DAY 12 Should I Stay or Should I Go? Part 2			
Reading Strategy: Fix-Up Strategies		**Science Concept:** Fly Butterfly Fly	
Reading TEKS: 2.6 I	**Figure 19:** Reading/ Comprehension Skills C	**ELPS:** Speaking K-12, 19 TAC 74.4(c)(4)	**Science TEKS:** 2.2(A, D); 2.10
Materials for Reading Mini Lesson: Chart paper, markers, butterfly inquiry chart, butterfly 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: Black marker pens; copy of "Butterfly Gliders" page; scissors; small paper clips (size #1); and several sheets of different colors poster board—white, yellow, red, etc. (See section for details.)			
Content Vocabulary: **Gliding —** To move smoothly and continuously along as if without effort or resistance.			
Science and Literacy Connection: Monarch butterflies have to determine whether they should travel or rest each day based on environmental conditions. Similarly, we have to determine whether we understand a text and can move on or need to spend more time clearing up our understanding with a fix up strategy.			

For an expanded version of the Standards listed above, see page 6.

Reading Mini-lesson — 15 minutes

OVERVIEW

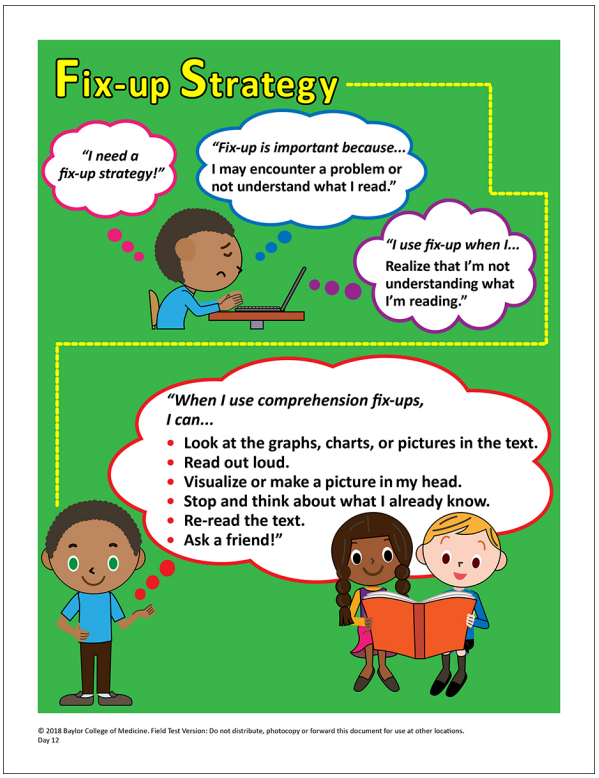
Scientists are aware of their understanding of both observations they are making and texts they are reading while doing research. Sometimes they read an entire page and realize they have no idea what it said and somwetimes they get confused while doing an experiment. When that happens, a scientist will use a fix up strategy to help them understand what they are reading and doing.

Explain the strategy below as follows.

- **Tell what the strategy is (declarative knowledge)**
  - Say something like, "Today we will practice using comprehension fix up strategies when we read. A comprehension fix-up strategy is a tool we use when we don't understand what we read."
- **Tell when and why to use the strategy (conditional knowledge)**
  - Say something like, "I use a comprehension fix up strategy when I am reading and I encounter a problem that causes me to not understand what I read. Sometimes when I am reading, I forgot what I just read. Sometimes I am interrupted or distracted while reading. And, sometimes, the text is just too hard! When this happens, I use comprehension fix-up strategies because I am a strategic reader."

- **Tell how to employ the strategy (procedural knowledge)**
  - As you model the strategy, say something like, "Yesterday we learned how to monitor our comprehension. Remember, that means that I listen to myself and talk to myself as I read to be sure everything makes sense!" Refer to the "Monitoring Comprehension" anchor chart.
  - Say something like, "If I do not understand something that I read (because I was distracted or there was too much noise around me or something else went wrong), then I need to use a comprehension fix-up strategy."
  - Say something like, "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. Some of them are:

    …I can re-read the text."
    …I can read out loud."
    …I can stop and think about what I already know."
    …I can look at the graphs, charts, and pictures in the text."
    …I can visualize or create a picture in my head."
    …I can ask someone in my inquiry circle."



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 experiments. 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 liking a scientist, and writing like a scientist.

PROCEDURE
Before Circle Inquiry Groups — 5 minutes
1. Say something like, "It is time to get into our inquiry circle groups. You will be with the same research team as yesterday."

2. Say something like, "When we research organisms, 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

1. Say something like, "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.

2. Say something like, "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."

3. Say something like, "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.

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

After Inquiry Circle Groups — 5 minutes

1. Say something like, "As we are concluding our inquiry circle groups for today, each group will have a chance to share what they accomplished and learned."

2. Say something like, "The Lab Director should lead the discussion with their inquiry circle group about today's results. For example, 'What did you learn about your organism? Which reading strategies did you use? What problems did you encounter? How did you resolve those problems?"

3. Say something like, "The Data Scientist will now share with the entire class either something the group learned about their organism, which reading strategy(ies) where used, or how the group solved a problem."

Science Whole Group Lesson — 30 minutes

OVERVIEW

In this activity, students construct and fly paper butterflies. They will learn how Monarchs are able to travel great distances during their fall and spring migrations.

GUIDING QUESTION

How are monarch butterflies able to travel thousands of miles?

