

LIGERBOTS
FIRST. Robotics Team 2877

Newton North and South High Schools



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Distance Education Using Zoom



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Abstract

During Spring of 2020, many organizations, schools, and businesses came to a halt as the COVID-19 pandemic pushed a vast majority of the community to work digitally and remotely. As a response, the LigerBots decided to help fill a gap created by this shift by offering virtual mentorship opportunities to connect high school and elementary school students. The team called this the Awesome Mentorship Program (AMP). A month into virtual learning, the founders of AMP sought to improve their work and developed a fully fledged half day summer camp known as Camp AMP (cAMP). The main goals of the program were:

- Better adapt to a virtual learning environment given time and resources
- Provide entertainment, education, community and connection for elementary school students over the virtual environment
- Offer valuable volunteering opportunities for high school students.

AMP and Camp AMP grew to serve over 200 campers and 100 volunteers by the end of August 2020.

The LigerBots is a STEM oriented high school organization and uses hands-on lessons to improve engagement among members. This emphasis on project-based learning provides a strong foundation to build a trusting community. Camp AMP worked to provide materials in order to make this program free and easily accessible to anyone interested. Another part of the engagement building strategy was through activities for building trust without personal one-on-one time with the students. Lastly, Camp AMP worked to solve problems over Zoom in the classroom with common issues of students being loud, excitable, and unpredictable. Throughout the hundreds of hours of designing, preparing, and executing, the Camp AMP team found several key ingredients that would be helpful to other educational organizations running in a virtual learning environment.

Key Terms and Abbreviations Used

- **Administrative Team:** Refers to all the student leaders, combining Marketing and Logistics
- **Logistical Administrative Team (Logistical Team):** Refers to the group of volunteer admins that spent the nights scheduling, budgeting, and emailing
- **Marketing Team:** Refers to the students dedicated to recruiting volunteers and advertising towards campers.
- **Lead Admins:** Refers to the team working during Camp AMP. This team consisted of four members that were also part of the Logistical Team.
- **Adult Supervisors:** Refers to the LigerBot mentors that worked with the Administrative Team every week and provided support throughout.

AMP [Awesome Mentorship Program]

In Newton, school was put on hold in early March. Within a few weeks, several LigerBots students expressed interest in running a program during the pandemic. Distance learning had a slow start, and there was a growing need to provide learning opportunities, companionship, and guidance to elementary school students, which could be met by pairing them with high school mentors. AMP paired one mentor with one mentee where they could talk about the current problems, tutor them on some school work, or simply engage them with a fun activity, from making slime to playing Minecraft. Buddies would meet at least one time a week for one hour. Throughout the summer, the program would continue to run with existing buddies under the title “AMP Summer” until September.

Logistics for AMP

Program signup happened through two Google Forms: one for mentees and another for mentors. Initially advertising focused on Newton elementary principals

and the Bowen Elementary School PTSO, but the principals were preoccupied trying to get distance learning available so other methods were utilized to get the word out. The team focused instead on two other channels: the [NewtonSTEM](#) newsletter (a weekly email that targets parents interested in STEM activities) and the [Newton Parents Facebook group](#). These channels resulted in 93 signups for mentees, with the bulk of them coming from the Facebook group. To attract high school mentors, the marketing team focused on word-of-mouth through their own friend groups and also promoted the program school-wide through the high school vice principals. AMP received 105 signups for mentors.

On the surveys for potential mentees, the administrators asked a variety of questions such as their interests, age, and availability. The administrators asked where mentees had heard about the program, but in hindsight regrets making that optional. The marketing team could have used that information for further and more-effective recruitment in AMP Summer, Fall and Camp AMP.

In order to protect the mentees, mentors had to go through a vetting process before receiving their buddy. Mentors were broken into two groups: LigerBots team members and non-team members. Team members were automatically accepted into the program, but others needed to be interviewed by a LigerBots coach in which they would discuss several ideas of what activities they could do. This demonstrated that mentors were responsible and eager to start meeting with a buddy.

The administrators of the program met every night to review the new pairings. Administrators each took on specific tasks, including: replying to questions through email; pairing the mentees that recently signed up with mentors recently approved; and acting as a backup by reviewing check-ins and assisting with emails. As the team perfected the system, it proved effective in welcoming more mentors, even as the overall program grew and became more demanding.

Resources for Supporting the Mentors

The administrative team created several resources to support the individual pairings. Every Monday evening the administrators hosted an optional mentor training session on the best ways to engage with their mentee. The AMP Team then built a community of mentors that could ask each other questions and reach out for ideas and support by establishing a Discord server. Mentees were also invited to the server as a way to talk to other mentors and potentially play on the AMP Minecraft server. The Discord server required verification in order to protect the safety of the mentees and mentors that were online. The administrative team also offered a guidebook, linked here: [Mentor Manual](#).

The logistical team worked nightly and communicated using Discord. Setting up a Discord server was easier than using Slack or SMS for coordination and was an easy communication platform for mentors and mentees to join. More mentors had Discord because it is a common social media app used for coordination.

Most importantly, weekly check-ins allowed the logistical team to stay updated with the mentors. Every week, one of the administrators would contact each mentor to ask if they met with their buddies. If the mentor did not reply, the administrator would mark that in the master spreadsheet. If the mentor did not respond after a few weeks, the mentees would be contacted instead. Some mentors shared some cool activities they did with their buddies, like learning Scratch, animating dry-erase figures, or making elephant toothpaste.

As part of this community-building, the logistical team sent an email every week, with announcements and new ideas other buddies did over the past week. Other announcements included several pilot classes.

Piloting Classes

During AMP Spring, many mentees asked for more time with their mentors. With the AMP Spring program coming to a close in late June, the administrators decided to launch a half day per week summer camp:

Camp AMP. While determining the logistics of the Camp (with having only a month to prepare), the administrative team decided to run two pilot classes to gauge interest and feasibility: an art class and a Scratch programming class. The classes occurred one day, every week, depending on the availability of the teacher, and were available to any mentee who expressed interest. At the end, during a recap meeting, the administration drew many important conclusions that would be used throughout the structure of Camp AMP.

The instructor offered the programming class to all ages and did little preparation, resulting in a class that was not particularly engaging. Through this experience the team learned to narrow the age range per class. This was also an opportunity to experiment with methods of emphasizing hands-on learning to increase engagement (see “[Building an Engaged Community](#)” on page 13), which was part of the key towards a successful distance learning platform.

The art class proved a bit more chaotic but offered a greater lesson. Frustrated students disrupted class, occasionally with tantrums, but since the team had not anticipated this, it had no strategy in place to address it. As a result, the administrators implemented Quiet Rooms for all the Camp AMP offerings in case such events happened during camp. If the counselor reported a problem, they would message the administrators, who would move the camper into the breakout room and help calm them down until they were ready to go back (see “[Specific Issues and Larger Solutions](#)” on page 15).

The pilot classes tested two different methods of meeting virtually. The programming class used Zoom while the art class tried out Discord. Through the trials, the administrators, parents, and counselors found that Zoom was a much better platform than Discord, providing several features for video calling for families with lower bandwidth.

The pilot classes also experimented with communication platforms to use outside of class time. They tested email, Discord, and Slack. Email worked well

for official announcements and formal communication; however, it was deemed insufficient for rapid, less formal communication. Discord worked well for students and mentors, many of whom were already familiar with it or similar platforms; however, it proved extremely difficult for parents who were less fluent with technology. Slack worked well for parents because it was simpler, and some parents were already familiar with the platform as it is sometimes used by businesses. Students and Mentors picked it up easily as Slack functions similarly to Discord. Ultimately, email was used for formal communication and official announcements, while Slack was used for all other communication (see “[Communication through Slack](#)” on page 11).

Setting Up Camp

Before announcing the program, the administrators had to decide what the schedule would look like. After much internal debate, the team decided on a 3.5 hour camp, from 9:00–12:30. The team modeled the schedule after the Newton High School schedule, using a block system, with fewer blocks as camp ran for half a day. This meant that there were five activity blocks, which each met three times a week, spread out to fill the week, with three blocks meeting each day (fig. 1).

