



Investigation 5

Present My Inquiry Project

Before You Start

Time and Place

Two 40-minute sessions, plus additional time for students to prepare their projects or reports
Indoors

MATERIALS NEEDED

Resource Pages

- “Sharing My Investigation” article

Journal Pages 18–23

Other Curriculum Components

- Copies of Classroom BirdScope research magazine (order online at www.BirdSleuth.net—see the Student Publications section)
- Copies of BirdSleuth Reports webzine (view and print online at www.BirdSleuth.net—see the Student Publications section)

You Provide

- Computer for word processing
- Poster supplies (if students will do posters)

Getting Ready

- Decide how students will present their findings (written report, oral presentation, poster, etc.). Share your expectations with students.

Goal

Students will become familiar with the parts of a scientific presentation before preparing a peer-reviewed project about their investigation.

Learning Objectives

1. Students will be able to prepare a poster, oral presentation, newsletter article, or scientific report that summarizes their work.
2. Students will be able to give constructive feedback on another student’s research report or presentation.
3. Students will be able to consider feedback to revise their report or presentation.

Lesson Outline

1. Continue to conduct research.
2. Prepare to share results.
3. Prepare a draft project.
4. Introduce peer review and the “critical friend.”
5. Conduct a peer review of papers.
6. Think on Your Own: rewrite your report.
7. Share your findings and feedback.

Conducting the Activity

1. Continue to conduct research.

Ask students to continue to record their work as they proceed with their investigations (and take notes on **JOURNAL PAGES 12–17**).

2. Prepare to share results.

- a. Tell the students that an important part of the scientific process is sharing their results with others, so others can learn about the natural world from their work.
- b. Tell students how you want them to share their work. Have them complete **JOURNAL PAGE 18** before they begin work on their project. If you have them submit their reports to the Cornell Lab of Ornithology, you may wish to share *BirdSleuth Reports* and *Classroom BirdScope*



Present My Inquiry Project

with them (available online at <www.BirdSleuth.net> under “Student Publications”).

3. Prepare a draft project.

At the conclusion of their research, give students time in and/or out of class to write the first draft of their report/poster/article/presentation using their journal notes. Give feedback and suggestions during the process, encouraging students to give a detailed account. (For example: have they included suggestions for improving their study in the Discussion section? Are all the materials listed? Are the methods written like a recipe that someone else could follow? Do their graphs illustrate important findings? Have they considered other explanations?)

Scientific papers and posters should include a standard format for their content. If your students are presenting their reports as either a scientific paper or poster have them read the article “Sharing My Investigation” (**RESOURCE PAGES 25–26**).

RESOURCE PAGE 25



Sharing My Investigation

Scientists write research papers so they can share their results and ideas with others. Scientific papers and posters include the following kinds of information:

- What were our questions?
- How did we do our research?
- What data did we collect?
- What do the data mean?
- What conclusions can we draw from our research?

To be sure all of this information is in every paper or poster, scientists use a standard outline for their writing:

1. Introduction
2. Materials and Methods
3. Results and Analysis
4. Discussion and Conclusions
5. References (if any)

Introduction

The Introduction explains why you decided to conduct your research. For example, what questions are you trying to answer? What information about previous research or existing knowledge do you have? How did this background help you decide what to do in your own research?

Materials and Methods

The Materials and Methods section provides a clear description of exactly what you did and how you did it. For example, if you conducted a study of the birds at a feeder, what kind of feeder did you use? Where did you set it up? How often did you observe the feeder? How often did you make your observations? What kinds of data did you record? How did you record your data? You should provide enough information so other people can understand what you did and can duplicate your work.

You might also give information about the habitat around your study area. This information is often important in helping other scientists understand your results.



Present My Inquiry Project

4. Introduce peer review and the “critical friend.”

Remind the students that after they write a report, it is not yet ready to be published. Scientists send their work to other scientists who review it and make suggestions for improvement. This is called the peer review process. Invite students to take part in a peer review process with each other.

Although peer reviewers need to give suggestions for improvement, their criticism should be constructive. Often, we call these reviewers “critical friends.” Lead a discussion about how the peer review process should be a positive one (helpful and encouraging). Make a list on the board called “What makes a good critical friend?” Add adjectives and ideas the class suggests for conducting a positive review process.

Ask at least two other students to review each project. These critical friends will fill out and sign a “Peer Review Contract” (JOURNAL PAGE 19) for each of the reports they review.

5. Conduct a peer review of papers.

Pass out the Peer Review Forms (JOURNAL PAGE 20–21) and review the form with the students. Have students exchange manuscripts with their critical friends. You may wish to review all reports at this stage as well. When the reviews are complete, students should receive copies of each of the Peer Review Forms written about their project. Encourage students to thoughtfully consider the feedback they have received and incorporate all reasonable suggestions.

JOURNAL PAGE 19

Name: _____ Date: _____

Present My Inquiry Project

Peer Review Contract

As you have learned, writing a manuscript for publication involves a lot of work and many people! A peer review process helps you get constructive feedback from those not familiar with your work. Give your manuscript to two classmates (“critical friends”) to review. Have them fill out and sign the contract below. Your critical friends will provide you with feedback and suggestions for improvement. In turn, you will review two of your classmates’ manuscripts.

1. As your critical friend, I agree that

I will give feedback with respect for the person receiving it.

I will give feedback that will lead to improvement.

I will give specific suggestions.

Signature: _____ Date: _____

2. As your critical friend I agree that

I will give feedback with respect for the person receiving it.

I will give feedback that will lead to improvement.

I will give specific suggestions.

