

British Science Week 2024

This year, British Science Week (BSW) ran from 8 to 17 March. The event, which takes place each year, is a celebration of science, technology, engineering and maths and the theme this year was 'Time'. Lots of groups and individuals were involved in supporting amateur radio-related BSW activities. Here are reports from some of those that took part.

Bishop Auckland Radio Amateurs Club (BARAC)

It is amazing how quickly British Science Week came around.

Friday 8 March 2024 was the first day of the event and members of Bishop Auckland Radio Amateurs Club (BARAC) were to operate from Stanley Crook Primary School using the callsign GB4SPS.

We arrived mid morning with some challenges ahead of us, the first being that the school was having trouble with its internet connection. This was needed for a variety of reasons including timing information for FT8 communications.

The school sits at over 250m above sea level with fantastic views looking east which, on a clear day, allows you to see the North Sea. It was not a clear day and, as we were preparing to erect antennas, the weather changed from breezy to rather inclement for a short while. With the antennas erected, the precipitation eased and we entered the building to start assembling the equipment ready for our afternoon session with the pupils and staff.

As in previous events, there was a VHF radio set up to allow contacts via our local repeater, GB3CD and its internet connection to the Extended Freedom Network, MOXFN, and on to radio amateurs worldwide. Many fellow amateurs had been primed to be ready to help demonstrate amateur radio by communicating with the school. As each person made their voice contact, they were presented with a Certificate of Participation, a badge, and a sticker which many chose to wear immediately as a medal.

An FT8 system was set up. This included a world map on a second monitor to show how far we were sending signals by bouncing radio waves off the ionosphere to people in other countries.

Several Morse code reading systems were set up to allow pupils and staff to attempt to write their names on the display units after Morse lessons. Everyone found the supplied crib sheets useful. It is amazing how much joy the pupils got from making lots of noise.

This was followed by building Snail Morse Keys, rather noisily, as we allowed the use of a hammer to anchor the cable ties to the wooden blocks with drawing pins. Once it was revealed that participants were allowed to take the keys and crib sheets home, they were all delighted.

There was also a history lesson starting before Marconi and working through to the Titanic and on to thermionic valves, transistors, radio, television, satellites and space stations. The children were also shown the GB1SS video starring Tim Peake. Many questions were asked covering a wide range of topics demonstrating that the pupils had an understanding of scientific experiments.

At the end of the school day, we were thanked by the pupils and staff and the head teacher put in a request for next year.

BARAC members present were Kathleen, MORRL; Helen, M7HQA; Gareth, GOWUR; Brian, G7OCK; Tim, MOACV; Brian, MOBAR; and Ian, G7ESY.

Looking forward to a few days 'off' school, some BARAC members had organised GB1BSW so that operations could be continued during BSW. If special event stations from other schools popped up, these could be worked.



Students working with Morse keys and crib sheets.



Snail Morse Keys under construction.

Although many stations were worked, no school stations were heard.

Day 6 of the event, Wednesday 13 March, found members assembling at Staindrop CE Primary School mid-morning. As we started to assemble the antennas for erection, the weather produced that obligatory rain shower proving that Mother Nature is always watching. We then retired indoors to prepare our equipment for the afternoon operating session as GB4SCE.

As the pupils entered the classroom being used for the event it became clear that some of this year's pupils had been talking to last year's pupils who had now progressed to secondary schools and academies. Apparently, there had been demonstrations of the Snail Morse Keys at the local Scout Group and those in Year 6, this year's group, were wondering if they would be lucky enough to get their own key. Much delight ensued when they received a positive answer.

Once again, the tables and equipment were set up covering the same activities with the pupils split into small groups. Attendees rotated around the tables until everyone had completed each of the activities on offer.

Armed with Snail Morse Keys and crib sheets, Certificates of Participation, badges and stickers, all of the pupils had large smiles on their faces and went on to thank the BARAC members present for attending and providing all of the activities.

The Science Teacher also requested that we add the school to next year's list for British Science Week 2025.

The BARAC members present were Gareth, GOWUR; Brian, G7OCK; Tim, MOACV; Keith, M7BYD; Ken, G7BPN; Liam, 2EOLDQ; and Ian, G7ESY. Both Val and Helen, M7HQA were under the weather and unable to attend.

