

DAY 3: RECORDING INFORMATION



MINI-LESSON

Teacher introduces the “Reading for Specific Information on a Website” anchor chart and models the strategy.

SCIENCE INQUIRY CIRCLES

Teams continue to research questions about their animals and record the information on their team Inquiry Charts.



GUIDED SCIENCE INVESTIGATIONS

Children learn about the types of information they will collect and record in their Butterfly Investigation Journals.



ABBREVIATED STANDARDS

- Reading TEKS: 2(b)(9)(F)
- CCSS: W.2.7, SL.2.1(a)(b)
- NGSS: 2-LS2-1, 2-LS4-1
- Science TEKS: 2.1(A)(C)(D)(E)(F), 2.5(A)

Day 3: Recording Information

Literacy Strategy: Reading for specific information on a website.

Science Concept: Scientists collect data from their observations, investigations and research.

Science and Literacy Connection: Scientists look very carefully for facts or information during an investigation or research because they know it can be used as evidence to explain and support their answers.

Mini-Lesson (15 minutes)



OVERVIEW

When doing inquiry, we must remember to think, talk, and read like a scientist. A scientist will use many different resources when researching information. In many cases, a scientist will read texts on the Internet to get the most up-to-date information. This mini-lesson teaches children how to read web-based texts (e.g., on the Internet) for specific information.

Note: You are encouraged to create a "Reading for Specific Information on a Website" anchor chart with your learners as you move through the lesson, using the provided anchor chart as a model. Post it for easy reference when completed and remind learners to use the strategy during inquiry circles.

MATERIALS

Teacher needs:

- chart paper
- marker(s)
- class Inquiry Chart
- "Reading for Specific Information on a Website" anchor chart
- website about butterflies to model the strategy

PROCEDURE

Each *italicized statement* below contains suggested wording the teacher may use for the lesson; additional teacher actions and considerations are in parentheses.

Tell what the strategy is (declarative knowledge)

1. *Our strategy today will be about reading for specific information on a website. I will use many resources while exploring my outdoor organism, such as books, videos, and websites.*

Tell when and why to use the strategy (conditional knowledge)

1. *I know to use this strategy (reading for specific information on a website) because sometimes the books I have available may be outdated or simply do not include what I am looking for. When this happens, I can get more information on the Internet.*
2. *As a strategic reader, I will scan the website because I do not need to read every word when I am looking for specific information. Just like when I scan a page in a book, this strategy is important because it saves me lots of time.*
3. *As a strategic reader using a website, I will always use websites I can trust. Therefore, I will only use a website that my teacher has approved. (Before allowing your learners online, you may want to make sure that the suggested websites are not blocked by your school district. You may also choose to bookmark the websites on your browser. You may also want to use district-purchased websites. Many websites have text-to-speech options that may be used to scaffold for your learners.)*

Tell how to use the strategy (procedural knowledge)

1. *The first thing I will do is think about what I need to research today.*
2. *Now, I will look at my Inquiry Chart to determine what specific information I need to locate. Since we have been exploring our outdoor organisms for a couple days, my Inquiry Chart will help me know what data is missing. (Using the class Inquiry Chart about butterflies, model how you can look at the missing parts in the chart to determine what to examine today.)*
3. *Then I think about a few key words I need to look for on the website. (Project for the class to see a chosen website about butterflies that contains the missing information from your class Inquiry Chart.)*
4. *When I am on a website, the first thing I do is check to see if I can believe what is on the website. Since I am only using websites that my teacher approved, I know I can trust the information. If I look for information at home, I will ask my parent or guardian for help knowing a website is safe.*
5. *I must remember to scan the entire page on the screen. Just like in a book, the text features are important and can lead me to valuable information. (Point out captions, bold words, subtitles, etc., on the webpage.)*
6. *If I do not find the information I need, I should try another website.*
7. *While scanning, I may see a hyperlink that I can click on for more information. If my mouse turns from an arrow to a hand, I know this is something I can click on. Sometimes the hyperlink will be words that are colored or bold, and other times it may be a picture or icon. I may also see short videos to play.*
8. *Sometimes websites have extra information that I should ignore. This could be advertisements, videos (not about my research topic), and even pop-ups. I should ignore them.*
9. *If I find myself on a website that is not useful, I can use the back button at the top of my browser to get back to the website where I started. (Alternatively, you could have websites bookmarked and have learners return to the correct place using the bookmark.)*
10. *Once I find the specific information I need, I must remember to record it on the Inquiry Chart. That includes the URL for the website I used. (Model for learners finding the information about butterflies on the website. You may also need to model where to find the URL on the webpage and where to record it on the Inquiry Chart.)*
11. *This is a strategy I will use every time I read for specific information on a website. (During inquiry circles, you may have some teams working online while others are working with traditional texts.)*

Science Inquiry Circles (30 minutes)

OVERVIEW

Scientists work in teams when conducting research and experiments. Today inquiry circles will work as a team to research different questions about their animals.

