

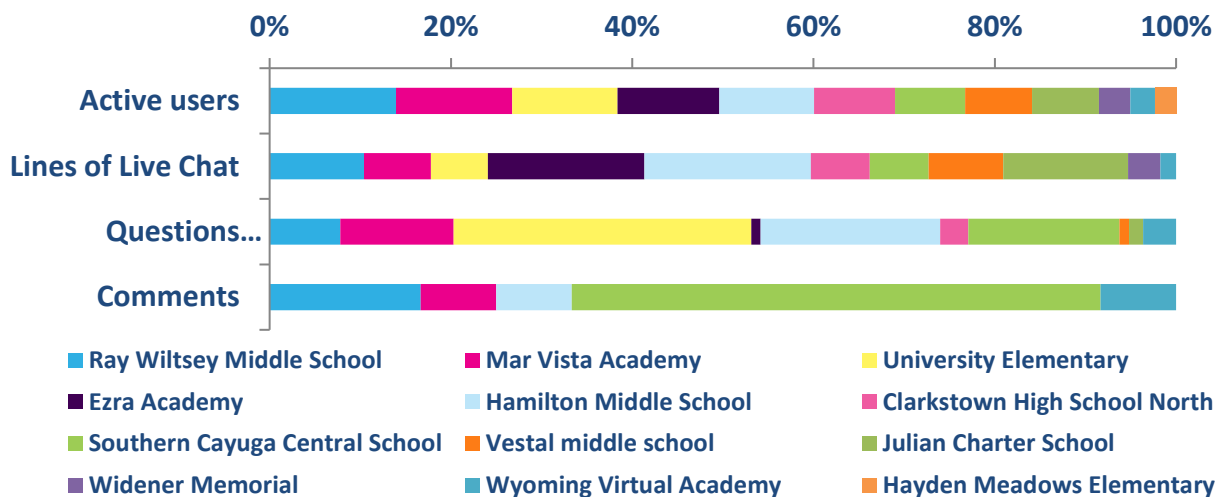


## March 2017

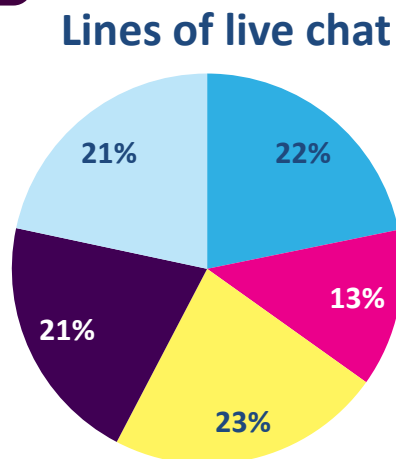
The Genomics Zone was a themed zone funded by Genentech and Human Longevity, Inc. The zone featured scientists working on a range of genomics related topics from genetic diseases in children to cancer. The zone had 329 participating students from 13 schools. Class sizes ranged from 5 to over 30 students across grades 4 to 11. Most of the classes had two live chats with the scientists with more live chats taking place in the first week than the second.

There were more questions submitted in the genomics zone than average during events and there was also more activity in live chats. The live chats were well attended, with the students from one school, Wyoming Virtual Academy, all logging on from their individual homeschool locations. All the scientists were very engaged and quick to reply to the students' questions with very detailed answers. They were very willing to interact, creating a dialogue of answers in response to ASK questions, corroborating answers, and supporting each other.

### School data at a glance



### Scientists' activity



Scientist	Profile views	Position
Jennifer	512	Winner
Xueyuan	601	2nd
Matthew	523	3rd
Candace	435	4th
Sahra	460	5th