GB1BSW operations continued through to the end of BSW with many more stations being worked.

We would like to thank RSGB headquarters for supplying the parts for the Snail Morse Keys and BARAC for supplying, cutting and preparing the wooden bases for the keys.

Many thanks to everyone that we contacted over the total of ten days of operation. I hope you enjoyed the event as much as we all did. We look forward to speaking to you all again during the event in 2025.

RSGB Regional Representative Ian Bowman, G7ESY

UTC South Durham

With a school name that includes the initials 'UTC', the British Science Week (BSW) theme of 'Time' was too good an opportunity to miss. The University Technical College South Durham (UTC South Durham) in Newton Aycliffe was very pleased to receive an advance from Ian Neal, MOKEO to set up an amateur radio station on Tuesday of BSW as a taster session for students and staff in the magic of amateur radio. The intention was that this would lead to some of us going forward to study for Foundation Licences with the school.

We started with a theory session on health and safety, terms, bands and frequencies, propagation and basic antenna theory. The first practical task was to erect the multi-band antenna (DX Commander Expedition, 10-40m) on some raised ground about 50m away from the school buildings. Putting together the antenna allowed us to discuss the architecture of a vertical antenna, choose the appropriate elements for operating on and the importance of radials. Ian explained the notion of capacitive coupling to ground and its importance. It was cold and raining, but we still we got the antenna up with great cheer.

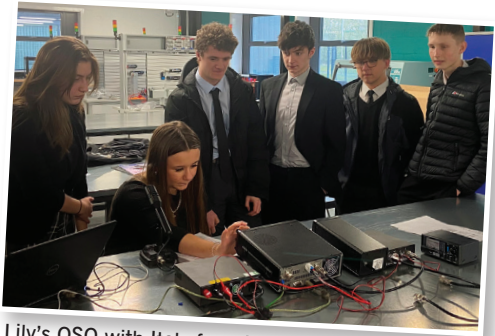
We connected our feeder to Ian's Yaesu FT991A and then listened to background noise before we had a briefing about operating practice and etiquette, during which we realised that we would be on the air quite soon and excitement rose... until we got in front of the microphone when nerves set in. But we did very well indeed given that this was our very first time operating. Ian had managed to bag the special event station (SES) callsign GBOUTC which, given the theme, and the school's name, was great. He had to apply in October to be sure of getting it and, of course, we opened the room to the public for part of our session to comply with SES rules (observing school safeguarding rules properly). GBOUTC achieved 42 QSOs across 20 countries. Lily got the furthest, with her CQ reaching about 2000 miles to Italy on the 20m band. Perhaps the high point for us all was Ben's QSO with GB3RS at the RSGB's National Radio Centre at Bletchley Park on the 40m band. He spoke with Brian Hardy, G4BIP, one of the volunteers there. This was facilitated by Martyn Baker, GOGMB, the NRC Coordinator, and we offer many thanks to them both for the 'sked'. Another high point was our QSO with Mallaig High School's Radio Club (GM5MHS) and their leader, Lyall Smith, GM4XID; thanks to them too.

This was a session to get people interested in amateur radio in all its forms, so we decided to try a bit of FT4/8 (it was explained that this is good for getting a high number of DX contacts, with low power, and is therefore great for beginners who need encouragement). So we had a bit of a briefing on that and then reconfigured the system to work with WSJT-X. The big screen with the display of location and signal strength was deemed "great" and, coupled with Log4OM2, allowed click-through to QRZ.com and the wealth of information about 'the other end' that is available there.

At the end of the session, all students opted to enrol on the Foundation course to be run by Ian Neal, MOKEO. Several other students and some staff members, including our Principal, will be joining too. We applied for and got a grant from the North East STEM Foundation to cover the extra station set-up costs, the Foundation book and RSGB Examination fees, and we are very grateful indeed to them for the funding.

All in all, this was a great session which will lead to more of us young people (and some older ones too) being on the air in time for the summer holidays.

UTC South Durham students, supported by Ian Neal, MOKEO



Lily's QSO with Italy from UTC South Durham.



Ben discusses the kit he is using with GB3RS at the RSGB NRC, Bletchley Park. He later made a QSO with GM5MHS, Mallaig High School, in the Highlands of Scotland.

