

# Teaching Observation, Questioning, and Inference

# Strategy 1

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## MYSTERY ARTIFACT INVESTIGATION

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Sarah squinted at her mystery object, a round glass ball about the size of a large orange. Living her whole life in Utah, she had no idea that this was a replica of an antique fishing float used to keep nets from sinking to the bottom of the ocean. Before beginning to write, she looked over at her neighbor but quickly realized James had been assigned a different object. He would not be of any help to her. Her partner Keisha asked her why she was frowning. Sarah answered with a sigh, "I just wish I knew if this is something that would be used as decoration or to actually *do* something."

Keisha smiled, "Hey, that's a part of the assignment. Look, it asks what kinds of questions you have!" Sarah quickly turned her frown into a smile and began to add her question to the correct part of the data sheet. Who would have thought having questions without answers was still doing social studies?!

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**M**any students feel doing social studies means having someone else tell them the answers. But reading about a historic figure in a textbook or memorizing the capitals of each state could not be further from the work of practicing social scientists. In fact, current research in the area of social studies posits that "real learning is founded on questions, not answers" (Harada & Kim, 2003, p. 33). By creating opportunities for students to carefully observe, make inferences, and share their discoveries, they are given the opportunity to build problem-solving skills that are advocated by social studies national standards (NCSS, 1994) and that are helpful across all academic areas.

One way to develop critical-thinking skills on the part of students is by encouraging them to carefully deconstruct the details of an everyday object or artifact. By selecting something that may be unfamiliar to students, this instructional technique can further tap into students' problem-solving skills. Data sheets have been proven to help guide

student responses and focus explorations. However, open-ended data sheets have proven to be most effective in this area (Mortensen & Smart, 2007). This open-ended format allows for emphasis to be placed on observing details and planning for further information gathering rather than blind guesses as to an artifact's identity or purpose.

Anything can be used as a mystery artifact. Artifacts are defined as “any object made by human beings” (Dictionary.com Unabridged, n.d.) so the options are broad. Sources for artifacts include garage sales or swap meets as well as the homes or garages of family or relatives (Melber, 2008). What is important to remember is that students 12 and younger may find something that is commonplace to you (i.e., an 8-track cassette!) is novel or unique to them. With an emphasis on firsthand experience and exposure, artifact selection should be guided by students' developmental level, resulting in artifacts that are not fragile, are able to be handled enthusiastically, and will spark communication and discussion among young investigators in line with a constructivist approach.

Please visit  
[www.sagepub.com/lmelberstudy](http://www.sagepub.com/lmelberstudy)  
 for the updated National Council of  
 the Social Studies standards.

### Curriculum Standards for Social Studies

- Strand I: Culture
- Strand II: Time, Continuity, & Change
- Strand III: People, Places, & Environments
- Strand IV: Individual Development & Identity

### Standards for the English Language Arts

Students will develop expository writing skills through the completion of the data sheet. Sharing their discoveries with their peers supports oral language skills.

- Standard 5: Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

### Technology Connection

Students can use the Internet to search for information about their artifact. The open-ended data sheet focuses students to the extent that they know what to search for and how to narrow down extensive results. The “image search” function on many search engines, using the key words students have identified on their data sheets, can also be helpful to their research.

Sources: National Council for the Social Studies, 1994; National Council of Teachers of English and International Reading Association, 1996.

## KEY THEMES

- Making careful observations
- Analyzing observational data
- Identifying areas for future study

**MATERIALS**

Data sheets (provided)

Pencils/pens

Colored pencils/crayons

Enough objects for every two students (for a list of suggested objects, see box below)

**Object/Artifact Suggestions**

multicultural textiles

bundled sage

glass fishing float

incense cone

packet of spice

wood carving

antique railroad tie

foreign coin/currency

odd cooking utensil (cherry pitter, egg slicer, etc.)

**PROCEDURES**

Begin the instruction by discussing the work of social scientists with students as a whole class. Images from the Internet, children's books, and even excerpts from educational television can provide excellent firsthand exposure to the work of a historian, anthropologist, or archaeologist (see Web site examples in Strategy 4). Explain to students that all social scientists are good researchers. Among what makes them good researchers is that they can make careful observations, they know how to find out important information, and they are able to take all that they discover and draw a conclusion or form an opinion. This activity will allow students to replicate the work of social scientists and develop their own research skills.

For the second part of the instruction, place students in pairs. With this instructional model, groups with more than two can sometimes result in some students taking too passive of a role in the investigation. It also limits the hands-on time each student can be allotted due to logistical reasons. Provide each student pair with an object and two data sheets (see Figure 1.1 on p. 8). Although students are encouraged to explore together and discuss their thoughts with their partner, they will have their own data sheet to record their discoveries. Social scientists do not always agree!

Before students begin to work independently, scaffolding use of the data sheet will be critical. Many students like to simply list "Internet" as the place they will go for more information. Emphasize the importance of more information here, such as what search terms will be used or what type of Web page would be most helpful. Another common response is "library." If that is the case, what type of book will students want to review? This activity focuses just on the planning of investigations, so unless it is conducted as an extension, students will not be searching the Internet unsupervised. Rather, it is to develop planning skills and support students in thinking critically about the best places to go for more information.

