

Welcome!

- Please introduce yourself, organization, and Collaborative/State in the chat box.
- What is one way you are thinking of using Citizen Science/Inquiry resources?



May 11, 2017



Goals

- Provide more information about the Cornell Lab project
- Describe inquiry and citizen science
- Answer any questions about the project and application



Agenda



- Describe citizen science and available projects
- Describe inquiry and its benefits
- Overview of the “Inquiry through Citizen Science” Project
 - Project benefits, requirements, and timeline
- Q&A

Cornell Lab of Ornithology Inquiry Citizen Science Project Team



Jennifer Fee
Manager of K-12 Programs



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Cornell Citizen Science Collaborative *Habitat Connections, 2016*



Integrating Inquiry through Citizen Science Collaborative



Jennifer Fee
Manager of K-12 Programs

The **Cornell** Lab of Ornithology



Our mission:

To interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.



BirdSleuth K-12 helps educators bring the power and engagement of citizen science and inquiry to their students



What is “citizen science?”



LET'S CHAT!

A photograph showing three children from a side profile, looking through binoculars. They are standing on a wooden deck or railing, with a dense forest of green trees in the background. The child in the foreground has dark hair and is wearing a light-colored shirt. The child in the middle has blonde hair and is wearing a blue shirt. The child in the background has brown hair and is wearing an orange shirt. The text is overlaid on the right side of the image.

*Projects in which
volunteers partner
with scientists to
answer real-world
questions.*

In citizen science, people everywhere report observations of natural events using basic, scientific protocols.

295 million observations submitted

21.7 million checklists entered

279,000 participants

10,226 species

Every country in the world

Over 2 million locations

BirdSleuth K-12



Citizen Science Projects:

from ladybugs to warblers, and everything in between!





CLO Citizen Science Projects

1. Identify and observe birds
2. Collect data
3. Enter data online
4. Retrieve and view online data



Great for Educators!

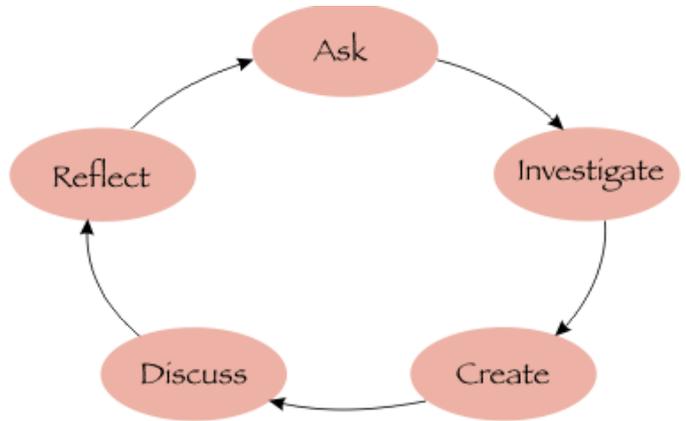
- Exciting and real-world
- Opportunity to study wild animals
- Low cost, year-round activity
- It helps!
- Sparks kids' curiosity
- Connects kids locally



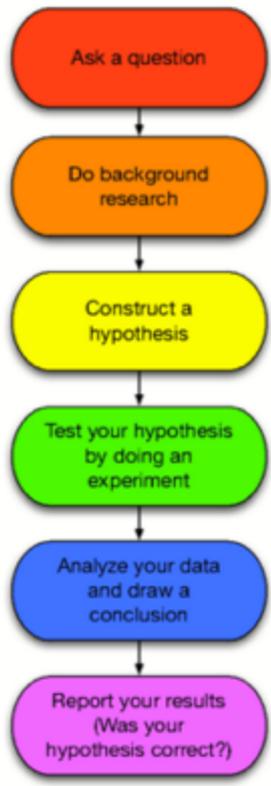


What is “inquiry?”

LET'S CHAT!



The Scientific Method



Inquiry...

