DAY 8 Setting Up Student Investigations		
Reading Strategy: Main Idea Practice		**Science Concept:** Designing and carrying out investigations is part of the process scientists use to find answers to their questions.
Reading TEKS: 3.6G	**ELPS:** Reading 2-12, 19 TAC 74.4(c)(4)	**Science TEKS:** 3(b)2A, 3(b)2B, 3(b)4
Materials for Reading Mini Lesson: chart paper, markers, pond ecosystem inquiry chart, pond text to model strategy		
Materials for Inquiry Circle Groups: Group inquiry charts, pencils, variety of nonfiction texts for each group, access to websites and online books		
Materials for Science Whole Group Lesson: 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 **Evidence –** data collected from the investigation that can be used to support explanations and answers **Data –** facts or information collected during an investigation; EX: images, measurements, or words **Scientific variable** – the factor or a condition (something) that can change or potentially change in a scientific investigation **Control** – something that does not change throughout the course of the investigation.		
Science Concept: The process of science is an iterative, or repetitive, process that cycles back on itself building on new ideas or knowledge.		

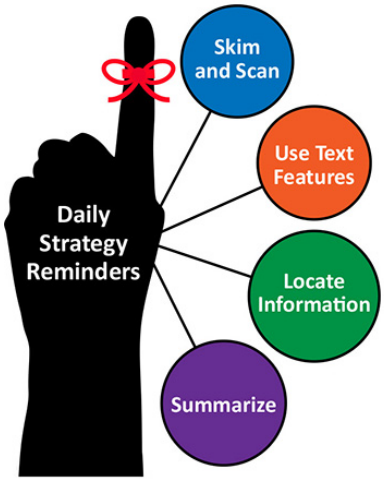
For an expanded version of the Standards listed above, see page _____.

Reading Mini-lesson — 15 minutes

OVERVIEW

Mini lesson practice 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 mini-lesson from the day before, or you may choose to circle back to mini lessons from a week ago. 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.



Explain the strategy below as follows.

- **Tell what the strategy is (declarative knowledge)**
  - Say something like, "Today we will continue to practice determining the main idea of a section as we read about pond ecosystems. The main idea is the most important thing the author wants us to know about their topic. Getting the main idea is sometimes called 'getting the gist' of a piece." Refer to the anchor chart previously made with the class.
- **Tell when and why to use the strategy (conditional knowledge)**
  - Say something like, "Yesterday, we talked about how sometimes authors tell us the main idea. Usually they do that in the first or last sentence of a section. But, they don't always do that. Sometimes, they leave out the main idea and make us (as readers) work to extract it. As a strategic reader, I will do this after each paragraph or section in the text I am reading. I do this because it makes my reading clear and helps me remember what I read."
- **Tell how to employ the strategy (procedural knowledge)**
  - 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.
  - 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 determining main idea. I was so impressed when they____." Teachers are also 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 this strategy again, you might want to say something like:
  - "The first thing I need to do is think about the topic (that's pond ecosystems) and what I already know about the topic (pond ecosystems)."
  - "Now, I will draw a conclusion about what the author wants me to know about the topic (pond ecosystems)—that is, I'll take what I already know about the topic (pond ecosystems) and then I'll combine that with the most important details the author is telling me."
  - "Now, I have to put these things together to get the main idea. That is, I'll try to think, 'What would the author tell me was the most important idea from the reading if she were standing here next to me?'"
  - "I will put the main idea in my own words and record it on the inquiry chart."

Practice in text (print, video, or interview)
Post the anchor chart 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.

Inquiry Circle Groups — 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:

- It is time to get into our inquiry circle groups. You will be with the same research team as yesterday.
- When we research ecosystems, 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 Circle Groups — 20 minutes

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

- We have anchor charts to help guide your thinking. Do not forget to use them while in groups. (Refer to the "Inquiry Tool Box" 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.)
- 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.
- 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:

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

Science Whole Group Lesson — 30-45 minutes

OVERVIEW

Today students will be setting up their investigations, making their first observations, and documenting their first data.

GUIDING QUESTIONS

How will we set up our investigations? What job will each team member have?

BACKGROUND INFORMATION

Designing and carrying out investigations is part of the process scientists use to find answers to their questions. Many times investigations raise new questions for scientists to consider.Or they may find that the data they collect cannot be used as evidence that supports their answers so they have to rethink their planned investigation.

SAFETY

Instruct the students on the proper way to handle their bottles of the green substance.
(see lesson). Keep paper towels handy for spills.

