ALL HANDS ON DECK: REWILDING SIGN LANGUAGE

A group of deaf scientists and educators have created 400 British Sign Language signs related to environmental science. It's helping to open up discussions about the climate emergency, from the science lab to the classroom

Words by Angeles Rodenas

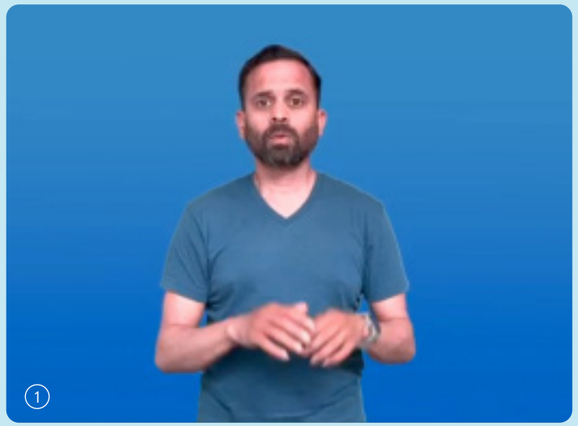
Words are capable of inspiring action, forging connections and deepening our knowledge. And when we lack vocabulary in our own language? We borrow it from another, although nuance can be lost in translation. The British Sign Language (BSL) had to do just that for a long time, resorting to finger-spelling certain terms in the absence of visual representations for them.

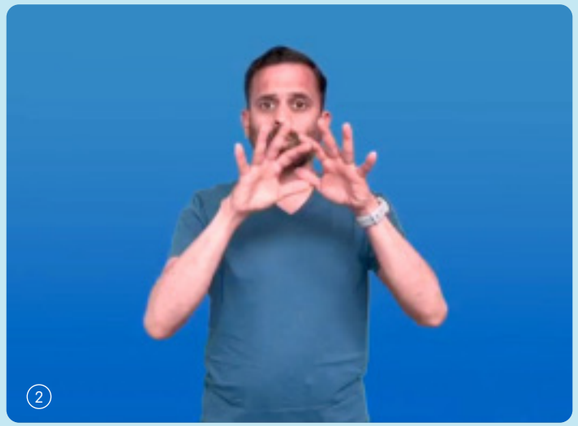
But it's catching up quickly. In 2024, signs for 'global warming', 'deforestation' and another 200 terms related to energy, sustainability and environmental impact were created. They are part of a second round of an online glossary, which launched in 2023.

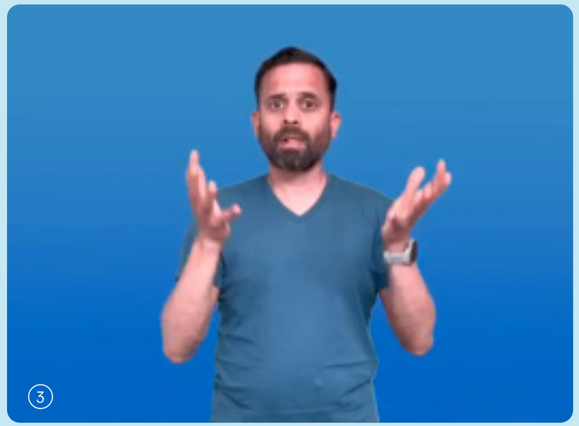
Now, a total of 400 signs have been developed by scientists, educators and sign linguists from the project at the University of Edinburgh's Scottish Sensory Centre to make the topic more accessible for the deaf community, particularly for children. They build on a base of scientific words extracted from GCSE and A-Level courses that have been developed into signs by the team since 2007.

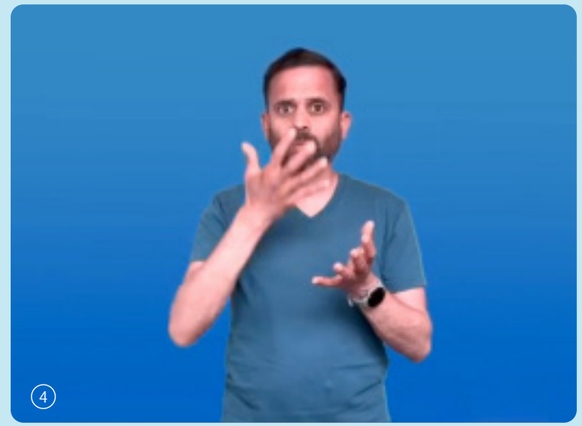
"Having them has really improved children's breadth of vocabulary and understanding of scientific terms," says Derek Rodger, a chemistry teacher, and head of STEM, at Heathlands School for Deaf Children, in St Albans. Rodger is also part of the glossary team. "We start off with the concrete sign and then move into abstract thinking," he says, "which has been really helpful."

