

Day 3: What Do We Know about the Green Substance?

-  **Mini-lesson** Children learn strategies to use for monitoring their comprehension while reading.
-  **Inquiry Circles** Children learn how to record information on the team Inquiry Chart and investigate their first question.
-  **Guided Science Investigation** Children engage in an active-movement game to learn about the needs of living things: water, air, a place to live, and food for energy.

Literacy Strategy: practice monitoring comprehension

Reading TEKS

ELA.3.6I

CCSS

RF.3.4, RF.3.4A,
RF. 3.4C

Science Concept: living things have needs that must be met to live, grow, and survive.

Science TEKS

2018–19: 3.9A

2024–25: 3.12A

NGSS

3-LS2.C

Science and Literacy Connection: scientists, like strategic readers, monitor their comprehension to make sure that they understand or can make sense of what they are observing or researching.

Mini-Lesson (15 minutes)



OVERVIEW

Scientists always pay close attention to the world around them. When measuring liquids in an investigation, they must monitor the amount poured into a beaker. When making observations of a living thing, they might closely monitor changes in the organism. Scientists also monitor their comprehension as they read.

Today, the teacher will explain what it means to *monitor comprehension* while reading. The teacher will use the “Monitoring Comprehension” anchor chart and two preselected short passages from an exploratory text about pond ecosystems to model the strategy.

Note: You are encouraged to create the “Monitoring Comprehension” 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 refer to the anchor charts during inquiry circles.

MATERIALS

Teacher needs:

- chart paper
- marker(s)
- “Monitoring Comprehension” anchor chart as a model
- two preselected short passages from an exploratory text about pond ecosystems

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.

Tell what the strategy is (declarative knowledge)

1. *Our strategy today is called monitoring comprehension. “Monitoring” means I will think about what I’m reading to be sure everything looks right, sounds right, and makes sense. I have to be in charge of my own reading.*

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

1. *I monitor my comprehension every time I read. Sometimes a text is easy, so I don’t notice my monitoring. I may notice it more when a text is hard. As a strategic reader, I monitor as I read because reading is supposed to make sense. This strategy will help me be aware of what I’m thinking as I read because it makes me pay close attention.*

Tell how to use the strategy (procedural knowledge)

1. (While you model the strategy using the preselected texts, you may want to purposely make an error so you can model monitoring. For example, you may read a word incorrectly so that you can model for your learners that the word you said does not make sense and you will need a fix-up strategy. The mini-lesson on comprehension fix-up strategies will be tomorrow).
2. *While I am reading, I ask myself three questions:*
 - *Does that look right?*
 - *Does that sound right?*
 - *Does that make sense?*

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. We will learn about fix-up strategies tomorrow.

Science Inquiry Circles (30 minutes)

OVERVIEW

Today the teacher will assign each team one question to examine (alternatively, you can allow the learners to choose). Learners will record their information on the team Inquiry Charts. **The “Ecosystem Resources” spreadsheet in the “Before the Unit Begins” section** lists resources for all the ecosystems to be explored. The teacher will select the appropriate ones for today’s question and work with the class to model how to listen for and find answers to their questions. The process today may move slowly, but it is important for establishing how the inquiry should be done.

MATERIALS

Each team needs:

- team Inquiry Chart
- pencils
- exploratory texts/media (see “Ecosystem Resources” spreadsheet for ideas)

Teacher needs:

- class Inquiry Chart (pond ecosystems)

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. I will remind you which inquiry team you will be working in.*
2. *Remember that each team member has a role or a job within your team.* (Be sure to review roles and assign them as needed. Roles should rotate daily.)
3. *Today we will begin to look for answers to the questions on your Inquiry Chart. Each team will have one question to find the answer to as team members read a text, read online, or watch the assigned video.* (Review the question at the top of the anchor chart that you want the learners to start with today. Be sure they all understand what the questions are asking.)
4. *We are going to practice as a whole group before you do this with your inquiry circles.* (Using a text about ponds, preferably the same text used during the reading mini-lesson, model reading the text and finding the answer to the first question. Be sure to explicitly show learners which square to write in for their first question using their first resource. You may also want to take the time to show them how to record the name of the book they are using. Point out that the same process to record will be used for books, websites, or even video resources.)
5. *Now that you have seen how I looked up the answer to a question and recorded it on the class Inquiry Chart, you will do the same on your team Inquiry Charts. Remember to work as a team, helping each other listen for the answers to your question.* (Display the pond Inquiry Chart in a location where learners can easily refer to it as an example.)