There was also a need to establish a camper to counselor ratio. Initially the administrators chose to go with a ratio of 8:1, campers to counselors. A few important factors went into that number. On one hand, the ratio had to be large enough so that the marketing team would not have to advertise to an extensive number of counselors. On the other hand, the counselors were high school volunteers, not professionals, and their comfort and safety needed to be taken into consideration. There needed to be a little bit of wiggle room in case an activity ended up a bit oversized. The camper to counselor ratio would change across sessions, and those changes will be discussed in the relevant sections (see “[Creating the Schedules and Logistics](#)” on page 5).

The administrators came across the issue of not hav-

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 9:25	Morning Meeting				
9:25 - 10:20	Activity A	Activity B	Activity A	Activity B	Activity A
10:20 - 10:30	Break time				
10:30 - 11:25	Activity B	Activity D	Activity C	Activity C	Activity D
11:25 - 11:35	Break time				
11:35 - 12:30	Activity C	Activity E	Activity D	Activity E	Activity E

Fig. 1. The camp's block schedule.

ing enough counselors to split the campers into groups by grade, but they were also unable to throw all the campers into activities together, because the levels of knowledge are so different across grades—the younger campers would get left behind. The discussion eventually led to the decision to split the camp into three sections.

- Munchkins refers to rising first and second graders.
- Ocelots refers to rising third and fourth graders.
- Leopards refers to rising fifth and sixth graders.

This allowed for different age groups to attend different activities more catered towards their knowledge levels, while allowing administrators to work with half as many counselors.

Another issue while setting up was that, originally, the camp had planned to hold one activity per group per block. That would mean running three activities simultaneously, requiring three counselors. However, as the counselors determined the activities by their interests, some campers would end up not enjoying the activity. The administrators decided to run two activities per group per block, meaning they would need twice as many counselors, but it allowed for campers

to choose alternatives. Ultimately, the administrators believe that this decision had the greatest impact on the overall success of Camp AMP, allowing greater flexibility, increased engagement, and diversity for topics campers would not otherwise have the opportunity to explore.

Material Pickup

One goal of AMP and Camp AMP was to make it easily accessible to all families, regardless of their economic status, health or location. To fulfill that objective, the administrative team decided to provide free materials to anyone who requested them.

Before the pilot classes, the administration sent out an email to parents letting them know about the upcoming art class, with a materials list and request form attached. As the administrators received the material requests, they made a purchase request for all the materials that were not readily available to them. Operating under the LigerBots (and Newton Schools Foundation) umbrella provided resources but required strict documentation of how Camp AMP spent its money through purchase requests. After purchasing and receiving the materials, the Lead Admins tried to

hand deliver the items around Newton. Several hours later, the method was deemed inefficient and not viable for the rest of the summer.

Learning from the pilot art class materials delivery, Camp AMP set up a dedicated meet point where parents could drive by and pick up their pre-packaged materials that they had requested in a survey a couple days prior. The survey asked parents several things; their address (to deliver materials), whether they would be picking up (on a specified date, one of two) or if the materials would be delivered, and what materials would be needed. One week prior to material pickup, the logistical team made the purchase request. An administrator received materials ordered to create campers' kits. They then brought all the kits and spare materials to the first day of material pickup with extras available. During the first session, most of the parents requested to have materials delivered to their houses. Of the few parents who stated that they would pick up materials, few actually showed up. After the second (and last day) of material pickup for session 1, many parents never picked up the kits. The administrators then divided up the kits and delivered them to over 20 houses. At the end, it was decided that this was also infeasible.

After the disappointment of session 1 pickup, the administrators decided that parents needed to pick up their materials on a set day, unless they had extenuating circumstances to justify delivery. During session 2, not as many people came to pick up materials. An administrator brought home the kits for parents to pick up if they wanted to.

When session 3 material pickup came around, more parents came to pick up their materials compared to sessions 1 and 2. Through sessions 1, 2 and 3, the administrative team learned that most parents who picked up materials came on Sunday rather than Saturday. For session 4, material pickup was only on Sunday. It turned out great, and almost everyone showed up. In the end, the administrators found that condensing material pickup to one day and making it the primary option for parents who needed materials proved to be

the most time efficient while still providing for those who needed it.

Weekly Review Meetings

Each week, the logistical team met with the adult advisors to review what happened in the past week and what should happen in the following weeks. At the meetings, the logistical and marketing teams would discuss any problems that occurred and any solutions found. The adult advisors would then guide the administration team on next steps. The administrative team used the weekly meetings to receive advice, and then improve on future sessions. The discussion included problems from the week and how to deal with a situation better; this included learning when it was appropriate to contact parents. Having weekly meetings offered just enough so that the administrative team could solve most of the problems in a timely manner, but rare enough that the administrative team had a lot of independence which provided great learning experiences.

Camp AMP

This section is dedicated to how the administrators dealt with the challenges of running a summer camp, with a focus on internal workings. A total count of confirmed campers in each session can be found in fig. 2.

Creating the Schedule and Logistics

A lot went on behind the scenes, primarily in a massive spreadsheet known as the "Mentor Master List." Google Sheets automatically linked the results of the sign up survey to the master sheet for easy access to important information. Some of the information collected included contact information, activity interests, time availability, questions asked, etc. (fig 3, 4.)

The next step to the administrative process was class scheduling. Looking through the counselor sign ups, an administrator selected potential counselors.

LIGERBOTS

Confirmed Count													
Total Confirmed	47 S1	Total Confirmed	38 S2	Total Confirmed	54 S3	Total Confirmed	60 S4						
Munchkin	14	Munchkin	13	Munchkin	19	Munchkin	20						
Ocelots	18	Ocelots	8	Ocelots	18	Ocelots	21						
Leopards	15	Leopards	17	Leopards	17	Leopards	19						
Total Offered	58 M 20	O 18 L 19	Total Offered	61 M 20 O 16 L 23	Total Offered	88 M 27 O 29 L 32	Total Offered	104 M 40 O 35 L 26					

Fig. 2. Camper acceptance and enrollment numbers. These numbers are an estimate and a brief overview of the number of campers offered slots and the number who joined the camp. This does not include those who signed up but were unable to receive a slot.

AMP-SC Teacher Online Summer Camp Sign Up

If you'd prefer to TA, please fill out all the information and write "TA" in the comments box.

Full Name *

Email *

Were you a mentor for AMP Spring *

Yes

No

City? *

Newton

Littleton

Bolton

Other...

Fig. 3. The counselor sign-up form. These are the first few questions.