BACKGROUND INFORMATION

While playing the Monarch Migration game, some of your students might wonder how such small insects are able to travel such great distances. According to the U.S. Department of Agriculture Forest Service, monarchs can travel between 50 and 100 miles a day during their migration. The farthest recorded monarch butterfly flight in a single day is 265 miles! How did the butterfly accomplish that feat and how do we know that? The answer to the second question is simple. Butterfly scientists capture butterflies and press a small identifying tag to one of their wings. The tags do not harm the butterflies and if they are caught again, the tags tell scientists how far the butterflies traveled to the new catching site and how long it took to get there. How the butterflies travel the distance is another matter.

Because the Monarch life cycle is short, more than one generation of monarchs is needed to travel from the northern United States and Canada to southern Mexico. Feeding on nectar, monarchs store up fat in their abdomens and draw in this fat for energy to make the trip. The monarchs feed along the way and may actually gain weight during the trip. Much is to be learned about how monarchs navigate to Mexico. A combination of seasonal sunlight, Earth's magnetic field, or some other factors guide monarch generations to the same overwintering nesting grounds year after year.

Monarchs flapping their wings can account for only part of the journey. Scientists think that the long daily flights south may also be accomplished by gliding on north winds that push them southward. Keeping upright and heading south in swirling winds takes maneuvering ability – occasional wing flapping and changing the angles of the wings in relation to the butterfly's body.

Students will construct butterfly gliders and adjust them to make smooth flights. They will then try to aim for and land on large "flowers" on the classroom floor.

SAFETY

Remind student teams daily to be gentle with the growth habitats when they handle them to prevent disturbing the larvae.

Please follow all district and school science laboratory safety procedures. It is good laboratory practice to have students wash hands before and after any laboratory activity. Clean work areas with disinfectant.

SETUP

Before the activity, use the black marker to draw single large flowers on different colors of poster board. Cut around the outer petals to make several large flowers.

MATERIALS

- Black marker pen
- Butterfly Patterns
- Colored markers or crayons
- Small paper clips, size #1
- Scissors
- Several sheets of different colors poster board (white, yellow, red, etc.)

DAILY OBSERVATIONS

Give students time to observe their organisms (whether they are in the larvae, pupa, or adult stage), take measurements of the larvae (if applicable), and record their observations in their science notebooks. Facilitate group discussions by asking questions like, "What did you notice? What has changed since the last time you observed your organisms?"

PROCEDURE

Engage

1. Review the Monarch Migration game with your students. What did they learn about why Monarchs migrate? Find out if the game prompted any new questions.

2. Ask for ideas about how the monarchs are able to travel such great distances.

3. Tell the class that today they will investigate how wind can help the Monarchs make the long flight to Mexico.

Explore

4. Distribute 1 monarch butterfly glider pattern to each student. If time permits, have students decorate their glider pattern before cutting them out. Encourage students to carefully cut the patterns and not fold or crumple the paper. Have spares available for scissor mistakes.

5. When the gliders are cut out, give students 1 small paper clip per glider and a copy of the paper clip placement diagram. Using the diagram, discuss the different ways to position the paper clip. Tell students that they will test to see which position works the best for flying. Have students place their paper clips on the head of the butterfly as shown.

6. Demonstrate how to fly the butterfly. Stand up and raise the butterfly to eye level. Hold it horizontally and point the head (paper clip) in the direction you want it to fly. Release the butterfly. If the paper clip is positioned properly, the butterfly will glide smoothly to the floor in front of you.

7. If necessary, adjust the paper clip and try again. Refer to the diagram on the right for fine-tuning of the paper clip. If the paper clip is too far forward, the butterfly will be nose-heavy and dive to the floor. If the paper clip is too far back, the butterfly will follow wave-like upward arcs. Airplane pilots call this stalling and it could lead to a hard, tail-first landing.

8. When students have adjusted their butterflies, place the flowers on an open space on the floor and challenge students to land their butterflies in the center of the flowers so that they can drink nectar for energy. If students miss the flowers, have them try again until they are successful. If you have several flowers, have students start on one flower and go from flower to flower.

Explain

9. Ask for student volunteers to explain the flight of their Monarch—How many adjustments did they make? Which position was the most successful? Why?

Elaborate

10. Refer back to the gameboard from the activity on Day 11. Ask if anyone has an idea of how wind helps Monarchs make their long flights to Mexico. Ask students, “What other animals use the wind to help them in flight?”

Evaluate

11. Prompt students to share any other interesting observations they made about the flight of their Monarchs.

Expanded Standards

Reading TEKS: 2.6 I 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: (I) monitor comprehension and make adjustments, such as re-reading, using background knowledge, checking for visual cues, and asking questions when understanding breaks down.

Figure 19: Reading/Comprehension Skills. Students use a flexible range of metacognitive reading skills in both assigned and independent reading to understand an author's message. Students will continue to apply earlier standards with greater depth in increasingly more complex texts as they become self-directed, critical readers. The student is expected to: (C) monitor and adjust comprehension (e.g., using background knowledge, creating sensory images, re-reading a portion aloud, generating questions).

ELPS: Student Expectations for Speaking K-12, 19 TAC 74.4(c)(4) The student is expected to: (D) speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency; (E) share information in cooperative learning interactions.

Science TEKS:
2.2 Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:

(A) ask questions about organisms, objects, and events during observations and investigations;

(D) record and organize data using pictures, numbers, and words.

2.10 The student knows that organisms resemble their parents and have structures and processes that help them survive in their environments.