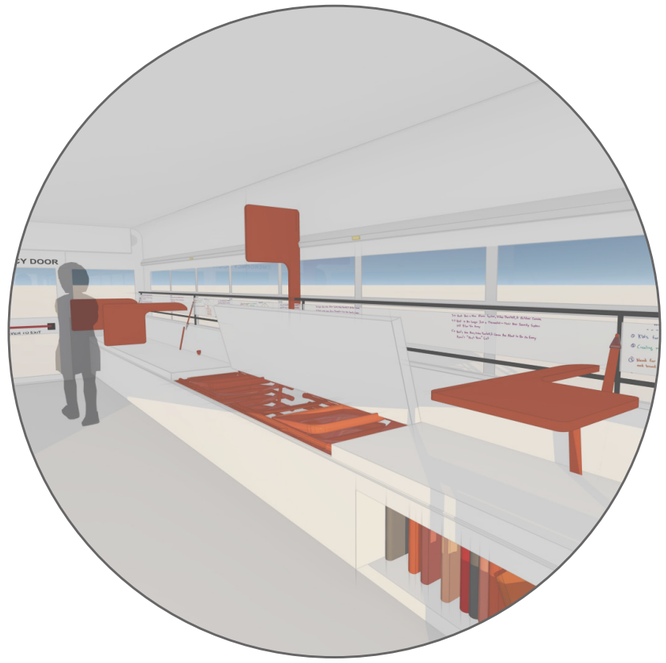
2 MOBILE LEARNING BUS





SAFE TRANSPORTATION + STORAGE

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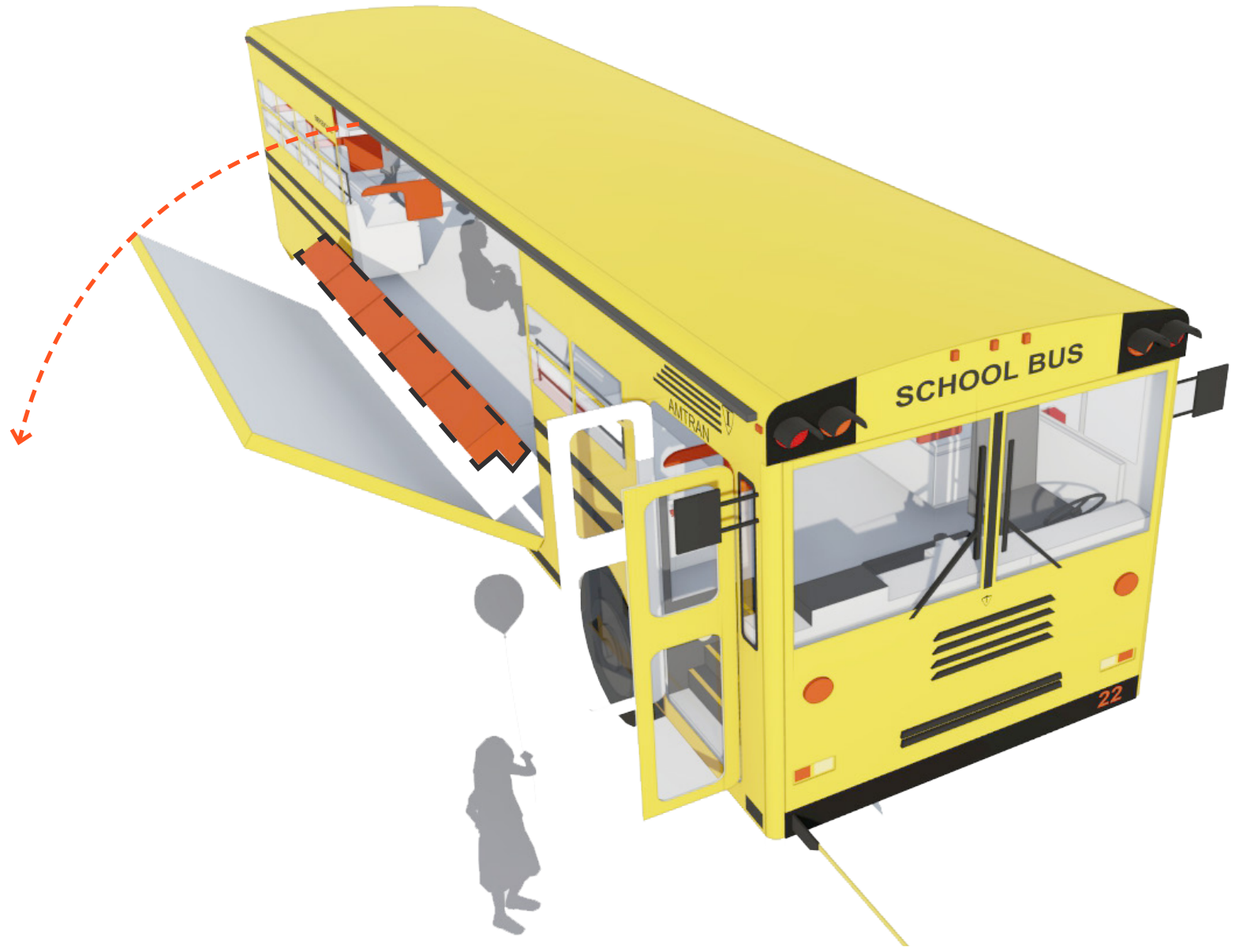
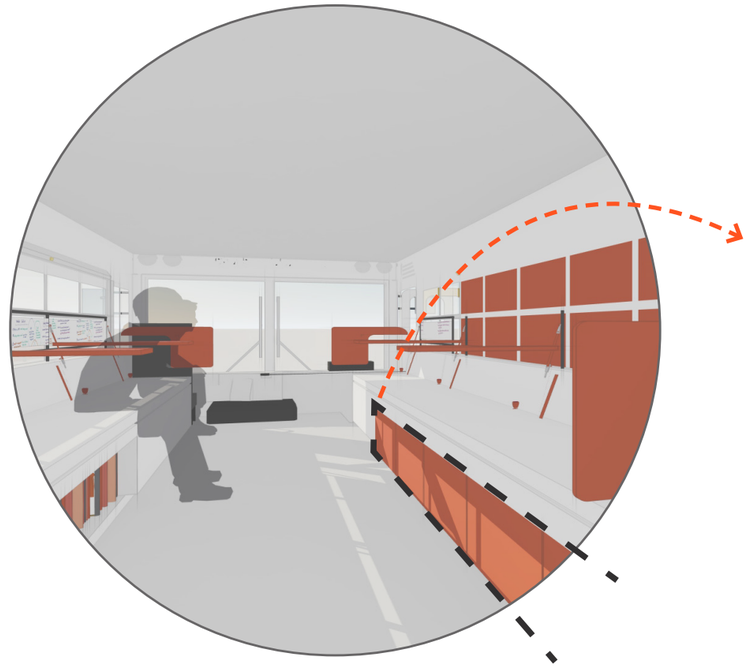
2 MOBILE LEARNING BUS





TRANSFORMS FOR OUTDOOR LEARNING

LIBRARY

WIFI

THEATER

PE

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2 MOBILE LEARNING BUS

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PROVIDE A **FLEXIBLE FRAMEWORK** FOR ALL SCHOOL DISTRICTS...

TO PROVIDE **EQUITABLE ACCESS** TO EVERY STUDENT IN ANY SITUATION...

UTILIZING **EXISTING ASSETS** TO THEIR FULL POTENTIAL.

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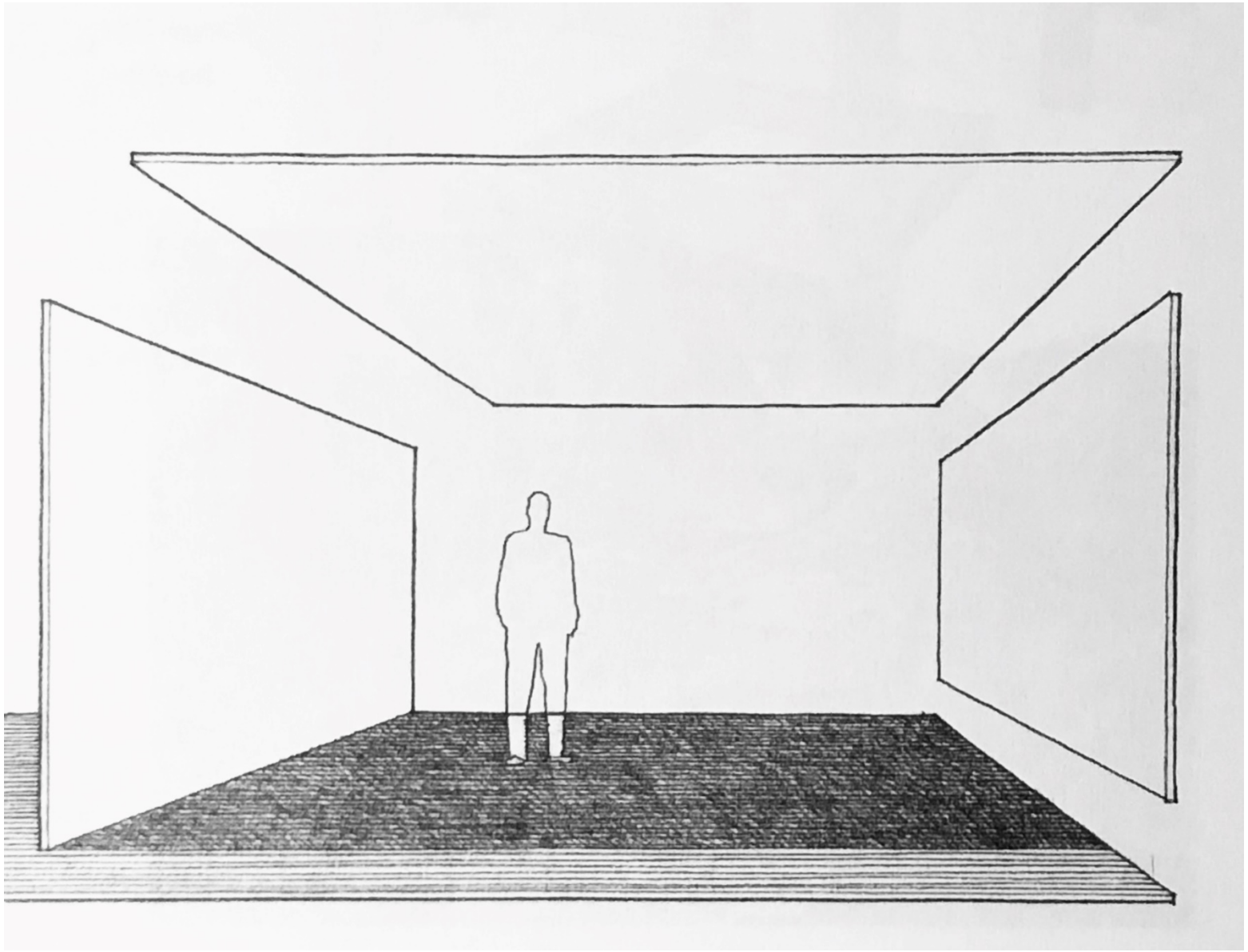
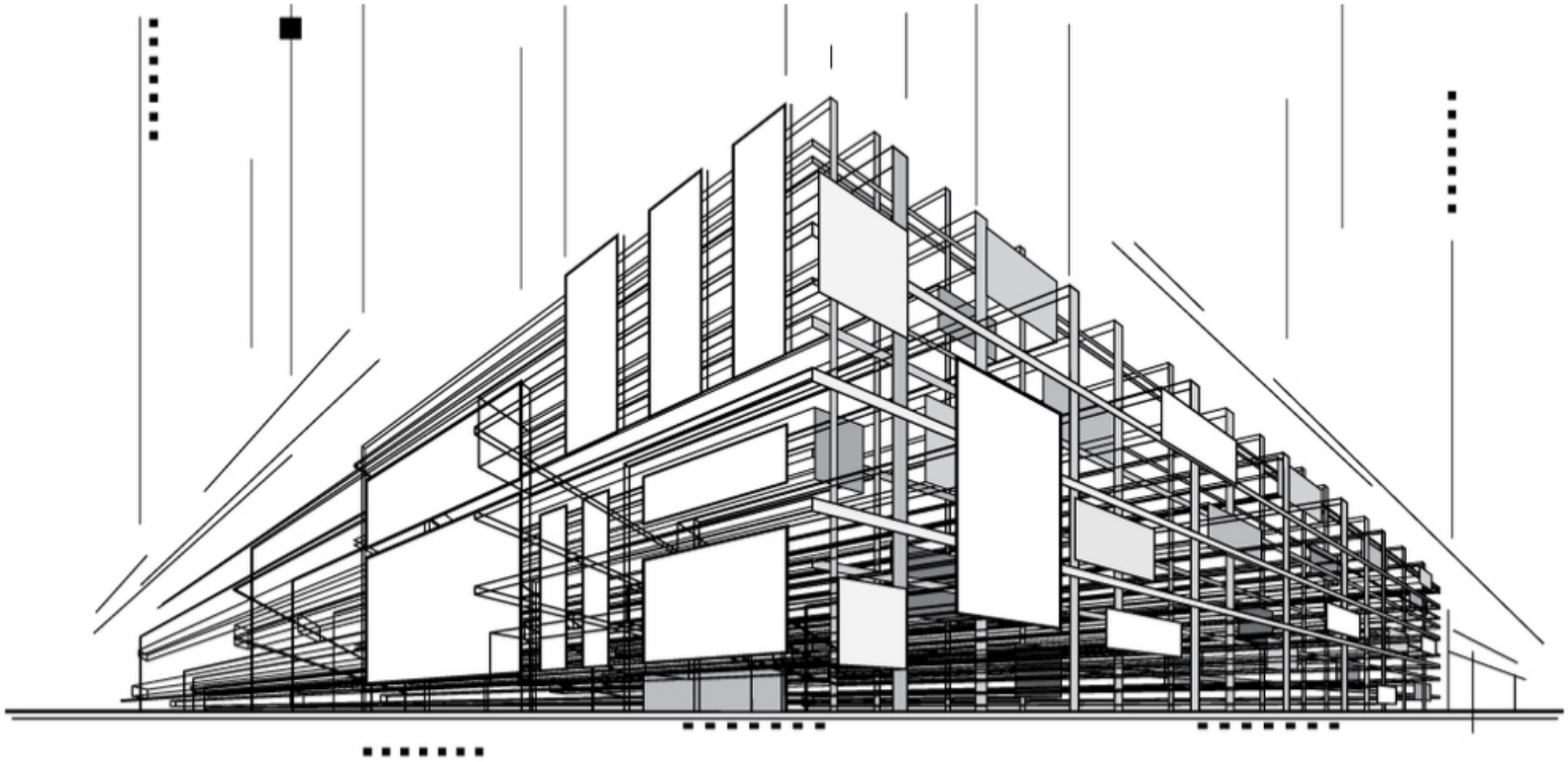
Surfaces



Surfaces Define Space



Surfaces

Depth, Texture, Pattern, Light & Shadow

Unfortunately:

Surfaces Have Germs

Kids touch surfaces...

