

DAY 5			
How Do We Set Up an Investigation?			
Literacy Strategy: Monitoring Comprehension and Fix Up Strategies practice		Science Concept Good science questions are testable and can be answered in a measurable way through investigations or experiments.	
Reading TEKS: (1)(b)(6)(G)	CCSS: RI.1.7	NGSS: 1-LS3_1	Science TEKS: 1(b)(2)(A)
Materials for Mini-lessons on Science-based Disciplinary Literacies (referred to as Mini-lesson): Chart paper, markers, inquiry chart			
Materials for Science Inquiry Circles: inquiry charts, pencils, informational texts or videos			
Materials for Science Investigation: See Lesson			
Content Vocabulary: Testable question – a question that can be answered through a designed investigation or experiment Scientific investigations – a planned design or approach to find an answer to a question Hypothesis- an idea that can be tested or investigated to see if it is true Prediction- a guess about what might happen			
Science and Literacy Connection: Science consists of asking questions and planning investigations to search for answers. Scientists, like strategic readers, use all kinds of information to make sure that they understand or can make sense of what they are observing or researching.			

Mini -lesson — 15 minutes

OVERVIEW

Mini lesson today should be used as a time to practice the reading strategies previously taught in this unit. Teachers are encouraged to use this time to best meet the needs of their students. Perhaps your class needs more time with the previous mini-lesson or the one from the day before. The choice is yours; we just ask that you use this time to practice!

Teachers should determine if this mini lesson will be facilitated with the whole group or a small group (i.e., a particular inquiry circle group) who needs additional support. If you are working with a small group, we suggest your other learners spend additional time within the inquiry circles.

This Mini-Lesson teaches children how to combine “monitoring comprehension” with “fix-up” strategies.

PROCEDURE

Procedural Knowledge (Tell them the steps to using the strategy)

1. “Today we will continue to practice monitoring comprehension and using fix up strategies. Remember, monitoring comprehension means I will listen to myself to be sure everything looks right, sounds right, and makes sense. If I don’t understand something, then I will use a fix-up strategy.” Refer to the “Monitoring comprehension” and “Fix-Up Strategy” anchor charts.

Conditional Knowledge (Tell them when and why you know to use the strategy)

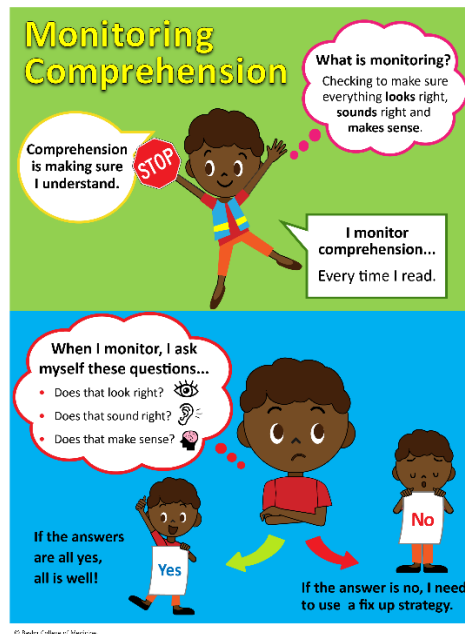
2. Say something like, “This week, we talked about how we monitor every time that we read even though we may not notice it (like with an easy book). It is important to always pay close attention so we know when to use a fix-up strategy.”

Declarative Knowledge (Tell them what the strategy is that they are learning)

3. For this section in the mini-lesson, the teacher may choose to model the strategy again for the class. Be sure to use a different text or page in the text than what you modeled yesterday.
4. Teachers are encouraged to share examples of students using this strategy from the day before. Say something like, “Mohamed’s group did a great job yesterday using a fix-up strategy. I was so impressed when they_____.” Teachers also are encouraged to invite the groups to share with their peers (you may need to scaffold this and prepare the students for sharing beforehand.)