MATERIALS

Each team needs:

- team Inquiry Charts
- pencils
- access to informational texts/media

Teacher needs:

- “Animal Resources” spreadsheet for ideas

PROCEDURE

Each *italicized statement* below contains suggested wording the teacher may choose to use for the lesson; additional teacher actions and considerations are in parentheses.

Before Inquiry Circles

1. *It is time to get into our inquiry circles. You will be with the same research team as yesterday.* (Have the Equipment Directors gather the Inquiry Chart for their team).
2. *Yesterday you decided on questions you wanted to research about your animal. Today we will begin to look for answers to your questions.*
3. *As you look for answers to your questions, you will practice your roles as scientists. You will do this because scientists have a special way in which they look for answers. One way is to do research. This means that they look at text that might help them find information they can use.*

During Inquiry Circles (20 minutes)

1. *Today and for the next few days, you will research your animal by using preselected websites on the computer (or tablet), and preselected texts.*
2. *We have anchor charts to help guide your thinking. Do not forget to use them while working.* (Refer to all the anchor charts posted to date. Remind learners that they can use all the reading strategies taught, not just the one for that day.)
3. *The Lead Scientists will guide all research for the day by picking which questions will be answered, and the Data Scientists will record all source information and the answers to your research questions on the team Inquiry Chart. The Lab Directors and Equipment Director must help find the answers to the questions online and in texts.*
4. *My role is to help guide the inquiry circles, but I expect you to work as a scientific team to solve your problems together.* (While teams are working together, walk around the room to facilitate as needed.)

After Inquiry Circles (10 minutes)

1. (Once teams have finished, begin daily reflections.) *As we conclude our inquiry circles for today, each team will have a chance to share what they accomplished and learned. The Lab Directors*

will lead the discussion about today's results. For example, Did your team use any reading strategies today? If so, which one(s)? What did your team learn about its organism? What problems did your team encounter? How did your team resolve those problems?

2. (After you have allowed the teams to gather their thoughts, have the Data Scientists share with the class. Try to encourage teams to share a variety of things—you do not want just facts about animals, just reading strategies, or just cooperative learning strategies.)
3. (When all learners have shared, thank them for their hard work and point out any excellent behaviors you observed. If you noticed any problems in the teams during the lessons, take a moment to point them out, and explain your expectations for all future inquiry circles. Collect all Inquiry Charts or have Equipment Directors put them in their normal classroom place for ongoing work so they can easily access them.)

Guided Science Investigation (30–45 minutes)

OVERVIEW

Children will learn about the types of information they will collect and record in their Butterfly Investigation Journals.

GUIDING QUESTIONS

How do scientists collect information? Why is it important to record observations?

BACKGROUND INFORMATION FOR THE TEACHER

Scientists keep detailed records of all of the information they collect from their observations, investigations, and their research. This information, or data, is needed as evidence to support the claims they make about their work. Data can include measurements and observations. Often, scientists share this data with other scientists to compare results and consider new perspectives. Scientists may also work collaboratively to put the pieces of each other's work together to see the bigger picture of their shared interests. Keeping detailed records is key to their work.

Today, learners will work as scientists as they begin to collect and record data in their Butterfly Investigation Journals. Using a see/think/wonder approach in the journals is a good way to monitor and document the children's thinking. It also provides a meaningful way of encouraging careful observations and raising new questions to investigate.

When the larvae (caterpillars) arrive from the supplier, they will be a few days old and approximately 10 millimeters (1 centimeter) long. Your learners will notice that the larva get longer and fatter each day. **It is important not to reveal that the caterpillars will eventually form chrysalises—allow the children the ability to discover this change on their own!**

MATERIALS

Each team member needs:

- Butterfly Investigation Journal
- 1 copy of the "Measuring Caterpillars with Yarn" page
- pencil

Each team needs:

- habitat with larvae inside
- 1 copy of the Team Caterpillar Growth Chart
- hand lens
- scissors
- white glue
- yarn
- plastic spoon

Teacher needs:

- 1 copy of the “Measuring Caterpillars with Yarn” page
- 1 copy of the Team Caterpillar Growth Chart
- hand lenses
- scissors
- white glue
- yarn

SETUP

- Before the activity, make copies of the Team Caterpillar Growth Chart (**1 per team**) and the “Measuring Caterpillars with Yarn” page (**1 each per team member**).