Hilderstone Radio Society

The children of St Peter's CE Junior School in Broadstairs had a fabulous time celebrating British Science Week with the help of the Hilderstone Radio Society. They carried out the Time Zones activity from the RSGB website. Matt, MOLMK and Ian, GOPDZ connected the DMR radio to the local repeater and logged into the world-wide talk group. The children used the club callsign GOHRS and spoke with radio operators around the world. They marked on the time zone world map where the operator was from and noted their local time. They contacted Gibraltar, Argentina, USA, India, China, Australia and New Zealand. They even spoke to the Royal Navy Amateur Radio Society, GB3RN which is in the Maritime Warfare Training School at His Majesty's Ship HMS Collingwood, in Hampshire. All of the children received a certificate for speaking on the radio. Some were a little terrified at first, but they were soon confident on the microphone. Others had come back for more, having taken part in Youth on the Air in December.

In another room, I demonstrated an SDR radio. The children tuned into different kinds of radio communication – Morse code, broadcast radio and conversations.

The science teacher, Mr Williams, said the children were so excited to talk about who they spoke to and what time zone they were in. They remembered that it was thanks to radio that, in October last year, the school was able to speak to Jasmin Moghbeli on the International Space Station. The children are so enthusiastic about amateur radio that the Hilderstone Radio Society will be starting a radio club in the summer term.

John Hislop, G7OHO



A student taking up the mic on a DMR radio with Hilderstone Radio Society.



Proud pupils with their certificates from Hilderstone Radio Society.

RAF Waddington Amateur Radio Club

RAF Waddington Amateur Radio Club participated in a pop-up event run by the International Bomber Command Centre (IBCC) in Lincoln on Saturday 16 March, celebrating British Science Week 2024. After some thought about this year's theme of 'Time', one of our newest members, Rose Oldershaw, 2EORXO, came up with the idea of aircraft communication and tracking from 1940 until present day, aircraft tracking being one of her interests. The IBCC team thought this was a great idea as it fitted in with their narrative so well.

On the day, interactive activities for the children were supplemented with the RSGB video presentation "Amateur Radio – A hobby for the 21st century", and a display showing how aircraft communications and tracking have changed from 1940 until the present day. The Club's T1154 transmitter and R1155 receiver formed part of the display, showing the children equipment that would have been in use in the 1940s.

Club chairman Bob Pickles, G3VCA took charge of teaching children how Morse code was used and then encouraging them to try sending some code. There were three Morse code stations for children to use with original bathtub keys; all had queues for the whole three-and-a-half-hour event, the children loving the chance to play with Morse code. Meanwhile, Andy Gibbons, MOIYE took charge of an Aldis lamp activity, with children sending Morse code and colour-code messages using the lamps to photos of aircraft high on the walls of the IBCC Suite. One original 1940s Aldis lamp, and a couple of smaller ones, were available for children to use. This area was also solid with people for the whole three and a half hours of the event.

Rose Oldershaw, 2EORXO took charge of the modern side of things, receiving ADS-B and ACARS on site, and demonstrating these to the children, while also letting them use her system. This drew a great amount of interest; children love anything involving computers and wires! There were some funny and interesting ACARS messages for the children to see coming in live, as well as tracking of most of the aircraft in the Midlands, as the IBCC is in a high location.

Thanks to some generous sponsorship, the children all received a notebook containing a Morse code chart, a small keying torch to flash Morse code, a "May the Morse be with you" badge, an International Bomber Command Centre badge, an enamel "Lest we forget" badge and a GORAF pen. The children also received Certificates for Morse code and Aldis lamp signalling, and operation of the ADS-B / ACARS station.

The two teachers at the International Bomber Command Centre (Leah Deen and Janine Smithson) deserve a special mention. They always make the Club feel so welcome at IBCC, and they worked very hard on the day coping with more than 170 people signing up for the activities – a much larger than expected turn out. A fantastic day was had by all!

Ann Webber, G1PRM

Norfolk Amateur Radio Club (NARC)

Norfolk Amateur Radio Club was given a large classroom to demonstrate many aspects of amateur radio and electronics for the City of Norwich School's annual Super Science Saturday on 16 March.