Provide ample time for students to investigate their artifact and record their discoveries on their data sheets. Monitoring as students complete the activity will prove helpful, as some students will need more scaffolding to complete the data sheet than others. After years of emphasis on identifying one right answer, some students need support in adjusting to this technique focused on the process of investigation rather than simply the outcome. It will also be important to clarify the length of response that is expected. This will vary by grade level.

After students have completed their data sheets, regroup students into teams of four. This is an opportunity for students to “report out” their discoveries and preliminary conclusions to their peers. This is a time where they may be able to benefit from any knowledge their peers might have. Depending on the artifacts that have been chosen for investigation, strategically placing pairs with similar items together can support the investigation process and lead to even more thoughtful conclusions.

At the end of the activity, data sheets can be collected and scored. Many students will be curious about the artifacts of their peers. Providing time for circulating among groups and exploring all the artifacts can be very enjoyable for students. Providing the students with “answers” should be deemphasized. Rather, a group discussion about what the class discovered about the different artifacts should be conducted. Usually, carefully scaffolded group discussion will result in students discovering specific content such as artifact use or identity on their own, without the need for direct instruction on the part of the teacher. Examples include asking students to describe the materials used to create the object, encouraging them to notice details that belie its age, or even drawing comparisons to things they might already have knowledge of. Plans can also be made to provide students with access to the Internet or an expert in order to follow through with their plans for additional information gathering.

This instructional technique can be replicated throughout the school year. Providing students with repeated exposure to observation, questioning, and communicating results will hone these skills as well as build students’ confidence in their investigation abilities. Repeated use of the data sheet usually results in more extensive responses and detailed narrative, also supporting language arts development alongside social science inquiry skills.

## **GRADE-LEVEL MODIFICATIONS**

### **K–2nd Grade**

Because of limited writing skills, emphasis on scientific illustration and the inclusion of a word bank will be critical. Also, selection of items that have familiar uses will be important so even when the item is identified, students can have an understanding of its role or importance.

### **3rd Grade–5th Grade**

Students at this level will most likely have a great deal of opinions and ideas but may not capture their thoughts in written format with adequate detail. Provide specific length guidelines and, if necessary, provide an example as guidance. Students at this grade level will be better able to think abstractly and can learn from objects that may have uses they are not familiar with.

### **6th Grade–8th Grade**

Students at this grade level enjoy being successful and are proud of the knowledge that they have. It may prove difficult to “stump” them, so the emphasis should instead be on identifying truly key questions they would like answered to know more as well as being very specific as to where further information about the object can be located. Novelty will be well-received with this grade level.

## MEETING THE NEEDS OF ENGLISH LEARNERS

The realia at the center of this instructional technique will support English learners by creating a context-rich environment. The partner format of the experience will also be supportive of English learners. Additional support can be provided to English learners by creating a word bank containing vocabulary that students are likely to want to include in their narrative description. Last, the data sheet can be modified to provide less emphasis on narrative description and more emphasis on sketches and diagrams that can be labeled with single words or phrases supported by the provided word bank.

## MEETING THE NEEDS OF STUDENTS WITH SPECIAL NEEDS

To support students with physical disabilities, particularly fine motor control, selection of artifacts is a critical consideration. Select items that can be handled easily and that will be durable enough for unintentional rough handling. The reciprocal teaching element of this activity will be especially helpful with reinforcing content for students with learning disabilities. Additional modifications can include modified expectations for length and detail of written component or the opportunity to share discoveries orally.

## ASSESSMENT SUGGESTION

At the conclusion of the activity, students will be able to:

- Carefully illustrate a historic object
- Summarize observations in narrative form
- Pose questions for further study
- Identify areas where further data can be collected
- Summarize findings in narrative form

Students' data sheets can be assessed by using a simple rubric such as the following:

Score	Criteria
4	All six sections of the data sheet are completed with exceptional detail and insight.
3	All six sections are completed with an acceptable level of detail.
2	Three to five sections are completed with an acceptable amount of detail, or all sections completed with significant errors.
1	Fewer than three sections are completed, or multiple errors are present.

## Children's Literature Connection

*The Room of Wonders*

By Sergio Ruzzier

ISBN: 978-0374363437

This work follows a young boy as he collects everyday items to feed his curiosity about the world around him.

### Quick Fact

When studying an object or artifact, the context in which the item was discovered is critical to a historian. That's why museums record all the details of where an item was discovered, any date that can be attributed to it, as well as any connection it might have to other elements of the historic narrative. A stove from the 1800s without context can tell us about early cooking practices. A stove documented as discovered adjacent to the Oregon Trail along with other "heavy items" tells us much more about the hardships of overland travel and coping strategies of early pioneers.

**FIGURE 1.1** Mystery Artifact Sample Data Sheet

3rd–5th, 6th–8th

1. Illustrate your object below.

2. Describe your object below:

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3. What questions do you have about your object?

a. \_\_\_\_\_

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b. \_\_\_\_\_

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c. \_\_\_\_\_

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4. Where could you go for more information about your object?

a. \_\_\_\_\_

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b. \_\_\_\_\_

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c. \_\_\_\_\_

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5. How do you think your object might have been used?

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6. What other conclusions can you draw about your object?

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**REFERENCES**

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