

Day 11 Should I Stay or Should I Go? Part 1			
<b>Reading Strategy:</b> Monitoring Comprehension		<b>Science Concept:</b> Monarch Migration	
<b>Reading TEKS:</b> 2.6 I	<b>Figure 19:</b> Reading/Comprehension Skills C	<b>ELPS:</b> Speaking K-12, 19 TAC 74.4(c)(4)	<b>Science TEKS:</b> 2.2(A, D); 2.10
<b>Materials for Reading Mini-lesson:</b> chart paper, markers, butterfly inquiry chart, butterfly text to model strategy			
<b>Materials for Inquiry Circle Groups:</b> group inquiry charts, pencils, variety of nonfiction texts for each group, access to websites and online books			
<b>Materials for Science Whole Group Lesson:</b> See section for details.			
<b>Content Vocabulary:</b> <b>Migration</b> — The seasonal movement of animals from one region to another <b>Generation</b> — the span of time between the birth of parents and that of their offspring			
<b>Science and Literacy Connection:</b> 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.

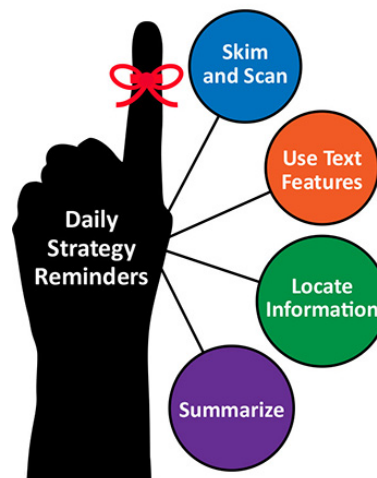
### Reading Mini-lesson — 15 minutes

#### OVERVIEW

Scientists always pay close attention to the world around them. When measuring liquids in an experiment, they must monitor the amount poured into a beaker. When making observations of the life cycle of a butterfly, they closely monitor changes in the organism. Scientists also monitor their comprehension while they read!

Explain the strategy:

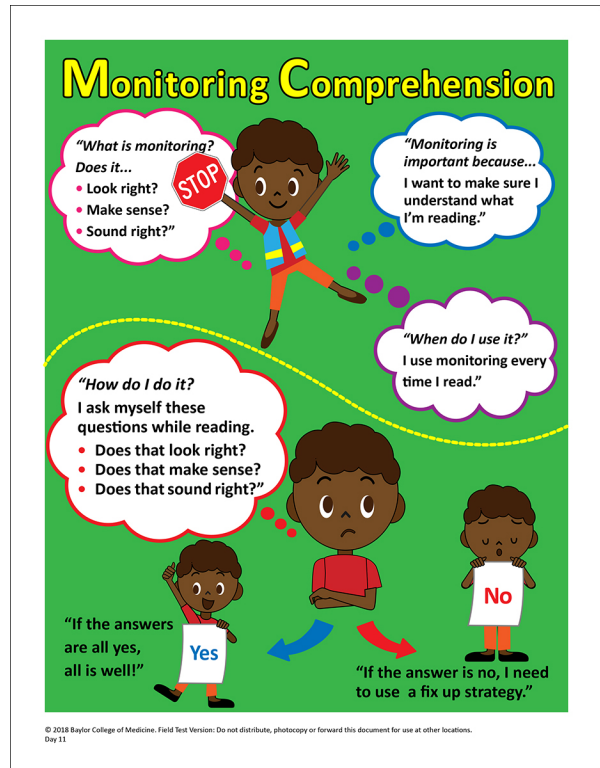
- **Tell what the strategy is (declarative knowledge)**
  - Say something like, “Our strategy today is called monitoring comprehension. Monitoring means I will listen to myself as I read to be sure everything makes sense, looks right, and sounds right. I have to be in charge of my own reading.”
- **Tell when and why to use the strategy (conditional knowledge)**
  - Say something like, “I monitor my comprehension every time I read. Sometimes a text is easy, so I don’t notice it. I may notice it more when a text is difficult. 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 am doing as I read because it makes me pay close attention.”
- **Tell how to employ the strategy (procedural knowledge)**
  - Say something like, “I ask myself three things while I am reading,”
    - Does that look right?
    - Does that make sense?
    - Does that sound right?



- “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.” (Comprehension fix-up mini lesson will be tomorrow).
- 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.

### 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 like a scientist, and writing like a scientist.

### PROCEDURE

#### Before Inquiry Circle 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. “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. “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. “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. “The Data Scientist will now share with the entire class either something the group learned about their organism, which reading strategy(ies) were used, or how the group solved a problem.”

### **Science Whole Group Lesson — 30 minutes**

#### **OVERVIEW**

In this activity, student groups will play a board game inspired by the amazing annual migration of monarch butterflies from the north and central United States to overwintering grounds in southern Mexico. They will learn about the factors that influence the success of a migration.

#### **GUIDING QUESTIONS**

Where do the monarch butterflies go each winter? Why do they go there?