If you choose to model the strategy again, you might want to say something like:

5. I ask myself three things while I am reading:
 - “Does that look right?”
 - “Does that sound right?”
 - “Does that make sense?”
6. If the answers to these questions are yes, then all is well. If the answer is ‘no,’ then I have to use a fix-up strategy. When I am finished reading, I will ask myself, ‘What did I learn?’ If I can answer this, all is well. If I cannot, then I should use a comprehension fix-up strategy.
7. There are several comprehension fix-up strategies that I can use. But, first I have to recognize that something has gone wrong in my reading. I know something has gone wrong when I read and I think, ‘What in the world did I just read?’ Once I recognize that I’m not understanding, then there are a few things I can do to fix it. Here are some of them:
 - I can look at the graphs, charts, and pictures in the text.
 - I can read out loud.
 - I can visualize or create a picture in my head.
 - I can re-read the text.
 - I can stop and think about what I already know.
 - I can ask someone in my inquiry circle.



Practice in text (print, video, or interview)

Post the anchor charts in your classroom so students can refer to it while in their inquiry circles. Encourage scientists to use the strategy during in their Inquiry Circles.

Science Inquiry Circles — 30 minutes

OVERVIEW

Scientists work in teams when conducting research and investigations. Each day of this unit, students will work in inquiry circle groups while embodying the role of a scientist. They will do so by taking on roles of scientists in research by speaking like a scientist, reading like a scientist, and writing like a scientist.

PROCEDURE

Before Inquiry Circle Groups — 5 minutes

You might want to say something like this to the readers:

1. It is time to get into our inquiry circle groups. You will be with the same research team as yesterday.
2. When we research animals, we will practice our roles as scientists. We will do this because scientists have a special way in which they observe the world, read scientific texts, and write reports. There is no better way to learn about science than to become a scientist

During Inquiry Circles — 20 minutes

You might want to say something like this to the readers:

3. We have anchor charts to help guide your thinking. Do not forget to use them while in groups. (Refer to the “Language of a Scientist” anchor chart and the daily anchor chart. Remind students that they can use all the reading strategies taught, not just the one for that day.)

4. My role is to help guide the inquiry circle groups, but I expect you to work as a scientific team to solve your problems together.
5. Do not forget to answer your research questions and record it on the inquiry chart. It is important to record your sources on the inquiry chart as you complete it. (Be sure to explicitly explain how students should use the chart.)

(While groups are working together, walk around the room to facilitate as needed.)

After Inquiry Circle Groups — 5 minutes

You might want to say something like this to the readers “

6. As we are concluding our inquiry circle groups for today, each group will have a chance to share what they accomplished and learned.
7. The Lab Director should lead the discussion with their inquiry circle group about today's results. For example, what did you learn about your animal? Which reading strategies did you use? What problems did you encounter? How did you resolve those problems?
8. The Data Scientist will now share with the entire class either something the group learned about their animal, which reading strategy(ies) were used, or how the group solved a problem.

Science Investigation —45 minutes

OVERVIEW

Today students will set up their team investigations. They will also make their first entries into their science investigation journals. Due to the work involved today, the teacher should either allow extra time for completion or break today's lesson into two parts, whichever best meets the needs of the class.

GUIDING QUESTIONS

What question are we investigating? How will we set up our investigations?

BACKGROUND INFORMATION

After observing a phenomenon or conducting research, a scientist formulates a question or questions. The question(s) allow scientists to plan and conduct investigations either alone or collaboratively with other scientists.

The question they are investigating should be answerable in a measurable way and should provide evidence that supports an answer to their question. Sometimes investigations lead to more questions!

SAFETY

- Children should wear gloves as they handle the pill bugs, then wash their hands after the investigation.
- Remind them of the Rules for Observing Pill bugs

MATERIALS

- Pill Bug Investigation Journals
- Chart tablet with list of class questions
- Team mini-habitats (1 per team)
- Plastic spoons
- Class Pill bug habitat
- gloves

SET UP

Before the class

- Print the “Pill Bug Investigation Journals” (1 per child)
- Prepare the small containers that will be used for the team habitats (1 per team). (See Setting Up Habitats doc.)

DAILY OBSERVATIONS

There are no observations at this time.