During Inquiry Circles (20 minutes)

1. *Now read your books or websites (or listen to the audio file) as a team. If you come across the answer to your question, ask your team members to stop so you can write the answer on your chart.*

2. *Today's Data Scientist will write down the answer in the correct spot on the Inquiry Chart. You can use the pond Inquiry Chart as a model to remember where to record your findings.*
3. *Remember, we have anchor charts to help guide your thinking. Do not forget to use them while in teams. (Refer to the "Inquiry Toolbox" and "Monitoring Comprehension" anchor charts.)*
4. *My role is to help guide the inquiry circles, but I expect you to work as a 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. *As we conclude our inquiry circles for today, each team will have a chance to share what they accomplished and learned.*
2. *The Lab Director should lead the discussion with their inquiry circle team about today's results. For example, what did the team learn about its ecosystem? Did the team use the monitoring comprehension strategy? What problems did the team encounter? How did the team resolve those problems?*
3. *The Data Scientist will now share with the entire class either something the team learned about their ecosystem, an example of how they monitored their comprehension, or how the team solved a problem. (Try to encourage teams to share a variety of things—you do not want just facts about ecosystems, just monitoring comprehension strategies, or just cooperative learning strategies. If you saw a great example in action, encourage that team to share with the entire class.)*

Guided Science Investigation (30–45 minutes)

OVERVIEW

Learners are engaged in an active movement game to learn about the needs of living things: water, air, a place to live, and food for energy.

GUIDING QUESTIONS

What are the needs of living things? What else do we need to know about the green substance? Does it have needs?

BACKGROUND INFORMATION FOR THE TEACHER

All organisms have basic needs that must be provided for survival. These include water, air, a place to live, and food for energy. Scientists group, or classify, organisms based on information collected about them through observations and investigations.

MATERIALS

Each team member needs:

- one Organism Card
- science notebook
- pencil

Teacher needs

- chart paper
- marker(s)

- One set of the Organism Cards
- 8 ½ x 11 “Needs of Living Things” placards

SETUP

- Print one set of Organism Cards (each team member needs **one Organism Card** for this activity).
- Allow enough room for learners to move around in or do activity outside the classroom in a large area.
- Print the “Needs of Living Things” placards (teacher will only need one of each).
- Label a sheet of chart paper “**Ideas and Questions about the Green Substance.**”

SAFETY

Make sure you have an adequate open space for learners to move around in. Caution them not to run and to be mindful of others when it is time to move around.

DAILY OBSERVATIONS

None at this time.

PROCEDURE

Engage

1. Tell the class that today they will play a game to explore the needs of living things. Explain that if something is alive, it has “needs” that must be met so that it can survive.
2. Ask for 5 volunteers and have them line up next to you; let the rest of the class know that they will receive organism cards shortly.
3. Begin by holding up the first placard and reading the name on it (e.g., **Water**). Hand it to the first volunteer and direct the volunteer to a position in the room. Do the same with all the other placards (**Air**, **A Place to Live**, **Food for Energy**, and the one with a **question mark**), directing each volunteer to a different position in the room or outside.
4. As the volunteers move into position, briefly describe the placards that are considered “needs” of living things (for example, **Water**: all living things need water to survive; **Air**: organisms need air to breathe; **A Place to Live**: living things need their own space or shelter; **Food for Energy**: living things use energy from the food they eat to help them live, grow, and survive).
5. Explain that the **question mark** placard will be used when learners **are not sure** if the organism on their card has the “need” being called out or when learners do not know the identity of the organism on their card.
6. Next, distribute the Outdoor Organism cards to the rest of the class (1 per learner).
7. Tell learners that you will call out one of the needs written on a placard—if the organism on their card is something that requires the need to survive, learners will stand next to the volunteer holding the placard. If the organism does not require the need, learners do not move. If learners are not sure, they can stand by the volunteer with the question mark placard.
8. Ask learners to look at their cards.
9. Begin by asking anyone with a picture of something that needs **water** to survive to stand next to the volunteer holding the “Water” placard.
10. Ask for several volunteers to explain why they moved there (e.g., fish need water to live in; plants need water to grow). Accept all responses.
11. Repeat the same process with all the placards. (Most of the learners will be moving to each of the placards; expect some learners not to move at all.)