...then they touch their faces

3 Strategies

Deployable, Affordable, Preserve Quality of Space

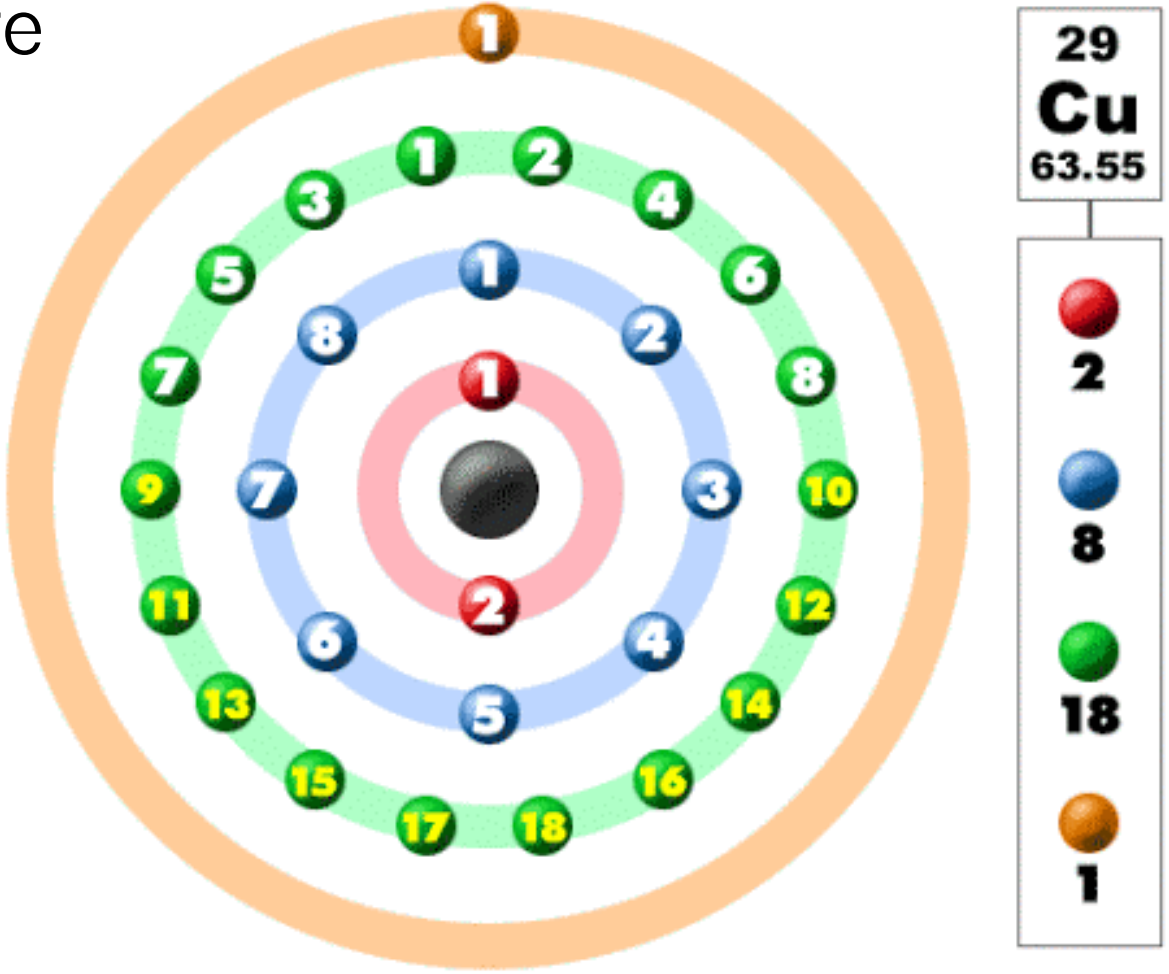
1. Antimicrobial Surfaces
2. Automated Cleaning of Surfaces
3. Surface Avoidance

Antimicrobial Surfaces

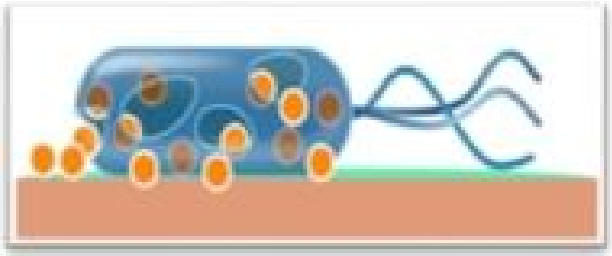
How long viruses can survive on surfaces

Copper

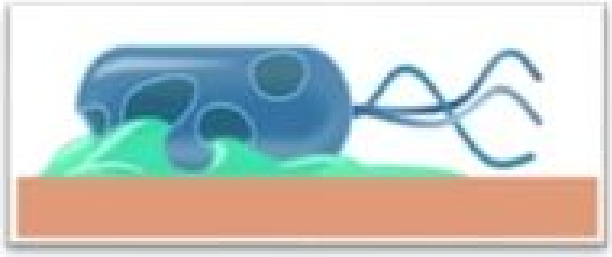
Orbital Structure



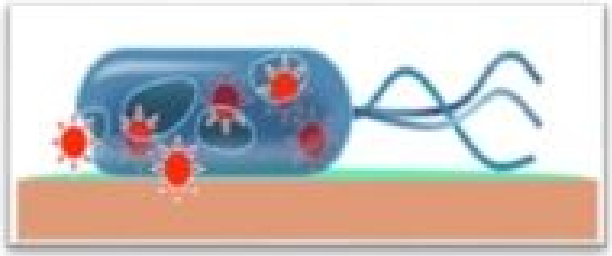
Copper's unique properties



A. Copper ions on the surface are recognized as an essential nutrient, and enter the cell



B. A lethal dose of copper ions interferes with normal cell functions and membrane integrity



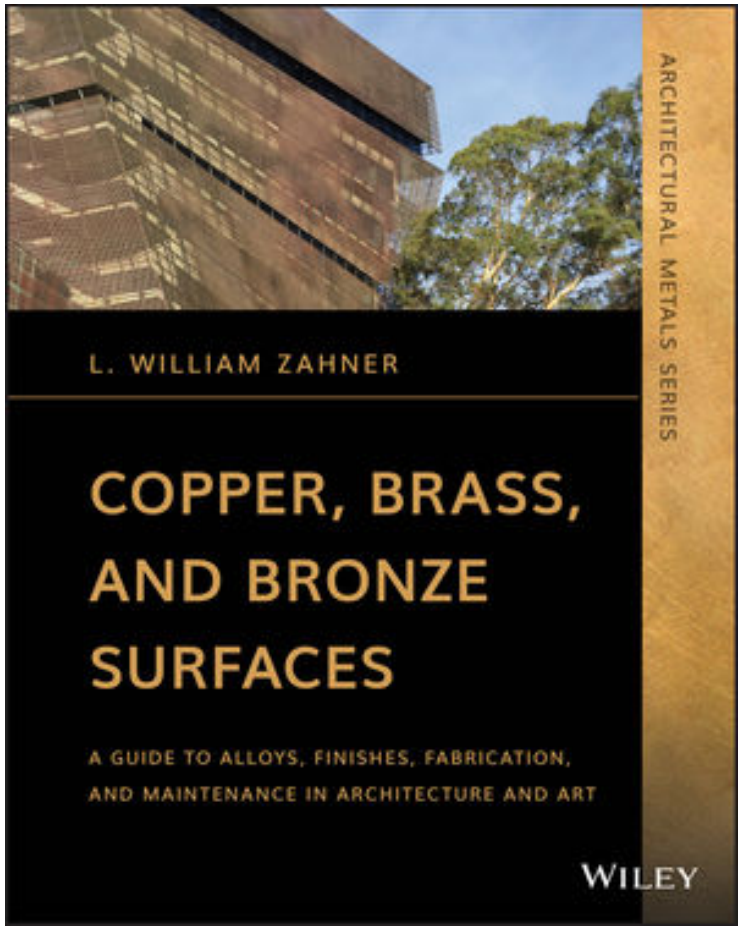
C. Copper ions impede cell respiration/metabolism, sometimes causing DNA damage

Just make EVERYTHING copper?

Maybe just high touch surfaces

Coper alloys

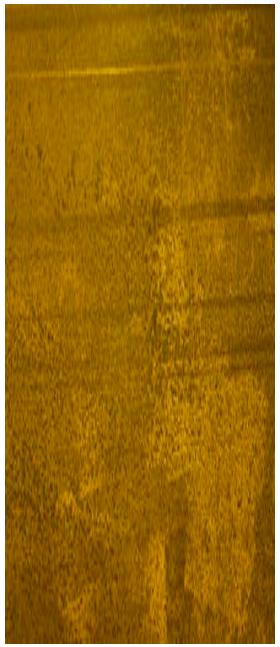
A. Zahner Company

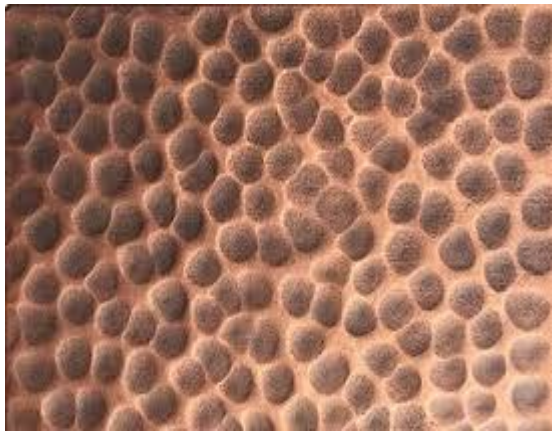


"In the last several decades there has been substantial testing on the efficacy of various surfaces and wipes to eliminate harmful bacteria. Copper and copper alloys have performed extremely well."

– Bill Zahner

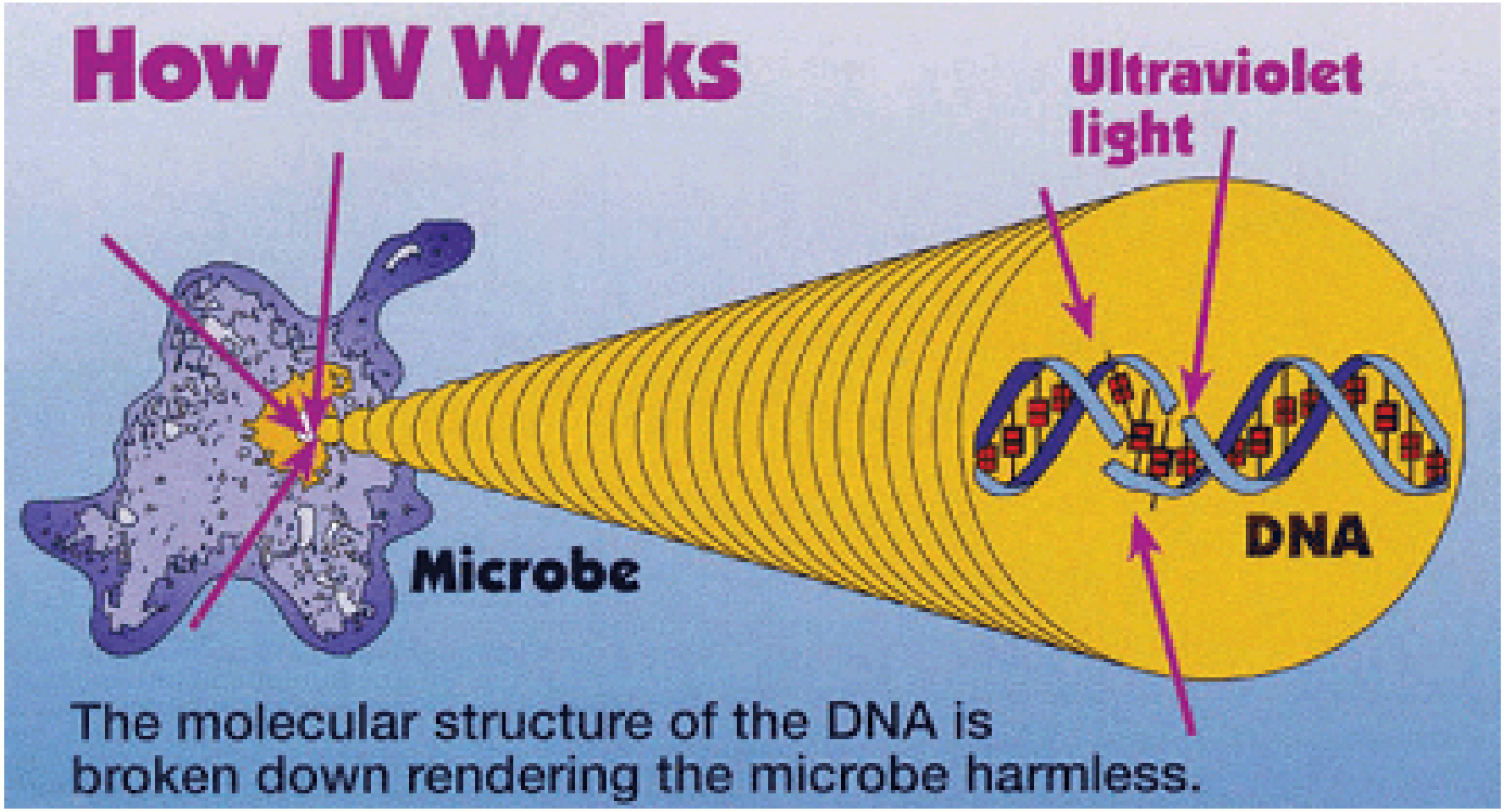
Copper can be beautiful





2. Automated Cleaning of Surfaces

UV-C Light


How UV Works
Ultraviolet light
Microbe
DNA
The molecular structure of the DNA is broken down rendering the microbe harmless.

Dimer

GermFalcon

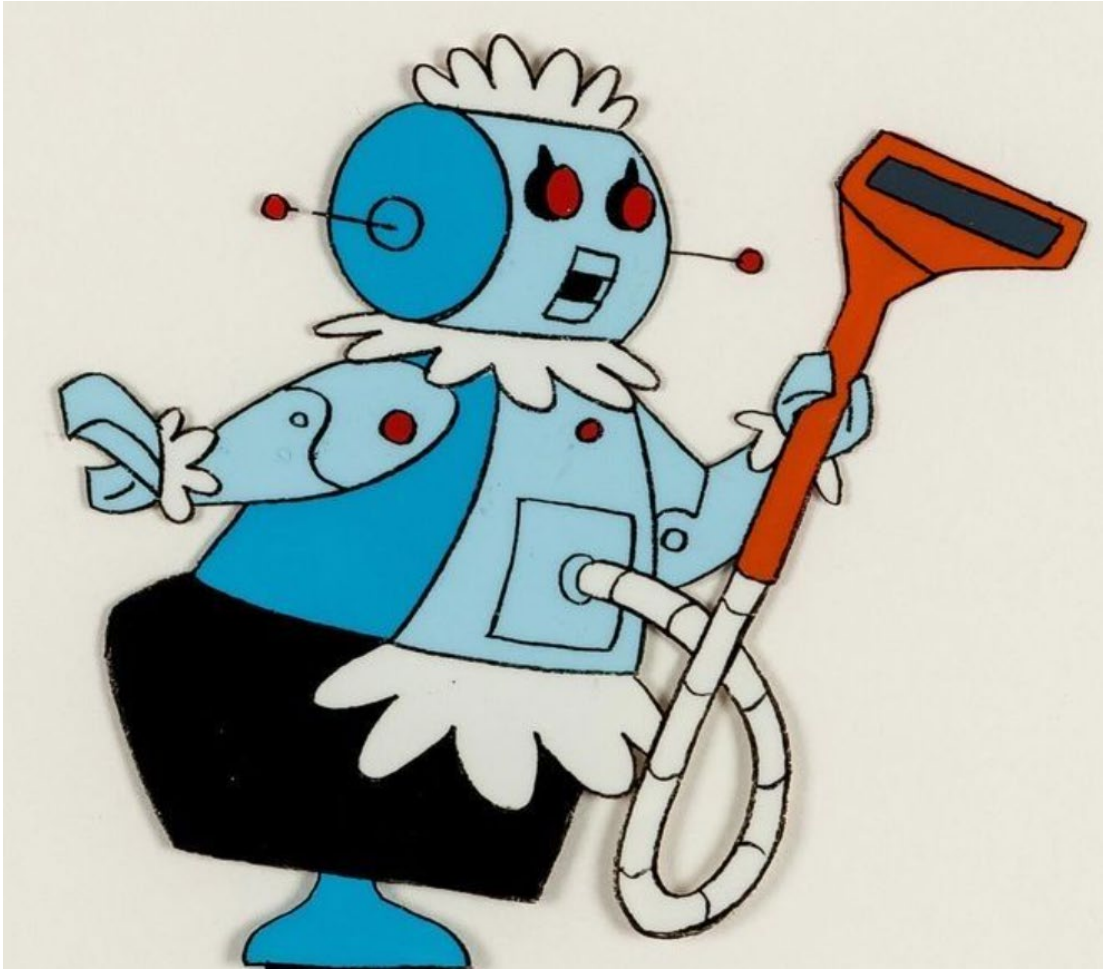
Self Cleaning Restrooms

Boeing has piloted this idea

Self Cleaning Restrooms

Could these be implemented in schools

Maybe Robots Can Help?



