

# Lesson plan: Conduct a BioBlitz using the iNaturalist app – Lesson 2

**Lesson Objective:** Work scientifically to carry out an enquiry, evaluate data and present findings

<b>Duration</b> 60 mins	<b>Theme</b> Nature	<b>Subject focus</b> Science	<b>Age group</b> Key Stage 3
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## Recommended Resources

- Data collated in previous lesson – make available to all pupils through the iNaturalist app
- Laptops with app installed and class page log in
- Coloured pencils
- [National Geographic Analysing BioBlitz data](#)
- Activity 1: use the worksheets available from National Geographic [worksheet](#) and [answer sheet](#)
- Activity 2: use [worksheets](#) from National Geographic
- Activity 3: use class graph [worksheet](#) from National Geographic

## Adult Support

- Work with groups in different areas of the school ground (Activity 3)
- Hand out and collect in equipment

## Follow up activities

- Further exploration into Taxonomy and the need for biodiversity

### Learning outcomes for Lesson 1 and 2 (differentiated)

**MUST:** make and record observations and evaluate the reliability of data collection.

Present observations and data using appropriate methods, including tables and graphs.

**SHOULD:** interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusion.

Identify possible improvements to data collection.

**COULD:** evaluate their data and show awareness of potential sources of error.

Identify further questions arising from their results.

This lesson has been written to celebrate City Nature Challenge taking place on the 30<sup>th</sup> April – 3<sup>rd</sup> May. Over 400+ cities will be working together globally to collect as many wildlife observations as possible and engage the most people possible. For more information visit [www.citynaturechallenge.org](http://www.citynaturechallenge.org)

**Keywords**  
Naturalist  
Cultivated  
Captive  
Hazards  
Risks  
Taxon  
Biodiversity  
BioBlitz

## Starter

Without sharing any data or access to class results, ask students to populate your board with the different species that they remember finding during their BioBlitz investigation. This will jog their memories back to the BioBlitz and the methodologies used.

If time allows ask students to contribute species facts that they learnt whilst using the iNaturalist app. Examine the board as a class. Tally the total number of species that students remember.

Open your class project page on iNaturalist by searching for the location name. Students should now see the total number of species tallied on the left-hand side of the home screen in the green 'totals' box.

Were any students surprised by the number of species found in your sample area? Can they make any initial suggestions for these results?

## Main activity

**Activity 1 - Preview how to navigate iNaturalist to find observation data. (10 minutes)**

Divide students into their working groups. There are 11 taxon groups, and each student group will be responsible for observation data with their assigned taxon group. Use the worksheets available from National Geographic [worksheet](#) and [answer sheet](#).

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Make sure each group has access to a computer and the website [inaturalist.org](http://inaturalist.org)

If the class has an account, they can log in using the class username and password.

Demonstrate to your class how to navigate around their BioBlitz project page, highlighting the website features. Demonstrate the 'Observations' button in the green and the 'Totals' box on the left side of the screen. Show students how to toggle between the different views of observations: map, list, and icon. Introduce students to the search filter. Review taxon group icons and checkboxes for threatened and introduced species. Show your students an example of filtering for a particular group, for example birds, then click 'Update Search' to show all birds in the results.

### Activity 2 - Analyse BioBlitz observation data. (15 minutes)

Explain to the class that they will work in their small groups to analyse the BioBlitz observation data for one taxon. Then, they will collate their data in a class graph in order to visualize the biodiversity of their school grounds/local area. They will also analyse data for introduced and endangered species in their area and will consider the implications on the biodiversity in the school grounds/local natural space. Use the [worksheets](#) available from National Geographic.

### Activity 3 - Present and analyse results. (25 minutes)

Each working group will present their findings in a one-minute presentation and add their information to the class graph. Each taxon should have two bars: one for number of observations and one for number of species identified. As one student presents the group's findings, another student can add total number of species, observations, most common species and any introduced and/or endangered species above their bar graphs on the board. Use [worksheet](#) from National Geographic.

As each group presents, instruct the other groups to add the graphs of each presenting group to their BioBlitz Taxa Graph worksheet. Ensure coloured pencils are available to students to match the colours on the board.

After all groups have contributed to the class graph, give students five minutes to examine the graph and look for patterns in the data, or any relationships between taxon groups, numbers of species and observations, and so on. Students should spend two minutes studying independently, then discuss with their group and prepare to share their conclusion. If helpful, use the following prompts to guide groups' inquiry processes:

- *Do any of these groups have a much higher number of observations than others? Why do you think that is?*
- *Do any taxon groups have a large discrepancy between the number of observations and number of species identified? Why might this be?*
- *Are there any patterns between the number of invertebrates and vertebrates identified? Explain.*
- *Think back to our first task when we learned the number of species of each of these groups. Do you see any relationships between the number of species globally and the observations from our sample area?*

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### Plenary

Discuss the above points with your class and ask for limitations to this scientific enquiry. This should draw out discussions about the snapshot in time approach that a BioBlitz has and that it is only one method of recording scientific data. There may be much more diversity at different times of the year, day, seasons, weather conditions and using different methodologies.

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### Extension tasks/homework ideas for Lesson 1 and 2

Visit iNaturalist website [inaturalist.org](http://inaturalist.org) and explore the observations made around the world, the species recorded and the people taking part. Compare results from nearby projects/other schools/local sites/internationally.

- Find out about the work of naturalists, for example, David Attenborough or explore the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification.
  - Plan a follow-up BioBlitz at a different time of the year to compare data.
  - Celebrate biodiversity and show BioBlitz results by creating a class display for the school. Student contributions can feature “biodiversity superlatives” such as smallest, largest, fastest, slowest, slimiest, most colourful, best camouflage, most surprising, most common, rarest, and most dangerous.
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### Curriculum links

Science Key Stage 3

Working Scientifically:

- pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility
- ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience
- make and record observations and measurements using a range of methods for different investigations and evaluate the reliability of methods and suggest possible improvements
- present observations and data using appropriate methods, including tables and graphs
- interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions
- evaluate data, showing awareness of potential sources of random and systematic error
- identify further questions arising from their results
- the importance of maintaining biodiversity and the use of gene banks to preserve hereditary material