#### **BACKGROUND INFORMATION**

Many animals are known to migrate. In North America, many bird species travel south in the fall to avoid cold winter temperatures and limited food supplies. They return to the north as the climate warms in spring where food becomes abundant again. It is an annual cycle that has been repeated for millennia.

One of the world’s greatest north-south-north migrations is the annual trek of monarch butterflies from the north-central United States to southern Mexico. It is a journey as long as 3,000 miles. Unlike birds that make the round trip more than once, the monarch migration is a one-way trip for the butterflies. The monarchs that make it to the Mexican overwinter grounds will not return. They will lay eggs, but it is their offspring who will begin to make the return trip to complete the cycle. In fact, it takes several generations of butterflies to complete the trip all the way to northern United States or Canada!

Many factors influence the annual monarch migration among them are weather, food supply, and time of day. You can read more about monarch butterfly migration on the National Geographic website.

<https://news.nationalgeographic.com/2017/10/monarch-butterfly-migration/>

NOVA offers a video on monarch migration.

<https://houstonpbs.pbslearningmedia.org/resource/tdc02.sci.life.reg.monarch/migration-of-the-monarch/>

## MATERIALS

### Teacher

- Prepare the game by assembling enough game boards, game card sets, and playing pieces for student teams.
- Print each of the masters on white cardstock paper.
- The game board consists of 4 panels (11-Game Map 4pgSet.pdf). Trim the panels on the cut lines and arrange them edge to edge. Tape the panels front and back. The tape will enable you to fold the panels for storage later. You will make one game board per team.
- Cut out the game card set, shuffle the cards and stack them (11-Game Cards Pieces.pdf). Secure individual sets with rubber bands.
- Cut out the playing pieces and place them into envelopes.

### Per Student Team

- Migration Map game board
- Set of Game Cards and Pieces

## 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. Introduce the concept of migration. Ask “What does it mean to migrate?” (move/travel from one place to another; animals have seasonal movements from one region to another)
2. Ask your students if they can think of any animals that migrate (geese, ducks, robins, caribou, salmon, whales, bats, monarch butterflies). Ask if they know why the animals migrate (move to warmer places when winter comes, to find abundant food, to reproduce).
3. Talk about the monarch butterfly migration. Monarchs thrive during the summer in the United States. In the fall, they travel to southern Mexico to overwinter. For some monarchs, the journey is 3,000 miles long. However, each individual does not make the complete trip. It is completed by successive generations of individual butterflies. When the monarchs arrive in Mexico, they feed and reproduce. Their offspring return in a stepwise migration by multiple generations to the U.S. in spring.
4. Explain that monarchs:
  - Need warmer temperatures during winter
  - Need flower nectar – most flowering plants are dormant during winter
  - Can’t fly when it rains or is cold
  - Are assisted by wind in their journey if it is blowing in the right direction
  - Don’t fly at night

Tell the students that they will play a game to help them understand how these factors affect the monarch’s journey south.

### **Explore**

5. Show students all the game-parts – game board, game card set, playing pieces- and explain what they represent.
6. Explain that the game begins with each player selecting a colored game piece. The colored piece is placed on the game board on the same colored circle at the north end of the path lines.
7. Tell them that the circles represent trees where the butterflies can rest at night before continuing the journey the next day.
8. Shuffle the game cards and placed them upside down in a stack.
9. Tell students that the object of the game is for all monarchs to arrive at the overwintering place in Mexico.

### **Game Rules**

You should actively model how the game works for the class before they begin play. The following instructions are for you. This is important because of the grade level—walking through the activity beforehand will allow all learners to understand how to play better. Either the teacher or a student can do the walk through.

- a. Each player selects a colored game piece. The red player starts first and draws a game card from the stack. The card will tell the player what to do. The red player moves the game piece accordingly. The used game card should be placed in a separate stack.
- b. Play continues with the green player and then the purple, blue, and black and then back to red.
- c. Players move from north to south unless a game card provides a different instruction. If a card instructs the player to move to a different path, the player moves to the next nearest path. Red will move one path to the east. Pink can move one path to the west. The other players have the choice of moving east or west.
- d. When all of the game cards are used the first time, the cards should be shuffled to change their order and stacked upside down again so that play can continue.
- e. When one player’s butterfly reaches the winter home, that butterfly rests, feeds, and mates to reproduce. Play continues with the other butterflies until all reach the winter home. At that time, the game ends.

### **Explain**

10. When all teams have completed their games, hold a discussion. Ask students what they learned about the monarch butterfly migration. Do they have any ideas how such small creatures are able to migrate up to 3,000 miles in just a couple of months? The next activity, “Fly Butterfly Fly,” will provide one possible answer.

### **Evaluate**

11. Were students able to communicate factors that influence monarch migrations? Were new questions raised about migrations?

### **OPTIONAL**

A larger version of the game can be played in an open space. Invert small paper plates (color code them) and place them on the floor to represent spaces (resting trees) on paths leading from northern and central U.S. to the Mexico overwinter grounds. Use string and tape it across the plates to connect the plates and designate the paths. Play the game but have the students play the part of the butterflies instead of game pieces. As students move from plate to plate, have them flap their wings (arms)!

## **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.