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Introduction

As a part of the CNC education toolkit, a group of educators at institutions around the world has gathered and reviewed resources about biodiversity and citizen science that are relevant to the City Nature Challenge.

The following progression is appropriate for a general education undergraduate audience. It can be modified for other audiences (see below). It begins (Activity 1) with introductory materials about urban ecology and citizen science that should be assigned before the City Nature Challenge activities. In Activity 2, students are outside exploring nature. In Activity 3, we are back in the classroom to reflect on our experiences and do some data analysis.

You can search through the [full set of undergraduate resources](#) for educator guides, classroom and field activities, media, and more.

New to taking students outside? Be sure to read through our [Guide to Teaching Students Outside](#) for tips on outdoor group management and teaching strategies.

Objectives: Students will...

- Understand why it is important to measure biodiversity in cities and how all can contribute to this effort
- Recognize that observation is an important first step in the process of science and participate in the CNC by creating good observations
- Practice data analysis and visualization skills

Activities

Activity 1: Let's Prepare!

- Watch the following videos: (1) [Why is biodiversity so important?](#) (2) [Science Forward: Urban Ecology](#) (3) [SciShow: The Awesome Power of Citizen Science](#)
- **Type:** Media
- **Activity Time:** 30 minutes + discussion time
- **Recommended Use:** These three videos together make a great pre-class assignment to prepare students for the important concepts related to the City Nature Challenge (biodiversity, urban ecology, and citizen science). Depending on your particular student audience, you may also assign a reading from the primary literature about a study conducted in the city. It is

recommended that students discuss these assigned videos. This discussion can happen in an online forum or blog environment or in the classroom.

Activity 2: [Encyclopedia of Life Biodiversity and Open Science: Introduction to iNaturalist](#)

- **Type:** Lesson Plan
- **Activity Time:** variable (45 minutes classroom time + outside time at CNC)
- **Recommended Use:** This lesson plan introduces students to iNaturalist and allows them to explore the existing database. We recommend that you have students create an account in iNaturalist prior to coming to class. Class time is spent learning about how iNaturalist works and what information it can provide to you. We recommend that you then give students time to use iNaturalist on their own or as a group during the days of the City Nature Challenge. The featured skills here are observation and data collection.

Activity 3: [Encyclopedia of Life Biodiversity and Open Science: City Nature Challenge Data Exploration](#)

- **Type:** Lesson Plan
- **Activity Time:** 60 minutes
- **Recommended Use:** This activity requires students to do a little background research on their comparison city outside of class. It is a good idea to have a discussion with your students before this activity to get them to think about why they want to compare their city's results with another city's (are they similar sizes, climates, etc.). These questions are featured in the beginning of the worksheet. For undergraduates, we recommend having the students create the charts in Excel and adding a calculation of species similarity (Sørensen, Jaccard, etc.) and a discussion of why such metrics are useful.

Extensions

- Extend exploration throughout the semester:
 - Have students make weekly observations on iNaturalist and post on a class iNaturalist project.
 - Start an [iNaturalist project](#) for your campus and spread the word to environmental groups and other professors.
 - Following the model of CUNY: Macaulay Honors College, organize a [campus bioblitz](#) to bring together students, professors, and community members.
- Explore the [full set of undergraduate resources here](#).

For more info contact:

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