Finalist 'Best Teaching with ICT'

Name: Marc Rowlinson
School: Northcross Intermediate School, Auckland
Name of ICT activity: Raspberry Pi 3D Cases, coding and Blogging

1. What is the Teaching with ICT activity that you want to be considered for the award?
As part of our measurement project for Maths this year we measured, designed, digitally sketched and then 3D printed our own Raspberry Pi 2 cases.
We then used these Raspberry Pi's to learn how to code in Python with student challenges.
MineCraft Pi for for creating unique interpretations of learning goals.
Python coding challenges.
Blogging- engaged and empowered a high needs student through blogging- transformed his whole outlook on learning and school.

2. Why did you choose to use this activity?
At the start of the year we bought 15 Raspberry Pi's for the class. I chose not to purchase the cases, as it enabled us a better budget, but also because i believed the students could design and make them themselves. This also gave the students a purpose behind what they were learning in measurement and ownership over their Pi (Pi's split between 2's in class).
Rel world application of current cutting edge technology and learning with a true purpose.
The Pi's were too used for Python challenges that were led via video instruction where the students were taught an element of code, which they could replicate but were then challenged at the end of the video to modify/manipulate the code in order to produce an unknown outcome. The students could then post their solutions to the video for feedback or any pose any questions they had.

Blogging: this was all driven by the students' desire to blog, however i embraced this desire to engage him in all classroom activities, integrating his passion for his blog into our learning areas. I also used this as a tool for improving his confidence and social interactions. He became so proud and confident of what he was doing he began running workshops for blogging across the school, inspired hundreds of kids and has generated a global audience. My choice here was to allow a child to enjoy school, writing and his passion!

3. How did you implement and use this activity?
Pi Cases: used as part of maths strand measurement, where initially the students had to physically measure the case and then using 3D drawing tools (SketchUp) design a case that would fit the dimensions of the Pi. From there, the students personalised their designs and then spliced their files ready for 3D printing. Students also learnt about area and volume and through this method and also appropriate use of units of measurement.
Coding: Python coding was implemented by using video instruction to teach an element of code and from there then setting a specific challenge that required the use of that lesson/videos code. These lessons then began to build on top of each other to allow more complex code. By being video

lessons also the students were able to proceed at a pace specific to their own desire and ability. This was used as part of our Problem Solving skills and also within Algebra.

Blogging: Implemented this one-on-one to begin with as an extra-curricular activity, however, upon noticing its impact upon the student I began to integrate the blog into the classroom program. The blog was used in the writing program, reading rotation and as part of the integrated topic. The blog was also used as a model, a tool of inspiration and as reference during the workshop sessions the student generated. From these workshops other students from other classes offered workshops to assist others with differing elements of blogging and writing. This blog and the students passion was also used as a vehicle in the classroom to get other reluctant writers to begin writing too and for avid writers to gain a global voice.

4. What learning outcomes has it achieved for you and your class?

Pi Cases: students improved measurement skills, developed 3D design skills, had a real world purpose for learning, saw how maths and design can be combined, gave them ownership over their personal project, kept them engaged and driven as they had a clear end goal. Raspberry Pi Cases can be seen here: https://docs.google.com/presentation/d/1FGBJpb9dPJwFXlGp31XvdfWicfKf-_Ho4pHayZe0v5U/edit#slide=id.p

Coding Python: Students obtained an introduction to coding in a way that let them use real raw code and have to solve problems using their knowledge. The students enjoyed the instant colourful output through the use of turtle initially and began to become more resilient and vigilant when writing their code to avoid syntax errors. This surprising branched across into their writing skills as they became more familiar with checking back through their learning. Collaboration was also a huge gain here as some students solved the solutions quicker or using different methods from others so helped one another. Additionally, the students began to build on each other's code in order to solve the challenges too.

Blogging: the list here is endless of what it has achieved for the class and the student concerned. We have more inspired writers, lots of children writing for pleasure, support networks established, collaboration occurring across blogs, new friendships, confidence built, a will to improve, student voice, a global presence/voice, connecting communities (other schools/teachers across NZ commenting to say can they use the blog for reading or info for their story writing). For me, a happy student, class who are passionate to write for an audience far greater than just us in the class. Also for me has achieved a new found desire for writing and teaching writing to kids.

See the students' blog at: http://kbsknowledgeofdccomicsnew52.blogspot.co.nz/

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