

## John Monash Science School courses go virtual with Google Apps for Education



### At a Glance

#### Context

- Emerging Sciences Victoria (ESV) was founded at JMSS to offer students in remote classrooms advanced science lessons via digital learning
- Google Apps for Education provides a robust learning platform, which teachers and students anywhere can use to share materials and collaborate in real time
- ESV now serves 156 students with capacity to reach 250 students

[www.emsci.vic.edu.au](http://www.emsci.vic.edu.au)

#### Goals

- Offer students virtual classes in real time from their own schools, delivered by JMSS teachers with the support of Monash University science experts and working scientists from across the world
- Promote interest in STEM careers by offering students distance learning courses in astrophysics, biotechnology, nanotechnology, and quantum physics with an eye to developing additional studies
- Use Google Apps for Education as a platform for teachers and students to share curriculum materials, collaborate on projects, and foster authentic learning
- Invite students and teachers to become part of a virtual-learning community of like-minded science enthusiasts

#### Background

Emerging Sciences Victoria (ESV) is a virtual school bringing astrophysics, biotechnology, nanotechnology, and other advanced science courses to Year 10 students in 30+ regional and metropolitan schools across the state of Victoria, Australia.

"A lot of regional schools don't have specialized science teachers," says Chris Harte, leading teacher for personalised learning at John Monash Science School (JMSS) in Melbourne, which launched the ESV initiative in 2014. Based on the Monash University campus, JMSS works with leading research scientists to bring the virtual science curriculum to life. The goal is to get students who wouldn't otherwise have access to advanced classes excited about science, technology, engineering, and math (STEM) careers.

#### Challenge

ESV had the expert teachers and scientists, the technological know-how, and a webcasting studio to produce distance learning programming. The challenge was how to build virtual lessons and curricula to support students in far-flung classrooms, and how to involve teachers with different types of computers and devices in schools with limited resources. ESV needed a platform that would empower students who'd never met to share information and collaborate on projects in real time.

"We knew that we wanted collaboration and communication at ESV's heart," Harte says. "There was an incredible opportunity not only to connect students to expert teachers and working scientists, but also to each other. We needed tools that would allow students to collect data, design presentations, and research collaboratively. The only platform that allows for this level of real-time collaboration is Google Apps for Education."

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*"We believe the future of education is connecting students, teachers, and experts together online."*

*—Chris Harte, Teacher, Emerging Sciences Victoria*

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#### Solution

ESV adopted Google Apps for Education at the launch of the program because it addressed multiple challenges.

"Our students work on multiple devices including laptops, tablets, and smartphones," says JMSS Principal Peter Corkill, who conceptualized the ESV initiative. "Google Apps enables them to access learning and collaborate, irrespective of the hardware and their location. We knew Google Apps would be easy for teachers in remote locations to access and use, while offering students hundreds of kilometres apart a way to collaborate and build understanding together in real time."

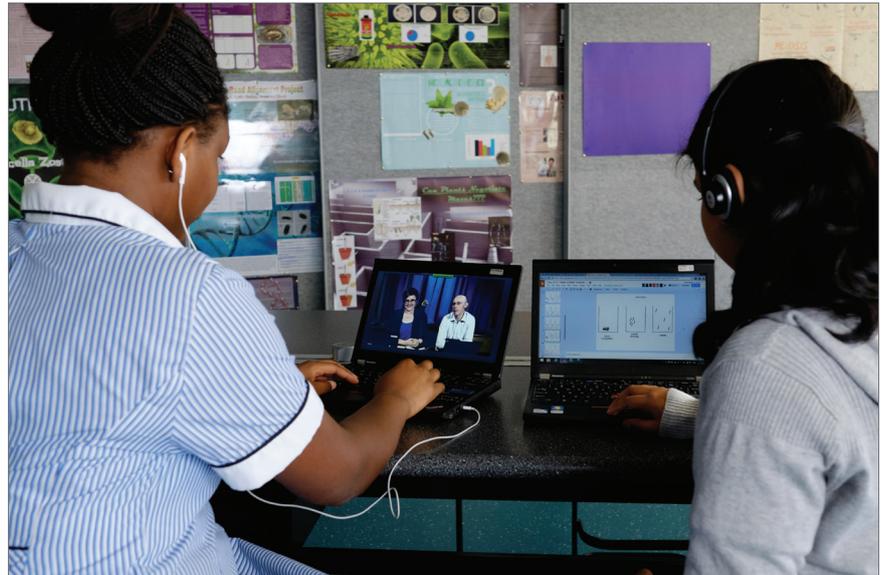
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## About John Monash Science School

- John Monash Science School (JMSS) is Victoria's first specialist secondary school for science, mathematics, and associated technologies. Emerging Sciences Victoria is a virtual school within JMSS
- Serves 624 students
- Located at Monash University, Melbourne

[www.jmss.vic.edu.au](http://www.jmss.vic.edu.au)

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Adds teacher Chris Harte: "It is wonderful to see students from rural and regional Victoria interacting live with working scientists like Associate Professor of Physics and Astronomy Eric Mamajek from the University of Rochester in New York, while keeping collaborative notes in Google Docs. Distance is no longer a barrier."

### Benefits

Google Apps for Education is cost-free for schools, and with a single webcasting studio in JMSS, students in urban and rural classrooms across Victoria can learn from expert science instructors and collaborate with each other in real time.

Students participate in webcast lessons or view videos later on a private YouTube channel. They can then work with fellow students on experiments and reports using Google Apps. Teachers can review the work and give personalized and live feedback.

In one experiment, students modelled the decay of radioactive atoms by using M&M's® to explore the concept of half-life. They entered data in shared Google Sheets simultaneously, did homework in Google Docs, discussed findings via Gmail and Google Chat, and created and shared presentations in Google Slides.

Students have responded enthusiastically to learning together with Google Apps.

Kayla, an astrophysics student from Red Cliffs Secondary College, says, "For me, the single best thing about Google Apps is that we can learn almost anywhere without even being in the same classroom." A bioinformatics student, Phoebe from Warrnambool, adds, "I enjoy seeing everyone interacting with each other. Another perk is being able to view the class sessions on YouTube if we miss them."

### Results

Google Apps for Education now transports ESV's program to 156 Year 10 students in 30 classrooms. These students, who otherwise wouldn't be exposed to emerging STEM subjects, are collaboratively learning over great distances. This real-time student collaboration fosters authentic learning, while getting young people excited about STEM careers.

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### **About Google Apps for Education**

Google Apps for Education Google Apps for Education is a suite of communication and collaboration tools offered to schools for free and without ads. Google Apps for Education can be accessed from any device, at any time. Products in the suite include Gmail, Calendar, and Drive, and Classroom.

To learn more about Google Apps for Education, visit [www.google.com/edu/](http://www.google.com/edu/)

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ESV can deliver courses to up to 250 students per semester, and teacher Chris Harte is working to expand the program into other schools. There's potential to replicate the advanced science program in other states, even in other countries.

"We believe the future of education is around connecting students, teachers, and experts together online," Harte says. He is reaching out to other school principals about adapting the ESV distance learning model. "It is really easy for a school or a state department to get access to Google Apps for Education," he says. "Google Apps makes this highly replicable."