On show were a working APRS GPS packet reporting system and Geochron and Ham Clock animated maps showing worldwide radio wave conditions and paths. A range of home-made electronic projects showed visitors the sort of thing they could make at home. Additionally, a 1924 Marconi receiver inspired the Club to go back to basics. Also available were modern four-component crystal sets which keen young visitors could put together and take home with them.

NARC Bright Sparks youngsters were busy assembling their own AM/FM radio kits and there were also hands-on interactive displays showing how satellites, speech and data are transmitted, as well as an HF station demonstrating the heart of the hobby. Contacts were made with Croatia, North Carolina, Italy, Russia, Spain and Poland plus a two-way QRP 5W contact with Bogdan in Romania.

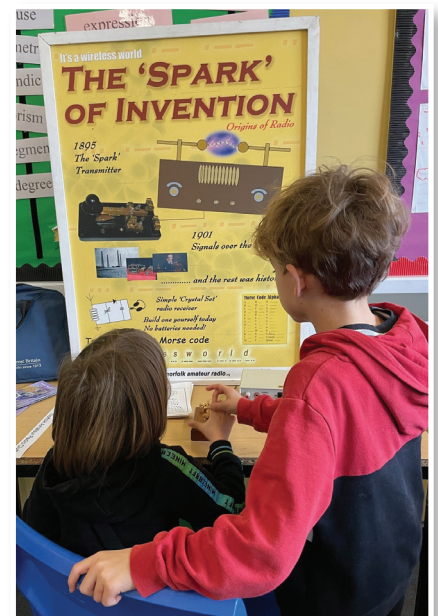
David Palmer, G7URP



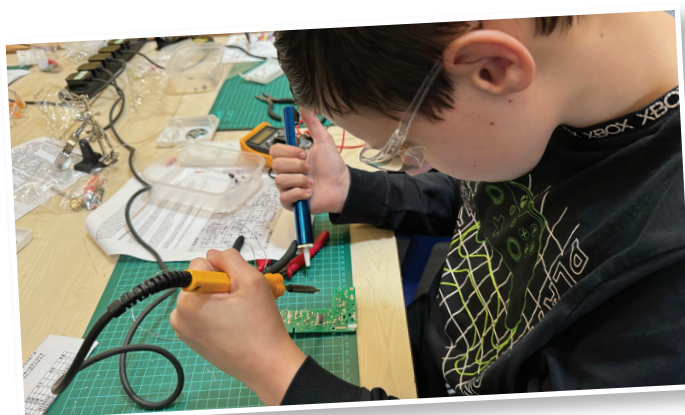
Some of the resources on offer from RAF Waddington Amateur Radio Club.



The antenna for RAF Waddington Amateur Radio Club's ADS-B/ACARS station.



Students enjoying learning about the origins of radio and Morse code with Norfolk Amateur Radio Club.



A student working on a kit with Norfolk Amateur Radio Club.

British Science Week events at Bletchley Park

Over the weekend of 16 and 17 March, three events were held at Bletchley Park. All three were joint efforts by the Radio Communications Foundation (RCF) charity, the RSGB and the Bletchley Park Trust. A total of nine volunteers were involved and over thirty youngsters found out more about radio communications, electronics and amateur radio. Everyone enjoyed themselves, and it was a fantastic demonstration of what can be achieved through teamwork.

On the Saturday, the RCF-Arkwright Connect Day brought in some thirteen Arkwright Scholars, who are some of the most talented young engineers in the country. Leon, M7TXL attended to gain some practical experience, and the rest had been given textbooks in advance so they could work through them and prepare for a Foundation exam. Essex Ham kindly set up a special course for the Scholars and those who took advantage that free online training were very well prepared on the day. We arranged a number of activities in the morning. Lewis, G4YTN and Steve, GOFUW guided them through matching VHF and HF dipoles; Martin, G3ZAY, supervised them making contacts in the Falkland Islands, Cyprus and the USA; Dom, MOWUT, and Trevor, G8IBO helped them make local contacts on the 2m band using FM, and shared their experiences of working in the RF engineering sector. Unfortunately, not all the exam candidates gained a pass mark, but everyone enjoyed the day and several were very keen to get their own call signs.