No	Newton	Tuesday, Thursday, Friday	5-6	Chem or math	I ur July 6 to July 17
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4	3-4, 5-6	I could teach academics, preferably math or science. If possible I ur July 6 to July 17, July 20 to July 31, August 3 to	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4	3-4, 5-6	Anything stem related	I ur July 6 to July 17, July 20 to July 31
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	English, history, social studies, reading, writing	I ur July 20 to July 31, August 3 to August 14	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 5-6	Math, programming	I ur July 6 to July 17, July 20 to July 31, August 3 to	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	Math, CS (including Swift and Python)	I ur July 6 to July 17, July 20 to July 31, August 3 to	
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	I am happy to teach anything but I am most interested and I ur July 6 to July 17, July 20 to July 31, August 3 to		
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 3-4, 5-6	Programming/Coding and Minecraft (Redstone)	I ur July 6 to July 17, July 20 to July 31	
No	Newton	C.O.E	3-4, 5-6	Math, Civics/Government (most likely math)	I ur August 3 to August 14, August 17 to August 28
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2	Math (addition, subtraction, counting)	I ur July 6 to July 17, July 20 to July 31, August 3 to	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2	Math (addition, subtraction, counting)	I ur July 6 to July 17, July 20 to July 31	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 3-4, 5-6	Math, Music	I ur July 6 to July 17, July 20 to July 31	
No	Newton	Wednesday, Thursday	Monday	1-2	Beads and crafts!
No	Acton	Monday, Wednesday, Thursday	Monday, Tuesday, Wednesday, Thursday, Fr 3-4, 5-6	Math, Science, English, Music	I ur July 6 to July 17, July 20 to July 31, August 3 to
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Tuesday, Wednesday, Thursday, Friday	Tuesday, Wednesday, Friday	1-2, 3-4, 5-6	Crafts, sewing, coding, math, reading
No	Newton	Monday, Tuesday, Wednesday, Thursday, Friday	3-4, 5-6	Math, Science, Art, English	I ur July 6 to July 17
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	Math, science, scratch	I ur July 20 to July 31, August 3 to August 14	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4	math, writing, reading	I ur July 20 to July 31, August 3 to August 14	
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 3-4, 5-6	Minecraft, Origami, Scratch	I ur July 6 to July 17, July 20 to July 31, August 3 to	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Friday	1-2, 3-4	programming minecraft and math	I ur July 6 to July 17, July 20 to July 31
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Friday	Fr 1-2, 3-4, 5-6	Game Development with Roblox Studio	I ur July 6 to July 17, July 20 to July 31
Yes	Newton	Tuesday, Wednesday, Thursday	Tuesday, Wednesday, Thursday	5-6	History, Geography, Science
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	Aquaponics, art, cooking/baking, science (biology, physics, I ur July 20 to July 31, August 3 to August 14		
No	Newton	Monday, Wednesday, Thursday, Friday	Monday, Wednesday, Thursday, Friday	5-6	The Basics of Character creation and play in Dungeons and I ur August 17 to August 28
No	Newton	Monday, Tuesday, Wednesday	Monday, Tuesday, Wednesday	3-4	Math- a variety of units
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	English, history (world or U.S.), math, science (biology and I ur August 17 to August 28		
No	Newton	Tuesday, Thursday	Monday	1-2, 3-4	Art projects (drawing, origami)
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4	planets and the solar system, simple genetics / DNA, friend I ur July 20 to July 31, August 3 to August 14		
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	Astronomy, Rocketry, Spaceflight	I ur July 20 to July 31, August 3 to August 14	
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 3-4, 5-6	Academic Chemistry, Physics + general science, math (alg I ur July 20 to July 31, August 3 to August 14		
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	Math, up to precalculus. Programming for scratch or java I ur July 20 to July 31, August 3 to August 14, Augu		
Yes	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	History, math, science, computer science I ur July 20 to July 31, August 3 to August 14		
No	Newton	Monday, Tuesday, Wednesday, Friday	Monday, Tuesday, Wednesday, Friday	1-2, 3-4, 5-6	Math, Science, STEM in general, Sports.
No	Newton	Monday, Tuesday, Wednesday, Thursday, Fr Tuesday, Wednesday, Thursday, Friday	Tuesday, Thursday, Friday	1-2, 3-4, 5-6	Crafts, sewing
No	Northborough	Monday, Tuesday, Wednesday, Thursday, Fr Monday, Tuesday, Wednesday, Thursday, Fr 1-2, 3-4, 5-6	Art, Math, Engineering Projects. I am open to other suggest I ur July 6 to July 17 [CLOSED], July 20 to July 31		
Yes	Newton	Tuesday, Wednesday, Thursday, Friday	Monday, Wednesday	3-4, 5-6	Academic (I want to teach a programming class or a TA for I ur July 20 to July 31 [CLOSED], August 3 to Augu
No	Newton	Tuesday, Wednesday, Thursday, Friday	Monday, Wednesday	1-2, 3-4, 5-6	I am interested in teaching math up to the precalc level. I am I ur July 20 to July 31 [CLOSED], August 3 to Augu
Yes	Newton	Monday, Tuesday, Thursday, Friday	Monday, Tuesday, Thursday, Friday	3-4, 5-6	Civics, Mass Incarceration, Grammar, US Government, Sci I ur August 17 to August 28
Yes	Newton	Monday, Tuesday, Wednesday	Monday, Tuesday, Wednesday	5-6	math and science I ur August 17 to August 28

Fig. 4. The counselor sign-up form. This is the spreadsheet that the responses were routed to.

They then spent a lot of time fitting them into the block schedule so that their time availability fit with the schedule and to avoid campers receiving duplicate classes. (fig. 5) But in the end, there was always a way to make it work, and after a week of scheduling, the classes for that session were complete (fig. 6–9).

At this point in the process, parents had to complete the class preference form, indicating confirmation to attend the program as well as their child's interest (fig. 10). The administrators used the submissions for course selection to generate class rosters (fig. 11). They attempted to automate this process; however, it proved easier to develop rosters by hand for all four sessions. Not every camper received their first choice, as each class had a limited size, and while the team tried to stay close to the ideal camper:counselor ratio, it proved necessary to deviate a bit to accommodate popular classes.

The camper:counselor ratio fluctuated across sessions. Initially, a ratio of 8:1 was used. This worked well in the first two sessions, but failed when popularity among parents skyrocketed. Demand for camper slots tripled even as counselor volunteers remained stable, leaving the administrators with a difficult decision: how to serve as many people as possible while preserving the community that the small camper:counselor

ratio helped promote. After some debate, the decision was made to shift the camper:counselor ratio up to 12:1; however, given the immense popularity, some classes reached higher. There were noticeable drops in engagement around class sizes of 6 and 12 campers. In the end, more experienced counselors received the larger classes, who did a brilliant job of managing the larger groups and maintaining the strong community.

One of the administrators created a custom GSheets script to convert the rosters into camper schedules which could be distributed to the campers; the script is estimated to have saved roughly 100 hours of work for the administrative team (fig. 12). The administrators tried their best to give every camper as many of their selections as possible, and no camper ever had fewer than three of their five selections. If for any reason a camper had a reason to be unwilling to partake in a particular course, those requests were usually accommodated, within a deadline.

Upon receiving their schedules, the parents of the campers would also receive a materials list containing a list of all classes and the required materials (fig. 13). Parents could request materials that they would have difficulty obtaining through an online form (fig. 14) and would later receive these materials by curbside pick

Camper Name:					
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 9:25	Morning Meeting	Morning Meeting	Morning Meeting	Morning Meeting	Morning Meeting
9:25 - 10:20	A: TV Media - Alex K	B: CAD - Theresa F	A: TV Media - Alex K	B: CAD - Theresa F	A: TV Media - Alex K
10:20 - 10:30	Break time	Break time	Break time	Break time	Break time
10:30 - 11:25	B: CAD - Theresa F	D: Math - Evan M	C: Dungeons & Dragons - Gabriel S	C: Dungeons & Dragons - Gabriel S	D: Math - Evan M
11:25 - 11:35	Break time	Break time	Break time	Break time	Break time
11:35 - 12:30	C: Dungeons & Dragons - Gabriel S	E: Greek History - Anson C & Henri M	D: Math - Evan M	E: Greek History - Anson C & Henri M	E: Greek History - Anson C & Henri M

Fig. 5. An example of a camper's schedule.

