

# Bethel-Tate Student Reporters

**Assignment:** *Research student projects and learnings at the 3rd Annual 3D Printers Showcase hosted at the University of Cincinnati on March 7, 2019*

**Teacher/Advisor:** *Mrs. Fay Wagner, GCSC 3d Printers Club Curriculum Co-Author*

## QUOTES FROM STUDENTS:

"I can print anything I imagine!"

"I had never seen a 3D printer before this club."

"3D printing is the future."

"The amount of inventions in all fields this technology could make... it amazes me."

"By learning 3D printing from a young age, students will be able to have experience in a career opportunity."

"My favorite part was the 3D printing process!"

"Finally seeing the car that I had planned out, come out of the printer was amazing!"

"Creating is fun but difficult."

"It's really changed our classroom."

"I think more schools should have this opportunity."

"It's so interesting."

"We're excited to see what more we can do with it."

"It's so unique, but not many people know about it."

"It's a place where we can be creative and express and bring to life our ideas."

"It's really fun to create and see how far you can take it."

"It's a way we can bring our ideas to life."

## QUOTES FROM COACHES AND ADULTS:

"It's important for their success."

"They were amazed by what 3D printers could do."

"Super great to just have that support to get started."

"The chance to use the CAD programs and the effect that it has is amazing. The cause being designing it, and the effect, printing."

"It makes the kids more creative, visually and just by them putting it together."

"The kids loved it. They had some struggles but were still able to complete the project. I would highly recommend this project to other schools and clubs in the area."

"I'm learning right there with them."

"Now that we have it (a 3D printer), kids are a lot more excited to take part in the club."

"They (students in the club) were amazed by what the printers could do in the real world."

“They (students) like being able to find something they’re passionate about and take it to a whole new level.”

“3D printers are the future and so are these kids. That’s why these clubs are so important.”

“Kids have come up to me and said ‘I want to do this for a living’ after learning about 3D printing.”

“In five years everything is going to be different, this is your kid’s future”

“It is like replacing over one hundred machines and parts with one.”

“So many jobs are going to be replaced so this generation needs to have 3D printing abilities”

“The kids had so much fun and learned along the way.”

“It (3d printing) will be their future, their world.”

“They love it, they love it, they love printing. They would print all day.”

“We are really trying to get more kids involved and maybe start a summer camp.”

“In the future, almost everybody will have a 3d printer in their house.” - Glen, the creator of the Gorilla Maker

## **STORIES AND OBSERVATIONS:**

**From Lily:** After interviewing some kids, I was sure the projects were a success! I had so much fun interviewing kids on the projects I and fellow STEM students helped to create! I couldn’t believe how many programs are now using the projects. Since Bethel, Ohio, is such a small town, it’s so hard to believe that our project made such a big impact. I would absolutely love to do this event again. All my friends had fun, and so did I! I’m glad to share, no matter what school you’re from, how old you are, or even how you do in school: What you’re doing could make a difference. A big difference.

**From James:** The kids seemed very excited about being able to create these objects. They were proud of the work they had done, but relied on the support of others. They were confident in these ideas that their teacher(s) entrusted them with, and they went all out on their projects. Even for the 3D Grand Prix, where you don’t get as much freedom, the kids were still excited about their cars and be able to do whatever they want. One of my favorite projects was the can opener. I didn’t meet the creator, but it was a good idea. I had never seen anything like that before, and he had that come straight from his imagination. Instead of making something that could benefit himself or have something fun to have, he built something that is able to help someone in need. Kids like him will build our future. We rely on minds like his, and he went above and beyond. They build the future.

**From Emily:** Kids will be experts on it by the time they are adults and can invent things that can make a large impact on the world. There's no reason that I can see that schools should not have a 3D printing club in every school in the district. We can make bright, innovative inventors with the proper help and funding.

**From Amberlee:** I really think it's important for kids to have the opportunity to learn about 3D printing. It is becoming such a big part of our world and many people would agree with me. I spoke to many coaches at the showcase and almost every one of them brought up that it is going to be a huge part of our future. When I asked them if 3D printing should be included in schools or at least be taught to kids they all said yes. 3D printing is going to be a huge part of our future and I and many others feel this way. I would also like to thank the Cincinnati STEM collaborative for the wonderful opportunity and just a couple years ago introducing me to 3D printing and opening me up to a new world.