12. When you have covered each of the “needs,” ask learners who **didn’t** move at all to explain why they were unable to. Listen to their ideas. Expect them to say that they didn’t move because the objects on their cards were not alive (although some are!) or because they didn’t know the identity of the organism.
13. Add, *How might temperature or precipitation (rainfall, snow) affect an organism’s ability to meet their needs?* Accept responses.
14. After everyone has shared, ask the class, *Do you think it’s enough to just look at something to determine if it’s alive or not?* (No, you need more information.)

Explore

1. At this point, place the jar of green substance where everyone can see it. Ask for volunteers to share **what they already know** about the substance (e.g., it’s green, it’s in water, it’s in a container).
2. Tell the class that you know they are eager to begin setting up their investigations. However, as scientists they may want more information about the substance to better plan their investigation.
3. Ask for ideas about what kind of information would be useful.
4. Accept their responses and write them on the chart paper labeled **“Ideas and Questions about the Green Substance”** (refrain from commenting about their ideas).
5. When all responses have been written down, **look over the list quickly for questions or comments about whether the substance is alive or not. Circle those questions.**
6. **If learners do not ask whether the green substance is alive or not**, tell them that you have something to add to the list: “Is it alive?”
7. Ask learners, *Is it important to know whether the green substance is alive? Does it matter?* (Yes, because it could help us better design an investigation.)

Explain

1. Ask, *Can you explain what you have learned about the needs of living things in the game we just played? How can we use that information to help us plan our investigations? What questions does it raise?* Accept all responses.
2. *Consider this, does the green substance have any of the needs you explored today? How would you know if it did?* Accept responses and add them to the **“Ideas and Questions about the Green Substance.”**
3. *Has this activity helped you to think about other ideas or questions you might consider for your investigation on this green substance? If so, how?*
4. Ask learners to write in their science notebooks a couple of questions they may want to investigate about the green substance. They can copy questions from the list or write down new questions they have. Explain that they will return to these questions when they are ready to plan an investigation.

Elaborate

1. If learners ask if the substance is a plant or an animal, tell them that, as scientists, they will need to come up with that answer through their investigation!
2. Share that living things (organisms) can be organized into other groups besides plants or animals. Tell them that they will learn more about that in the coming weeks.

Evaluate

1. Did learners generally move correctly, following the directions given for participation?
2. Were they able to explain why they did or did not move to the question mark?
3. Did any team reconsider and communicate their ideas about the green substance after the activity?
4. Did learners raise new questions about the green substance?
5. Did they communicate what they learned about the needs of living things?

Science Language

- **Organisms** are living things that carry out the activities needed to live, grow, and survive.
- Organisms have **needs** for surviving, such as water, energy, air, and a place to live.
- Living things use **energy** from the food they eat to help them move, grow, and survive.

Expanded Standards

Reading TEKS

ELA.3.6I: 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: (I) monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, and annotating when understanding breaks down.

CCSS

RF.3.4: Read with sufficient accuracy and fluency to support comprehension. **RF.3.4A:** Read grade-level text with purpose and understanding. **RF.3.4C:** Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

NGSS

LS2.C: Disciplinary Core Ideas: Ecosystem Dynamics, Functioning, and Resilience: When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.

Science TEKS

2018–19: 3.9A: observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem.

2024–25: 3.12A: explain how temperature and precipitation affect animal growth and behavior through migration and hibernation and plant responses through dormancy.