Roomba

CleanseBot

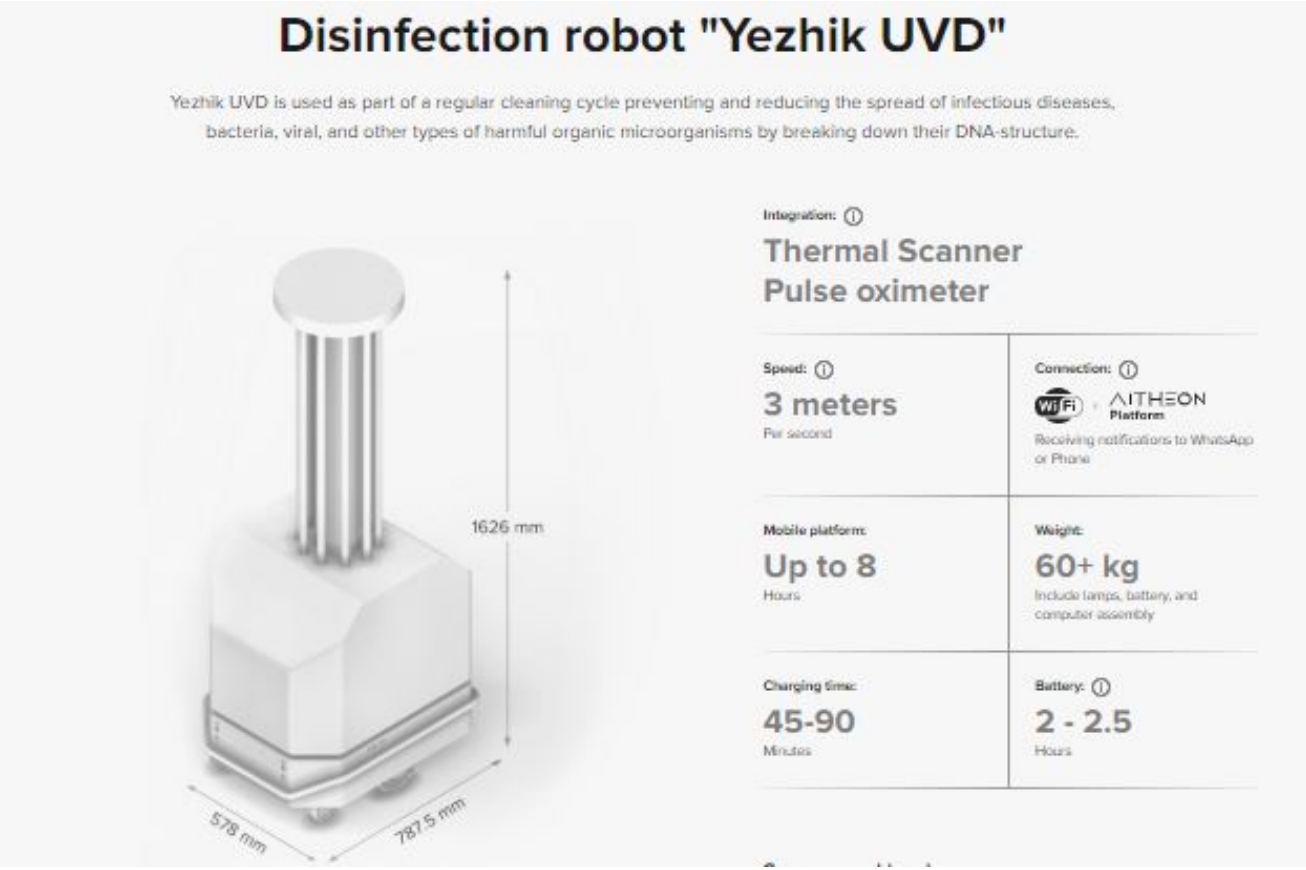
Cleans furniture with UV Light

UV Light Robots

Already being used in hospitals

UV Light Robots

Yezhik UVD



Drones with UV Light

Aertos 120-UVC Indoor Disinfection Drone

Window Washing Robots

Wash vertical surfaces

3. Surface Avoidance

Limiting Physical Contact

Use sanitary devices

TOUCHSCREENS

BUTTONS

Limiting Physical Contact

Hands free door operators

Limiting Physical Contact

Technology can be used to operate doors

Hands Free Door Opener

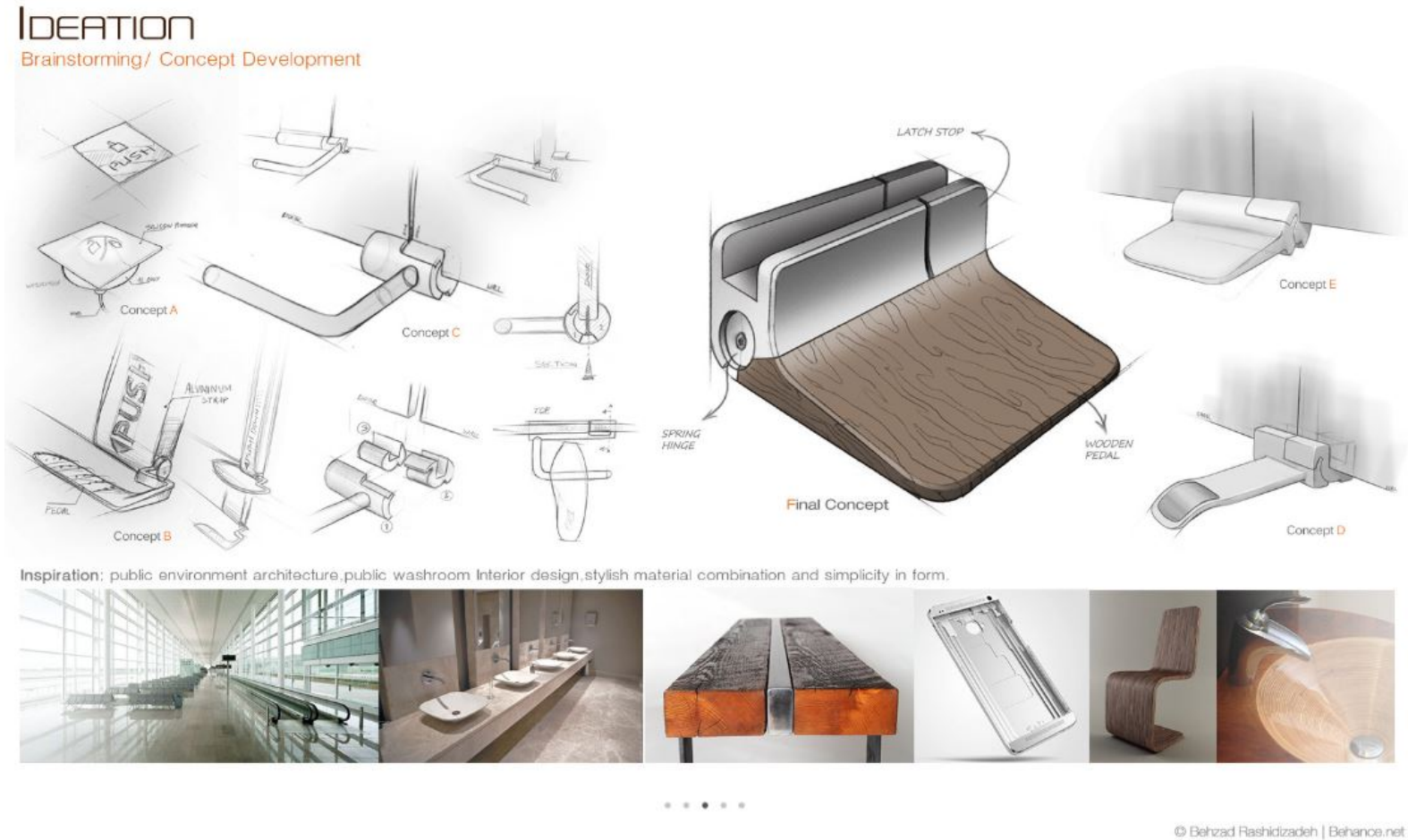
Hands Free Door Opener

Hands Free Door Opener

Foot Latch

Hands Free Door Opener

Foot Latch



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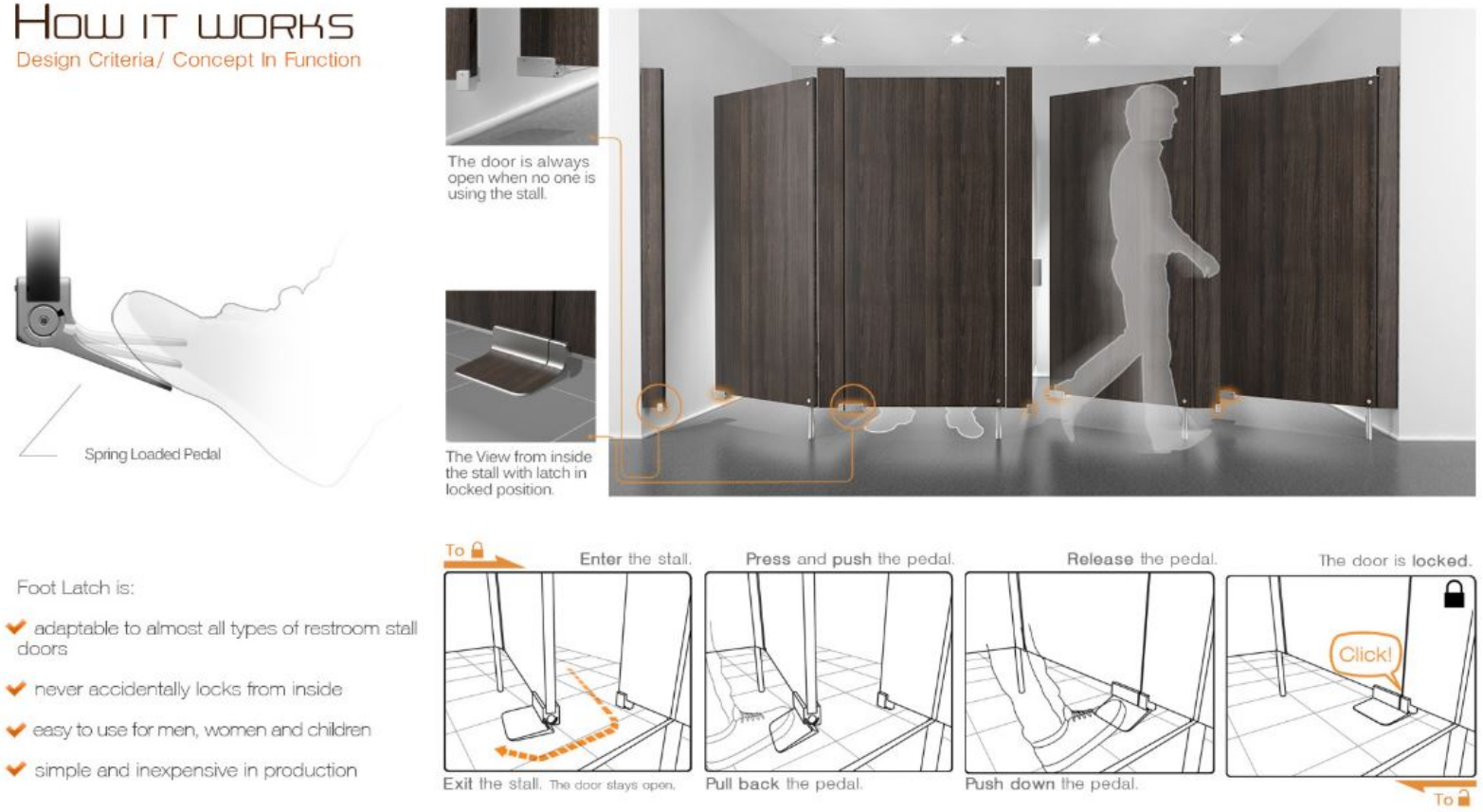
DS ARCHITECTURE

AIA Ohio Safe Schools Charrette

Learning Environments in a Post-Covid-19 World

Hands Free Door Opener

Foot Latch



Hands Free Door Opener

Foot Latch

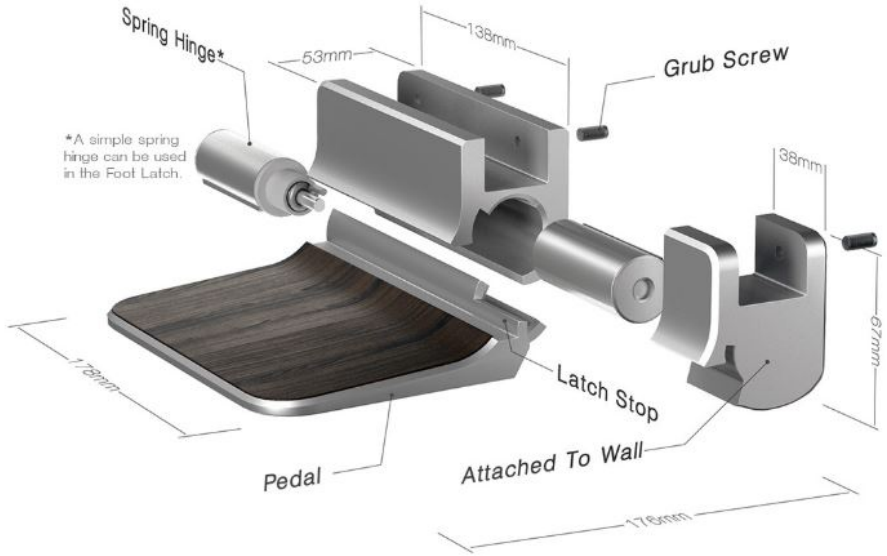
Concept Details

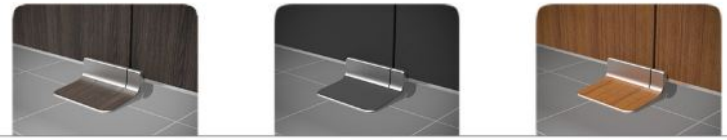
Dimension/ Parts/ Material

The simple, one piece design makes Foot Latch cost-effective in production and easy to install.

Materials:

- Anodized Aluminum 6000 Series
- Stainless Steel
- Wood / Recycled Rubber*





*By replacing the surface,Foot Latch can match any door with any color and material.