**From Faith:** We were very surprised to see these great inventions from schools that have continued something we started. These project topics were only a few inventions that we found interesting. One of the projects that were interesting to most of us was Honeycomb for Your Phone. She made this invention to solve the problem of phones being set down on the carpet and having the sound muffled out. It was a box that had amplification used to make your phone seem louder than it really is. Although she is still working on the final product, she was able to complete the task she was given and solve a world renowned problem, and that's what matters.

**From Carolyn:** A boy named Matthew made a device that can open pop cans. He did this for a special reason though. His grandma has Parkinson's disease, and she has trouble using her hands to open things like pop cans. This story was really sweet, and you can tell he is very passionate about this.

**From Katie:** When I talked to some other students I asked them what their favorite parts of the projects were. They all didn't have to think about it for a second. They instantly all said their favorite part of the project was printing the 3D parts. They all said they loved it and they would love to do it again if they ever got to. Even though some of the projects had problems throughout it, they said that they would do it over again if they had to and that they just loved it. Also, they said it was very challenging. When I asked them questions about the 3D printing part they all just smiled when they answered and you could really tell that they fell in love with the projects and that they just loved it that much. They said the main reasons why they loved it that much is because they were able to watch the printing pieces come out and see what they created.

**From Zaden:** Walking around the 3D printing showcase was like walking through a store. There were so many interesting inventions, and also car designs. The students that I saw looked very happy, and they had reason to be, because their projects were great. I talked to one pair of students who designed a better version of a dustpan for hardwood floors. They said that the hardest thing about the project was the failure. They said that their first design didn't work, so they had to redesign the whole thing. I also talked to two different coaches. The first one said, "I would definitely do it again." Another one said, "The kids are teaching students who aren't in the class all about it, because they have been enjoying it so much." Overall, what I observed showed that the kids who did this project enjoyed it very much. The teachers thought that too! I think that 3D printing is great for kids to learn, because they just might be used for many jobs in the future.

**From Lillie:** A 3D creation that experienced many difficulties was called "Honey Comb for you Phone". When they were creating it they had trouble sizing it to fit a phone and centering the crease where your phone would go. Another project from the school Queen of Peace confronted a big problem when their object was too small to start with. Then a little too big, but once they figured it out they were able to make the product's sizing perfect. One of the more advanced products I interviewed had many problems of their own. For example, the 3D prosthetic hand arrived at many challenges. The plastic would get too hot and warp and it also took a lot of time to get all the intricate parts together.

**From Mara:** My thoughts on the 3D printer is that someday we will make a larger scaled printer in the future to make even bigger objects. 3D printers have really contributed to helping children critically think and think about different outcomes of different situations. 3D printers really do get kids and even adults thinking. The 3D printer is revolutionary.

**From Naomie:** Earlier this March STEM students from the Bethel-Tate Middle School participated in the STEM collaborative as interviewers. We were told to ask the others student from other schools what their favorite part of their printing clubs or just printing in general was. From many of the students they said their favorite part was being able to express their ideas. For others they said being able to invent things to improve things around them. When I asked them the things they did in their club they had told me they do projects to better understand 3D printing. Then finally when I asked them where do they think the things they are doing now in their club, some said they wanted to manufacture and sell the things they had created, others said they wanted to keep making thing in hopes to one day create something they could make something to fix a greater problem in life.

**From Kaitlyn:** At the UC College Campus we had some brains working. Students from a bunch of different schools had come together to show off their amazing 3D projects. They made these products to help for different people's needs. An older girl made these wipers that attach to your glasses. She made the wipers too small so she had to tie them on. She used tape and rubber bands to hold it together. She said that one thing that she would change would be that instead of having rubber bands and tape to hold her product together that she would use velcro instead so that you can take them on or off whenever that you want. She also said that she made them because she was tired of walking out in the rain and then her glasses got soaked and really foggy so that she couldn't see. With these wipers attached it could wipe your lenses so that you can see through them. She believes that this product will go worldwide, and so do I.

**From Brady:** I met several different people at this showcase and one person really stood out to me. Her invention was favorable and she had a very good idea of what it would be like if she really put it on the market. Her name was Maddi B. and she invented a butterknife. But this is no ordinary butterknife, this is *The Heated Butter-knife!* The knife heats your butter as you cut it to make cutting it easier. An issue that Maddi had was printing the knife. When she first printed the knife was too thin and decided to print it in two pieces the next time. Maddi said she "...learned a lot about computer software and to never stop trying."

