

Primary Science & Technology *Bulletin*



Ideas and inspiration for teachers in Primary Schools and S1/S2

Out for the count - citizen science



Out for the count

‘Citizen science is the new black’ [1] stated Tom Feilden (Science Correspondent for Radio 4’s Today programme) in an article featuring Chris Lintott, Professor of Astrophysics and Citizen Science Lead at Oxford, describing the Galaxy Zoo website [2]. Chris first appeared on the BBC in the iconic ‘Sky at Night’ in 2000. Chris is co-founder of Galaxy Zoo, Principal Investigator (PI) of Zooniverse [3] and Executive Chair of the Citizen Science Alliance [4], all of which encourage the participation of citizens in activities as diverse as mapping the universe to tracking whales.



Why is participation in citizen science being encouraged?

Topical Science needs to be relevant and interesting and although topical science is not citizen science, participation in citizen science projects helps to promote relevancy, literacy and debate in topical issues [8].

There is evidence to support the value of data collected via Citizen Science participation to scientific research projects around the world [9], [10].

Where can you find citizen science projects?

There is an abundance of websites for citizen science, some of which are detailed below. It is much more meaningful for learners if Citizen Science projects are placed in context and some suggestions are offered as a stimulus for discussion with colleagues. Education Scotland has recently provided a Glowmeet and follow up CPD on “Topical Science and Partnerships” led by their Development Officer for Citizen Science, Stuart McGrath. This CPD session provided a number of useful weblinks.

2015 is the Year of Soils, so why not compare growing plants in different types of soil using the mySoil app <http://www.bgs.ac.uk/mysoil/>. Your learners can then apply their knowledge to different areas in the UK.

So who can become a citizen scientist? Why is participation in citizen science being encouraged? Where can you find citizen science projects? Is citizen science ‘the new black’?

Who can be a citizen scientist?

To be a citizen scientist you do not need to wear a white coat, work in a lab or necessarily possess ‘geeky’ tendencies. You do not even need to be trained in particular skills. Being a citizen scientist involves

enthusiasm for learning and the application of observation and pattern recognition, both of which are approaches to scientific inquiry, promoting the development of scientifically literate citizens with a lifelong interest in the sciences [5]. It encourages learners to acquire knowledge and understanding of topical science issues [6].

In other words, you and your learners can be citizen scientists. Some examples of Citizen Science projects in Scotland were explored in SSERC Primary Bulletin 62 [7].

- Citizen science



There are two other apps from the British Geological Survey: **iGeology** <http://www.bgs.ac.uk/igeology/>

informs of the rocks 'beneath your feet'. Use it in context with a river study or earth structure & the rock cycle *SCN 2-17a* or make IDL links with *SOC 2-07a*; **myVolcano** <http://www.bgs.ac.uk/myVolcano/> is a crowd sourcing app that enables you to share photographs of volcanic hazards, collecting samples and measurements. This sounds good if you are on an exotic field trip, but <http://mapapps.bgs.ac.uk/myVolcanoweb/home.html> would be appropriate for citizen science and topical science as in the collection of volcanic ash samples in 2010 when the Icelandic volcano Eyjafjallajökull erupted and displaced air travellers for days.



Air quality and air pollution in your locality is found at AQ Scotland, <http://www.scottishairquality.co.uk/stay-informed/apps> and includes forecasts and information rather than entering data.



Scotland's Environment <http://www.environment.scotland.gov.uk> has a plethora of information, including up to date media articles on climate change.



The Met Office's Weather Observation Website or WOW for short, <http://wow.metoffice.gov.uk> allows you to submit your own weather data from anywhere in the world, even when you are on that exotic fieldtrip!



The Great British Bee Count: <https://www.foe.co.uk/page/join-great-british-bee-count> helps to build a nationwide picture of bees' health.

Use it in conjunction with building bug hotel, research on pesticide and media articles (*SCN 2-20b*), or growing bee friendly plants [11]. <https://itunes.apple.com/gb/app/great-british-bee-count/id880987608?mt=8> is the link to the app store.



The app **iRecord Butterflies**: <http://naturelocator.org/irecord-butterflies.html> helps you to identify butterflies

and the information is used to help save them. Again this app could be used as part of a bigger project on the life cycle of a butterfly [12].



If you are interested in close up observation of one of the most iconic group of beetles

in the UK then **iRecord Ladybird**: <http://www.ladybird-survey.org/recording.aspx> helps map species of ladybird within the UK. You may wish to use them as part of the study into food chains or combine this with a study on non-native (invasive) harlequin ladybirds or investigate complete metamorphic lifecycles, where the where the adult ladybird is physically quite different from the ladybird larva. Again **Insectlore** can supply ladybirds, but being very much smaller than butterflies, this study would require the learners to use some form of magnification when observing. Using technology to enhance learning could help to bundle some of the STEM Experiences and Outcomes.



If you are interested in invasive, non native species like New Zealand Pigmyweed in our waterways, then

PlantTracker <http://planttracker.naturelocator.org> is useful in the identification and recording of them.



Froglife's Dragon finder app: <http://froglife.org/dragonfinder/app/> helps in the identification of amphibians and

reptiles and allows you to enter sightings. It's a great way to appreciate often overlooked animal groups and could again be used in the study of food chains, or food webs, particularly if you are lucky enough to have safe access to a pond.



Education Scotland has its own resource for citizen scientists in the form of the Giant Panda website. <http://www.educationscotland.gov.uk/pandas/getinvolved/citizenscience.asp>.



One other source of citizen science surveys that you may have heard about is **OPAL** (The Open

Laboratories Network), <http://www.opalexplornature.org>. Currently OPAL has seven open surveys - all are ecological. The advantage of OPAL is that it provides good sources of information - posters, identification guides, keys; easy to complete





surveys - electronic or printable recording sheets; support for practitioners including risk assessments, how the survey will fit into the curriculum; and you can track the survey results, even when the survey closes.

Is citizen science 'the new black?'

Citizen science offers many opportunities to record and submit data for real life scientific research and encourages the learner to pursue topical science issues.

However citizen science is not new. As Tom Feilden's article states, 'Charles Darwin built his Theory of Evolution by Natural Selection from evidence supplied by hundreds of citizen scientists from all over the world.' The surveys available to primary learners involve astronomy and cosmology, but many are in the field of ecology, geology and biology. So although citizen science is in vogue perhaps it is not so much the new 'black', but the new 'green'.

References

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