SAFETY

- Model how to handle the larvae for measuring. Remind children to always be gentle as they handle the larvae and the growth habitats. **Ideally, the growth habitats should be placed where teams can do daily observations without moving them.**
- Please follow all district and school science laboratory safety procedures. It is good laboratory practice to have teams wash hands before and after any laboratory activity.
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DAILY OBSERVATIONS

Give the children time to observe their organisms (whether they are in the larva, pupa, or adult stage) and record their observations in their Butterfly Investigation Journals. They will also need to take measurements of the larvae (caterpillars) if applicable. **Observations and recording can be done at any time of the day at the teacher’s discretion, as long as it is done daily.**

Facilitate discussions with the children by asking questions, e.g., *What did you notice? What has changed since the last time you observed your animal?*

PROCEDURE

Engage

1. *Announce that today all teams will have about 10 minutes to make their first observations on their larvae. Remind them to work as a team as they observe what is happening but that learners will write their observations in their own journals.*
2. *At this point they can go to their habitats, or bring them carefully to the teams’ tables. **Remind learners about careful handling of the habitats.***

3. As learners make their observations, move between them and monitor their work. Offer guidance in the form of open-ended questions as needed.
4. After 10 minutes, ask for pencils down as you move into the next part of the lesson.

Explore

1. Begin a discussion with your learners. Ask them, *How do you know you are growing?* Accept all responses. Someone may say that a parent measures them. Explore this farther by asking, *How do you know how MUCH you have grown?* (Marks on a growth chart?) Ask them for ideas on how to best observe the growth of their larva. One or more learners will likely suggest measuring them.
2. Tell learners they will now practice how to measure the larvae. Explain that the larvae are young caterpillars and that learners will see them change over time.
3. Provide each team member with a copy of the “Measuring Caterpillars with Yarn” page. Read over the instructions with them. If necessary, have learners follow your example as you complete the first part (cutting the yarn to match the sample given).
4. Have learners complete the practice measurements., offering help when needed.
5. When the practice measurements are complete, discuss any observations your learners want to share. (When was it the easiest to measure? When was it the hardest? Why?)
6. Distribute the Team Caterpillar Growth Chart (1 per team). Read the instructions aloud as learners follow along. Check for understanding on how they will proceed.
7. When ready, model how to safely and gently remove a caterpillar from the habitat using a spoon. Place it on piece of white paper or paper towel. Have learners take their first measurements of a larva. Remind them to be gentle with the growth habitats as they measure larvae to prevent disturbing the animals. The growth habitats should have several larvae. Have each team member measure a different larva.
8. When each team member has completed their measurements, have them compare the yarn lengths, pick the longest yarn piece, and glue it to the team graph. **Each day, learners will repeat the measurements and select the longest piece of yarn for gluing onto the team graph.**

NOTE: Your learners will notice that the larvae get longer and fatter each day. Teams will have days in which no measurements are taken (weekends). That’s okay; have them record the measurements they take in sequence, 1–10.

Explain

1. Ask, *Why do you think it’s important to write, draw, and take measurements everyday as we observe the larvae?* Accept responses and listen to the children’s reasoning.

Elaborate

1. After the lesson, ask the class, *What other observations do you think you can you make and record about your larvae?* Accept their responses and have them consider the following:
 - Where are the larvae located in the chambers?
 - How much food is in the serving cup(s)?
 - How much larvae poop (frass) is on the bottom of the habitats?

Evaluate

1. Did learners complete their observations and written work as directed?

2. Did learners communicate an understanding of why recording information is important?
3. Did learners use new science language?
4. Was there evidence of collaborative teamwork?

Science Language

- A **larva** is the wingless, often wormlike form in the life cycle of a newly hatched insect (larva is singular, larvae is plural).
- A **caterpillar** is the larval stage in the life cycle of a butterfly.
- When a caterpillar is transformed into a **butterfly**, it has reached the adult stage in its life cycle.

Expanded Standards

Reading TEKS

2(b)(9) Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts—genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to: **(F)** recognize characteristics of multimodal and digital texts.

CCSS

W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations); **SL.2.1** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups; **(a)** Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion); **(b)** Build on others' talk in conversations by linking their comments to the remarks of others.

NGSS

2-LS2-1 Science & Engineering Practices: Planning & Carrying Out Investigations Make observations (firsthand or from media) to collect data that can be used to make comparisons. **2-LS4-1** Make observations of plants and animals to compare the diversity of life in different habitats.

Science TEKS

2.1 Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to: **(A)** ask questions and define problems based on observations or information from text, phenomena, models, or investigations; **(C)** identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards; **(D)** use tools, including hand lenses, goggles, heat-resistant gloves, trays, cups, bowls, beakers, notebooks, stream tables, soil, sand, gravel, flowering plants, student thermometer, demonstration thermometer, rain gauge, flashlights, ramps, balls, spinning tops, drums, tuning forks, sandpaper, wax paper, items that are flexible, non-flexible items, magnets, hot plate, aluminum foil, Sun-Moon-Earth model, and frog and butterfly life cycle models to observe, measure, test, and compare; **(E)** collect observations and measurements as evidence; **(F)** record and organize data using pictures, numbers, words, symbols, and simple graphs. **2.5** Recurring themes and concepts. The student uses recurring themes and concepts to make connections across disciplines. The student is expected to: **(A)** identify and use patterns to describe phenomena or design solutions.