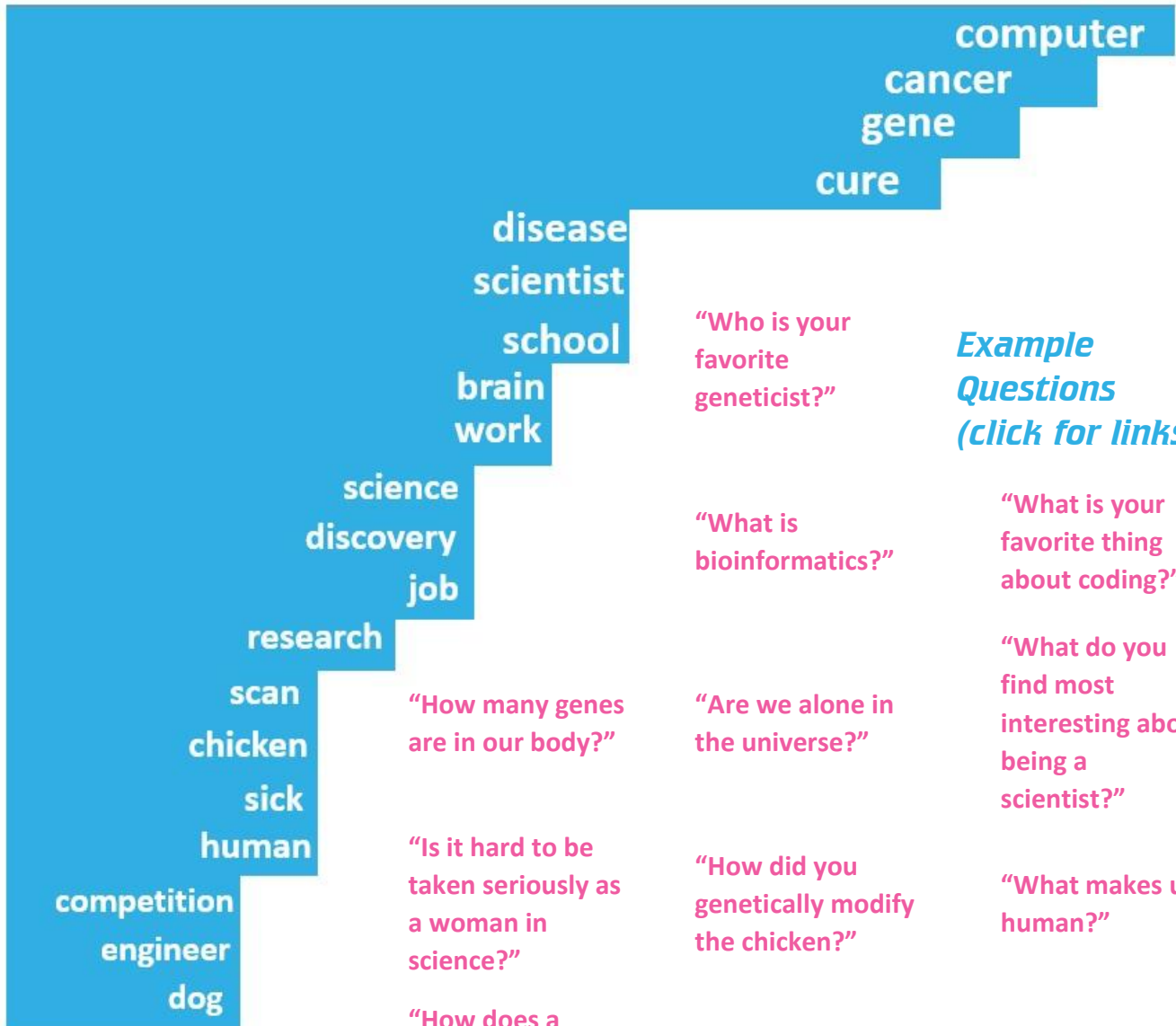




# Ask ?

Keywords of questions asked in the zone, length of bar represents frequency of use

0 2 4 6 8 10 12 14



## Example Questions (click for links)

“Who is your favorite geneticist?”

“What is bioinformatics?”

“Are we alone in the universe?”

“How did you genetically modify the chicken?”

“Can depression be in your genes?”

“How closely related are fruits and humans?”

“What is your favorite thing about coding?”

“What do you find most interesting about being a scientist?”

“What makes us human?”

“Can males give birth?”

“How will your work affect the world?”

“What kind of computer codes do you write?”

“Would it be possible to create a dragon by breeding a lizard and a bird or something like that?”

“How many genes are in our body?”

“Is it hard to be taken seriously as a woman in science?”

