Our Corridor Solution

Team 15 - No Rest For The Students
Carolyn Heinzer, Avneet Kaur, Ailsa Watt
Who are we?

- We are team “No Rest for the Students”
  - Rising 11th and 12th grade BASIS Peoria students dedicated to combating the struggle to social distance in the crowded hallways of our school
- Meet our team:
  - Ailsa: a (hopefully) future engineer with a weird obsession with sci-fi
  - Avneet: an artist with too many crazy ideas and a passion for all things STEM
  - Carolyn: a slightly odd human who loves reading books but greatly enjoys science challenges

Photo credit: Avneet Kaur, Ailsa Watt, Carolyn Heinzer
Why hallways?

- Hallways function as a connector and bring the whole school together
- High-risk area with great potential to spread disease through accidental contact
- We **need** a concrete system that is safe and user-friendly

Photo found [here](#)
What We’re Up Against

Photo from here
COVID-19 and school spaces

● With the global outbreak of COVID-19, physical distancing has become a danger to many vulnerable students
● Maintaining both safety and education in these spaces is now problematic

Photo obtained from [here](#)
Attributes of a hallway

- Long and narrow (less than 8 ft. wide at BASIS)
- Used by students and staff to reach classes
- Include lockers, water fountains, trash cans, and entrances and exits (classroom doors, elevator, stairs)
- Common area for students to hang out

Photo credit: Ailsa Watt
More pictures

Photo credit: Kim Heinzer
How do students describe a BASIS hallway?

“cluttered”  “too many people”  “it’s easier to catch a virus”  “crammed”

“recess”  “sardine can”  “small and crowded”

“crowded”  “cramped”  “suffocatingly crowded”

“small”  “narrow”  “extremely small”

“overcrowded”  “too small”

Students and teachers agree! The hallways are currently not as safe as they should be.

Photo credit: Ailsa Watt; responses taken from survey of BASIS students by Carolyn Heinzer and interviews by Avneet Kaur
What does this mean?

- Normally, our hallways are a bit of a nuisance; in a pandemic, they're a health hazard
- Hundreds of students are crammed in these small spaces, making social distancing virtually impossible

- **Our mission**: engineer a system that allows people to get safely from place to place
Our Solution
Our approach

- We needed a relatively easy and quick to implement, low-cost, and effective solution
- For us, innovation means
  - constructively using the resources at hand to keep everyone physically and mentally healthy
- Hallways are integral to any building -> we considered how our solution would impact the whole school
Breaking down our solution

- **Three parts:**
  - Hallway traffic management - how and where students must traverse the hallways
  - Safety measures - specific policies meant to enhance student safety
  - Socioemotional and Educational impact - mental health preservation and respect of education

Photos from [here](#), [here](#), and [here](#)
Traffic Management
### Scheduling

#### The Process:
- Started with all previous year’s teacher schedules (68 pgs long!!)
- Calculated number of students (15) that would fit per classroom using surface areas of classroom
- Collected info and listed classes period
- Worked out which grades are in which science classes
- Broke up high school into groups A and B - 9th & 12th graders and 10th & 11th graders
- Worked out passing periods
- Listed classes by grade
- Made preliminary schedule for each group, then revised A LOT!!