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Monday		Tuesday		Wednesday		Thursday		Friday	
9:00 - 9:25	Morning Meeting								
Math - Eric Y & Karen T	Dance - Kat M & Natasha L	Math - Eric Y & Karen T	Science - Idan M & Belle S(TA)	Math - Eric Y & Karen T	Dance - Kat M & Natasha L	Math - Audrey K & Abby Z	Math - Audrey K & Abby Z	Math - Eric Y & Karen T	Math - Eric Y & Karen T
Science - Idan M & Belle S(TA)	Math - Audrey K & Abby Z	Science - Idan M & Belle S(TA)	Geography - Alex K	Science - Idan M & Belle S(TA)	Math - Tal E & Michael-David N	Geography - Alex K	Math - Tal E & Michael-David N	Science - Idan M & Belle S(TA)	Science - Idan M & Belle S(TA)
9:25 - 10:20	Geography - Alex K	Math - Tal E & Michael-David N	Reading - Danielle B & Giuliana R	Math - Tal E & Michael-David N	Math - Tal E & Michael-David N	English - Scott P	English - Scott P	Geography - Alex K	Geography - Alex K
Reading - Danielle B & Giuliana R	English - Scott P	Biology - Henry C	Biology - Henry C	Reading - Danielle B & Giuliana R	Biology - Henry C	Creative Writing - Avery W	Creative Writing - Avery W	Reading - Danielle B & Giuliana R	Reading - Danielle B & Giuliana R
Biology - Henry C	Creative Writing - Avery W	Math - Ruchik T	Thematic Mapmaking - Zoe K	Biology - Henry C	Thematic Mapmaking - Zoe K	Math - Ruchik T	Math - Ruchik T	Biology - Henry C	Biology - Henry C
10:20 - 10:30	Break time			Break time		Break time		Break time	
Dance - Kat M & Natasha L	Reading - Clara D & Amanda F(TA)	Art - Rebecca Y & Nicole W	Art - Rebecca Y & Nicole W	Dance - Kat M & Natasha L	Math - Sebastian Y & Asa Z	Mythical Creatures - Claudia & Anson	Mythical Creatures - Claudia & Anson	Dance - Kat M & Natasha L	Dance - Kat M & Natasha L
Math - Audrey K & Abby Z	Crafts - Sarika D	Mythical Creatures - Claudia & Anson	Science - Sebastian Y & Asa Z	Math - Sebastian Y & Asa Z	Math - Jolie L	Science - Sebastian Y & Asa Z	Science - Sebastian Y & Asa Z	Math - Audrey K & Abby Z	Math - Audrey K & Abby Z
Math - Tal E & Michael-David N	Music - Lasya T	Science - Sebastian Y & Asa Z	Math - Jolie L	Math - Jolie L	Greek Mythology - Rose G	Greek Mythology - Rose G	Greek Mythology - Rose G	Math - Tal E & Michael-David N	Math - Tal E & Michael-David N
English - Scott P	Programming - Daniel B	Math - Jolie L	Engineering - Tony F	Engineering - Tony F	Engineering - Tony F	Engineering - Tony F	Engineering - Tony F	English - Scott P	English - Scott P
Creative Writing - Avery W	Pencil Code - Mark F	Math - Maia M						Creative Writing - Avery W	Creative Writing - Avery W
Math - Ruchik T								Math - Ruchik T	Math - Ruchik T
11:25 - 11:35	Break time			Break time		Break time		Break time	
Art - Rebecca Y & Nicole W	Reading - Clara D & Amanda F(TA)	Science - Elena W	Science - Elena W	Undersea Exploration - Alisha & Hallie	Undersea Exploration - Alisha & Hallie	Undersea Exploration - Alisha & Hallie	Undersea Exploration - Alisha & Hallie	Art - Jenny H	Art - Jenny H
Mythical Creatures - Claudia & Anson	Crafts - Sarika D	Music - Lasya T	Math - Jolie L	Art - Jenny H	Math - Jolie L	Math - Jolie L	Math - Jolie L	Climate & Environment - Amelia K & Alice F	Climate & Environment - Amelia K & Alice F
Science - Sebastian Y & Asa Z	Music - Lasya T	Programming - Daniel B	Math - Maia M	Climate & Environment - Amelia K & Alice F	Programming - Daniel B	Programming - Daniel B	Programming - Daniel B	Spaceflight, Rocketry, and Astronomy - Theodore H	Spaceflight, Rocketry, and Astronomy - Theodore H
Math - Jolie L	Pencil Code - Mark F	Pencil Code - Mark F	Math - Maia M	Spaceflight, Rocketry, and Astronomy - Theodore H	Pencil Code - Mark F	Pencil Code - Mark F	Pencil Code - Mark F	Chemistry - Olivia W	Chemistry - Olivia W
Greek Mythology - Rose G	Engineering - Tony F	Engineering - Tony F		Chemistry - Olivia W	Engineering - Tony F	Engineering - Tony F	Engineering - Tony F		
Engineering - Tony F									

Fig. 6. The session 1 master schedule of teachers and their classes.

Monday	
9:00 - 9:25	Morning Meeting
9:25 - 10:20	Math - Eric Y & Karen T Science - Idan M & Belle S(TA) Geography - Alex K Reading - Danielle B & Giuliana R Biology - Henry C Thematic Mapmaking - Zoe K
10:20 - 10:30	Break time
10:30 - 11:25	Dance - Kat M & Natasha L Math - Audrey K & Abby Z Math - Tal E & Michael-David N English - Scott P Creative Writing - Avery W Math - Ruchik T
11:25 - 11:35	Break time
11:35 - 12:30	Art - Rebecca Y & Nicole W Mythical Creatures- Claudia & Anson Science - Sebastian Y & Asa Z Math - Jolie L Greek Mythology - Rose G Engineering - Tony F

Tuesday	
9:00 - 9:25	Morning Meeting
9:25 - 10:20	Dance - Kat M & Natasha L Math - Audrey K & Abby Z Math - Tal E & Michael-David N English - Scott P Creative Writing - Avery W Math - Ruchik T
10:20 - 10:30	Break time
10:30 - 11:25	Reading - Clara D & Amanda F(TA) Crafts - Sarika D Music - Lasya T Programming - Daniel B Pencil Code - Mark F Math - Maia M
11:25 - 11:35	Break time
11:35 - 12:30	Science - Elena W Undersea Exploration - Alisha & Hallie Art - Jenny H Climate & Environment - Amelia K & Alice F Spaceflight, Rocketry, and Astronomy - Theodore H Chemistry - Olivia W

Fig. 7. Monday and Tuesday of the session 1 master schedule.

Distance Education Using Zoom

Monday		Tuesday		Wednesday		Thursday		Friday	
9:00 - 9:25	Morning Meeting		Morning Meeting		Morning Meeting		Morning Meeting		Morning Meeting
History - David G	Art - Joyce L & Abby Z	History - David G	Art - Joyce L & Abby Z	History - David G	Art - Joyce L & Abby Z	History - David G	History - David G	History - David G	History - David G
Science - Idan M & Nicole O(TA)	Reading - Danielle B	Science - Idan M & Nicole O(TA)	Reading - Danielle B	Science - Idan M & Nicole O(TA)	Reading - Danielle B	Science - Idan M & Nicole O(TA)	Science - Idan M & Nicole O(TA)	Science - Idan M & Nicole O(TA)	Science - Idan M & Nicole O(TA)
Physics - Jenny H	Scratch - Daniel X & Iris Y	Physics - Jenny H	Scratch - Daniel X & Iris Y	Physics - Jenny H	Scratch - Daniel X & Iris Y	Physics - Jenny H	Physics - Jenny H	Physics - Jenny H	Physics - Jenny H
9:25 - 10:20	History - Skyler B	Astronomy - Zoe K	Biology - Henry C	Astronomy - Zoe K	History - Skyler B	Astronomy - Zoe K	Biology - Henry C	Biology - Henry C	Biology - Henry C
Biology - Henry C	Astronomy - Zoe K	Science - Arya M	Science - Arya M	Science - Arya M	Science - Arya M	Science - Arya M	Science - Arya M	Science - Arya M	Science - Arya M
10:20 - 10:30	Break time	Break time	Break time	Break time	Break time	Break time	Break time	Break time	Break time
Art - Joyce L & Abby Z	Basic Engineering - Sanjana M & Ali J	Dance - Kat M	Crafts - Haley L	History - Scott P	Math - Kamakshi S & Ali J	Math - Mariah K & Audrey K	Math - Mariah K & Audrey K	Art - Joyce L & Abby Z	Art - Joyce L & Abby Z
Reading - Danielle B	Reading - Danielle B	English - Cathrine J-W	History - Scott P	Greek History - Anson C & Henri M	Engineering - Sebastian Y	Geography - Alex K	Geography - Alex K	Reading - Danielle B	Reading - Danielle B
Scratch - Daniel X & Iris Y	Scratch - Daniel X & Iris Y	Scratch - Karen T	Scratch - Ammar A	Engineering - Sebastian Y	Scratch - Ammar A	Scratch - Eve M	Scratch - Eve M	Scratch - Daniel X & Iris Y	Scratch - Daniel X & Iris Y
History - Skyler B	Astronomy - Zoe K	Basic Programming - Yanjun Z & Asa Z	Basic Programming - Yanjun Z & Asa Z	Scratch - Karen T	Basic Programming - Yanjun Z & Asa Z	Civics/Government - Emily W	Civics/Government - Emily W	History - Skyler B	History - Skyler B
Astronomy - Zoe K	Aquaponics - Sarika A	Crafts - Sarika D	Break time	Break time	Break time	Break time	Break time	Astronomy - Zoe K	Astronomy - Zoe K
11:25 - 11:35	Break time	Break time	Break time	Break time	Break time	Break time	Break time	Aquaponics - Sofia A	Aquaponics - Sofia A
11:35 - 12:30	Crafts - Haley L	History - Scott P	Math - Kamakshi S & Ali J	Math - Mariah K & Audrey K	Math - Mariah K & Audrey K	Simple Circuits - Sonali F & Zoha	Simple Circuits - Sonali F & Zoha	Crafts - Haley L	Crafts - Haley L
10:30 - 11:25	History - Skyler B	Astronomy - Zoe K	Science - Arya M	Science - Arya M	Science - Arya M	Geography - Alex K	Geography - Alex K	Scratch - Daniel X & Iris Y	Scratch - Daniel X & Iris Y
11:35 - 12:30	Aquaponics - Sarika A	Break time	Break time	Break time	Break time	Scratch - Eve M	Scratch - Eve M	History - Skyler B	History - Skyler B
11:25 - 11:35	Break time	Break time	Break time	Break time	Break time	Civics/Government - Emily W	Civics/Government - Emily W	Astronomy - Zoe K	Astronomy - Zoe K
11:35 - 12:30	Break time	Break time	Break time	Break time	Break time	Scratch - Ammar A	Scratch - Ammar A	Aquaponics - Sofia A	Aquaponics - Sofia A