“How does a normal cell transform into a cancerous cell?”

“What is your opinion on feminism in the 21st century?”



## Examples of good engagement

All of the scientists were very good at engaging students in the live chats. The genomics zone chats featured lots of science questions and students focused on genetics and conversations about the research being conducted by the scientists. The students also asked about the scientists' careers, personal lives and interests.

### Questions about genetics and genomics

"What is a genome? 😊" – **Abigail and Marisol, students**

"Genome is the complete set of genes, genetic material of an organism." – **Sahra, scientist**

"what kind of genes do you manipulate?" - **Student**

"I have manipulated genes that are involved in addiction." – **Candace, scientist**

"What is RNA?" - **Student**

"RNA is ribonucleic acid, it is a messenger of information from DNA to express amino acids that make up proteins!" – **Sahra, scientist**

"When, where, and how are genes expressed?" - **Student**

"Perfect question! It all depends on the organism that which genes express where. Your skin and muscle has the same DNA! but the genes are expressed differently." – **Sahra, scientist**

"why do you study genes acquire new functions?" – **Student**

"We want to figure out how new functions occur and become important. That's a very fundamental question :)." – **Sharon, scientist**

### Questions about coding

"What kind of coding do you do?" - **Student**

"I use Python to parse my file, and R to analyze my data :)" – **Sharon, scientist**

"Me too! Go Python and R :)" – **Sahra, scientist**

"Does coding ever get hard or frustrating?" – **Student**

"Definitely, sometimes when I need to do a calculation that I have not done before, it takes some time to solve it. Or when I try to plot my results in a graph using coding, it takes some time to adjust the colors and other parameters." – **Sahra, scientist**

"Matthew, what kinds of things does the computer code analyze?" - **Student**

"We look for differences in the DNA of the kids we sequence. We compare their DNA to an un-sick person. We then try to figure out if these changes make the kid sick or do nothing." – **Matthew, scientist**

### Questions about the scientists' work

"What do you hope to achieve in your research?"- **Student**

"We are trying to cure melanoma - which is a skin cancer" – **Jennifer, scientist**

"Have you gotten far in your research?" – **Student**

"Yes we have gone from having an idea to now treating cancer patients- that took about 3 years to accomplish" – **Jennifer, scientist**

“why so u scan brains?” - **Student**

“I scan brains to learn how they work and how other things affect how the brain works. It is really cool!” – **Candace, scientist**

“what kind of diseases did you succeed in finding out about?” - **Student**

“A disease called dystonia, where you muscles are constantly tense, a disease called LVNC, which is where your heart muscles don't work right, a disease called BRS, which makes kids really really sick and unable to eat.” – **Matthew, scientist**

“what will you do in future experiments?” - **Student**

“I would look at how natural selection act on gene duplicates: ).” – **Sharon, scientist**

“what's your favorite thing about your jobs?” - **Student**

“My favorite part is coding!” – **Sharon, scientist**

“Same here, I also enjoy coding, it is like solving puzzles” – **Sahra, scientist**

“what changes did you give the chicken you modified?” - **Student**

“They ended up having less feather than normal ones.” – **Sharon, scientist**

“neat!” - **Student**

“Other than that, they are completely normal. We're studying the development of feather. So that's kinda what we wanted : )” – **Sharon, scientist**

“Would your research help anyone with mental issues like insane?” - **Student**

“That's a good question. Insanity isn't a technical diagnoses that we use but I think I know what you mean. My research has the potential of helping a wide range of mental illness, including psychosis.” – **Candace, scientist**

“What is the point of your work from a kids point of veiw?” - **Student**

“My research involves understanding roles of different regions in genomes, particularly plants! :).” – **Sahra, scientist**

### **Questions about careers**

“what's it like being a woman in the science field?” – **Student**

“I don't think it's different than being a boy in science: ) I'm very happy” – **Sharon, scientist**

“That's great to hear! In my last school there were only a couple girls interested in science. It was a guy thing, sadly. So I wasn't sure. Thanks!” – **Student**