References

Copper: https://www.smithsonianmag.com/science-nature/copper-virus-kill-180974655/

A. Zahner Company: https://www.azahner.com/contact

UV Light: https://www.bbc.com/future/article/20200327-can-you-kill-coronavirus-with-uv-light

Dimer Germ Falcon: https://www.dimeruv.com/

Aitheon Yezhik UVD https://aitheon.com/medical-robots

UV Drone: https://digitalaerolus.com/aertos-120-uvc-disinfection-drone/

Window Washing Robots: https://cleanup.expert/window-cleaning-robots/

Clean Key: https://www.getkeysmart.com/products/cleankey

Foot Latch: https://behzadrashidi.com/foot-latch

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DS ARCHITECTURE

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AIA OHIO
School Safety

COVID-19
School Survival Guide
V2 – 6/25/20

TEAM
STEPHEN GASTRIGHT
DOUG MARSH
LYNN ZUCH
NOAH PENNEKAMP

KZF DESIGN
Designing Better Futures

Vision

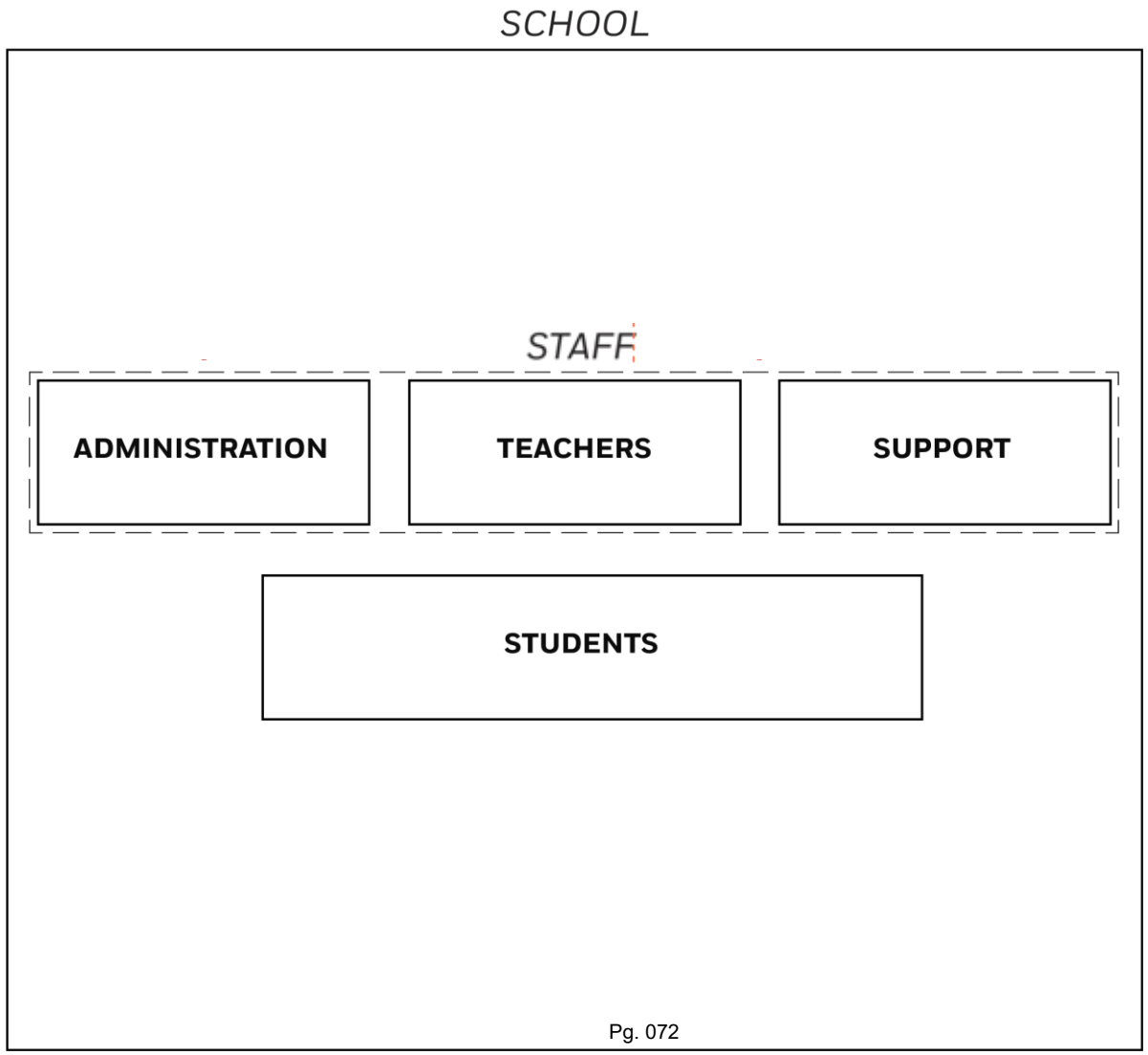
?

BRIDGE TO FUTURE?

MITIGATION TO “NORMALCY”?

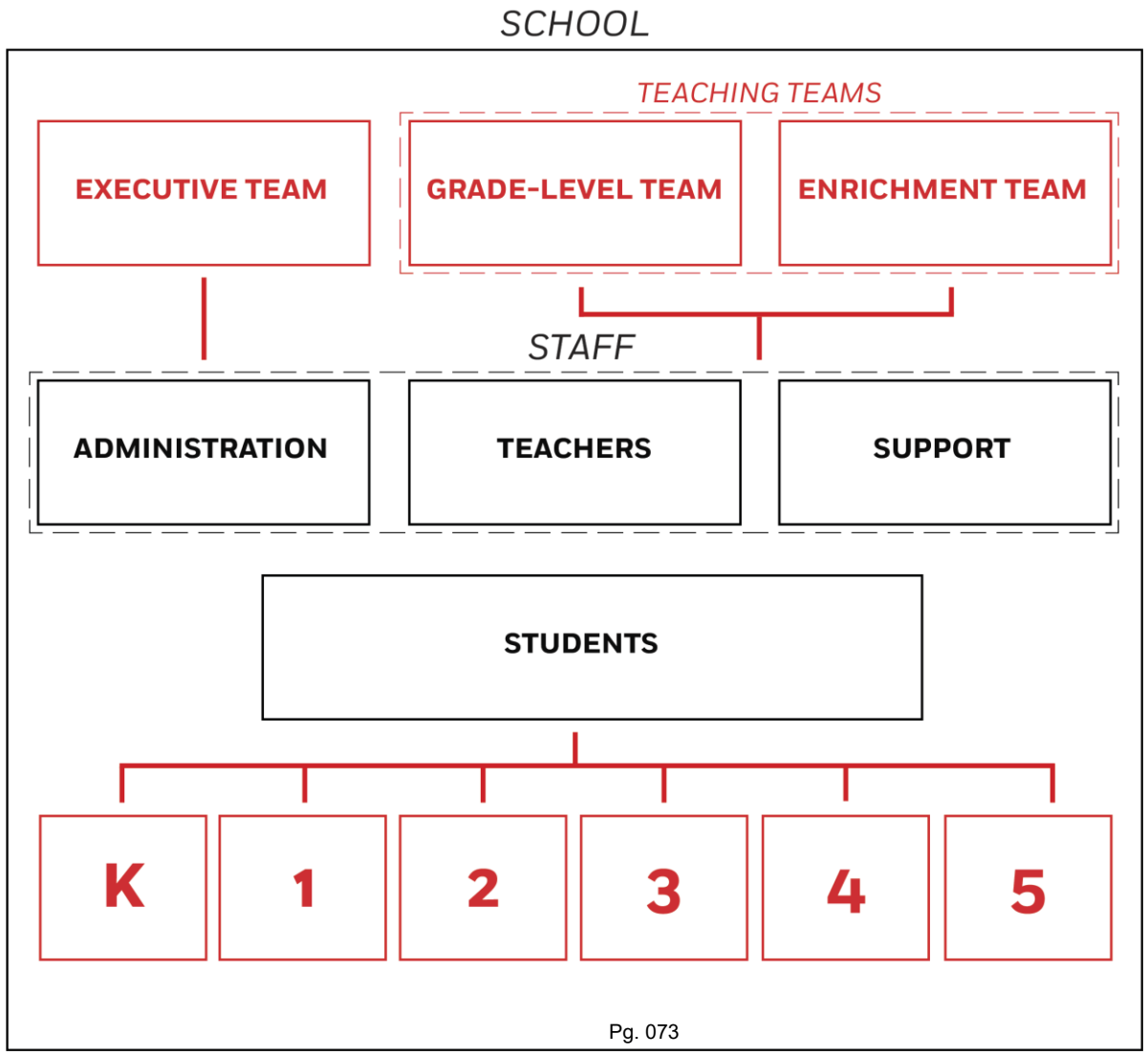
KZF DESIGN

Design Leadership Teams



KZF DESIGN

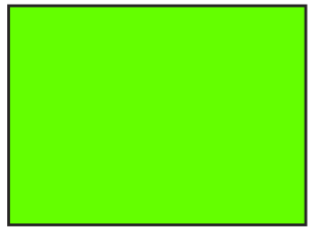
Design Leadership Teams



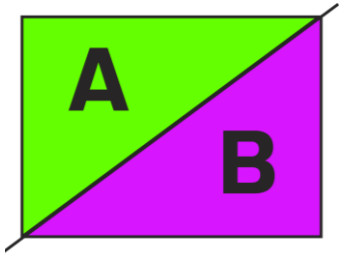
KZF DESIGN

Executive Team – Set Goals and Constraints

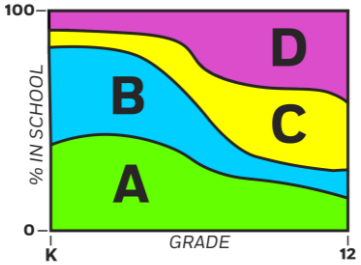
- Create a safe environment - Guidelines
- Start with learning – Quality over quantity
- Maximize Face-to-face learning
- Provide all services
- Work with existing facilities and staff
- Optimize student “experience”
- Student Enrollment and Family Survey



DAILY, FULL-TIME FOR ALL



SPLIT SCHEDULE

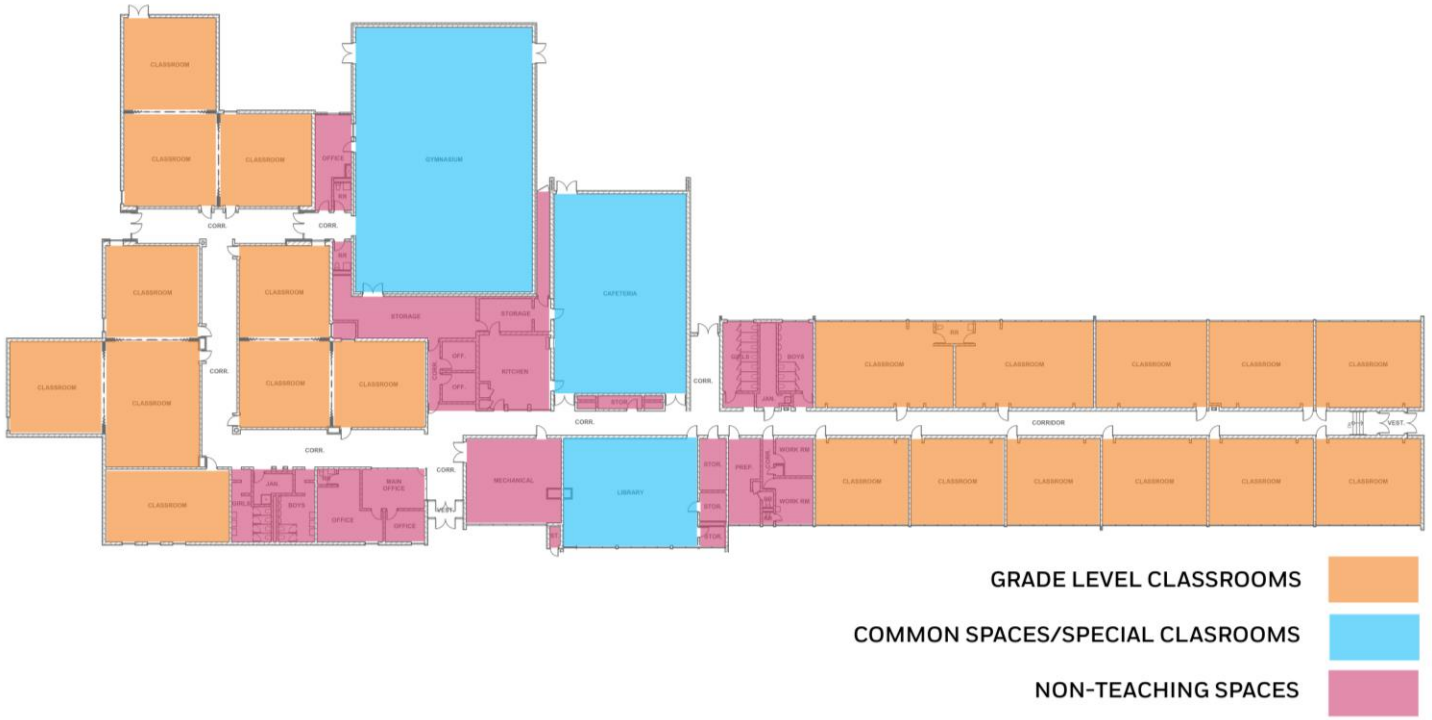


NEEDS-BASED SCHEDULE

KZF DESIGN

Executive Team – Categorize Space

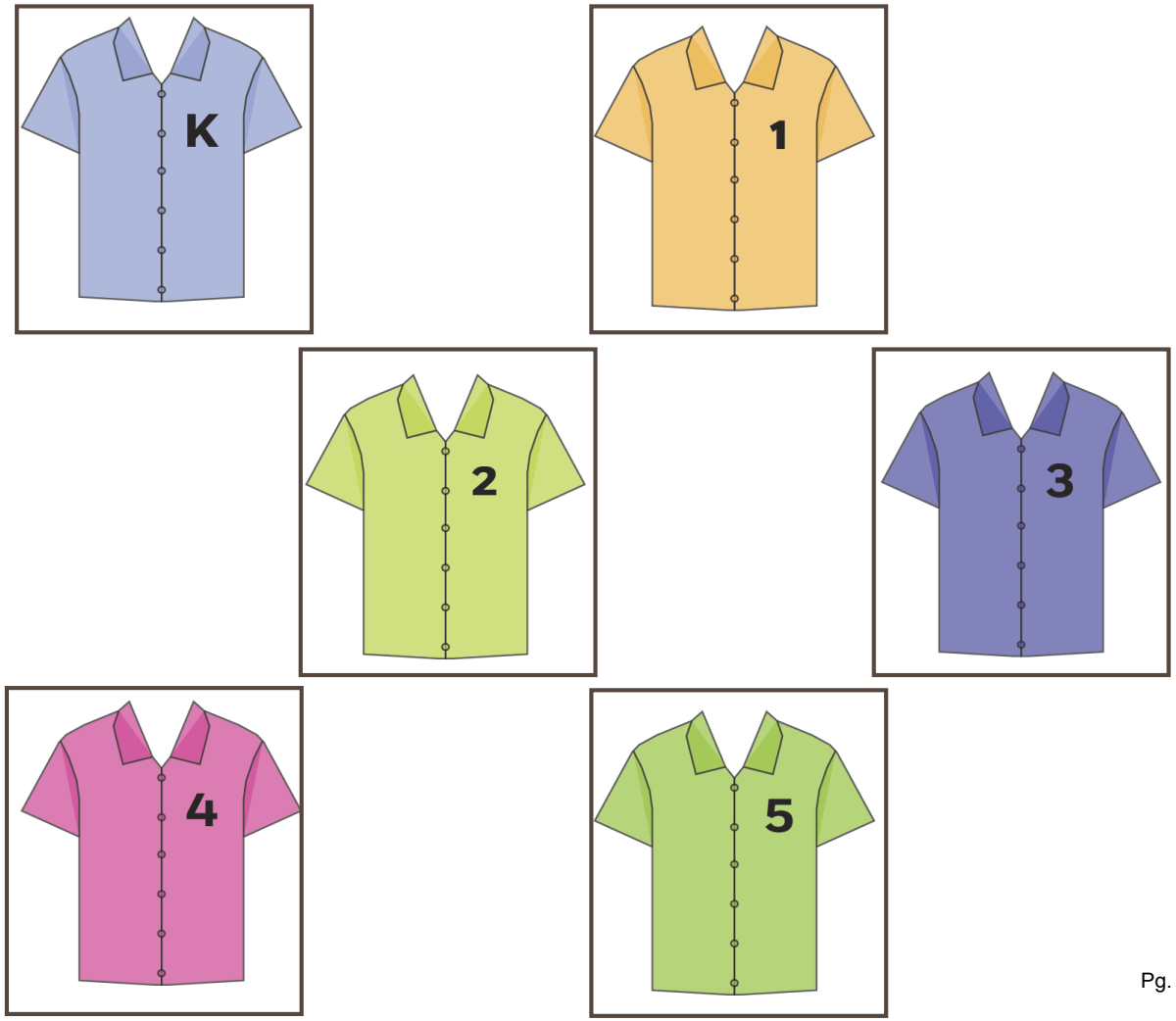
- Classroom space contains less students unless mask wearing is required during class
- Therefore, larger open spaces will be needed to accommodate students not in the classroom