Fig. 8. The session 3 master schedules.

		Monday	
9:00 - 9:25	Morning Meeting	Morning Meeting	
9:25 - 10:20	History - David G Science - Idan M & Nicole O(TA) Physics - Jenny H	History - David G Science - Idan M & Nicole O(TA) Physics - Jenny H	
10:20 - 10:30	Break time	Break time	
10:30 - 11:25	Art - Joyce L & Abby Z Reading - Danielle B Scratch - Daniel X & Iris Y History - Skyler B Astronomy - Zoe K Aquaponics - Sarika A	Art - Joyce L & Abby Z Reading - Danielle B Scratch - Daniel X & Iris Y History - Skyler B Astronomy - Zoe K Aquaponics - Sofia A	
11:25 - 11:35	Break time	Break time	
11:35 - 12:30	Crafts - Haley L History - Scott P Math - Mariah K & Audrey K Simple Circuits - Sonali F & Zoha Geography - Alex K Scratch - Eve M Civics/Government - Emily W	Crafts - Haley L History - Scott P Math - Mariah K & Audrey K Simple Circuits - Sonali F & Zoha Geography - Alex K Scratch - Eve M Civics/Government - Emily W	

		Tuesday	
9:00 - 9:25	Morning Meeting	Morning Meeting	
9:25 - 10:20	Art - Joyce L & Abby Z Reading - Danielle B Scratch - Daniel X & Iris Y History - Skyler B Astronomy - Zoe K Aquaponics - Sofia A	Art - Joyce L & Abby Z Reading - Danielle B Scratch - Daniel X & Iris Y History - Skyler B Astronomy - Zoe K Aquaponics - Sofia A	
10:20 - 10:30	Break time	Break time	
10:30 - 11:25	Basic Engineering - Sanjana M & Ali J Dance - Kat M English - Cathrine J-W Scratch - Karen T Basic Programming - Yanjun Z & Asa Z Crafts - Sarika D	Basic Engineering - Sanjana M & Ali J Dance - Kat M English - Cathrine J-W Scratch - Karen T Basic Programming - Yanjun Z & Asa Z Crafts - Sarika D	
11:25 - 11:35	Break time	Break time	
11:35 - 12:30	Math - Kamakshi S & Ali J Math - Mariah K & Audrey K Simple Circuits - Sonali F & Zoha Geography - Alex K Scratch - Eve M Civics/Government - Emily W	Math - Kamakshi S & Ali J Math - Mariah K & Audrey K Simple Circuits - Sonali F & Zoha Geography - Alex K Scratch - Eve M Civics/Government - Emily W	

Fig. 9. Monday and Tuesday of the session 3 master schedule.

LIGERBOTS

Fig. 10. The class selection form. This is the spreadsheet that the responses were routed to.

Fig. 11. The class roster for each class and what each camper's classes were. The campers' names are blurred for privacy.

```

1  function onOpen() {
2    SpreadsheetApp.getUi()
3      .createAddonMenu()
4      .addItem('Create Schedules', 'scheduleCreate')
5      .addItem('Clear Schedules', 'delSheets')
6      .addMenuItem('About', 'showAbout')
7  }
8
9  function scheduleCreate() {
10   delSheets();
11   newSheets();
12 }
13 function delSheets() {
14   var ss = SpreadsheetApp.getActiveSpreadsheet();
15   var shs = ss.getNumSheets();
16
17   for(var i=shs-1;i>1;i--){
18     ss.setActiveSheet(ss.getSheets()[i]);
19     ss.deleteActiveSheet();
20   }
21   ss.setActiveSheet(ss.getSheets()[0]);
22
23 }
24
25 function newSheets() {
26   var ss = SpreadsheetApp.getActiveSpreadsheet();
27   var templateSheet = ss.getSheetByName("Template");
28   var sheet1 = ss.getSheetByName("Info")
29   var getNames = sheet1.getRange("A1:A120").getValues().filter(String).toString()
30   .split(",");
31
32   for (var i = 0; i < getNames.length; i++) {
33     var copy = ss.getSheetByName(getNames[i]);
34     if (copy) {
35       Logger.log("Sheet already exists");
36     } else {
37       templateSheet.copyTo(ss).setName(getNames[i]);
38       ss.setActiveSheet(ss.getSheetByName(getNames[i]));
39       SpreadsheetApp.getActiveSheet().getRange("D1").setValue(i+1);
40       ss.moveActiveSheet(ss.getNumSheets());
41     }
42   }
}

```

Fig. 12. The custom Google Sheets script that was written to automate the camper schedule generation process.

up (see “Material Pickup” on page 4). A spreadsheet was created to track the purchase of requested materials (fig. 15).

Communication through Slack

The camp needed a system to allow for fast and easy communication during camp, primarily for counselor-administration interaction, as well as for counselor-camper and camper-camper communication. The administrators chose Slack because it fulfilled basic communication needs for free and would be familiar to some parents.

Having a communications platform proved vital. In situations where a camper was causing a disruption, counselors could quickly contact the administrators to address the situation. If a counselor was running late, or could not make it on a day, this gave them the means to let the administration know. Parents and campers could also ask any questions they might have had on the platform.

Class Materials List

*Quantities in parenthesis are listed per student
** You do not need all of these materials. You only need the materials for the classes in your schedule.

Munchkin - Rising 1st and 2nd Grade

- 1) Art - Audrey K
 - o Model Magic (6-7 packs (1oz))
 - o Tin Foil (~1ft)
 - o Beads/Dry Rice (~¼ Cup)
 - o Wide Craft Sticks (3)
 - o Wide Rubber Bands (5)
 - o Brown Paper Bag (1)
 - o Tissue Paper (5-7)
 - o Candy
 - o Yarn/String (~6ft)
 - o Paper (5)
 - o Markers
 - o Glue (1)
 - o Tape (1)
 - o Scissors
 - o Optional:
 - i) Other coloring utensils
 - ii) Hole Punch
 - iii) Watercolor/Acrylic Paint
 - iv) Toothpicks
- 2) History - Scott P
- 3) Math - Dana B & Michael-David N
 - o Paper (14)
 - o Calculator
 - o Pencil
 - o Coins (1 of each coin)
- 4) Math - Karen T
 - o Printouts

Fig 13. A list of the session 4 classes and their required materials. This full materials list was distributed to parents so that they could obtain the necessary materials for their campers’ activities, and judge whether they needed assistance obtaining those materials.