MATERIALS

2 Small bottles with green substance (algae culture) per team (prepared ahead of time by teacher).
Paper funnels
Materials/tools needed for investigations
Plastic shoeboxes (1 per team)
Sharpies
Data logs/Science Notebooks
Goggles/Safety Glasses
Safety Rules for the Investigation docx.

SET UP

Before the class:

- Teacher should have read all team data logs prior to the class to anticipate what materials and equipment will be needed, and to identify teams who may need more guidance or help with the set up.
  (**Note**: **students should have prepared a list of needed materials in their data logs in the previous lesson**)
- Set up an accessible area for all the materials (Plastic shoeboxes, measuring tools, color charts, etc.). Does not include microscope which will be set up at a monitored station later!
- Teacher should fill **2 small water bottles per team** with the green substance from the 1- gallon bottle to prepare for distribution.
- Use a funnel to transfer 3 oz. of the green substance into each. (This should be plenty for the investigation and it will leave some available in case it is needed. If the class is small, you may choose to give them 4 0z. in each bottle)
- Make copies of the Safety Rules docx. for handling the bottles of the green substance- 1 per team.

DAILY OBSERVATIONS

Today students will make their first observations of the green substance on their data logs. They will continue to document their observations daily until Day 15.

PROCEDURE

Engage

1. Announce to the class that today they will set up their own investigations!

2. Remind them that they are working as a team, and that each has a role. (This is a good time to review those roles!)
3. Go over Safety Instructions with the class on how to handle the samples to make sure they understand.
4. Remind the **Data Scientist** and **Equipment Director** to review the data log they began in the previous lesson, using it as a guide to collect their materials and to set up their investigation.
5. Point out where the materials/equipment are for their use. Let them know that each team will use one of the shoeboxes for their materials and that they need to label their box with their Equipment Director's name. (Ex: Chris)
6. Tell them that you will be talking with each team to decide the best location in the classroom for placing their investigations, and to answer any questions that may arise.
7. Instruct each team to label their sample containers with their **Lead Scientists'** name and bottle number. (Ex: Liz #1, Liz #2). Students can write directly on the bottles with the Sharpies.
8. Remind the class that one bottle will be their control (no changes), the other will have 1 variable changed.
9. The **Lab Director** should review the team on the Safety Instructions for handling the samples.
10. **Inform them that they will need to write about their initial setup in their science notebooks, and then make their first observations of the green substance on their data logs. Remind them to date their entries!** The **Lead Scientist** should check to make sure this is done.

Explore

11. Ask the **Equipment Directors** to collect the containers of the green substance (2) for their team.
12. As the teams work to organize and set up their investigations, the teacher should move between them to offer help or guidance.
13. Every team may have a different set up, so the teacher will need to provide the appropriate location for their investigations.

Explain

14. As students work to set up their investigations, ask them to explain what they are each doing (this should reinforce that each has a role).
15. Ask them to explain what the overall plan is. Reiterating their ideas may insure that they are not leaving out any parts, and gives them an opportunity to ask questions and reflect on their own reasoning.
16. Teacher can offer prompts through open-ended questioning ("What made you decide to…?"; " What do you expect will happen if…?")

Elaborate

17. When all investigations have been set up, ask the **Lab Directors** to make sure materials have been put away and their areas are clean. remind the class that they will make observations each day for the next 5-7 days.
18. Remind the class that they will make observations each day for the next 5-7 days. They will use the data sheets in the science notebooks to record information every day that they make an observation.
19. Tell the class that scientists often have to change their thinking about their investigations. Sometimes new questions come up or something unexpected happens and they have to rethink their plans. Science investigations may be changed and repeated many times until they get as close to finding the answers they need!
20. Tell students that they will have the opportunity to reconsider or modify their questions and data collection in the next 2-3 days if needed.

Evaluate

21. Did the students label their containers with their name and bottle number?
22. Did the students follow safety instructions for handling the cultures?
23. Did the students write about their initial setup in their science notebooks?
24. Did the students make their first observations of the green substance on their data logs and date the entry?
25. Was each student able to explain what they were doing? Was the team able to explain their overall plan?

EXPANDED STANDARDS

Reading TEKS: 3.6G 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 read to determine key ideas

ELPS: Student Expectations for Reading 2-12, 19 TAC 74.4(c)(4) The student is expected to: (I) demonstrate English comprehension and expand reading skills by employing basic reading skills such as demonstrating understanding of supporting ideas and details in text and graphic sources, summarizing text, and distinguishing main ideas from details commensurate with content area needs.

Science TEKS: 3b2A: The student is expected to plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world. 3b2B: The student is expected to collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data. 3b4: The student is expected to collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.