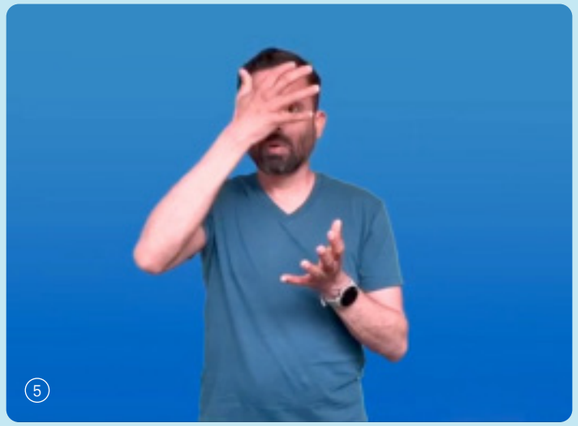
Admittedly the tools have come later than many in the deaf community had hoped. But

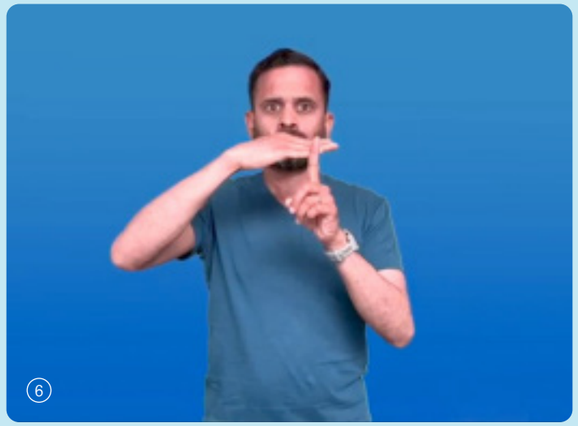


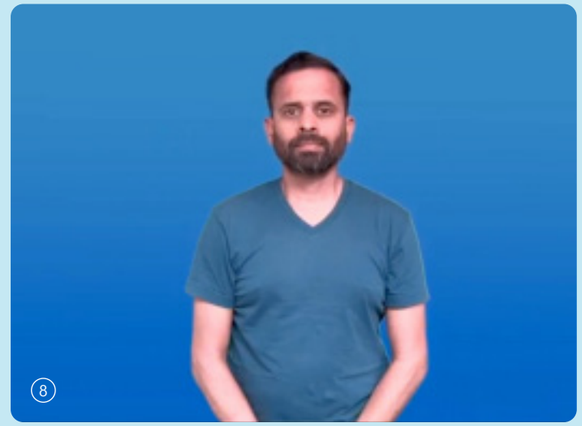












Above: step by step, the new sign for 'global warming' on the Scottish Sensory Centre's website

right away, they are helping to shape discussions around the climate. BSL has achieved remarkable progress for a language that was only officially recognised by the UK government in 2003, and has faced barriers and stigma for centuries.

"Historically deaf people had to sign furtively, maybe in school corridors but not in the classroom. They weren't allowed to teach and they haven't been encouraged to be part of science conversations," explains Dr Audrey Cameron, coordinator of the project, who is based at the University of Edinburgh.

The work of academics like pioneer linguist Mary Brennan has been instrumental in bringing about positive change. She proved that deaf people could acquire language through signing, helping to rescue the hand shapes from obscurity.

Cameron, who is profoundly deaf, pursued a PhD in polymer chemistry despite having to rely on fellow students and supportive teachers, and pretty much writing her way through her education. "The 40 people in our team had a very similar experience to me," she says, "and are really committed to not having the next generation go through the same challenges we went through."

The signs themselves have emerged from a lengthy process. It started by identifying the gaps within the school curriculum and coming up with the list of terms. The signs are linked to one another to allow users to reinforce or build on a concept. Often a new sign will be based on an existing one. 'Deforestation', for example, is a combination of the sign for 'tree' and a chopping motion repeated four times to represent the felling of trees.

The sign for 'carnivores' is two five-fingered claws coming together as sharp teeth. To sign 'herbivores', users put closed fists together, palms facing, with the right hand on top and slide their knuckles against each other in a circular 'teeth grinding' motion.

Not all are so intuitive. "When you look at the sign for rewilding, for example," says Cameron, "it's perhaps not immediately apparent what it means, but the idea is to encourage dialogue and from the dialogue comes understanding."

A unanimous agreement must be reached by team members before the signs go on to be tested in workshops by members of the deaf community.

"For us, it's key to understand conceptually what things look like, what they do or what they refer to," notes Cameron. "For example, in the sign for 'carbon footprint' the C hand shape represents the element carbon and the other fingers represent the release of carbon into the environment. We could have come up with a more literal sign for footprint but it wouldn't have been visually or conceptually accurate."

Children have sometimes come up with brilliant alternative suggestions for signs that the team has adopted – as was the case with the sign for 'gene', remembers Rodger.

"You can see in people's faces the moment they get the concept from seeing the sign," says Cameron, of when word and hand shape come together beautifully.

"I've seen deaf children aged five understand the idea of density because of the sign," she adds. She thinks the signs would be very useful for teaching hearing children too, because they "open up a more visual appreciation" of concepts.

The glossary is designed to be an open and dynamic resource, and has received positive feedback since it launched. In the last 12 months, the site had nearly 370,000 hits. Signs have been used by interpreters at the Scottish parliament, on television and in school classrooms, as well as in higher and further education.

The glossary has been partly funded by the Royal Society, but without a sustainable source of finance, expanding it will prove a challenge, says Cameron. Still, she's enthusiastic about a pan-European project that compares signs for marine species, which could feed into the glossary.

At national and international levels, deaf scientists are now better able to share views about the climate, in depth and with nuance. "It's really nice to talk about our passion for science in our first language," says Cameron. "This is the first time we've had the opportunity to do that."

Below: Dr Audrey Cameron, who is deaf, has previously felt excluded from meetings and events due to the lack of climate-related vocabulary

> **"You can see in people's faces the moment they get the concept from seeing the sign"**

Above: Derek Rodger, a chemistry teacher at Heathlands School for Deaf Children in St Albans, has helped to devise the signs

Below: in signing 'carbon footprint', the left hand forms a C shape, with the right hand's fingers moving away from the left hand to resemble the release of carbon