“It's exciting being a woman in science. I think it is really important to have female mentors. It is really important to understand the way women typically act towards peers, bosses, interviews, promotions, etc. It is crucial to get mentoring through” – **Candace, scientist**

“It's NOT” – **Sharon, scientist**

“what do you wish you had known before you had gotten into science” - **Student**

“Great question, I wish I knew the long process of publishing a paper” – **Sahra, scientist**

“It's very very important where you study and who you study with (i.e. who you pick to be your boss). And it's hard to know who the right person is when you're young” – **Matthew, scientist**

“I wish to know that professors could get fired at the very beginning of their career if they don't do well...” – **Sharon, scientist**

## Questions about being a scientist

"How long have you been a scientist." - **Student**

"It's hard to answer that! I started doing science at 21, so I guess I have been a scientist for 9 years!" – **Candace, scientist**

"Is your work fun?" - **Student**

"I enjoy it so much. Everyday is different. I love to teach and to do experiments. It is always fun!" – **Candace, scientist**

"What did you do today?" – **Student 1**

"I had some meetings today, where we discussed projects related to tomato genomics :)." – **Sahra, scientist**

"Is there anything really special about tomatoes?" – **Will, student**

"@Will Yes, tomatoes are important components of our food and learning as a plant how it develops and responds to environment helps us to improve production." – **Sahra, scientist**

## Questions about the scientists

"DO you like rollercoasters?" – **Student**

"nope- I LOVE THEM" – **Jennifer, scientist**

"Me too!!! All about Six Flags!!!" - **Student**

"There is an awesome place in Ohio too!" – **Jennifer, scientist**

"What is it?" – **Student**

"Cedar point I think?" – **Jennifer, scientist**

"Whaaaaaaattttt!!!! That is even better than Six Flags, have you been on Mellenium Force?" – **Student**

"Yep" – **Jennifer, scientist**

"That is ssoooooooo CoooooL!!" - **Student**

"Have you ever tried teaching students about genes? Or meet children in real life? (And do you like Naruto? )" - **Student**

"Yes, I volunteered a curriculum mentor in the science summer camp last year. I taught for three weeks. Yes, I like Naruto!" – **Sharon, scientist**

"Oh my gosh I love you. Q: What kind of genes have you studied in your four years of work? )" - **Student**

"I studied the genes related to early embryonic development : )" – **Sharon, scientist**

"Wow nice! One more: Have you studied genes with cancerous cells?" - **Student**

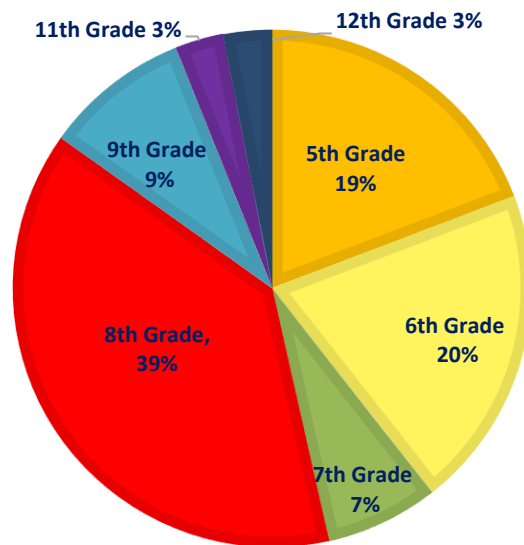
"Yes, lung cancer cell line. When I was in college." – **Sharon, scientist**

"I think I know who's getting my vote :p You're basically my favorite (no offense to other scientists ~\_~)"- **Student**

Schools and students taking part in the genomics zone



- Vestal middle school
- Hamilton Middle School
- Widener Memorial
- Southern Cayuga Central Sch...
- University Elementary
- Mar Vista Academy
- Clarkstown High School North
- Hayden Meadows Elementar...
- Julian Charter School
- Ray Wiltsey Middle School
- Norwich Middle School
- Wyoming Virtual Academy
- Ezra Academy



Percentage of students participating by grade.

## Scientist winner:

Jennifer's plans for the prize money: "Teach schools about Bioinformatics and Cancer- especially in the small towns near where I grew up."