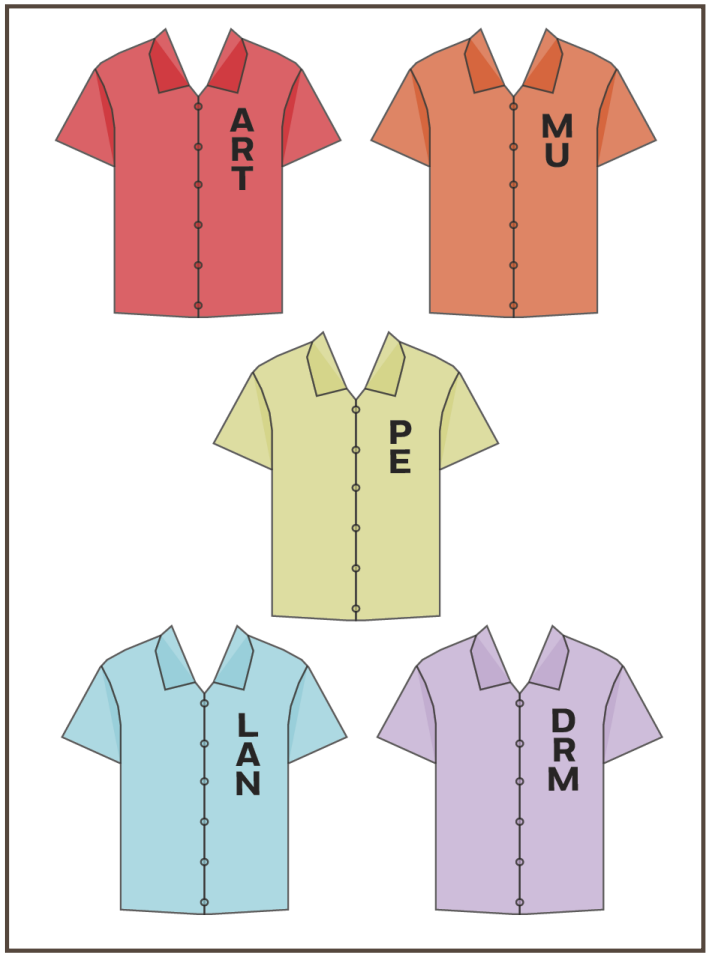
KZF DESIGN

Executive Team – Design Teaching Teams

GRADE-LEVEL TEAMS (1 per Grade)



ENRICHMENT TEAM



KZF DESIGN

Teaching Teams – Start with Learning

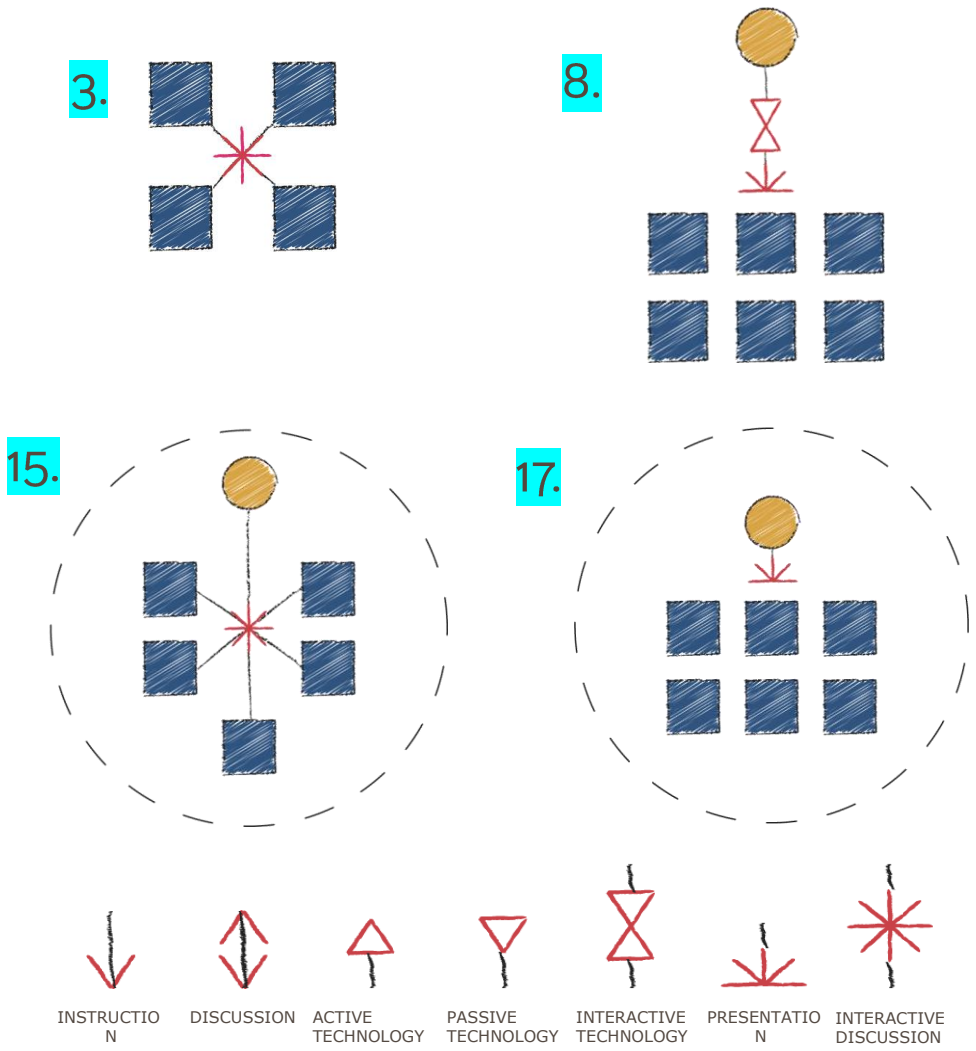
KZF DESIGN

Teaching Teams – Design Learning Modes

List of 20 Learning Modalities

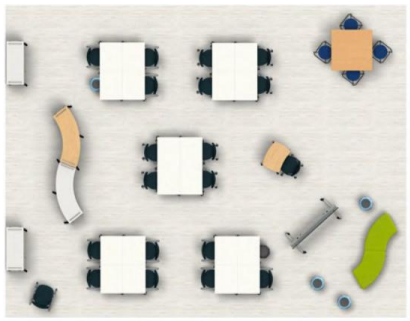
1. Independent study
2. Peer tutoring
3. Team collaboration
4. One-on-one learning with teacher
5. Lecture format - teacher-directed
6. Project-based learning
7. Technology with mobile computers
8. Distance learning
9. Internet-based Research
10. Student Presentation
11. Performance-based learning
12. Seminar-style Instruction
13. Inter-disciplinary learning
14. Naturalist learning
15. Social / emotional / spiritual learning
16. Art-based learning
17. Storytelling
18. Design-based learning
19. Team teaching/learning
20. Play-based learning

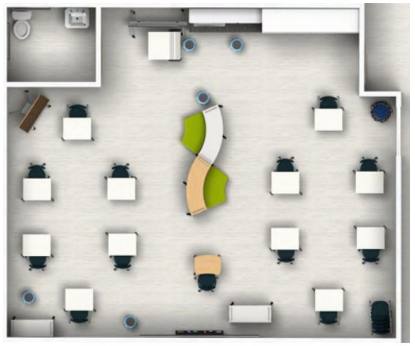
- The Language of School Design, Nair, Fielding, & Lackney, 2005

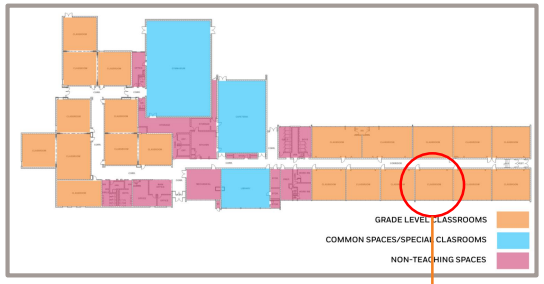


KZF DESIGN

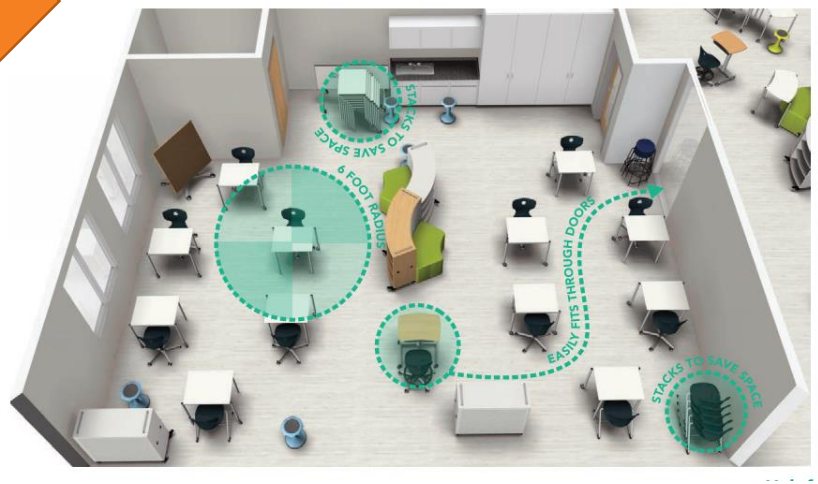
Grade-Level Teams – Classroom Capacity







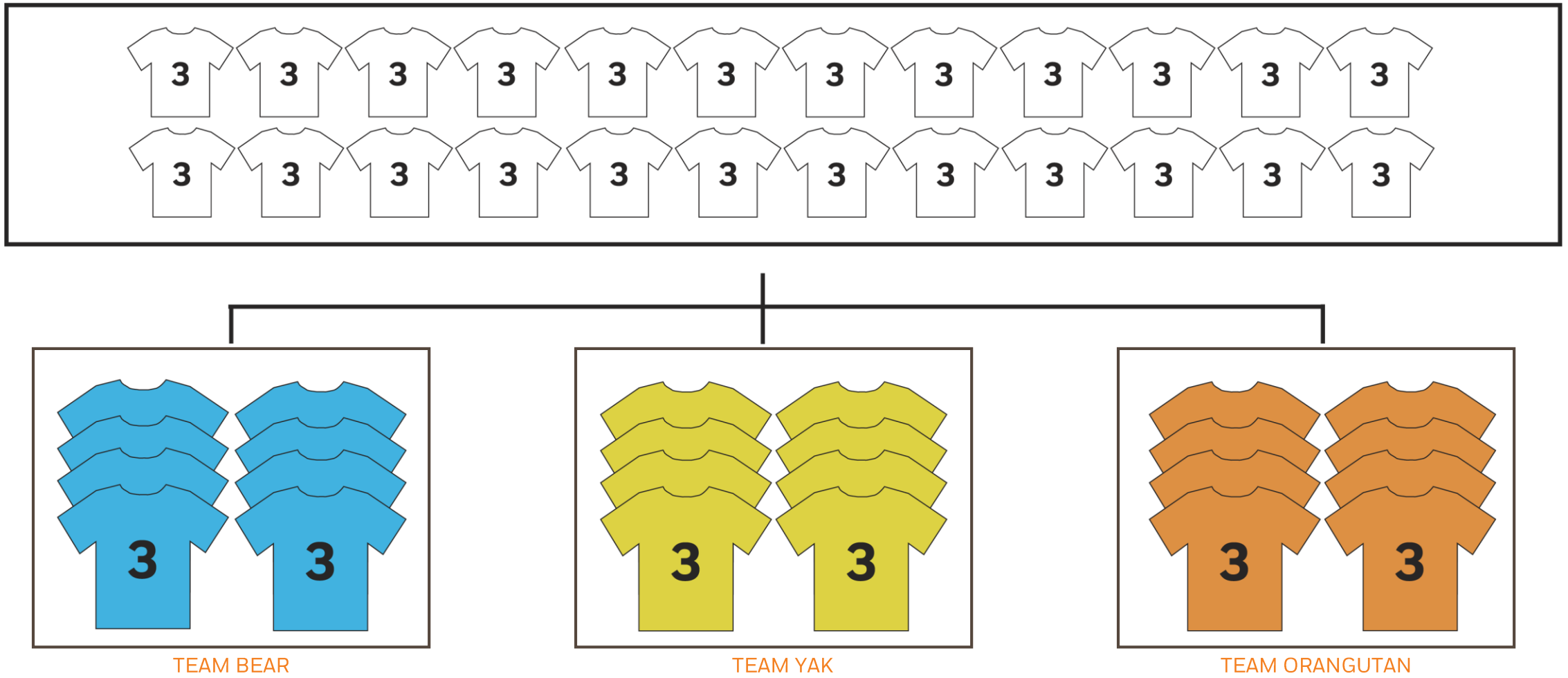
CLASSROOMS



- VS, Physical Distancing Thought Starters, 2020

KZF DESIGN

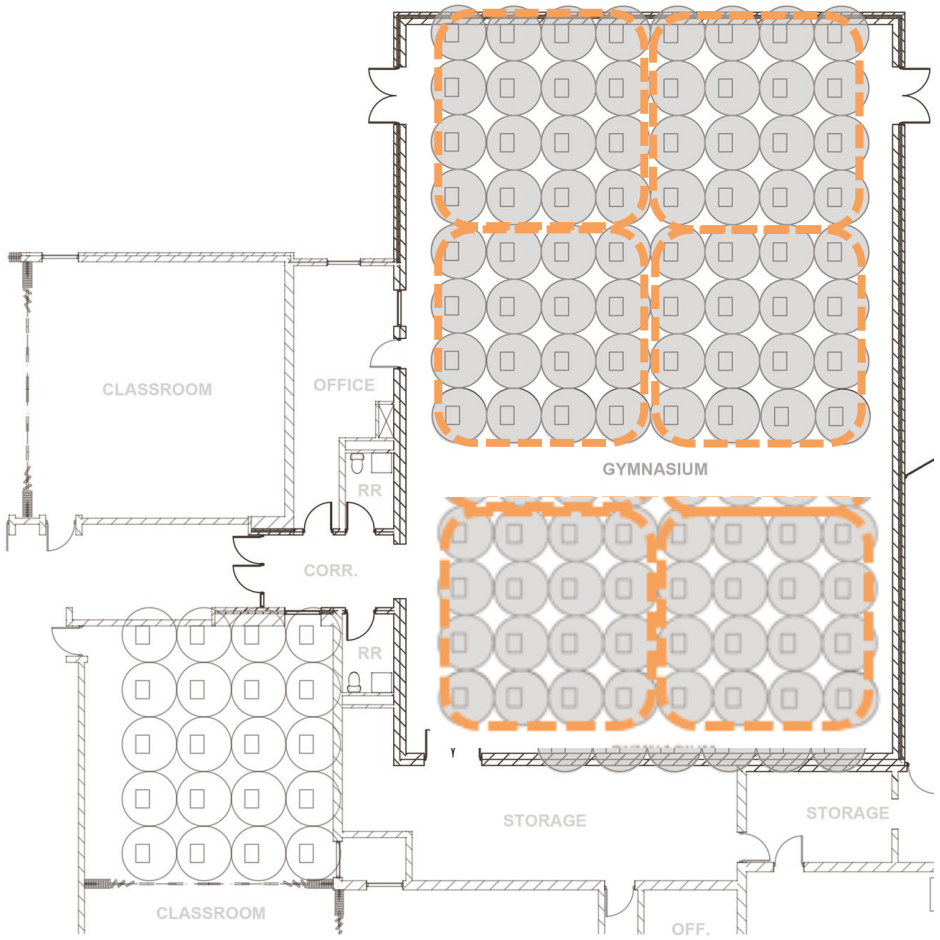
Grade-Lvl Teaching Teams – Design Learning Teams

