National Coding Week 2025

The RSGB has had an official focus on National Coding Week for three consecutive years. Coding and programming have become increasingly valuable skills to have in amateur radio and each year we continue to develop new activities for radio amateurs to get involved with.

This year the RSGB developed two new activities for you to try, both built on activities that we shared in previous years.

Python Pocket Morse

The Python Pocket Morse activity was developed by the RSGB Maker Champion Tom Wardill, M9TWM and gave radio amateurs the opportunity to learn Morse and programming together.

Tom says: *"The Python Pocket Morse activity was developed as an extension of the existing BBC micro:bit activity, intending to introduce people to Python, a language widely used in both professional development and amateur radio topics. I hoped that it would serve as both a fun activity and as an exposure to the capabilities that both Python and the micro:bit can offer."*

RSGB Board Director, Mark Jones, G0MGX tried the activity soon after it was released and enjoyed it (**Photo 1**).

LoRa balloon challenge

The second activity was the RSGB LoRa High-altitude balloon challenge, which you can read more about on pages 73-75.

We are delighted that so many people got involved again this year, particularly with the LoRa balloon challenge. Below are stories from just three groups or individuals who tried a coding activity this year.

Hilderstone Radio Society

Club members enjoyed trying out the Python Pocket Morse activity (**Photo 2**). Within the club there were a couple of members familiar with Python programming, as well as a couple of Morse enthusiasts, however no-one knew both. Using Tom's instructions, the group programmed the micro:bit step by step and we delighted to

PHOTO 1: Comment from RSGB Board Director, Mark Jones, G0MGX.

find that it worked first time. Button A gave a dit sound, while button B gave a longer dah sound.

John Hislop, G7OHO showed members how functions in Python and MakeCode give clarity to the program. He also took the activity a stage further by using the radio capabilities of the micro:bit. By doing this they were able to send radio waves across the room, carrying the information for a dit or a dah.

Oliver, 2E0KQE

Oliver (age 8), together with his dad, enjoyed the activity as a Foundation licensee but has now combined traditional Morse code with modern microcontroller technology (**Photo 3**). Using the MakeCode block coding system Oliver used the BBC micro:bit radio function (2.4GHz ISM), set to its highest power of 2.5mW to allow the sending of Morse between devices. He also coded the detection of SOS messages to create an alert.

The project is accessible to beginners, schools and clubs, whilst also offering opportunities for more experienced amateurs to expand the concept, for example by linking micro:bits to radios for on-air contacts.

Martin says, "This project illustrates how amateur radio can inspire the next generation by blending STEM learning with radio tradition". Oliver enjoyed the activity as a Foundation licensee but has now passed his Intermediate licence exam and is looking forward to trying other new activities – congratulations to you Oliver!

St Peter-In-Thanet CE Junior School

John Hislop, G7OHO is a member of the RSGB Outreach Team and Hilderstone Radio Society. He visited St Peter-In-Thanet CE Junior School to help them with a National Coding Week activity (**Photo 4**). Year four students had great fun learning both code and Morse. In total, 90 pupils were shown block coding with the MakeCode app.

However, to prepare them for what they will meet in secondary school, they learnt how to use the advanced facility called 'functions'. Students could see clearly from the coding that when button A was pressed it makes a dit sound, when button B was pressed it made a dah sound. Whilst one or two pupils knew some Morse code from Cubs, it was something new and exciting for the majority. They tested each other, starting with two letter words and progressing to more letters.

For a final demonstration John had two BBC micro:bits pre-programmed with radio Morse, so that a radio wave was sent across the classroom for a dit or a dah. In the words of their teacher, Mr Williams, "They absolutely loved it."

PHOTO 2: Tanya, M7TKZ enjoying activities with Hilderstone Radio Society.

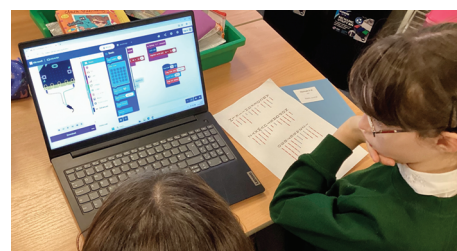PHOTO 3: Oliver De Heaver, 2E0KQE.

PHOTO 4: Students at St Peter-In-Thanet CE Junior School.

Find all the RSGB coding activities via rsgb.org/coding