## Student winner: Justin, Mar Vista Academy

For great engagement during the event, a student from Mar Vista Academy will receive a gift voucher and a certificate.

## Feedback

Here are a few of the comments and tweets made during the event and in the evaluation surveys.

"Thank you all so very much; you are the greatest human beings that have ever lived in the history of the universe." – **student**

"Thank you for your time and have an amazing day and good luck on finding your research you guys are very important to the world just know that." – **student**

"thank you!! You are all AWESOME!!" – **student**



deLuca Wow! look at my students go!!



Alicia Johal  
@AliciaJohal

Following

@imascientistUS @MsVenturino @genentech @humanlongevity Thank you all!!! The students were so excited, engaged and happy!

3:52 PM - 15 Mar 2017



"The students loved it! Did not really know what to expect, but it was great. Thank you so much!" – **Caroline Hickerson, Teacher, Wyoming Virtual Academy**

"Great Program!" – **Frank Benenati, Teacher, Southern Cayuga School District**

"The live chat feature is cool because they can build on questions from other students." – **Stephanie deBiasio, Teacher, Hamilton Middle School**

"I'm a Scientist is great!! It was very fun and rewarding to participate in this program." – **Sahra Uygun, scientist**

"I like that we can reach out to students anywhere! Growing up in a small town I would have loved to do have been able to do this in my class. It's really important that students get to ask any question they want and we can try to answer it!" – **Jennifer Hintzsche, scientist**

"I just think it's important to educate people about science and foster kid's interest in science" – **Matthew Bainbridge, scientist**

"Thank you so much! It's a wonderful experience! You guys are awesome!" – **Xueyuan Jiang, scientist**



Mari Venturino @MsVenturino · 19m

My kids are having so much fun right now! We're chatting with scientists!  
#SUHSD #SUHSDlearns







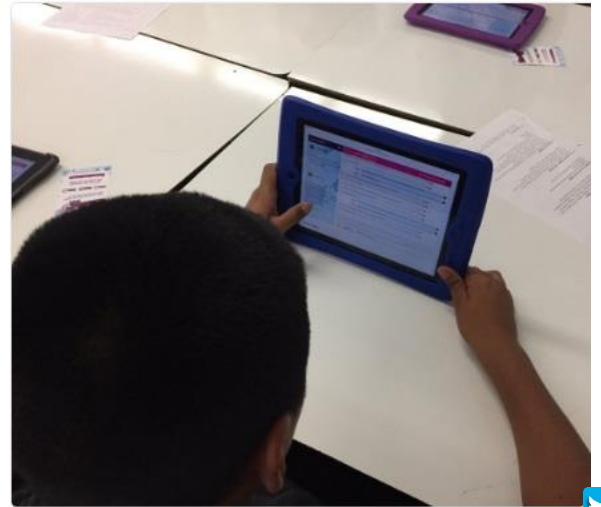
**Liana Gertzer**   
@lgertzer

Following 

@imascientistUS @genentech  
@humanlongevity Having a great time chatting,  
so glad we got a second chance to chat!



**Mari Venturino** @MsVenturino · 15m  
@imascientistUS chat is happening now!!



stephaniedebiasio Thanks for letting us keep chatting.

stephaniedebiasio the three that can stay in the lab are stoked!

stephaniedebiasio Most of them were asking good questions! super engaging when we got going.

deLuca @Matthew and @Tristan, you all blew the students away today! I was so proud of them! It takes a lot for us to set everything up to ask the questions, that's why this group was firing fast! I had them writing things down for days!

deLuca @Tristan if you remember, all of the students are physically handicapped. One of them kept asking about animals. This past summer, we were able to get her in a camp program that showed them all about animals. she dissected a few.

"The best thing was watching students get really excited about what the different scientists said. Another great thing was listening to the insightful questions that my students came up with." – **Jamie Hurlbut, Teacher, Vestal Middle School**

"Students were able to see scientists as real people, not names in a textbook. The kids get to interact with scientists who are working in the field and for the students to see what type of work scientists do. I really liked how patient the scientists were with the immaturity of the students. They treated them with respect." – **Liana Gertzer, Teacher, Clarkstown High School North**