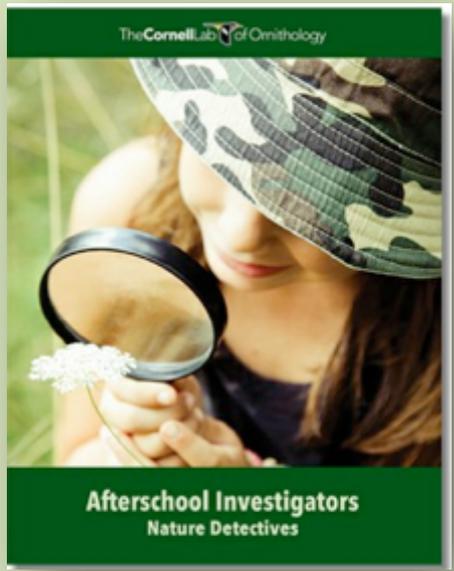
- Asking and answering own questions (authenticity)
- Develops science practices (STEM skills)



“Investigations”

The SCIENCE PROCESS: What will YOU Discover?





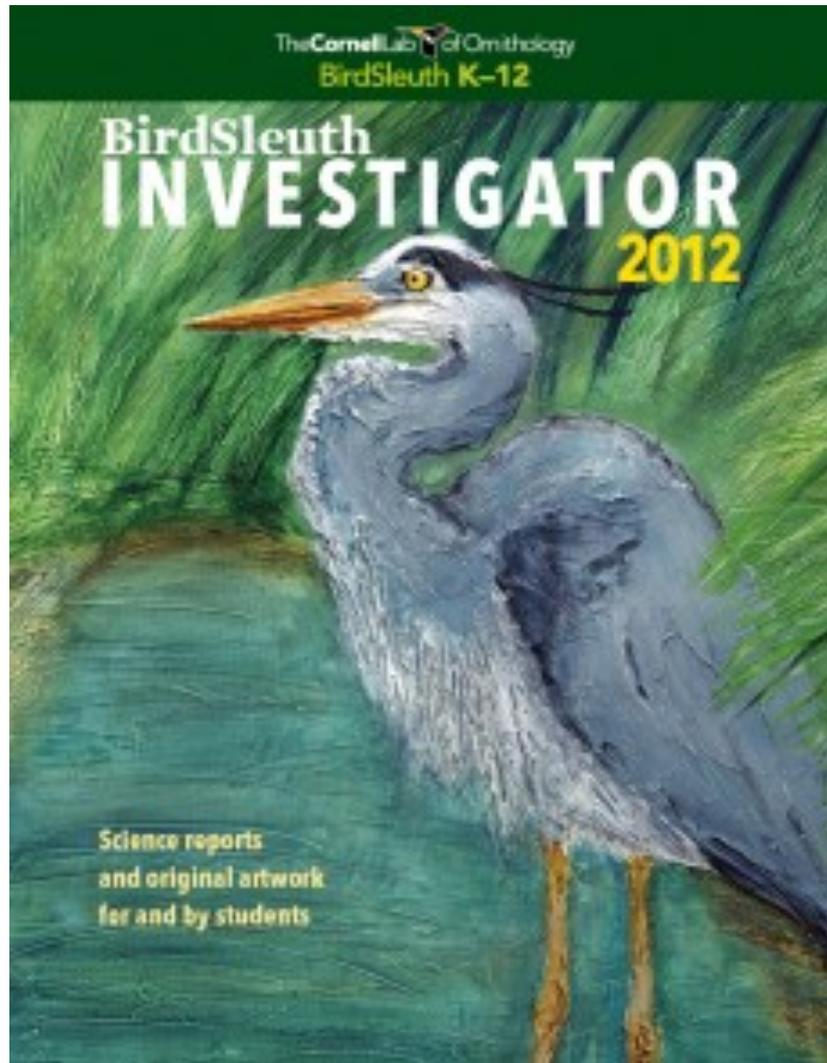
**Nature
Connection**