**From Laney:**



Mason Middle School - The above image is from the recent 3D Showcase in Cincinnati, Ohio. It features Aiden's and his classmates from Mason Middle's 3D printed projects. When asked to answer some questions for my team partner and I, he happily did so. Aiden told us that he enjoyed the project, and so did his classmates. When asked how long it took them to finish, Aiden said it only took a few weeks. Even with the short amount of time, Mason Middle students were still able to complete their projects and present them with ease. Mason Middle's poster also included some quotes from other

students. For example, Cade wrote, "I learned how to design various different objects." Based on this, it seems Aiden definitely wasn't the only one to have fun on their project. Kevin's Drill - Kevin designed a drill that plays nice music instead of loud, regular drill noises. His design is like a normal drill, but there's a music box in it. His dad works with drills and complains about the sound, so Kevin wanted to help him out. What a nice way to use 3D printing!

Hydrocar and Super Phone Acceptable Charger - Like many other posters, this one shared two different inventions. The Hydrocar is kind of like a solar-powered car, but it runs on water. The presenter wasn't really sure how everything would work out, but when given more time to think it over, I'm sure he can figure it all out! Let's move onto the Super Phone Acceptable Charger. This project is basically a box that can charge multiple devices at once. This invention would definitely use up a lot of power, but when given the chance to figure out how to fix that, I'm sure the creator would.

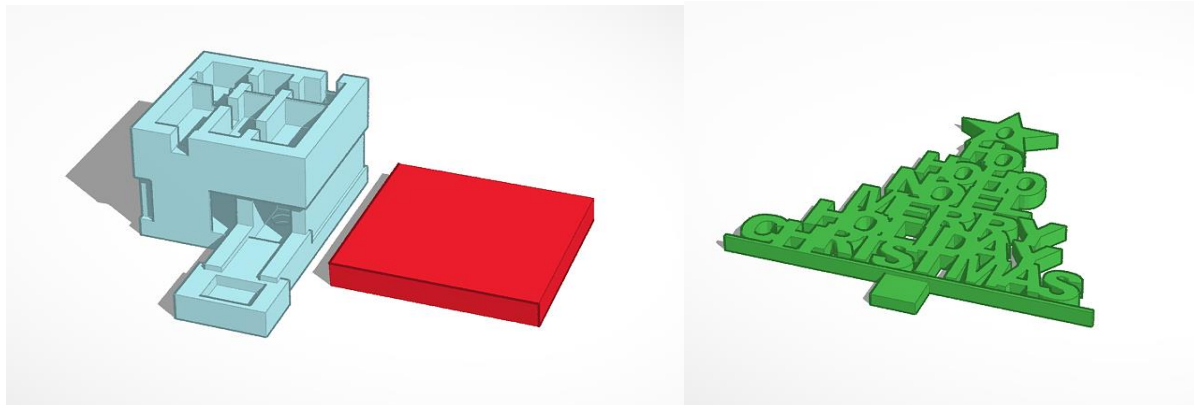
**From AJ:** "It all starts with an idea" - Vidya from P&G

This quote to me describes so much of the world today, especially 3D-printing and all the things people have done with it. At the Greater Cincinnati Stem Collaborative I learned so much about 3D-printing. I learned that you can print hard and soft things and you can print things out of metal. The great people at the P&G booth told me this when I was asking about the hard and soft printing. The way soft and hard printing works is the space between the gaps (soft=farther gaps, harder=closer gaps). Another good one I saw was these kids who built headphone holders because of their problem. Their problem was that when they normally put the headphones away without the holder they got tangled and broken. So that is why they created stubs that stick out of the wall so they can hold the headphones and not break them. One of the other greats was from another school. They had portable salt and pepper shakers so they could always have it in case they need seasoned food. It is also very good because you can have it personally and not share with the germier ones at restaurants.

**From Bekah:** Overall, all of the creations were great. Many of the students had great ideas and the inventions looked very useful. One thing that I noticed was that students that were given a problem to solve were a little less creative than those who could assess their own problem. I believe this is because they are so much more passionate about what they are inventing and the problem that they are solving if they see the need for it and want it as well. The students really looked like they enjoyed what they were presenting and what they did to make it.

**From Carlee:** I have participated in the 3D invention convention and the 3D grand prix and have seen first hand the effect that 3D printers have had on my S.T.E.M class. It

has not only made myself and my fellow students more creative in the way that we think about things and the way that we design things but it has taught us skills that we will need if we pursue a career in engineering or technology. With the 3D printers we have the opportunity to do things we never have been able to before. If there is any chance at all that others will get the same chance that would be amazing. 3D printers are our generation's future and without that knowledge of CAD programs and technology who knows where we will end up. Some of my designs are below ↓



**PHOTOS:**