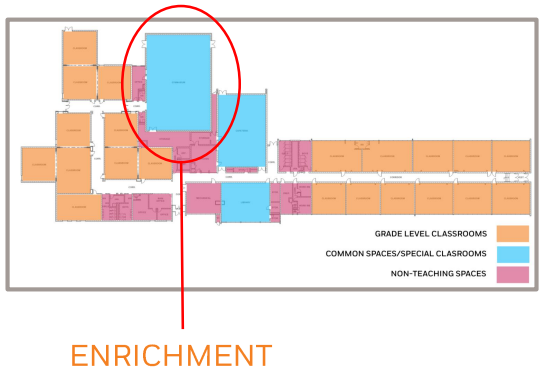


KZF DESIGN

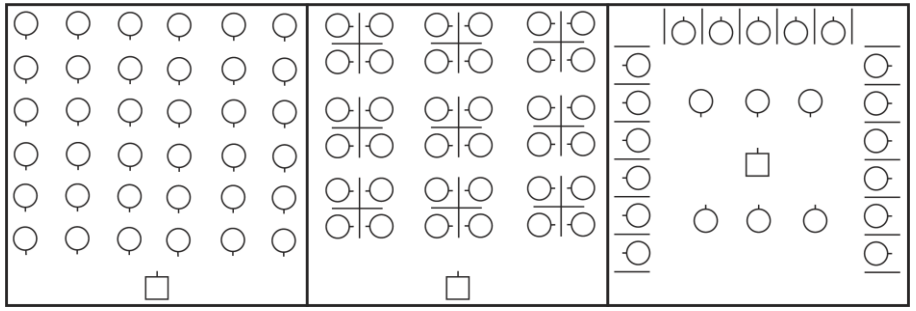
KZF DESIGN

Enrichment Teaching Team – Design Enrichment Capacity





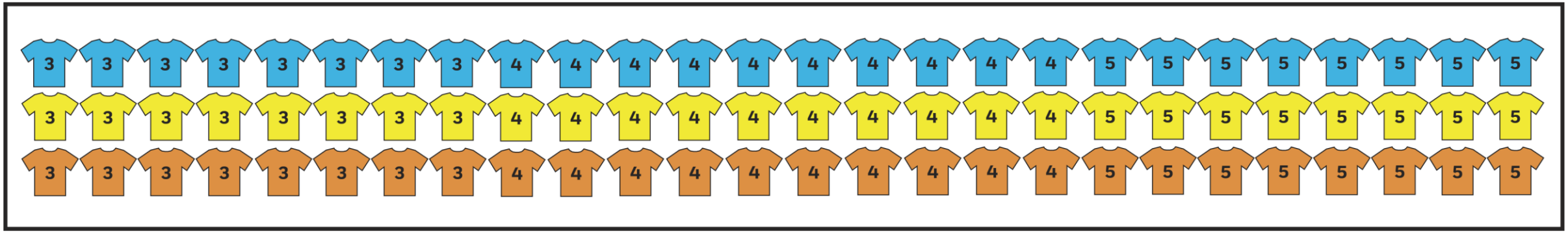
ENRICHMENT

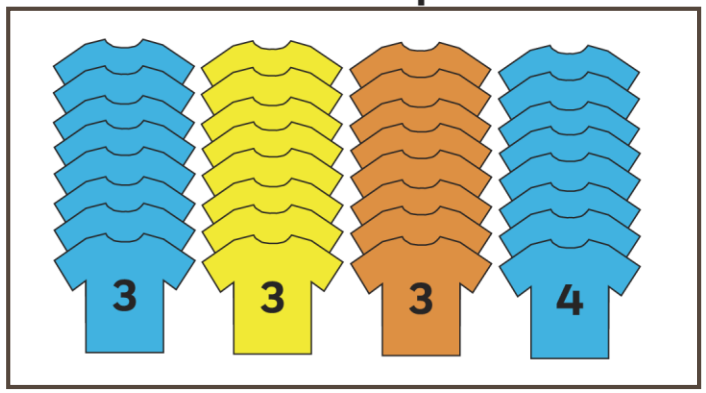


ENRICHMENT LEARNING MODES

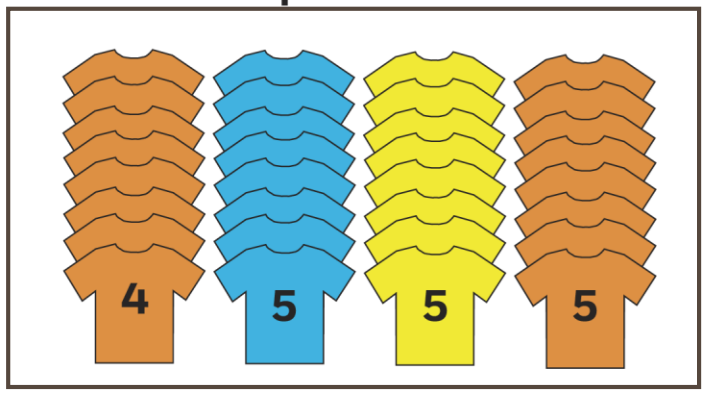
KZF DESIGN

Enrichment Teaching Team – Design Enrichment Teams





ENRICHMENT TEAM PICASSO



ENRICHMENT TEAM MOZART

KZF DESIGN

Enrichment Events - Community Building

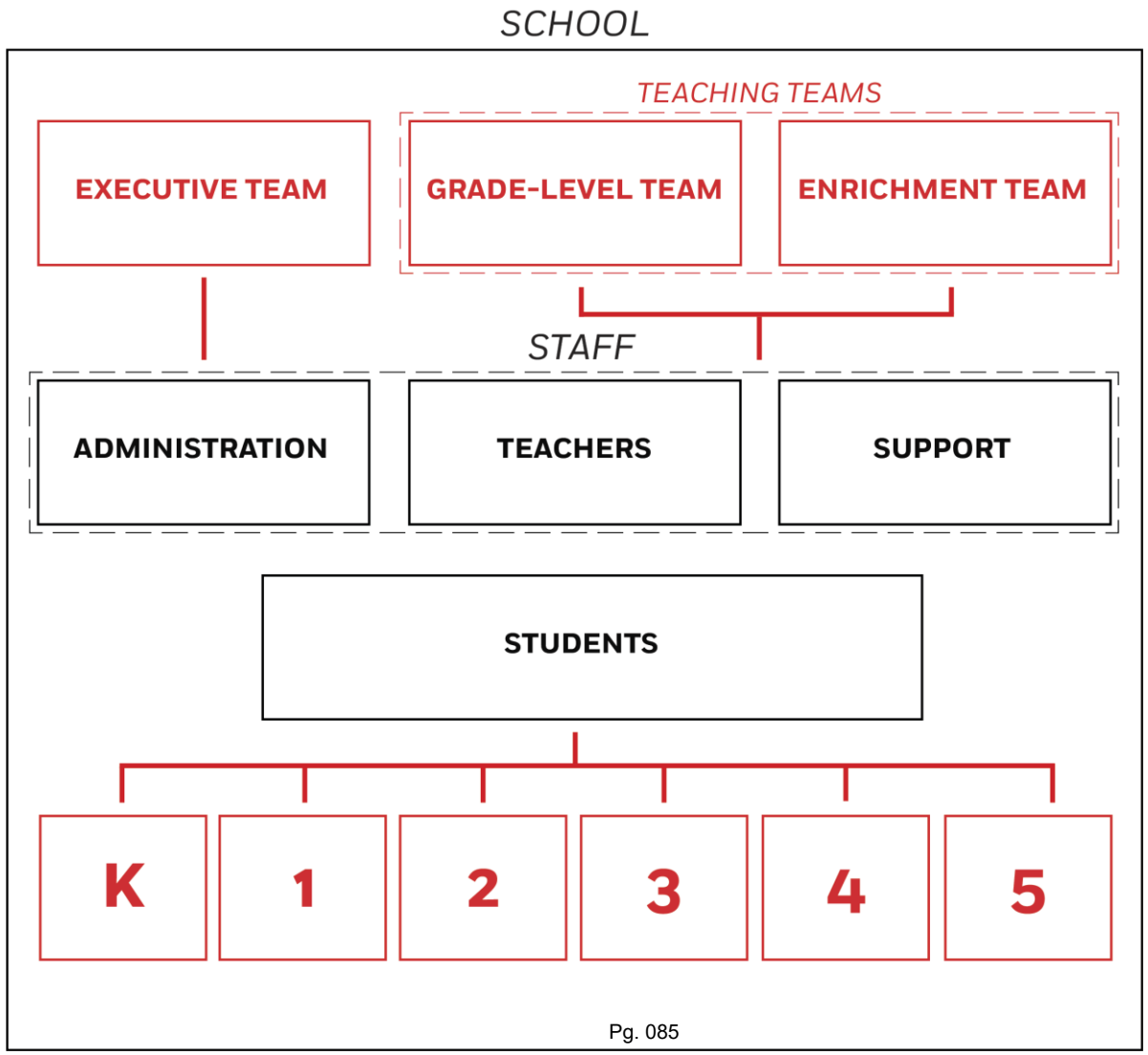
OUTDOOR

ONLINE

DISTANCED

KZF DESIGN

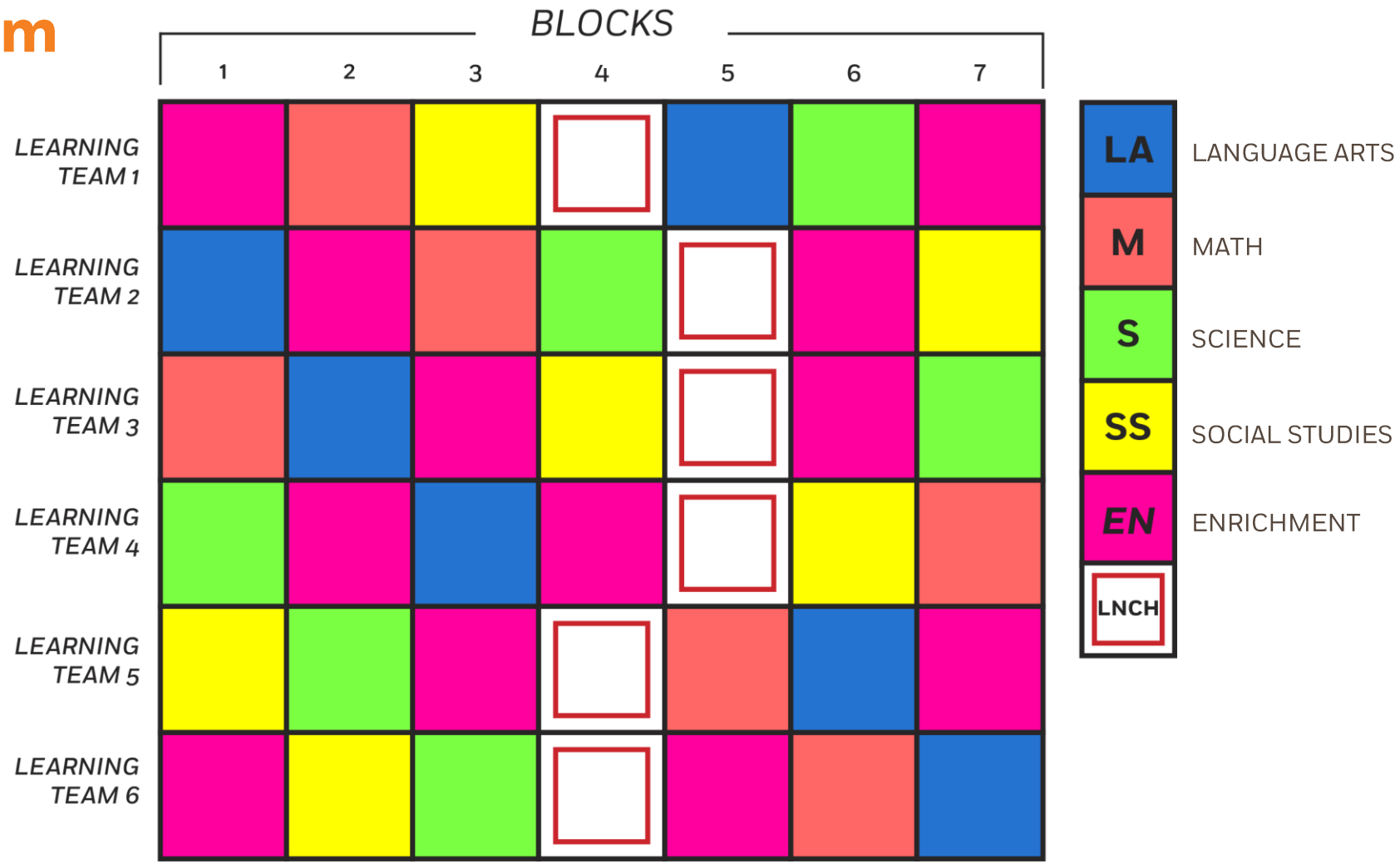
Design Master Schedule



KZF DESIGN

Executive Team – Design Master Schedule

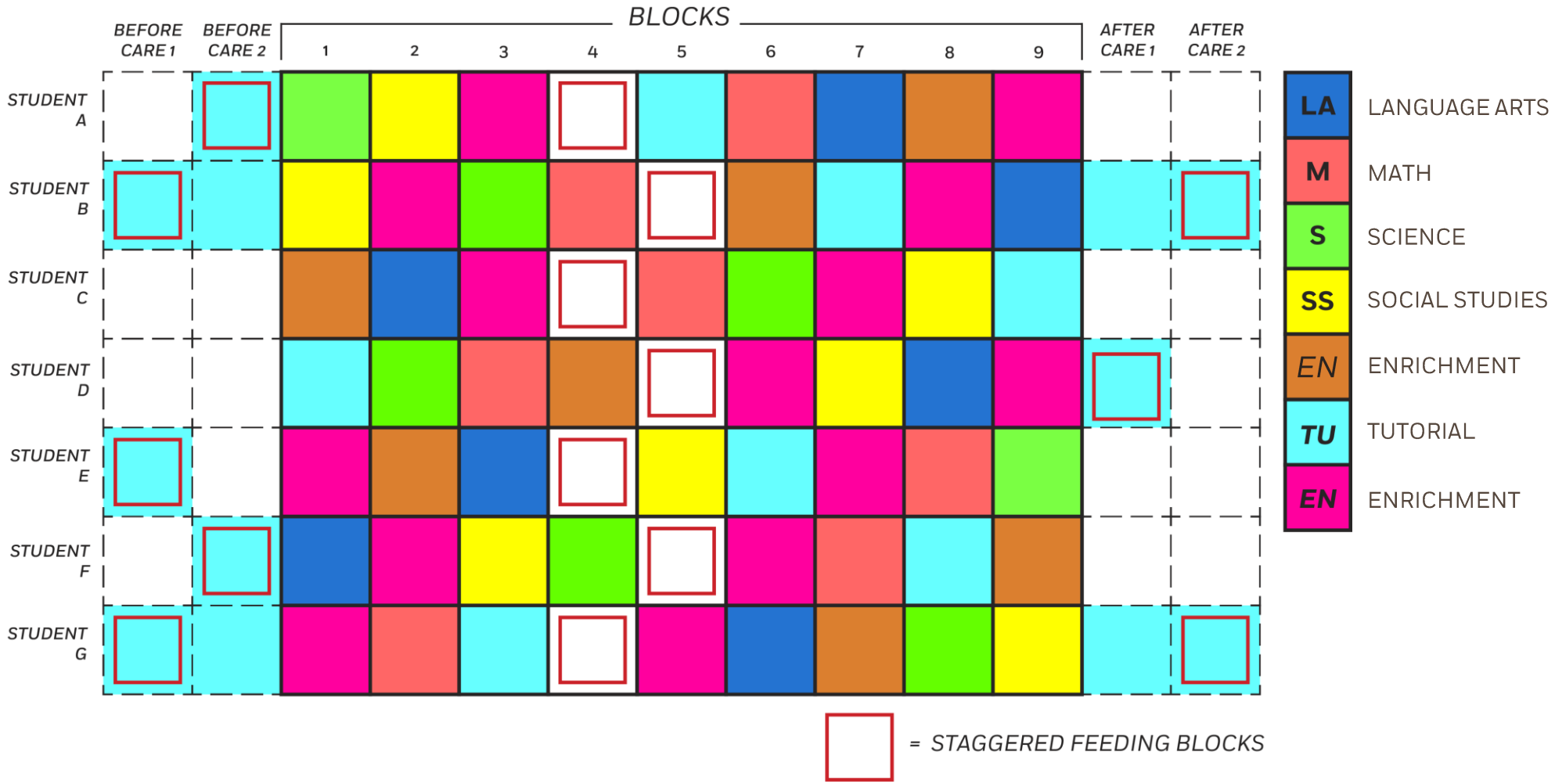
- By Learning Team



KZF DESIGN

Executive Team – Design Master Schedule

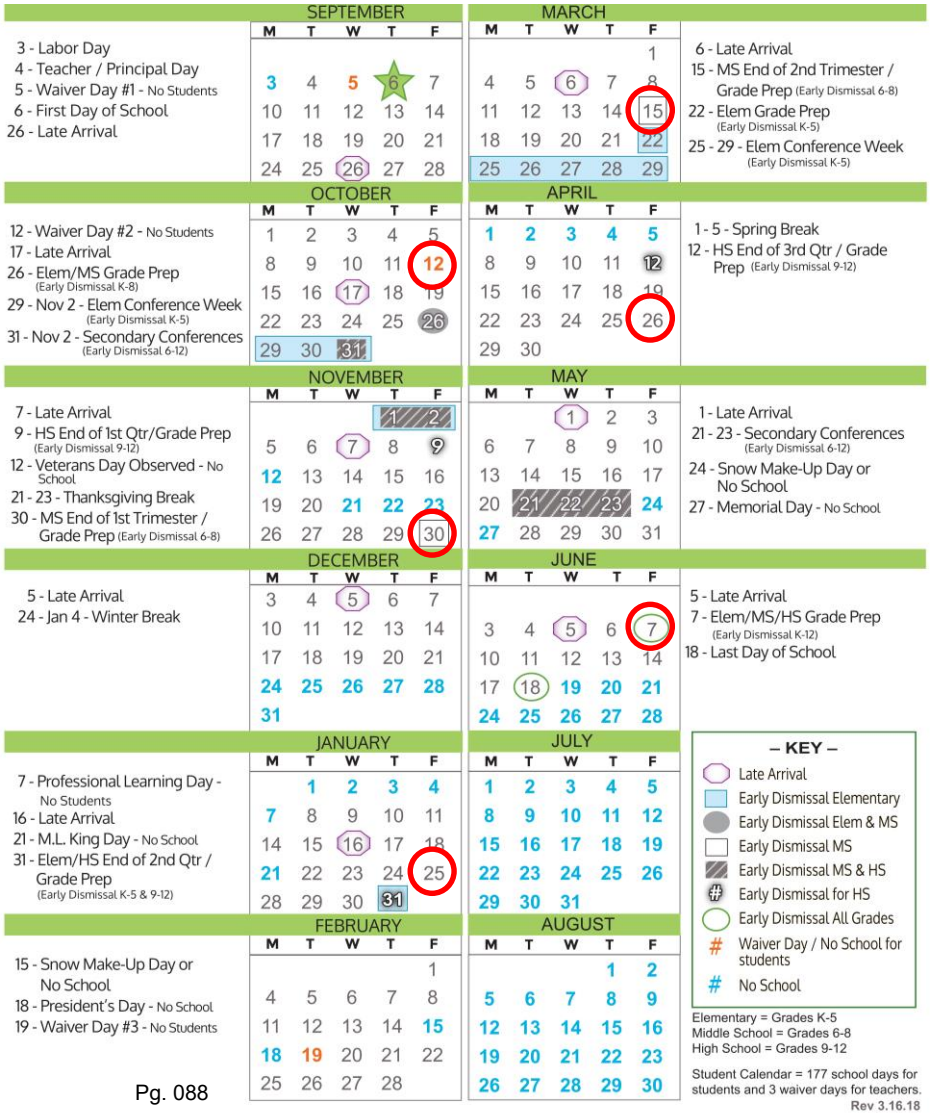
- By Student for Before/After Care and Tutorial



KZF DESIGN

Executive Team – Design Master Calendar