Each age group had a respective Slack channel where many counselors shared information about their next class, such as the next day’s required materials. The most popular use, however, was banter between the campers outside of camp time. Because of the online nature of the virtual camp, campers immediately connected and had many conversations, which greatly helped in fostering a friendly culture (see “Building an Engaged Community” on page 13).

Zoom Logistics

At the beginning of any day, the administrators would be made co-host so that they would be able to mute campers, message campers, and move around to different breakout rooms. This was advantageous in keeping the environment orderly, while still allowing fun during the camp. However, one function that the co-hosted administrators did not have that the hosted administrators had was the ability to move campers to different breakout rooms. This was unfortunate be-

LIGERBOTS

Fig. 14. The materials request form. The materials request form allowed parents to request pick-up of materials they could not obtain themselves. This is the spreadsheet that the form was routed to.

Material	Given Link	Number	Quantity	# Number of s	Unit/ per Units nee	Quantity Requested	Unit Price	Price	PO assignment	PO quantity	Quantity on hand
Cups	Amazon	200	20	3	0.100	1 1/ cut in half/ Student	\$10.99	\$10.99	Amazon	Oriental Trading	1
Rubber Bands	Amazon		15	3	0.000	0 2/ Student	\$5.88	\$0.00			
Popsicle Sticks	Amazon		20	3	0.000	0 1/ Student	\$9.99	\$0.00			
Tissue Paper package of	Amazon	400	20	1	0.050	1 A Handful	\$6.82	\$6.82	Amazon	4.99	Amazon
White Crayon package o	Amazon	12	1	1	0.083	1 1/ Student	\$4.99	\$4.99	Staples	2.99	https://www.staples.com
Spray Bottle package of	Amazon	7	1	1	0.143	1 1/ Student	\$6.99	\$6.99	Amazon		Amazon
Masking Tape	Amazon	7	1	1	0.143	1 1/ Student	\$7.79	\$7.79	Amazon		N/A
Watercolor Paint	Amazon			2	0.000	0 1/ Student	\$23.12	\$0.00	Amazon	Amazon	25
Square Origami Paper	Amazon	200	20	1	0.100	1 15/ Student	\$6.99	\$6.99	Amazon		11
Printer Paper	Amazon			1	0.000	1 10+/ Student	\$5.99	\$5.99	Walmart		noa
Black Pens	Amazon			0	0.000	0 1/ Student	\$9.49	\$0.00			0
Notebook	Amazon			0	0.000	0 1/ Student	\$1.67	\$0.00	Amazon	Staples	0
Pencils	Amazon			0	0.000	0 2/Student	\$0.00	\$0.00			0
Colored Pencils	Amazon			0	0.000	0 1 Pack/Student	\$3.09	\$0.00			0
Color Wheel Print-Out	Image			4	0.000	0 1/ Student	\$0.00	\$0.00			16
Watercolor Paper	Amazon	30	0.1	2	0.003	1 3 sheets/Student	\$5.97	\$5.97	Target		N/A
White Crayon	Amazon			3	0.000	0 1 Crayon/Student	\$4.99	\$0.00	Staples		above
Water Colors	Amazon			3	0.000	0 1 Set/Student	\$4.99	\$0.00	Amazon	Amazon	above
Bird Print-Out	Image			2	0.000	0 1/ Student	\$0.00	\$0.00			
Permanent Black Pens	Amazon	12	0.08333333	2	0.007	1 1/ Student	\$5.59	\$5.59			1
Construction Paper	Michaels			1	0.000	0 60 sheets/ student (multicolor)	\$13.49	\$0.00			72
Gluestick	Michaels			0	0.000	0 1 stick/ student	\$4.99	\$0.00			0
Scissors	Michaels			0	0.000	0 1/ student	\$2.29	\$0.00			0
Markers	Michaels			0	0.000	0 1 pack/ student	\$5.99	\$0.00			0
Model Magic	Amazon			2	0.000	0 7 pack/ student + counselor	\$39.73	\$0.00			2
Notebook	Staples			1	0.000	0 1/ student	\$0.45	\$0.00			4
Writing Utensil (any)	Staples			0	0.000	0 1-3/ student	\$2.99	\$0.00			0
Colored Pencils	Target			0	0.000	0 1 Pack/Student	\$1.89	\$0.00			0
Crayons	Target			0	0.000	0 1 Pack/Student	\$1.39	\$0.00			0
Chocolate Chip Cookies	Target	12	0.08333333	4	0.007	1 1 Pack/Student	\$5.59	\$5.59			8
Playdoh	Target	15	5	4	0.333	2 5 Colors	\$4.89	\$9.78	Target	1	10
Paper	Amanda's Printer			1	0.000	1 15 Sheets	\$5.99	\$5.99			15
Toothpicks	Target	200	10	4	0.050	1 10/Student	\$1.99	\$1.99	Target		1
Corn Starch	Target	4	0.25	3	0.063	1 1 Cup/Student	\$1.59	\$1.59	Target		1

Fig. 15. The material budgeting spreadsheet. This is where materials that were requested by parents were organized and preparations were made to purchase them.

cause when the host was busy and a co-host was asked to move a camper to a quiet room, the activity would have to pause and wait for the host to move the camper before continuing on.

Building an Engaged Community

An extremely important part of Camp AMP was building a community where everyone would be comfortable on Zoom (fig. 16). On the first day of Camp, the morning meeting leaders would play a [Kahoot explaining the Zoom guidelines](#) in a fun and competitive way. The LigerBots designed and sold Camp AMP branded tee shirts to our counselors and campers so that they could identify each other as part of the same community even though they were working together remotely (fig 17). Another huge contribution to building such a community was the ability to keep students in small groups. When in smaller groups, campers were more comfortable and willing to talk and engage with each other. These groups also enabled campers to form connections and friendships with one another more easily. Some contributing factors to this effect included the fact that campers got more time to speak, there

was less peer pressure to remain silent, and the smaller size allowed the group to be less structured—campers talked more freely in the small group.

The Camp AMP Team focused on several activities to build up the community that were not limited to the traditional icebreaker. While icebreakers are effective for learning basic information such as names, faces and voices, they fall short when it comes to building trust and community. Camp AMP built community through conversation instead of forcing the campers to simply answer questions about themselves. Many of the activities they did encouraged them to work together and discuss what they were doing, such as collective storytelling, where each camper contributed a single sentence to a story. This method proved successful, as could be seen throughout the camp. Campers quickly became eager to chat with other kids, even those who had been strangers mere days prior.

Of course, some counselors did a better job of creating a community than others. One key thing that affected community building was the activity type. In classes where campers could show off their work, see others' work, and exchange feedback with other camp-

Expectations (Norms) for Virtual Meetings

- Sign into Zoom with your name.
- Mute your microphone when not talking.
- Be mindful of what's going on behind you. It is recommended that you sit in a chair with the back against a wall. This provides the most privacy for other people in your home.
- Respect others.
- While participating in live, virtual meetings students, counselors and families are not allowed to record, screen capture, or in any way share video or audio from online virtual sessions. In Massachusetts, it is illegal to record another person through any medium without his/her knowledge.
- It is possible during an online session you may learn or hear information about a classmate that is private. Students are expected to respect each other's privacy and not share that information with or repeat it to others.
- All of your interactions during this online session should adhere to standard rules of behavior in a summer camp. Please reach out to a trusted adult if you have any questions or concerns.

Fig. 16. Camp AMP's guidelines for appropriate usage and behavior on Zoom.



Fig. 17. The Camp AMP T-shirt. These were sold to campers and counselors of Camp AMP.

ers, trust and community were much stronger than those in which campers could not interact with each other's work. The classes that had the best communities were the ones where campers did their activities as a group. An example of this was the Greek History class, which held a city-states activity in which campers learned about ancient Greek city-states by creating their own. After creating their city-states, campers tried to negotiate with each other to further each state's interests, and at one point, a mock war even broke out. By the end of their first week, the kids had gained trust and felt comfortable at camp.