Signature: _____ Date: _____

I am a critical friend for these two classmates:

1. _____

2. _____

19

Cornell Lab of Ornithology **BirdSleuth**: Investigating Evidence Investigator’s Journal

JOURNAL PAGE 20

Name: _____ Date: _____

Present My Inquiry Project

Peer Review Form

Name of Reviewer _____ Date _____

Project Reviewed _____

Project Author(s) _____

Is the research question well defined and introduced?

Great	<input type="checkbox"/>	Comments about what was done well:
Good	<input type="checkbox"/>	
OK	<input type="checkbox"/>	Suggestions for improvement:
Needs work	<input type="checkbox"/>	

Are the materials and methods fully described?

Great	<input type="checkbox"/>	Comments about what was done well:
Good	<input type="checkbox"/>	
OK	<input type="checkbox"/>	Suggestions for improvement:
Needs work	<input type="checkbox"/>	

Are the data and graphs understandable?

Very understandable	<input type="checkbox"/>	Comments about what was done well:
Mostly understandable	<input type="checkbox"/>	
Somewhat understandable	<input type="checkbox"/>	Suggestions for improvement:
Not understandable	<input type="checkbox"/>	

20

Cornell Lab of Ornithology **BirdSleuth**: Investigating Evidence Investigator’s Journal



Name: _____

Date: _____



BIRD

Sleuth

Present My Inquiry Project

How will I share my findings with others?

Create a poster, give a presentation, or submit your manuscript to *Classroom BirdScope* and *BirdSleuth Reports*.

Share Your Findings!

Briefly describe the type of project you are doing (poster, presentation, *Classroom BirdScope* submission, etc.) and what the topic is:

People on your production team:

_____	_____
_____	_____
_____	_____

Who's going to do what?

Writer(s): _____

Illustrator(s): _____

Editor(s): _____

Graph Maker(s): _____

Date to complete first draft: _____

Date to complete final copy: _____

Teacher Approval:

Signature

Date



Name: _____

Date: _____

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Peer Review Contract

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1. As your critical friend, I agree that

- I will give feedback with respect for the person receiving it.
- I will give feedback that will lead to improvement.
- I will give specific suggestions.

Signature: _____ Date: _____

2. As your critical friend I agree that

- I will give feedback with respect for the person receiving it.
- I will give feedback that will lead to improvement.
- I will give specific suggestions.

Signature: _____ Date: _____

I am a critical friend for these two classmates:

1. _____
2. _____



Name: _____

Date: _____

Present My Inquiry Project

Peer Review Form

Name of Reviewer _____ Date _____

Project Reviewed _____

Project Author(s) _____

Is the research question well defined and introduced?

Great	<input type="checkbox"/>	Comments about what was done well:
Good	<input type="checkbox"/>	
OK	<input type="checkbox"/>	Suggestions for improvement:
Needs work	<input type="checkbox"/>	

Are the materials and methods fully described?

Great	<input type="checkbox"/>	Comments about what was done well:
Good	<input type="checkbox"/>	
OK	<input type="checkbox"/>	Suggestions for improvement:
Needs work	<input type="checkbox"/>	

Are the data and graphs understandable?

Very understandable	<input type="checkbox"/>	Comments about what was done well:
Mostly understandable	<input type="checkbox"/>	
Somewhat understandable	<input type="checkbox"/>	Suggestions for improvement:
Not understandable	<input type="checkbox"/>	



Name:

Date:

Present My Inquiry Project

Peer Review Form

Are the conclusions clearly stated?

Very clear	<input type="checkbox"/>	Comments about what was done well:
Mostly clear	<input type="checkbox"/>	
Somewhat clear	<input type="checkbox"/>	Suggestions for improvement:
Not clear	<input type="checkbox"/>	

Do the data clearly support the conclusions?

Very clear	<input type="checkbox"/>	Comments about what was done well:
Mostly clear	<input type="checkbox"/>	
Somewhat clear	<input type="checkbox"/>	Suggestions for improvement:
Not clear	<input type="checkbox"/>	

Additional Comments:



Name:

Date:

Present My Inquiry Project

Think on Your Own

After receiving comments back from your critical friends and getting your teacher's final approval, rewrite your manuscript, incorporating any changes that you and your teacher agree upon.





Sharing My Investigation

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Sharing My Investigation

Results and Analysis

Present your data, including any charts and graphs, in the Results section. For example, what birds did you see? How many birds did you count? What was the temperature? The Results section often contains graphs or tables that summarize the data.

The Results section should match your Materials and Methods section. That is, if you present temperature data in the Results section, the Materials and Methods section should say when and how you measured the temperature. If you explain in the Materials and Methods section that you were looking for certain species of birds, the Results section should show how many of those species you actually observed, even if the number was zero.

In the Analysis section, tell what you think the results mean. For example, did the weather affect bird counts? Was one kind of seed eaten more frequently than another? Patterns that you discovered in the Results section are described in the Analysis section.

Discussion and Conclusion

In the Discussion section, report the conclusions of your study by answering the question(s) you asked in the Introduction. For example, did you discover what you thought you would find? Were the results different from what you expected? What have you learned from your analysis?

For example, if you asked questions about what kinds of food the birds in your area like, and you discovered that they prefer black-oil sunflower seeds, your Discussion might be about what kinds of seeds people in your area should put in their feeders.

The Discussion section is also the place to include ideas about future research studies. You may have answered the big questions you started with, but now the answers lead to new questions. Put those new questions in the Discussion.

References

If you used any books, articles, or web sites, list them here.

Once you have written all these sections, go back and check your work to see if everything is there, if it's in the right order, and if it makes sense.