- Information is always changing – build intervals into Master Calendar for adjustments
- Calendar needs to accommodate A/B schedule, regular check-ins, assessments, and potential closures



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KZF DESIGN

Students – Make Hygiene Teachable

- Transition Time – Mask Up, Wash Up and Clean Up

KZF DESIGN

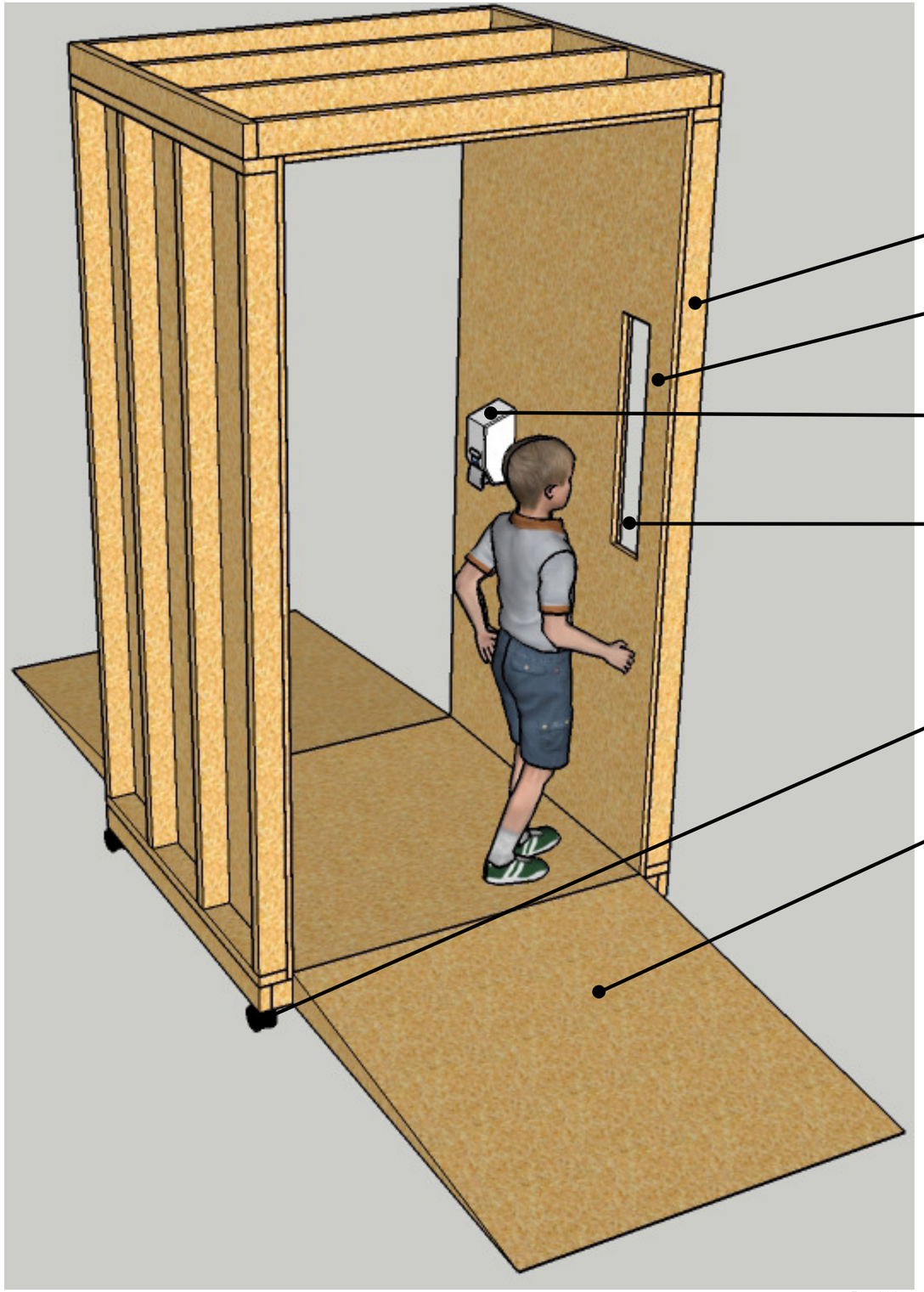
Students – Make Hygiene Teachable

- Transition Time – Mask Up, Wash Up and Clean Up

KZF DESIGN

GENERIC ELEMENTARY SCHOOL
LAW
18

The Welcome(ing) Module



2x4 stud construction

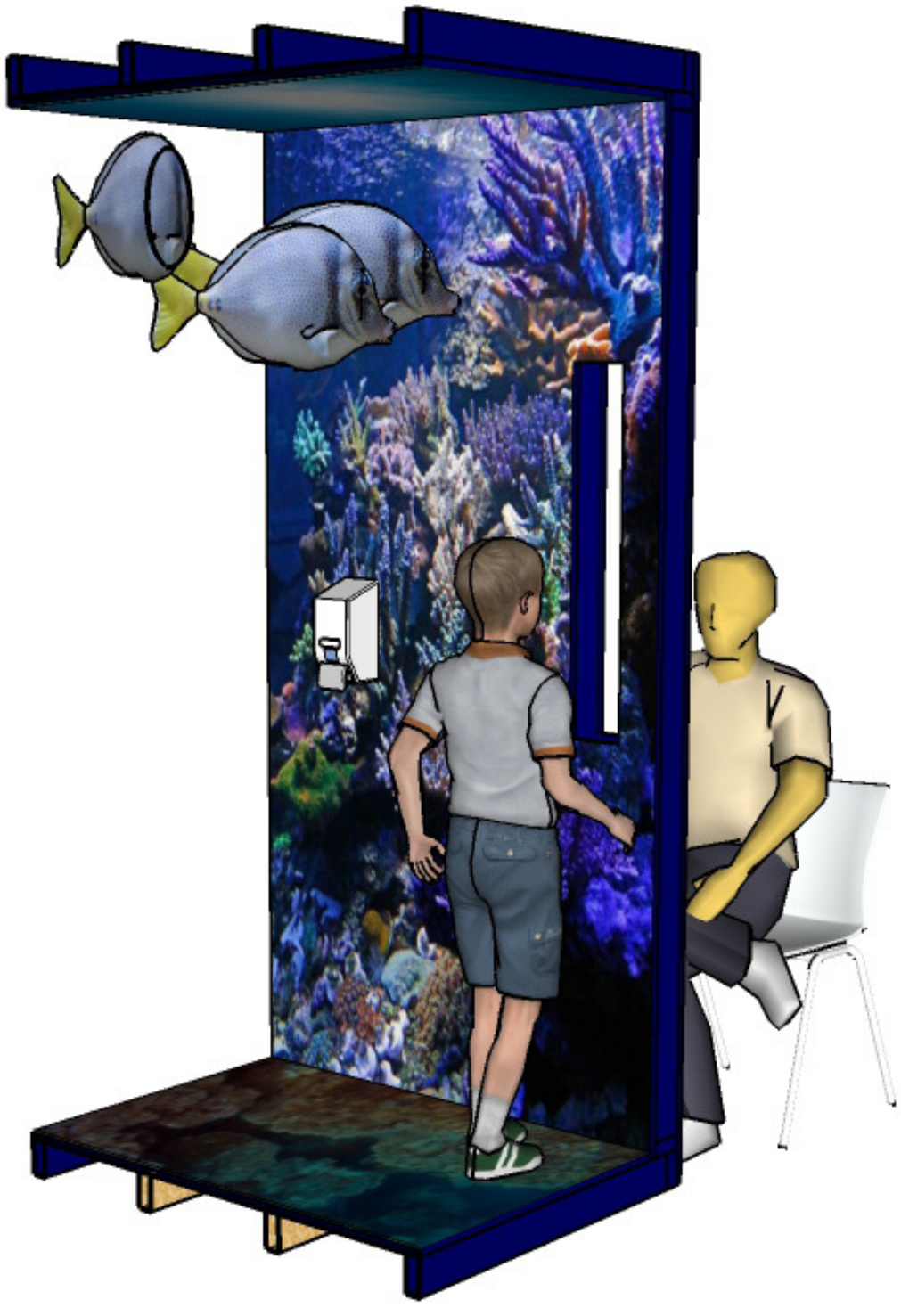
4'x 8' plywood

Hand sanitizer

Temperature check station (hole through plywood; person checking temperatures on the other side)

Optional casters for module storage

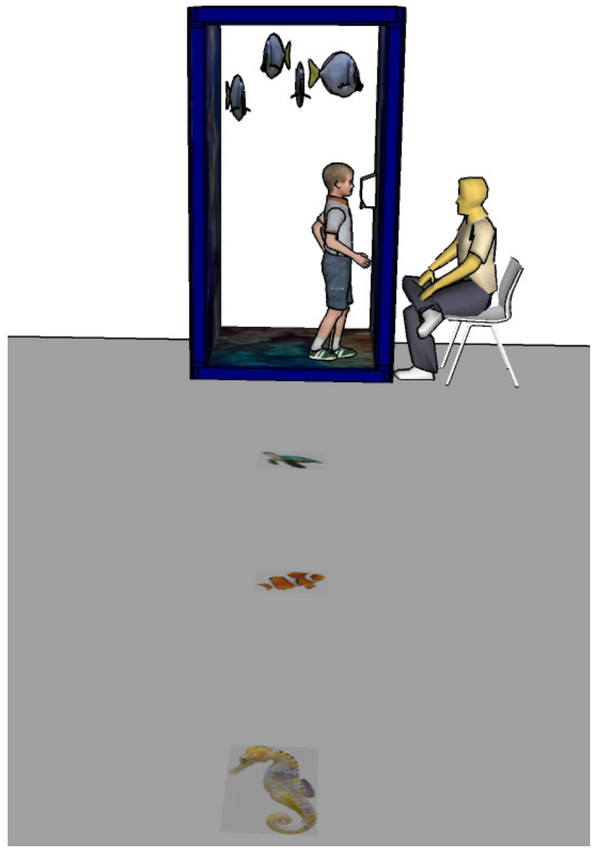
Optional ramps for ADA compliance



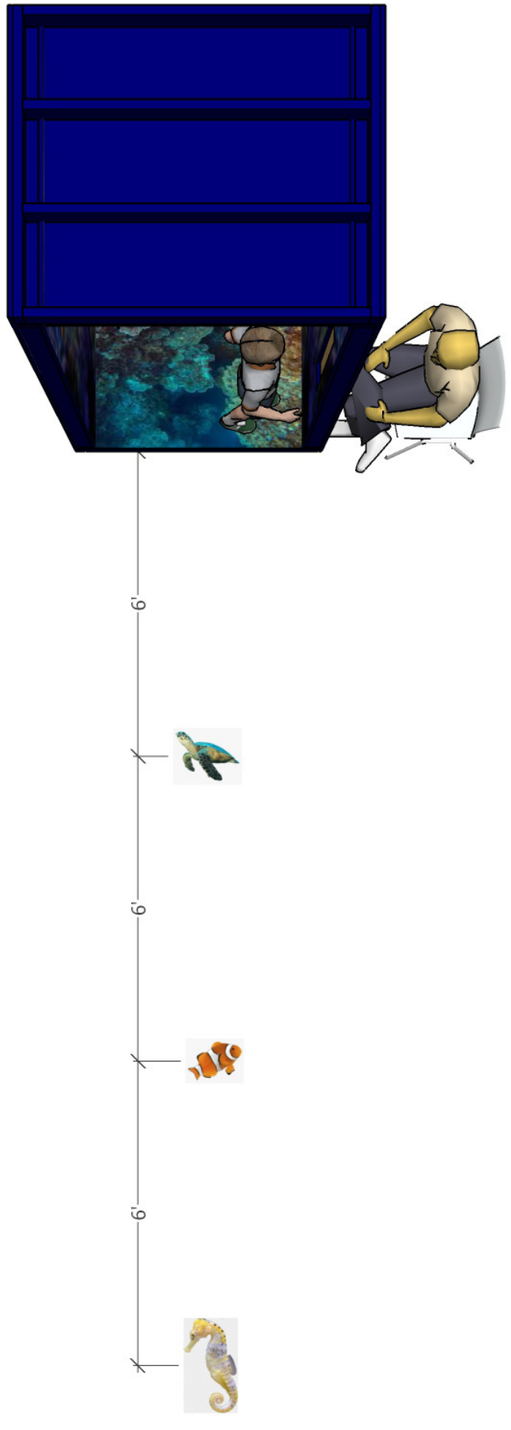
Sample Module: Elementary School

Habitat--Coral Reef theme:

