

First year students from Coláiste Iognáid in Galway win two BT Young Scientist awards for their project, 'Think Before You Drink: Microplastics'

Three young Scientists Aoibhe Briscoe, Ellie Concannon, and Kate Owens, first year students at Coláiste Iognáid in Galway, competed for this year's BT Young Scientist and Technology Awards in the Category *Biological and Ecological Sciences* with their project 'Think Before You Drink: Microplastics'. Mentored by NUI Galway, the students won first place in their category and a special award issued by the Environmental Protection Agency for *Best Environmental Project* presented at the BT Young Scientist 2018.

For their project they investigated over 40 tap water samples from 23 primary schools in County Galway for microplastic contamination. They found that 96.9% of all tested samples were contaminated with microplastics and that the level of contamination for drinking water from Galway classrooms (2.7 per 500ml) exceeded the European average of 1.9 per 500ml.

The analysis of the samples took place in the lab facilities of the School of Geography and Archaeology at NUI Galway under the guidance and supervision of Dr Audrey Morley a lecturer in Physical Geography and member of the Ryan Institute for Environmental, Marine and Energy research. Dr Morley advised and trained the young scientists on sample collection and analysis and ensured that all procedures followed previously published protocols for microplastic extraction from tap water samples from a global study commissioned by the journal *Orb* in 2017*. In addition to the analysis of the tap water samples, contamination controls were measured at regular intervals throughout the experiment to assess and assure the validity of the results.

Speaking about the young scientists work on the project, Dr Audrey Morley at NUI Galway, said: "The identification of microplastic using a microscope can be tedious and time consuming, requiring focus and concentration by the analyst. I was very impressed with the level of dedication and persistence that Aoibhe, Ellie, and Kate brought to the project. It is great to see young women so excited about science and determined to bring about change."

BT Young Scientist winner, Kate Owens, said: "The BT Young Scientist experience has inspired me to be part of solving the problems of the future. President Michael D. Higgins spoke to us about Africa being the largest populated continent in the world and the need for young people to be part of developing solutions for the challenges this presents."

“It was a revelation to us that our love of fast fashion is polluting our drink water, simply by washing the clothes we wear. 77.8% of the contamination we detected in the schools water supply were microfibres. Synthetic fabric fibres that are so small that they could not be filtered by the public water works. Plastic bags and bottles, you can actually see and remove, but you cannot see these tiny, almost invisible microfibres that are bio-accumulating in our bodies, now that is truly scary.”

Kate added: “Aoibhe, Ellie and I are a great team and we work well together. Audrey’s guidance and patience gave us a solid, scientific method to undertake our testing and that was the key to our credibility. We were total beginners and she was so incredibly generous with her time. We learned so much from her! We felt that our findings were important and that with our presentation ‘sizzle’, we could get politicians to listen, so we practiced our pitch, over and over until we could say it in our sleep and fine-tuned it over the four days at the RDS. Dressed in our lab coats, no-one was safe and we cornered many politicians including Richard Bruton, Micheál Martin and Heather Humphreys. Leo Varadkar got away but we will be looking for him at the Mansion House in May 2018.”

Fellow BT Young Scientist winner, Aoibhe Briscoe, said: “I think the BT Young Scientist competition was an amazing experience, we got to meet so many new people and had the chance to learn so many new things. Working in the lab with Audrey was really fun and I enjoyed it so much, it was very time consuming and tiring but every second put into our project was worth it in the end. It has definitely made me more interested in science and I will definitely do it again next year.”

BT Young Scientist winner, Ellie Concannon, added: “I would like to do something that makes a change, I would like to speak out for the people who don’t have a voice. I want to have fun, face challenges, and realise my potential in life. The BT Young Scientist competition was an amazing experience, we were able to share our project with lots of people and educate people about our project who had never heard about microplastics, and we were also able to influence people’s choices for the better. We had such a good time we met loads of new people and got to meet people who could really help us with our project. I absolutely loved it.”