Case Study

Cristal Steele

Science teacher, Cristal Steele, explains why she loves MEL Chemistry VR and how it improves focus and comprehension.

Cristal Steele has loved science all her life. She started teaching so she could share her passion for science with the next generation. Now she's setting up a purpose-built virtual reality and augmented reality science lab and maker space at Beach High School.

On the request list was MEL Chemistry VR, a science resource that she first tried in 2018 for her previous school. Here, Cristal shares her experience of bringing VR into the classroom and how it improved focus and comprehension.

Introducing VR to the students

Our school got a kit of RedboxVR VR headsets, with the MEL Science VR app pre-installed, in preparation for our first VR chemistry lesson. Virtual Reality (VR) is used by wearing a headset or goggles, which immerse you in a virtual world, enabling pupils to experience what they are learning first-hand. In an increasingly technology focused society, it is important that our students engage with contemporary and relevant learning resources. MEL VR lets students experience atomic level interactions, and interact with them at a human scale. This doesn't just tell them about models, maths and formula, this helps them gain an intuitive understanding of what's going on.

Cristal's students trying out their new headsets.

"Tell me and I forget, teach me and I may remember, involve me and I learn."

ancient Chinese proverb, Xunzi, (also attributed to Benjamin Franklin)

The VR headsets were aligned with our classroom textbook, so the lesson was curriculum led but delivered through this exciting new format. One of my students, Kennedi White, said she won't forget the first VR lesson we tried. "My first time doing this, I fell off my chair," she said. "It was hands-on, but not in the way I think of hands-on. It was cool and fun."

Kennedi White, a previous student of Cristal's.

I started the first VR lesson by memorizing the periodic table; this is a vital component of my chemistry lessons. Using VR helped me bring the material to life and engaged my students with information they may have previously struggled to engage with and understand.

If we want students to compete and make transformative change in the future, we have to expose them to ground-breaking technology now. These are students that are going to take science to the next level and will have to work with a multitude of technologies like this in their future careers. Therefore, it makes sense to familiarise them with it now as it sets them up for future academic and professional success.

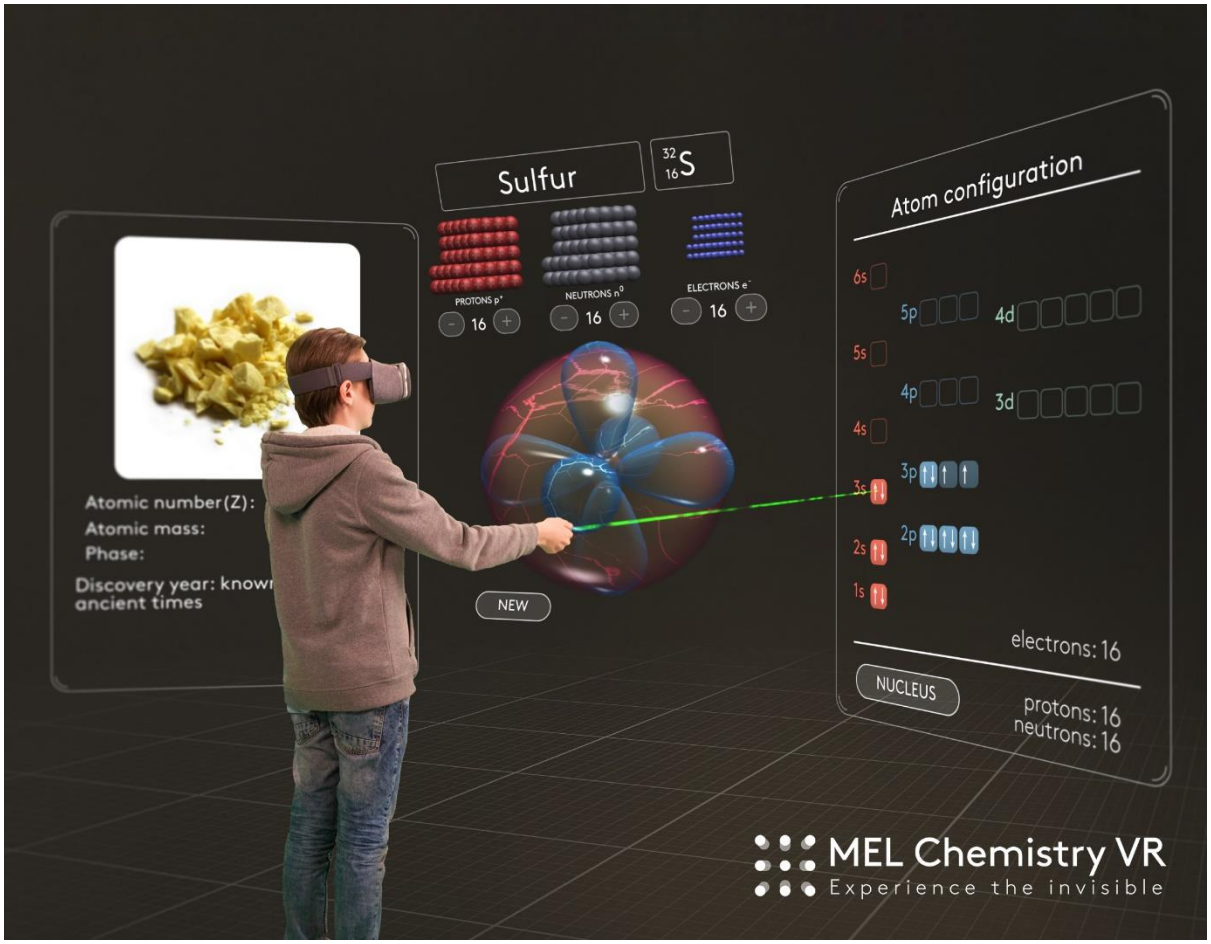
Putting VR to the test

The VR technology provided my students with three-dimensional interactive tests; these fed back into my instructor's tablet. This provides teachers like me with the real-time answers, and the students get feedback and the chance to redo the lesson if they miss a question. This helps ensure that students aren't left behind and can work at their own pace.

Cristal Steele, Instructional Coach.

My class then experienced how the particles of an atom bounce around at different speeds depending on their state. The VR headsets provide a three-dimensional view of how electrons and neutrons interact; the Royal Society of Chemistry described the technology as a “science resource where students can zoom inside a diamond and fly around discovering and building atoms and molecules.” This is the perfect example of the immersive learning experiences that are possible with VR technology – content that in my experience, has fully engaged my students.

The atom builder function allowed my students to familiarise themselves with the composition of atoms in a completely novel way. “It's like you are part of it, rather than copying it down. It sticks with you," said Jordan Albury, another of my former students.



MEL Science atom builder

I have found utilising MEL Science VR has increased my students' focus, which ultimately improves their overall comprehension of the topic. They have even recognised the differences themselves. "You're not just learning it to learn it. You're experiencing it and you understand it fully," said Alexa Morrison, one of my former students. I know this technology is academically beneficial but importantly, my students' engagement with learning has skyrocketed which is why I believe VR should be adopted more widely.

In summer 2019, MEL Science completed a random control trial with the New Jersey Institute of Technology which showed that VR students scored significantly higher in final exams and class grades. (add link here to the next blog)