#### Group A (9th and 12th grade) master schedule

<table>
<thead>
<tr>
<th>Period</th>
<th>7:20-8:10</th>
<th>8:15-9:05</th>
<th>9:10-10:00</th>
<th>10:05-10:50</th>
<th>11:00-11:50</th>
<th>11:55-12:45</th>
<th>12:50-1:40</th>
<th>1:45-2:35</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>Pre-Cal 203</td>
<td>Biochem 205</td>
<td>College Counseling 208</td>
<td>Quantum Mech. 220</td>
<td>Honors Lit. 222</td>
<td>AP Gov. 224</td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>SRP 208</td>
<td>Foundations of Democracy 223</td>
<td>Culinary History 224</td>
<td>HBio 147</td>
<td>AP Physics 1 144</td>
<td>Honors Chem. 129</td>
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<tr>
<td>2</td>
<td>Discrete Math 217</td>
<td>Multivariable Calc. 218</td>
<td>Honors Lit. 222</td>
<td>AP Gov. 224</td>
<td>Honors Lang. 226</td>
<td>Honors Bio. 147</td>
<td>Honors Chem. 129</td>
<td>AP Physics 1 144</td>
</tr>
<tr>
<td>3</td>
<td>Pre-Cal 203</td>
<td>College Counseling 208</td>
<td>Honors Lang. 226</td>
<td>Genetics 146</td>
<td>AP Gov. 224</td>
<td></td>
<td></td>
<td>208</td>
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<tr>
<td>4</td>
<td>AP Psych 202</td>
<td>Film Studies 203</td>
<td>Photograph y 204</td>
<td>Art 2D 205</td>
<td>3D Art 207</td>
<td>SRP 208</td>
<td>Creative Writing 216</td>
<td>AP CompSci 217</td>
</tr>
<tr>
<td>Drama Theatre</td>
<td>Speech 218</td>
<td>AP Econ. 221</td>
<td>Forensics 146</td>
<td>Strings 119</td>
<td>Experimenta l Research 127</td>
<td>PE Gym</td>
<td>Band 121</td>
<td>Engineering 108</td>
</tr>
<tr>
<td>5</td>
<td>Lunch MPR/ Gym</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>SRP 208</td>
<td>Honors Lit. 222</td>
<td>Honors Lang. 226</td>
<td>Pre-Cal. 203</td>
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<td></td>
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<tr>
<td>7</td>
<td>French II 207</td>
<td>Mandarin II 208</td>
<td>Spanish II 217</td>
<td>Latin II 218</td>
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</table>
# Group B (10th and 11th grade) master schedule

<table>
<thead>
<tr>
<th>Period</th>
<th>Time</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 0</td>
<td>7:35-8:25</td>
<td>AP Calc. AB 202, AP Spanish 217, AP Euro. 219, AP Language 226, AP Chinese Language and Culture 205, AP French 207</td>
</tr>
<tr>
<td>Period 1</td>
<td>8:30-9:20</td>
<td>AP Calc. AB 202, AP Spanish 217, AP Lang. 226, HBio 146, HChem 127</td>
</tr>
<tr>
<td>Period 2</td>
<td>9:25-10:15</td>
<td>AP Calc. AB 202, APUSH 224, AP Physics II 149</td>
</tr>
<tr>
<td>Period 4</td>
<td>11:15-12:05</td>
<td>AP Psych. 202, Film Studies 203, Photography 204, Art 2D 205, 3D Art 207, SRP 208, Creative Writing 216, AP CompSci 217</td>
</tr>
<tr>
<td>Drama Theatre</td>
<td>Speech 218, AP Econ. 221, Forensics 146, Strings 119, Experimental Research 127, PE Gym, Band 121, Engineering 108</td>
<td></td>
</tr>
<tr>
<td>Period 5</td>
<td>12:10-1:00</td>
<td>Lunch MPR/ Gym, AP Bio. 146, AP Chem. 127</td>
</tr>
<tr>
<td>Period 6</td>
<td>1:05-1:55</td>
<td>AP Euro. 218, AP Bio. 146, APUSH 224</td>
</tr>
<tr>
<td>Period 7</td>
<td>2:00-2:50</td>
<td>AP Lit. 222, AP Bio 146, APUSH 224</td>
</tr>
</tbody>
</table>
Flow of students

- One-way traffic
- Avoids face-to-face interaction
- Staggered passing periods
Entrances and exits

- Classroom doors left open during passing period to facilitate traffic flow
- Outdoor staircase doors remain open, weather permitting
- Elevator used by those who can’t use stairs
Safety Precautions
Basic Rules

- Students must wear masks in hallways
  - CDC guidelines - masks create a safer school environment
- Regular sanitation of door handles and high contact areas
- Open doors (classrooms, bathrooms, and stairwells) means less germ exchange
  - CDC guidelines- minimizing contact with high touch areas creates a safer environment

Photo credit: Carolyn Heinzer
Removing Lockers

- Frees up space and make social distancing easier/possible
- Students don’t have to stand close together to get materials
- Instead: backpacks which fit under chairs in classrooms
- To allow for a lighter load, schools should provide online textbooks, learning materials, & necessary electronic devices