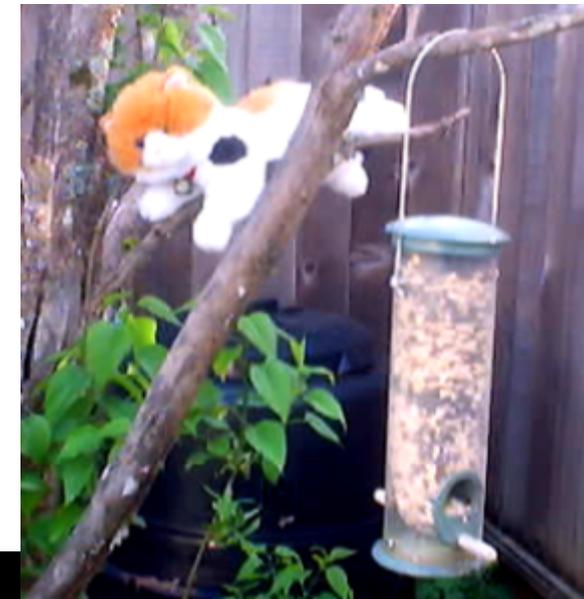
Citizen Science



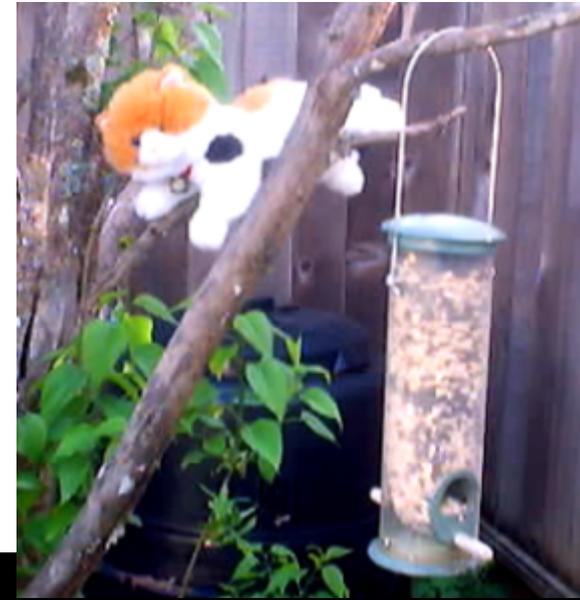
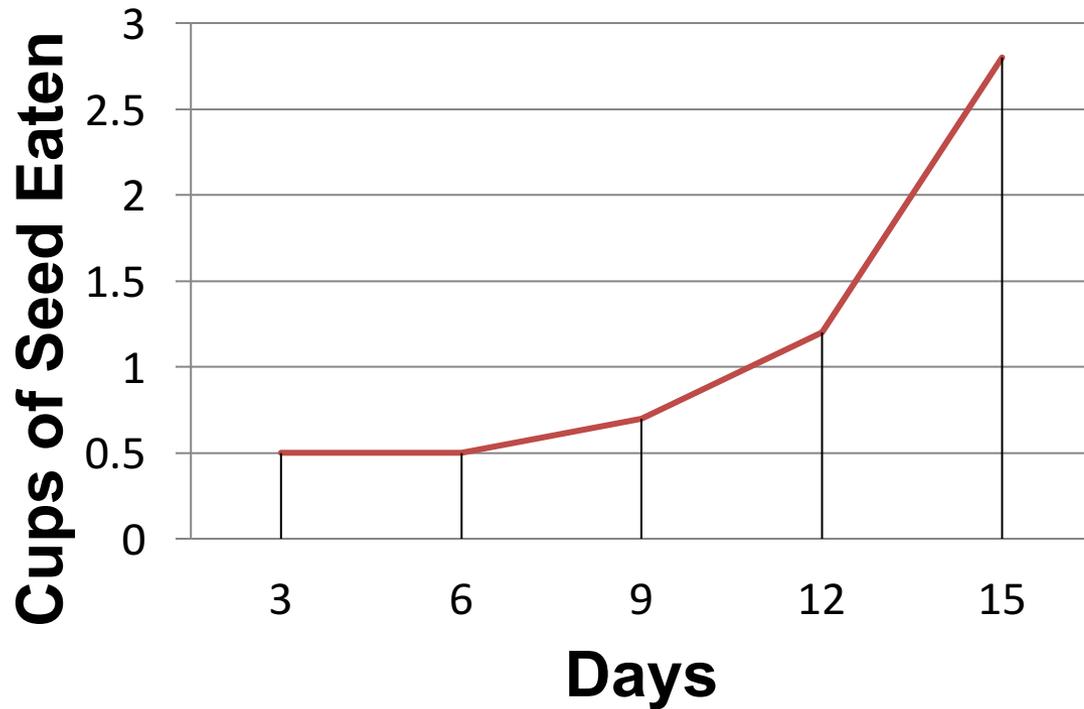
Inquiry



The cat is a
good guard



The cat is a
good guard, but I
thought the birds
would learn the cat was
fake!



