Curiosity, creativity, and problem solving underpin the pedagogical content knowledge required for integrating STEM in teaching and learning. Preparing teachers to engage in STEM requires the design of hands-on learning challenges that nurture these competencies in an engaging and non-threatening manner, where learning is play. To engage and empower our students, we designed a technology package called “STEM in a Box” that could be used by our remote students across Australia. We will showcase this package to delegates, outline how this was used, explore some of the new additions that we made and solicit suggestions for our next release.

The presenters at Monash University Faculty of Education have developed, implemented and taught a Graduate Certificate of STEM course with students presenting with a wide range of different backgrounds, sectors and physical locations spanning most Australian states. A particular challenge was how to best support their learning to tinker and explore the digital origins of STEM. Whilst the faculty of establishing a popup makerspace at their new Education building at the Clayton Campus, we were keen to simulate this experience for our distant students, expose them to the makerspace culture, constructivism pedagogy and different technology tools that they may find in a STEM center or maker space.

This presentation will outline our approach to support local and remote students by designing, producing and shipping a package that we called the “STEM in a Box”. Our packages contained a range of digital technology components including a budget computer, electronics, robot and virtual reality equipment that was supplemented by videos, online forums and participation in an immersive 3D environment. This workshop will outline the planning and design thinking used to help develop this project, drawing upon current research, contemporary practice and the digital origins of STEM. It is envisaged that this project is an exemplar for best practice for STEM teaching and learning that can be readily modelled and adapted by neighboring schools to build STEM and digital technology capacity.