

There are reasons girls don't study physics, and they don't include not liking math

May 10 2022, by Olivia Keenan and Jen Gupta



Credit: AI-generated image ([disclaimer](#))

"From my own knowledge of these things, physics is not something that girls tend to fancy. They don't want to do it ... There's a lot of hard math in there that I think that they would rather not do," Katharine Birbalsingh, chair of the U.K. government's Social Mobility Commission and a secondary school head teacher, [told the Commons Science and](#)

[Technology Committee](#) on April 27 2022.

Comments like this are extremely disappointing. There are multiple reasons why girls don't choose to study physics at A-level or for a degree—and "not wanting to do [math](#)" is not one of them.

Instead, the reasons include getting less support from teachers and parents and stereotypes about who generally takes these subjects.

Comparing achievement

Birbalsingh commented that "hard math" was stopping girls taking physics. If this were the case, though, we would expect to see far fewer girls taking math. However, in 2019, 39% of A-Level exam entrants in math were girls, compared to 23% in physics. This shows that the reasons girls don't take physics has more to do with physics than math.

What's more, girls and boys achieve similar grades in math and physics. [In 2019](#)—the last year standard exams were set—8.5% of girls achieved an A* in Physics A-level compared to 8.8% of boys; 28.7% of girls and 27.6% of boys scored an A grade. The same pattern can be seen in GCSE results. But more boys than girls choose to go on to study science at a higher level.

My guess is that our girls who haven't chosen to do physics and instead chose biology and chemistry is that they don't want to do the hard maths in physics

Why should we force them to do physics when they don't want to?

Those who want to, are thriving in physics- that's great!

— Katharine Birbalsingh (@Miss_Snuffly) [April 27, 2022](#)

[The ASPIRES project](#) has followed a group of students from the age of 10 to young adulthood, studying their ambitions related to science. [The project has](#) found that, throughout secondary [school](#), boys are more likely than girls to say they would like to become a scientist. This difference increased over the course of [secondary school](#), with the biggest gap being found in year 13.

There is evidence that the expectations placed on pupils by teachers plays a large role in which students go on to take physics at higher levels. [The ASPIRES project](#) found that from ages ten to 18, boys were significantly more likely than girls to say that their teacher expected them to do well in science, and to feel that their teacher was interested in whether they understood science. The research found that girls often did not feel "clever enough" to do physics, even though girls achieve similar grades to boys.

Gender stereotypes

In physics the stereotype is that boys are naturally better at it than girls, and this messaging is still being passed on (both intentionally and unintentionally) to our [young people](#) in school, in their home lives and through the the media. A well known example is the television show the [Big Bang Theory](#), which features four male physicists and engineers and their ditsy female neighbor.

These findings are backed up by the [Institute of Physics' \(IOP\) Limit Less](#) report, which found that girls are often told that physics is more suited to boys.

Another report by the [IOP](#) shows that in single-sex schools a greater proportion of girls took physics than in coeducational schools, across

both the state and private school system. In environments where gendered messaging is lessened, the participation rate of girls increases.

It is vitally important to remove the barriers to girls' participation in physics. We are part of the South East Physics Network ([SEPnet](#)), a collaboration of nine university physics departments working together to promote excellence in physics with a focus on diversity.

At SEPnet we created the [Shattering Stereotypes](#) program in 2017 to raise awareness among students of gendered stereotyping in subject choice, and equip them with tools to be resilient to this. We also provide [teacher training](#) in this area to support teachers' awareness of the damage gender stereotypes and gendered language can have, and to provide them with resources and tools to combat them.

The IOP runs multiple projects to address the gender imbalance in physics. Their Limit Less campaign supports young people from all backgrounds to fulfill their potential by doing physics. The [Improving Gender Balance Project](#) is a research project working with schools to identify ways to improve balance across the school environment.

In spite of all of this, Birbalsingh's remarks show that we have a long way to go to normalize the idea that both [girls](#) and boys are capable of, and inherently interested in, studying physics. As a society we need to shift our perceptions on the relationship between gender and STEM subjects such as [physics](#).

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