Two Build-a-Radio workshops were held on the Sunday. 19 youngsters, accompanied by their parents or grandparents, were booked in by the Bletchley Park team, and they all built the FM Broadcast Receiver from Kanga Products. The kit is perfect for a first project with a pre-soldered, surface-mount device and a small number of through-hole components to be fitted. Paul, MOBMN, who runs Kanga Products, was a great help and he had bespoke PCBs made with RCF and RSGB logos on them. He also supplied a few spare parts, just in case. As it turned out, due to some excellent first-time soldering by the youngsters, only one electrolytic capacitor needed to be replaced. All 19 kits built on the day worked and the joy on the faces of the youngsters, and their parents/grandparents was a pleasure to see. Derek, MOYAW; John, G7OHO; and Rob, G3UGX joined Steve, GOFUW and Lewis, G4YTN so we had a ratio of one helper to every two youngsters, which worked out very well. After the morning workshop, and before the afternoon workshop, many of the youngsters visited the RSGB National Radio Centre (NRC) to see and experience amateur radio. Thanks to Mark, the RSGB's Commercial Manager, they all went home with goody bags with further information about amateur radio.

The RCF stands ready to help out with similar events in schools and other youth groups. The scheme to fund amateur radio licence exams for those in full-time education is now in place, and grants can be made available to school/university radio clubs. The RCF website has more details, along with information on how you can donate to the RCF charity, with Gift Aid etc, to help fund more events like this.

Thanks go to Martyn, GOGMB from the RSGB National Radio Centre, for his sterling work in pulling all the various threads together. It was a very busy weekend, but we are all looking forward to doing it again next year, if not sooner.

Steve Hartley, GOFUW, RCF Trustee

Melksham Oak Community School

Myself and Dom, 2EOWHQ were invited back to Melksham Oak Community School to support their combined BSW and Careers day on 12 March 2024.

When we arrived at the school, the weather was a little inclement and, having only 15 minutes to set up our equipment, we had something of a mission! With Dom outside erecting the trusty dipole in the driving rain (thanks Dom) and me setting up the media displays, the day began.

The schedule was arranged into eight 45-minute rotating class groups throughout the day.

Our presentation took the form of some slides highlighting what the RSGB is, what the hobby can/does involve and showing that radio is for all. We described our own backgrounds in terms of our amateur radio experience and employment history within the telecommunication sectors.

We enjoyed inviting questions from the floor and asking each class to shout out items they might use on a daily basis that used some form of RF. This provoked many positive answers, and got students thinking about how radio is all around us and that it won't be going away any time soon.

This led to a discussion and examples of telecommunication jobs and the salaries that are being offered. It was also pointed out that there is a huge shortage of engineers within the telecoms field. The students and the teachers were very interested by the level of remuneration that was on offer.

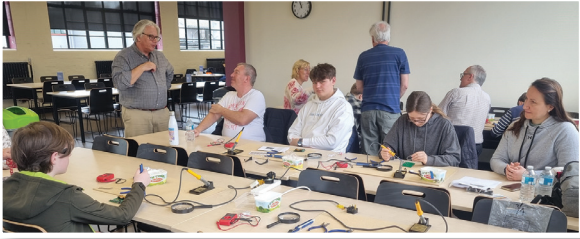
We operated as GBOMOS to demonstrate amateur radio in action. We made some QSOs using FT8 and we used PSK Reporter to visualise almost instantaneous signal reporting and the effects of ionospheric propagation.

With the recent changes in licence conditions, we were able to invite some of the students to operate as GBOMOS using SSB. Those that did operate were the envy of their classmates.

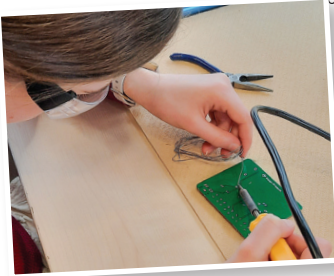
A great introduction to amateur radio!

I must thank Dom, and the staff at Melksham Oak Community School for making the day such a success.

RSGB District Representative Simon Harris, G4WQG



Kits being constructed at Bletchely Park.



Ella Soldering.



A Group of Arkwright Scholars with G3ZAY at the RSGB National Radio Centre.



Milly, Coco and Meghan with completed radio kits.

Next year
 British Science Week is entering its third decade in 2025. The event will take place from 7 to 16 March 2025 and the theme will be 'change and adapt'. Put the dates in your diary and please remember to let us know what you have planned.