Another example involving independent work was with one of the music classes. The counselor is an aspiring songwriter and shared this passion with her campers. The campers would spend time listening to music and discussing certain aspects of the song, before working on their final project. The students were tasked with creating a song using a digital instrument platform, Soundtrap. They would present their music to each other while it was in development for the group to comment on, building an open community. The counselor was so popular in this class that when she needed to miss a day for an appointment, the students tried every method they could to contact her. She was also one of the only counselors to get a personal invite from their students to the showcase to listen to them present their projects. Using a non-traditional format of class allowed a different take for the block and provided something new to spark their curiosity and engagement.

A Typical Day

A typical day running Camp AMP began with members of the logistical team hopping onto Zoom 10 minutes before all the campers came. Between 8:50 and 9:00, the administrators would discuss whether there needed to be any announcements. During that time, campers would slowly fill up the waiting room.

At 9:00, the administrators would admit everyone

into the meeting, then disable the waiting room so any late-comers did not have to wait. The administrators would then proceed to announce any important notes or changes about the day (sometimes there were none). The entire group would then move on into the "morning meeting" activity. The activities were always designed to be appropriate for all age groups, because during that time the whole camp was in one virtual room. Morning meetings were important logically. There was not any way to know what emails campers would use to sign on, and the administrators had no way of enforcing the use of specific emails, so it proved impossible to pre-assign breakout rooms. One administrator would assign each camper, one by one, to their respective breakout rooms, using the master roster as a reference. This took a few minutes, as Zoom only allows the host to assign rooms. Once the morning meeting was over, and the host had finished assignments, the rooms would be opened.

Once the breakout rooms opened, the dynamic shifted. The counselors were now in full control of their classes and led their campers through the activities they had planned. If a counselor could not make one day, an administrator would substitute. If a counselor had a restless camper, they would message the administrators on Slack and administrators would move to their room to help. To emulate what would happen in a normal situation, administrators would not address the restless camper immediately in the virtual classroom, as that would further disrupt the class. Instead, they moved the camper into one of the quiet rooms where the administrators and camper could talk privately and the class could continue. Depending on the situation, the camper might have just needed a moment to calm down, perhaps someone to vent at, or play a few games. Sometimes, they just needed some time alone. Having these extra virtual spaces really helped the administrators run the camp smoothly.

Once the first activity block ended, administrators closed the breakout rooms to bring everyone back to

the main room. Break time was pretty much identical to the morning meeting, but shorter, and with new fresh activities. The most popular ones were Skribbl, Kahoot, Quizizz and Jeopardy. Since students were in different groups, during this period, the administrators would reassign the students; then they would open up the second activities and the cycle repeated. After the third activity, everyone would be dismissed for lunch. There were often a few campers who stuck around after camp, usually the ones who had gotten to know the administrators a bit better, whether through quiet room time or as substitutes. Either way, the administrators talked with them for a while with topics ranging from their favorite classes to Minecraft. As it approached 1pm, they would eventually leave and eat lunch. The administrators would usually stay on for a few minutes longer, discussing the day's classes and where improvements could be made, before leaving for lunch.

Final Showcase

The last hour on the last Friday of each session was dedicated to a “Final Showcase” (fig. 18). At this time, campers had the opportunity to show off what they had made or learned during the duration of camp. Parents were invited to watch their camper(s) and other campers show their various projects to the entire camp. Campers would excitedly talk about CAD work, programs they coded, music they created, and stories they authored. The showcase would be approximately an hour long, giving each student a couple minutes to show off their work. Campers were called on individually, with the youngest group going first. If a camper decided they would prefer not to share, the administrators would respect their wishes and move on.

The Camp AMP community was really showcased during the [giant Kahoot game](#). This took place before the final showcase. Most morning meeting Kahoot activities would have just over ten kids fully engaged, but this final Kahoot game would frequently have over 40 campers joining in. The Kahoot would quiz the

LAST DAY SCHEDULE	
9:00 - 9:05	Morning Meeting
9:05 - 9:45	A
9:45 - 9:50	Break time
9:50 - 10:30	D
10:30 - 10:35	Break time
10:35 - 11:15	E
11:15 - 11:20	Gathering time
11:20 - 12:30	SHOWCASE

Fig. 18. The special schedule used on the last day of camp. A modified schedule was used for the final day of each session in order to make time for the final showcase.

campers about events that occurred throughout the session; nicknames, inside jokes, and pets’ names shared during the pet show and tell. Giving the campers a fun incentive was also important throughout Camp, as the administrators would often drop hints about possible Kahoot questions. The prize offered was to change the ringtone on the administrators’ phone, and campers got creative, choosing anywhere from Nyan Cat to their own screams. Being involved in the community building and relating to them on a casual and personal level allowed the administrators to bring this community event to this level.

Specific Issues and Larger Solutions

This section is dedicated to how the administrators worked with individual campers in a Zoom atmosphere. No campers will be named, but all will be

referred to as “Camper Biscuits.” Mr. Biscuits was a popular joke around camp, and is not referencing the same camper each time.

Mythical Creatures and the Quiet Room

In session 1, Camper Biscuits was an active member of the Mythical Creatures class offered to the Munchkins. Every class day, the counselors would discuss a specific creature: griffins, fairies, dragons, and more. They would often start by discussing the creature’s origin and composition, tell a story, act out the creature, then illustrate it. Camper Biscuits was engaged throughout and learning the content. One day, the counselors introduced a creature they thought would be popular: unicorns. Something many of the staff and counselors did not consider was how sometimes campers could react in unexpected ways. Everyone was caught off guard as Camper Biscuits broke down crying about how they were scared of unicorns. Immediately, the administrative staff were called over and assigned Camper Biscuits to a quiet room. In that room, an administrator sat with them and waited as they calmed down, and offered to watch a video or play a game. They continued to watch Disney Plus until the activity block was over. At the end, Camper Biscuits felt better and rejoined the rest of the camp.

Loud Campers and Positive Reinforcement

In every classroom, there are often students or campers who are naturally loud. Camp AMP was no exception, with Camper Biscuits frequently getting excited for Kahoot games, Minecraft and Roblox. Camper Biscuits would also shout out answers to math questions (not allowing other campers to learn) and complain when content was too easy for them. The administrators did not know the best way to handle this situation as it was getting frustrating, and attempts to mute them were often quickly undone. Camper Biscuits had visited the quiet room several times, with each time resulting in them agreeing to do better, but then forgetting by

the next day. The administrators contacted Camper Biscuits’ parents to discuss how best to act, and the decision was that they would be given frequent reminders with a positive feedback loop. During breakfast, their mother would remind them to keep their volume down throughout the day. Camper Biscuits would then be automatically sent to a help room with an administrator, who would give a gentle reminder to be on their best behavior and to not yell out answers. At the end of the day, they would stay back and an administrator would tell them that he did a great job, or to continue working on it the following day. Camper Biscuits’ behaviour improved quickly, with them not being requested to be pulled out of the classroom as frequently in subsequent sessions. The feedback was the important part. Not only did Camper Biscuits know when they did poorly, but they also were rewarded with a compliment for doing well. Incentivizing good behaviour through positive feedback was a crucial part of the solution.

Larger Than Life Campers and Building an Active Atmosphere

Similar to the previous camper, Camper Biscuits would be loud during break times. Although this was less of an issue in the counselor guided activities, the administrators learned to use this camper’s outgoing personality to turn a dull, quiet Zoom meeting into a lively one, full of inside jokes. Allowing campers to talk with each other led into a war declared in the Greek History class (ironically, called the The Great Mr. Biscuit War) and often continued to the main rooms. This allowed campers to develop friendships in a virtual environment and they were sad to see each other leave at the end of the session. To their great surprise, they saw that many of their friends were back!

Camper Biscuits would also frequently engage the administrators in discussions, challenging them to certain competitions. The administrators would frequently ask questions about Camper Biscuits’ newest escapade,

whether it be an attempt to “break” Scratch or listening to their newest 10 minute album, constantly giving other campers who were more shy something to discuss.

Disruptive Campers and Parental Involvement

Lastly, there were campers that enjoyed having the attention of the administrators. Camper Biscuits was a kindergartener, and often did not have an accurate sense of what was appropriate in camp. They enjoyed fighting with their sister, which would often land them in the quiet room to allow counselors to resume their lesson.