PROCEDURE

Engage

1. Announce to the class that today they will set up their team investigations! Direct their attention to the table or area where you have assembled the materials they will use.
2. Point out the mini-habitats and tell them each team will have one to work with. Explain that they are a smaller version of the class habitat and contain the same materials (soil, dried leaves, etc.)

Explore

3. Ask the Equipment Directors to collect one spoon and a bag of gloves for their team. Explain that each team will place several pill bugs into their habitats. But first, they must put on a pair of gloves.
4. When ready, the teacher will model how to scoop the pill bugs with the spoon into the habitat, cupping one hand under the spoon in case the pill bugs slip off. If the pill bug slips off, instruct the children to gently hold it and place it into the mini-habitat. (The pill bug will most likely ball up.)
5. Tell them that **each** team member will get to use the plastic spoon to place several pill bugs at a time into the team habitat. (There should be 6- 8 pill bugs in each habitat) **Note:** Teacher will have one team at a time come up to do this and monitor to ensure that every team member has a chance to relocate the pill bugs!
6. **Explain they will add the food to the habitats in the next class day when they begin observations.**
7. When they are finished, ask the Lab Directors to make sure their work area is clean, and all materials are returned to the designated area. Also, indicate where they will place the mini-habitats after they are finished at the end of class.

8.

Explain

9. Distribute the Pill Bug Investigation Journals. Instruct them to write their names on the front.
10. Remind the class they will need to observe and record what they see happening every day in this journal. Remind them of the Inquiry Tool Box anchor chart and tell them they will recognize pictures (icons) that will help them remember what to write!
11. Then, direct the students to the “Getting Started” page where they will begin.
12. Read the first sentence “We would like to learn more about_____.”
Ask, “**What do we want to learn more about?** (Accept responses and have them write it in.)
13. Next read, “**The question we will investigate is_____**”
Ask, “What will you write here?” (“What do pill bugs eat?”)
14. Then read “**Hypothesis or Predictions**” and explain, “A hypothesis is an idea that we can test or investigate to see if it is true; a prediction is our best guess about what we think will happen.”

Read the sentence stem **"We think pill bugs will eat ____."** and direct them to write in their food choice.

Next, ask **"Why do you think they will eat it?"**

Write your answer in the space that begins with **"because ____"**. Allow time for recording and offer prompts as needed.

15. Point to the next prompt, **"Planning Investigation"**. Ask, **"What should you do to find the answer to your question?"** Direct students to finish the prompt, **"We think we should ____."** (place our food in the habitat and observe)
16. "After today, you will write and draw what the pill bugs are doing and what the food looks like. *Maybe* we will see them eating! Remember that we talked about how organisms get energy from food, so it will be interesting to see what the pill bugs are doing every day."
17. Instruct the Equipment directors to take the mini habitats to the designated area.
18. Instruct the Lab directors to gather up all the plates and containers and dispose of them in the proper receptacles.
19. Ask all team members to dispose of their gloves and wash their hands after they are finished.
20. Begin to gather the class again on the floor. "While we wait for everyone to finish handwashing, I would like for you turn and talk to someone on your team about any questions, comments, or observations that you have about setting up the investigations."
21. After a few minutes, invite volunteers to share what they discussed and address any questions or observations.

Elaborate

19. After the discussion, tell the class that tomorrow the teams will begin collecting *data*-information about the eating behavior of their pill bugs. Explain, "We will talk more about how you will collect your data, or information, tomorrow. Remember that scientists also write and draw what they observe so that they can compare what happens from one day to another."

Evaluate

23. Did students communicate a reasonable understanding of the question they are investigating?
24. Did students communicate a reasonable understanding of how they will find the answer to their question?

Expanded Standards

Reading TEKS: (1)(b)(6)(G) Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to (G) evaluate details to determine what is most important with adult assistance.

CCSS: RI.1.7 Use the illustrations and details in a text to describe its key ideas.

NGSS: 1-LS3-1 Science & Engineering -Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena. Connections to the Nature of Science - Science investigations begin with a question

Science TEKS: 1(b) (2) Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to: (A) ask questions about organisms, objects, and events observed in the natural world; (B) plan and conduct simple descriptive investigations such as ways objects move