Images can be found [here](#) and [here](#)
Online Textbooks

- Many schools already went digital to continue holding school during closures in March.
- Even before the outbreak of the virus, “emergent technologies [were] implemented in the classroom at an exponential rate,” as one study noted. 4
- Schools won’t be paying for a new education system but refining one.
Water fountains

- New water bottle filling stations are much more sanitary than water fountains
  - By drinking from water fountains, you’re “increasing your likelihood of a harmful exposure”
- Students and staff should also promote water bottle usage
Social & Educational Impact
Support Circles & Breaks

- ASU has established a “peer-led, peer-based, online platform for students to support and connect”
  - We want to create a similar club
  - Chance for students to talk about what they’re going through & feel less alone
- 10 minute breaks outside drastically improve students’ mental health
  - More sunlight exposure is proven to decrease stress; less stressed students = more likely to comply with school policies
  - Safe social interaction

*(GIVE HIGH SCHOOLERS RECESS 2020)*
Student compliance

- When asked, many students said they would comply to any regulations from the school
- Regular reminders from staff would encourage compliance
  - Additionally, the CDC has educational posters free to download/print for this purpose

Images all from here
Student responses from interviews conducted by Avneet Kaur
Sanitation club – the importance of student responsibility

- Students cleaning reduces the cost of hiring more staff
- Encourages collaboration; students feel less isolated
- Way to get volunteer hours
- Volunteering is shown to lower stress and depression
Lingering Barriers & Changes
**Barrier - Costs**

- **Accelerated switch to technology**
  - Schools already forced to create distance learning system via technology in March
  - Laptops are more cost effective than textbooks in the long term

- **Cleaning supplies**
  - Instead of disposable wipes, multi-purpose cleaning spray and washable rags conserve costs and preserve the environment!

- **Water bottle fillers**
  - One at a time if schools have trouble covering costs (one has already been installed at BASIS)
  - Worthy of investment as water fountains spread germs easily

- **Creating a fundraiser to cover lingering costs; students and families sympathetic to the situation**
Additional barriers - scheduling

- One of the drawbacks of staggered passing periods is that electives - which contain students from groups A and B - only have 35 minutes of instruction time with both groups.

- Creating schedules is difficult and confusing.
  - The sample schedule took over eight hours.

- *Our solution is definitely not impossible, but it will require careful planning on the part of school administrators.*
Summary

- **Traffic Management** - managing the halls and enforcing rules that keep the hallways organized and safe
- **Physical precautions** - staying away from lockers and water fountains while accelerating the shift to online learning
- **Mental Health** - creating clubs and support circles to better the school while helping students deal with changes and rules
Teamwork + what we learned

● We’ve worked really well together, coming up with so many different ideas that it’s hard to fit them all in this presentation!

● We learned that…
  ○ Mental health is important and we need to compensate for changes to the rules and the way of living
  ○ Physical, social, and economical barriers are all important obstacles that need careful consideration
  ○ Sleep is for the weak… sorry… the importance of time management
  ○ Specificity is important
  ○ Nothing is impossible if you put your mind to it!
Sources


4 Additional informationAuthor informationChristine DitzlerChristine Ditzler is Associate Director of Operations in the Department of Online Education at the University of Nevada. “How Tablets Are Utilized in the Classroom.” Taylor & Francis, www.tandfonline.com/doi/abs/10.1080/15391523.2016.1172444.


6 “devils 4 devils support circles.” Devils 4 Devils Support Circles | Arizona State University, eoss.asu.edu/devils4devils/support-circles.
Sources


Thank you!

- Judges for judging
- Challenge organizers for this opportunity
- Our mentor for lighting the way towards a solution
- Everyone else for listening
Additional Information

- Families can choose if their students attend in person and online
  - Supported by our school and many other Arizona schools including the Gilbert and Mesa school districts.
- Because some students will be learning at home, we make sure their quality of their education does not suffer
- According to BASIS teacher Kim Heinzer, “online education seems less valuable than in person because students aren’t as invested in it”
  - Our solution: students might be willing to meet one-on-one outside of class w/ teachers
  - Already an established BASIS policy

Kim Heinzer
BASIS Peoria Teacher