

Canadian Geographic is a magazine of **The Royal Canadian Geographical Society**



# Featured Teacher: Sarah Gallah

Toronto teacher takes advantage of the virtual setting during COVID-19 to teach students coding and connect to climate change issues



Sarah Gallah is passionate about learning how we interact with our environment and sharing that learning journey with her students, whether that's on topics such as climate change or the mental health benefits of natural spaces. (Photo: Sarah Gallah)

By [Tanya Kirnishni \(/author/tanya-kirnishni\)](/author/tanya-kirnishni)

February 2, 2022

---

Sarah Gallah has been a teacher for 10 years and currently teaches geography and sciences for grades 9 to 12 at St. Michael's Choir School in Toronto, Ont. Gallah's teaching philosophy centres on modelling a love of

learning. She believes that it is important for students to see her learning alongside them, as a way to encourage them to have an open attitude to new experiences. In 2021, Gallah was selected as a National Geographic Grosvenor Fellow.

### **On how she created a new program during COVID-19**

I applied for a grant last year from the National Geographic Society — it was a [COVID-19 educators' grant \(https://www.nationalgeographic.org/funding-opportunities/grants/what-we-fund/covid-19-emergency-fund-educators/\)](https://www.nationalgeographic.org/funding-opportunities/grants/what-we-fund/covid-19-emergency-fund-educators/). I used the funds to teach myself how to code, which is totally out of my area of specialty. I wanted to show students because they had been asking to learn how to code, but there's no coding program at school. So I said, "You know what, I'm going to learn coding." I ran a virtual program on Zoom after school, where I taught them how to code as well as teaching myself. And then I used coding to explore geographic issues. The program I created was called Coding for Climate Change, using coding and Python to explore topics like climate science. The reason I did this — connecting two totally disparate, unrelated topics — was to show my students that coding and technology can be used for geography in a variety of different ways, not just GIS. I think that's the basis of what creativity is — the idea that you can connect two completely remote ideas or concepts.

### **On encouraging action-oriented learning**

The geographic issue of climate science and climate change gave the coding activities context and relevance. It was a really neat way to use coding but also a good way to explore topics in geography that are really important to my students. When there were those big protests before COVID-19 in downtown Toronto, the students were attending these protests because they are quite passionate about climate change.

And when they had come back, I asked them, "So what was the result from the protests? Is there a next step?" And they seemed kind of confused on that point. They felt like they couldn't really do much about it other than attend to protest. That's why I thought that showing them the power of technology and examples of how technology is used in terms of recording and sharing data is very powerful and important.

### **On the geography connection**

I approached it on a global scale. We looked at examples of various effects of climate change affecting places around the world, but we would always make Canadian comparisons and comparisons between countries. So, for example, how much does melting permafrost cause the roads in Canada to shift? Our culminating activity was being able to visualize data — to learn how to take data and create graphs using Python. We actually looked at data in terms of farmland use — how different countries use different amounts of land for farming and how that's connected to greenhouse gas emissions.

I even showed students vertical farms and how that is a technological solution to a lot of problems if we don't have enough farmland. And these vertical farms are sustainable and not only target climate change but also social issues in communities. The point of this program is to show them how there are multiple creative solutions that employ technology. I think that was important so that students are not just being anxious about it and feeling like there's this looming problem that they, as students, can't solve.

### **On the advantages of doing a virtual program**

For the most part, if a student was struggling, they could just share their screen and I could see exactly what they were coding and be able to help them that way. And, actually, something that is good to mention in terms of virtual — if it was in-person, and a student was going to ask me for help, it would just be an interaction

between me and the student. However, when a student is sharing their screen with everybody and saying, "I'm really stuck on this problem," I would have other students pitch in and say, "Actually, I see where your mistake is right over here." And it really created a sense of community and a communal problem-solving approach. Students were not just relying on the teacher to solve problems. So that was a great result of running the program virtually.

### **On sharing her experience with other teachers**

I really want to find a way to share this with educators beyond my school, so I created a website [Ed Tech for Change \(https://edtechforchange.com/?page\\_id=249\)](https://edtechforchange.com/?page_id=249). My hope is that this year I can create workshops for educators and maybe present at conferences to share this free resource with as many educators as I can. I would want to model how to use it and model how anyone can learn coding.

Feeling like I have no background in coding, how can I approach a language like Python? Well, the resource is created by an educator who has absolutely zero background in coding. And so the point is to make it very approachable for students and educators. After I had done it with my high school students, the grade 7 and 8 students at the school were interested, so I ran a limited version of that program with them. I think the hardest part of learning something new is just getting started. Once you have the introduction to it, you'll be more inclined to follow through and learn something that might seem more intimidating than it is.

### **Share this page**

---