However, this constant moving into breakout rooms presented a new problem: Camper Biscuits *loved* the Zoom transitions. As the administrators were not entirely experienced with these situations, they were fairly confused at how to solve this problem. Camper Biscuits would throw a fit or use the “Ask for Help” button constantly. The administrators could not just ignore an “Ask for Help” as there may actually be a situation where they were needed. A single administrator, who was the official host, often became solely responsible for answering the requests. This got Camper Biscuits really excited to see this particular administrator’s face as they were moved into the quiet room.

Camper Biscuits turned their attention towards seeing the administrator and refused to have a calm class without him in the room. This was a problem because he had other responsibilities and tasks that had to be done. The administrative team solved this problem by bringing other administrators to deal with the “Ask for Help” request.

With all the time spent in Quiet Room 1, Camper Biscuits soon grew to love the quiet in that room, so that they could feel free to scream. This hurt the administrator’s ears, as they could not leave a child unsupervised. They would ask Camper Biscuits’ sister to get their parents, who would then resolve the situation.

Some problems were better left with their parents to work through, rather than the administration working through it over the internet.

Activities

This section will be focused more on specific activities and ideas for those interested in ideas that are tried and true. Both classes and breaks are compared from the administrator’s point of view.

Virtual Activities

Throughout the breaks and blocks, counselors used various online activities that the campers enjoyed. Some of the activities that counselors played were:

- Kahoot <https://kahoot.com/> or <https://kahoot.it/>
- Skribbl <https://skribbl.io/>
- Quizizz <https://quizizz.com/>
- Minecraft
- Hangman (on virtual whiteboard)
- Pictionary (on virtual whiteboard)
- GoNoodle <https://www.youtube.com/channel/UC2YBT7HYqCbbvzu3kKZ3wnw>

Although most of the virtual activities were purely for fun, there were some educational Kahoot and Quizizz games. GoNoodle was one of the more unique approaches taken, with “dance breaks” and the Munchkin age group loved it. Most games were used to allow breaks in between learning.

Hands-On Activities

During the counselor orientation, Camp AMP organizers emphasized the importance of adding hands-on activities in their curriculum. It was important to structure it more towards a traditional summer camp than a classroom setting, and that all materials were provided for beforehand.

Some classes took advantage of this; during a Reading class, students made homemade ice cream and

shared it with siblings that were not attending camp. In a Biology class, older campers extracted their DNA which worked extraordinarily well. As a project traditionally done in high school, campers were beyond excited and made sure to note that, “it looked like snot.” Other activities that worked well included creating a globe out of Playdoh, a “fossil dig” through chocolate chip cookies, and making noise makers, much to the dismay of their parents. However, some counselors’ projects did not work as well, especially those requiring precision with scissors and glue. Those were often messy and unreliable.

Some classes were oriented more towards project based learning, specifically the CAD, programming and music classes. In the music classes, students used software to create their own songs with core components of a song. CAD classes designed their dream room, learning to rotate, extrude and create shapes to represent objects. Leopard programming classes focused on text inputs and story lines, while ocelot programming classes focused on Scratch animations.

Feedback

At the conclusion of each session the administrative team sent an email to all the parents asking them to fill out a feedback form. The administration received plenty of praise and also some constructive criticism. In the first session, multiple parents asked that they be updated about what their camper(s) were doing throughout the week. The administrators acted on that advice and sent a semiweekly email to all the parents of the session highlighting activities of the past few days. Another piece of constructive criticism was wanting to know what materials were needed for the next time they met. The administrative team then asked counselors to post in their respective Slack channel what the campers would be doing and what materials were needed.

Should the LigerBots repeat Camp AMP in the future, things that would be improved on would be

either ending the camp earlier in the day to avoid interfering with a normal lunch time, or taking a break for lunch and then coming back to finish the camp. Camp AMP had a couple of parents who wished that the camp did not last until 12:30 because by then their campers were hungry. There were also a few campers who would express the need to leave camp a bit early to eat lunch. The administration also received constructive criticism about materials and material pickup (see “[Material Pickup](#)” on page 4). The administrative team worked to address concerns and feedback to improve the upcoming sessions as it was recognized that there was much to improve on.

Looking ahead—AMP Fall

As schools started in the fall but continued their distance-learning system, the administrative team realized that they needed to keep this program running. AMP Spring, AMP Summer, and Camp AMP did not only teach the administrative team management, marketing, and problem-solving, but it also built a community of mentors and mentees connected through their common passion for education. Mentors had the opportunity to teach subjects they were passionate about, while students were able to have fun while learning about unique topics not often taught. The administrative team recognized that these qualities were important to students and is what made AMP so amazing. AMP Fall is LigerBots’ way of helping students who grew to love learning and teaching continue while expanding the community.

Camp AMP received feedback from several educators and school administrators indicating that they may try to apply some of the lessons learned in AMP to our school system to make online learning opportunities more accessible to everyone. The LigerBots hope Camp AMP will not only grow but also can inspire others to start ones like it in their communities.

Conclusions

Overall, Camp AMP was an amazing experience for the administrators, campers and volunteers. High school students better understood the challenges their teachers faced going back to school in Fall of 2020, allowing for new perspectives and appreciation.

Hands-on learning made the students engage with the content to a greater extent, and caters towards a different type of learning style. With students in elementary school, emphasizing fewer lecture-based or worksheet-based classes, and focusing instead on a greater number of project-based activities proved immensely effective, resulting in their excitement presenting during the final showcase. However, hands-on learning would not have led to the level of engagement at Camp AMP without a community where the students felt that they had the freedom to ask questions and befriend the high school volunteers. Building that trust was crucial to creating such a close-knit community in Zoom. As expected, working this closely with students allowed the administrators the experience of working with easily excitable students, which is a common problem in a physical classroom as well. Utilizing the Quiet Rooms and Help Rooms proved immensely crucial to the design and functionality of the Camp.

The LigerBots were able to apply the lessons learned towards the virtual club meetings they hosted and believe that the lessons learned in Camp AMP could be applicable to all communities learning to adapt to virtual environments. Throughout the process, Camp AMP worked to address the need for hands-on learning, a trusting and engaged community, and unconventional Zoom methods for being patient and understanding with easily excitable students. As high school students, we never thought that we could build such a strong and incredible community over Zoom.

Key Points

- Smaller groups are more effective at building an engaged community.
- It's important to have a communication system that allows easy and rapid communication outside of the class meeting, which both parties are fluent at using.
- Community and trust are best built through conversation and interactive activities, rather than traditional icebreakers.
- Support rooms are important to avoid class interruptions while still providing help to those who need it.
- Hands-on learning is important in maintaining engagement.

Acknowledgments

We would like to take this opportunity to thank the amazing coaches that supported us from the beginning of AMP Spring all the way through Camp AMP, to now, in the middle of AMP Fall. Their patience and advice guided us throughout the process and is invaluable.

Coach Noa Rensing

Coach Chuck Tanowitz

Coach John Fitzpatrick

We would also like to thank the rest of the administrative team. Without the marketing group finding parents and high school mentors and counselors, the program could not have taken off. For the logistical administrative team, their countless nights spent budgeting, scheduling and emailing should not go unnoticed.

Marketing:

Maggie Needham

Kavya Ajaykumar

Iris Yang

Logistical Administrative Team:

Jenny Wang
Rebecca Graham
Charlotte Carter
Michelle Yu
Iris Yang

In particular, we would like to recognize the many hours of work of all the high school (and middle school) volunteers and interns we had with us at Camp AMP. Their work and patience with the campers is unparalleled and we thank them for their hard work!

And finally we would like to thank the people who helped us prepare this document, including editing the text, designing the layout, and adding the graphics.

Clara Dutton
Kavya Ajaykumar
Iris Yang
Coach Greer Swiston
Coach Noa Rensing
Coach Chuck Tanowitz
Coach John Fitzpatrick

—Annette Chau, Daniel Feng,
Amanda Furbacher



Cover image courtesy of Spring Forward.
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