- Animals from habitat 6’ apart leading to entry module
- Learning opportunity example: life size images of animals
- Music inside box: underwater theme and/or rotating student selection
- Optional lighting
- Optional hanging elements for interest, out of reach



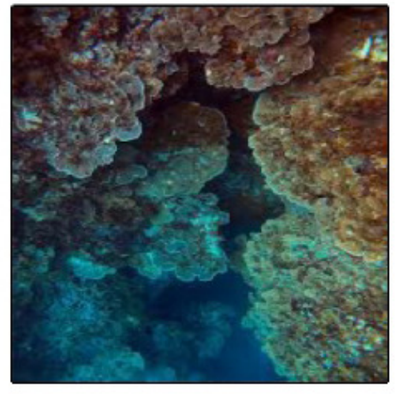
Sample Module:
Elementary School



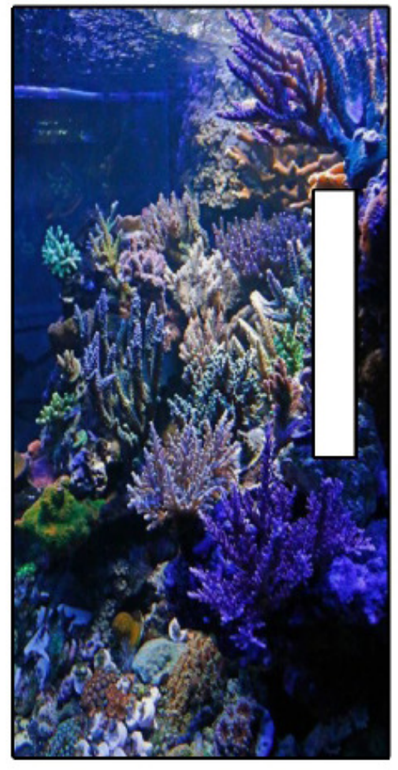
Top View of Approach

Interior: top

Interior: side



Interior: bottom



Interior: side

Unfolded Module Graphic Example

Elementary School Theme Ideas

Animals/Zoo

Underwater/Habitats

Dinosaurs

Willy Wonka/Movies

Trains/Vehicles

Sports

Outer Space

Books

Sample Module: Middle/High School

School Spirit theme:

- Two modules shown
- Slot for temperature checks
- Hand sanitizer
- Metal detector option
- Music inside, selected by students
- LED strip lighting option
- Tiger prints are spaced 6 feet apart
- Ideally: student participation in design, construction and/or painting - rotate in new modules

Locating the Modules

Outdoors

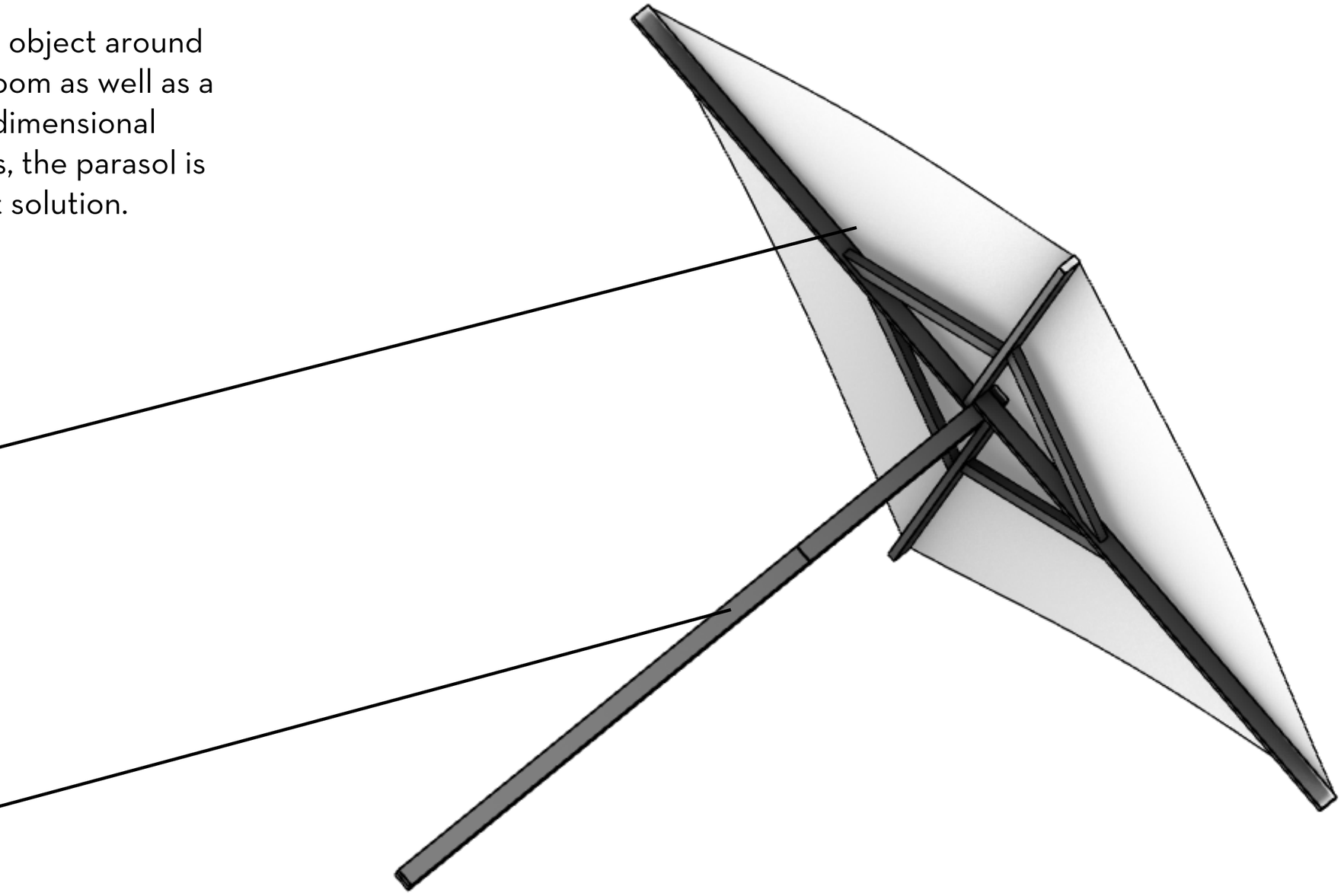
- Under existing overhang
- Under new overhang
- Exposed to weather
- Caster option for interior storage

Indoors

- Gym
- Cafeteria
- Atrium/entryway
- Central corridor/rotunda

Parasol

The parasol was developed to be an object around which to organize an outdoor classroom as well as a shade device. Constructed of 2 x 4 dimensional lumber, simple hardware, and canvas, the parasol is an affordable and simple yet elegant solution.

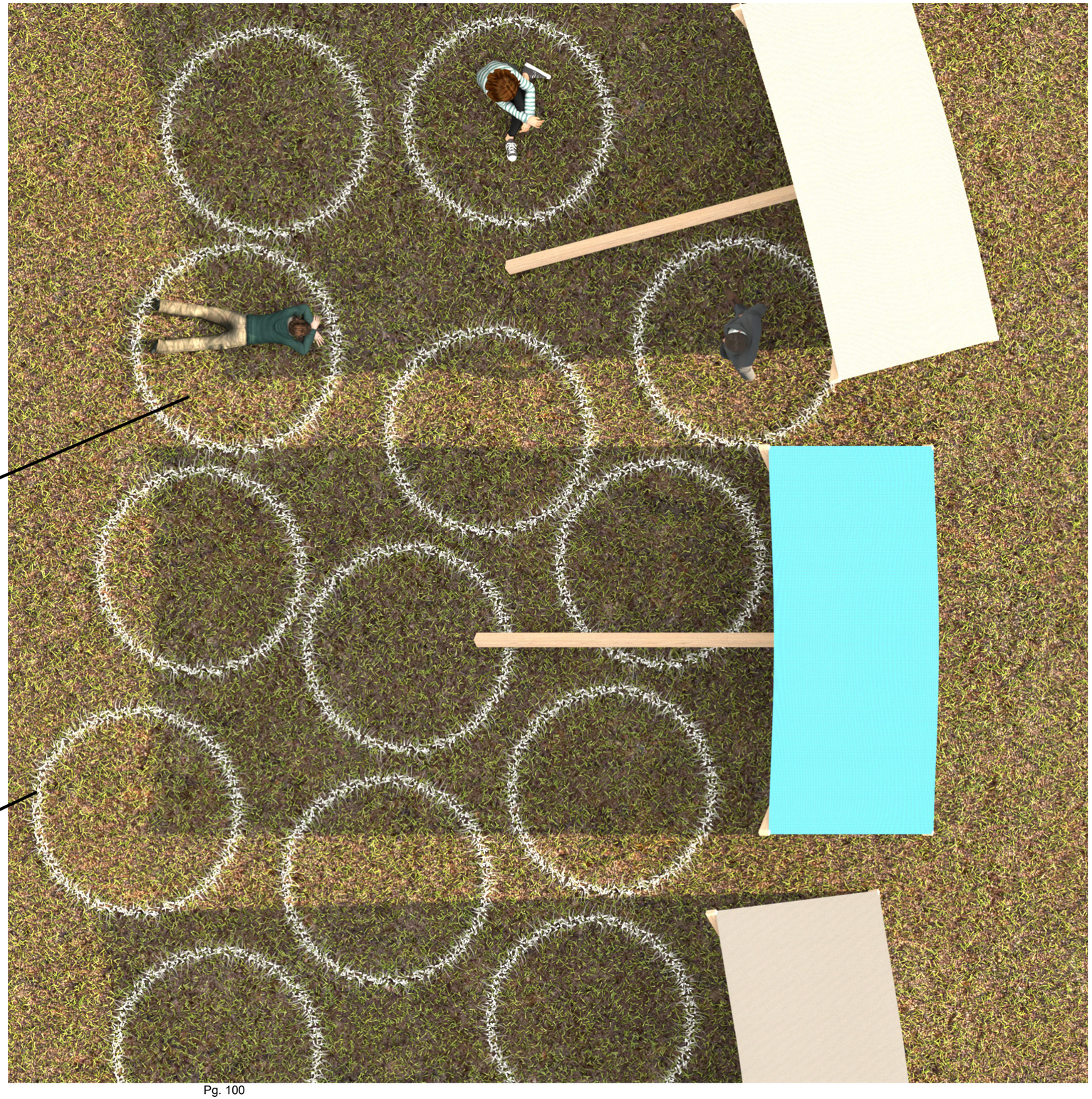


“Social Circles”

In conjunction with the parasols, athletic field marking paints already on hand at most schools could be used to predetermine social distancing spaces for each outdoor classroom area. If budgets allow, the painted circles could be replaced with simple-built seating of the same dimensional lumber as the parasol.

6’ Diameter

Athletic Field Paint

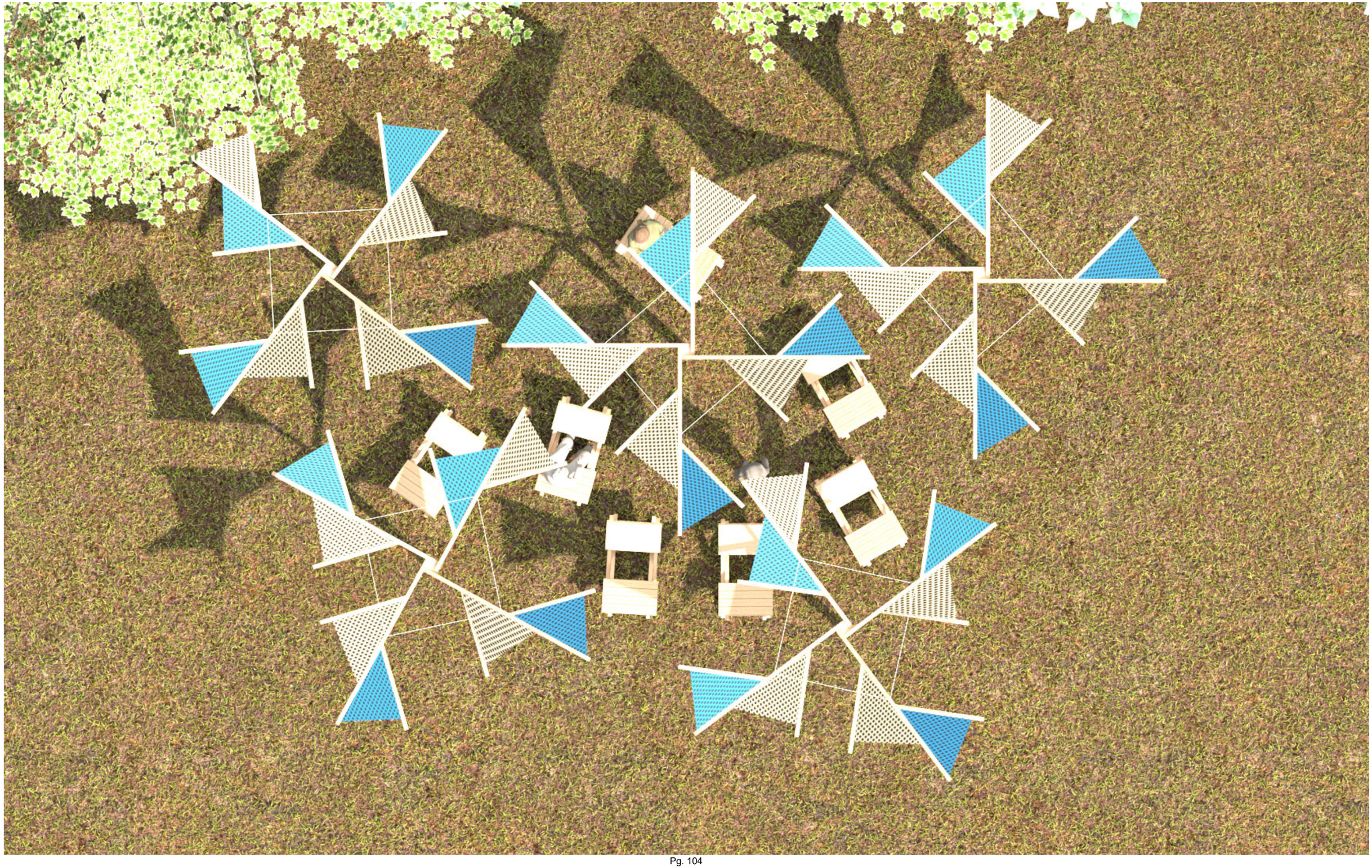


Infinitely Scalable & Upgradeable

Our goal was to keep solutions affordable and relatively easy to construct while allowing for improvements to the design. When budgets allow the materials could be improved for amenities like photo-voltaic panels, USB charging, and wireless Internet could be supported by this platform.

Fauxtree

Rather than mobile parasol, fixed Fauxtree shading devices could be permanently located to create a longer lasting outdoor learning environment. Paired with adjustable outdoor desks constructed from the same simple materials, this could quickly be achieved in many school districts. Branches could be added or adjusted to achieve the desired shading for any given location.



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Hatch
architects.