Great for Girls (SciGirls Seven)

1. Girls benefit from **collaboration**....
2. Girls are motivated by projects they find **personally relevant and meaningful**.
3. Girls enjoy hands-on, **open-ended projects and investigations**.
4. Girls are motivated when they can **approach projects in their own way**...
5. Girls' confidence and performance improves in response to specific, positive feedback on things they can control....
6. Girls gain confidence and trust in their own reasoning when encouraged to **think critically**.
7. Girls benefit from relationships with **role models and mentors**.

Benefits of Program

- Free access to *Integrating Inquiry* Course
 - Curricula and materials
 - Ongoing support
(access to experts in citizen science, inquiry, bird studies)
 - 2 CEU credits from Cornell University
- > High quality, equitable experiences to deliver to youth



3-D **Investigating Evidence** Wild Delight
 Inspire Investigations through outdoor observations and citizen science!
TEACHER'S GUIDE

Kinds of Questions

You may have already come up with some questions about your observations. Different types of questions lead to different types of research projects. You can classify questions by how you can answer them. This graphic shows four ways to answer your scientific questions.

WHAT DO YOU THINK?
 Look at the graphic and read the paragraph in the box below. What four ways to answer your scientific questions?

Where will you jump into the process?
 Depending on your question, you can enter the process of science at different stages. Look at the dotted arrows to see where this student scientist could jump into the scientific process. Some conduct their investigations through **experimental** or **observational** studies, some start by **exploring and analyzing data** from a database (like eBird, for example), and still others find answers by pulling together information they find in **reference materials** such as books or web sites.

The Cornell Lab of Ornithology Resource Pages: Kinds of Questions 1

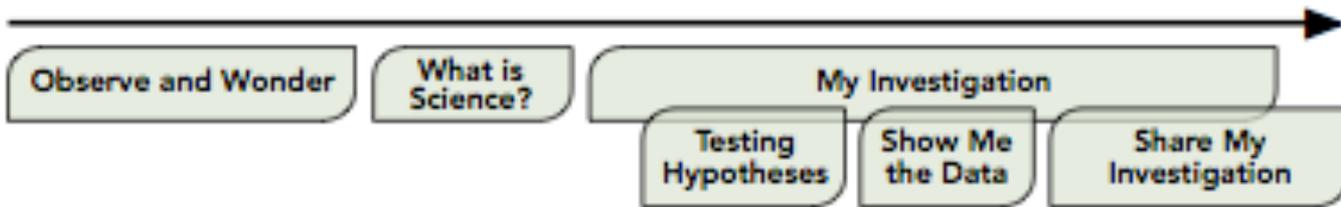
BirdSleuth K-12

Variables in Science Experiments

What makes an experiment "fair"?

Investigating Evidence
 The Cornell Lab of Ornithology
 BirdSleuth K-12

Unit Timeline: one week, a semester, or a year-long project...
 it's up to you and your students!



Integrating Inquiry for Educators: Developing Student Science Practices

[Edit this post](#)

Courses / Integrating Inquiry for Educators: Developing Student Science Practices

Greetings Educators!

We've designed this self-paced course to help educators explore the process of inquiry and scientific investigation, especially as inspired by outdoor observations and citizen-science participation. Our popular *Investigating Evidence* curriculum is the "textbook" for the course.

You can purchase the course with printed curricula/handouts or opt for the electronic version that you can download and/or print yourself. Feel free to explore *Investigating Evidence* at www.birdsleuth.org/investigation. You can also elect to



Welcome to the course!



After Lesson 1, you will be able to...

1. Describe "citizen science" accurately in your own words.
2. Describe "inquiry" accurately in your own words.
3. Explain reasons educators use citizen science and inquiry in their teaching/programs.
4. Describe how citizen science and inquiry are related.



Throughout the lesson, please be sure to complete all readings, assignments, and discussion questions.

Bird Academy

- Lesson 5: Assessing and Sharing Inquiry
- Lesson 6: Conclusions

Return to Integrating Inquiry for Educators: Developing Student Science Practices

My Courses:

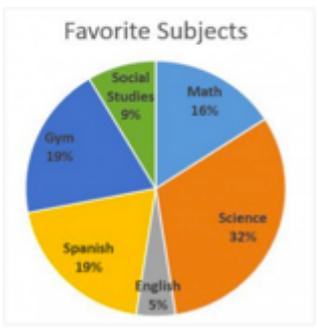
- Be a Better Birder: How to Identify Bird Songs
- Be a Better Birder: Warbler Identification Live Series
- Spring Field Ornithology—Northeast
- Ornithology: Comprehensive Bird Biology
- Be a Better Birder 1: Size and Shape
- Be a Better Birder 2: Color and Pattern
- Be a Better Birder: Duck and Waterfowl Identification
- Integrating Inquiry for Educators: Developing Student Science Practices
- Welcome to Waterfowl: A Preview of Duck and Waterfowl ID
- Home Study Course in Bird Biology

1 of 5 | **Featured** Bird-ology Topics | Browse Interactives + Videos | Textbook Handbook of Bird Biology | Courses Bird ID + Behavior | My Profile Progress + Badges

1 2 3 **4** 5

4. Question

The following graphs all represent the same data. Which one(s) are best at showing the favorite subjects of people in my grade?



Discussion

22 Comments | The Cornell Lab Bird Academy | [Login](#)

[Recommend](#) | [Share](#) | [Sort by Best](#)

Lauren Salzman · 8 months ago

All of these ideas are inspiring! Our organization is adapting the motto of "make learning visible" for the coming year, and I look forward to the challenge of documenting and facilitating youth in documenting their learning through a variety of channels! I like the idea of reports and posters that can be hung near our entrance for visitors to see, videos that can be shared through website and social media, and submissions to publications for peer review! So many ways to share information and the process of learning these days!!!

1 ^ | v · [Reply](#) · [Share](#)

Melissa Watkins · 8 months ago

With 4-H Youth, We have shared student work through news articles, some videos, presentations, along with sharing student work through 4-H Youth Fair. The kids are so excited to share their learning and accomplishments. The ways that youth present their work allow them to gain skills related to presentations, communication, leadership and positive self image that will help them in the career world. Social Media, blogging is also opening up avenues to share student work, and sharing the great things that they are doing, as well.

Topic Progress:

Showing off your learners' work can be very rewarding. The recognition of and spotlighting youth talents and creativity can inspire them to greater achievement. It can be as simple as adorning the halls outside your classroom with student projects or more complex like supporting learners in publications, science fairs, blogs, and social media. Here are four ways to share learners' work. Click on each kind to learn more.

- [BirdSleuth Investigator](#)
- [Create a Video](#)
- [Science Fair Poster](#)
- [Newspaper Articles](#)

Program Requirements

- Complete the *Integrating Inquiry Online Course* (June-July, 20 hours)
- Engage ~20 students in the activities (May-October, 20+ hours)
- Participate in evaluation activities (including pre and post surveys for yourself and the students you teach)

Timeline

Application and Launch

- May 11 > Informational Webinar
- May 15 > Applications due
- May 17 > Accepted applications announced
- May 17-22 > Educator pre-surveys

Course

- May 22 > Start “Integrating Inquiry” Course (20 hours of content)
- May-June, TBD > Conference call/discussions for all available educators
- July 14, 2017 > Deadline to finish course

Teaching and Evaluation

- June-September > Collect pre-assessment youth survey
- May-October > Implement citizen science and investigations with youth
- October 27 > Deadline to collect and submit post-assessment youth survey
- November 1, 2017 > Educator post-survey

How will you integrate inquiry into your programs?

- Who are you planning to engage in this project?
- Are there local partnerships that could arise from participating in this project?
- Are there other ideas you'd like to share?



QUESTIONS?

Keep in Touch!

Jennifer Fee

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