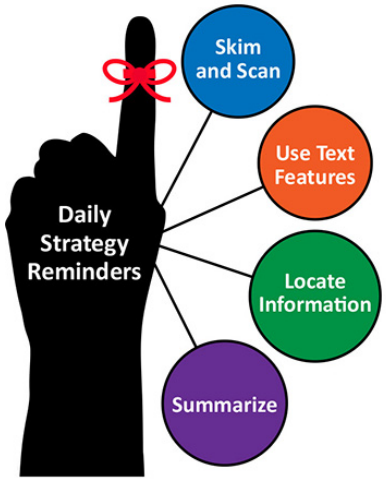
Day 15 Inherited Butterfly Wing Characteristics — Part 2			
Reading Strategy: Synthesizing Mini Lesson Practice		**Science Concept:** Inherited Butterfly Wing Traits	
Reading TEKS: 2.6H	**Figure 19:** Reading/ Comprehension Skills F	**ELPS:** Reading 2-12, 19 TAC 74.4(c)(4)	**Science TEKS:** 2.2(A, B, C, D); 2.10
Materials for Reading Mini-lesson: Chart paper, markers, butterfly inquiry chart, yesterday's anchor chart			
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 section for details.			
Content Vocabulary: **Offspring —** The young (or "child") of two parents. Examples include bear cubs, fawns, and chicks. **Stripe —** Narrow band of color **Trait —** Feature of an organism			
Science and Literacy Connection: When we have finished our research, we synthesize information from many sources in order to create our own, new information. During an experiment, we must analyze information from multiple sources in order to uncover patterns.			

For an expanded version of the Standards listed above, see page 5.

Reading Mini-lesson — 15 minutes

OVERVIEW

For the three days dedicated to synthesis, it is suggested that you start with a whole group synthesis statement about butterflies, followed by inquiry circle groups creating their own synthesis statement. Last, facilitate a whole group discussion around all of the organisms to create a synthesis statement for the class.



Explain the strategy:

- **Tell what the strategy is (declarative knowledge)**
  - Say something like, "Today we will continue to practice synthesizing the topic (butterflies) we have researched. Remember, synthesizing is combining information across our sources to create our own, new information. Refer to the anchor chart previously made with the class and the synthesis statement written yesterday.
- **Tell when and why to use the strategy (conditional knowledge)**
  - Say something like, "Yesterday, we talked about how I synthesize because it helps me construct a deeper and broader meaning about my topic across resources. As a strategic reader, I synthesize when I find information from different books, online resources, experts, and videos."
- **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 or continue with yesterday's synthesis of butterflies if needed.

- 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 writing a synthesis statement. 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, say something like (while you model the strategy), "The first thing I will do is look at my inquiry chart and think what was important from each source. I'll do that as I consider each of my research questions, in turn."
- "Then I will compare and contrast the important information from each of the sources."
- "Now, I need to think about what I know about this important information and if I can add something from my own schema that the authors did not mention."

Remember that the concepts this unit has focused on are:
- Organisms have physical characteristics that help them survive.
- Offspring resemble their parents because adult organisms pass down their traits to their offspring.
- Organisms go through life cycle stages.

The synthesis statement you will write during this mini lesson should incorporate all of these concepts.

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 their 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 liking 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 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 that today you will be using your inquiry chart to create your own, new information in the form of a synthesis statement just like we did together for the butterflies.

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) where used, or how the group solved a problem.”

Science Whole Group Lesson — 30 minutes

OVERVIEW

Working from what they accomplished during the previous day, students will discuss and interpret their findings, and record the results of their observations of butterfly wings on a class chart.

GUIDING QUESTIONS

How are wings from parent butterflies and their offspring similar? How are they different?

BACKGROUND INFORMATION

Each butterfly has two sets of wings—a smaller forewing and a larger hindwing. This wing arrangement is found in all butterflies. However, there are vast variations in size and pattering of the wings of different species of butterflies. A species is a group of organisms that share common characteristics and are able to reproduce. The monarch and painted lady are different species of butterflies. All humans, fro example, belong to the same species (*Homo sapiens*). Butterfly wings are covered with colorful scales and hairs. In many cases, the patterns help define different species and are inherited from parents. At the same time, there usually are very small individual differences between an offspring and a parent.

SETUP

Students will need their observation sheets from the previous day (Day 14). You may use chart paper to record class results. The layout may look something like this:

Parent and Offspring Butterfly Investigation: Our Results		
Group	**What did you observe or measure?**	**Results**
Mohammad and Casey	Top stripe thickness	Female Parent stripe: thick Male Parent stripe: thin Offspring stripe: medium
Sarah and Raul	Wing length	Female Parent stripe:  Male Parent stripe:  Offspring stripe: 
Jose and Jordan	Wing color	Female Parent stripe: red Male Parent stripe: red Offspring stripe: red

MATERIALS

- Student pages (from yesterday)
- Sentence strip
- Slideshow
- Chart paper to record class results

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. Ask students about what they did during the previous session to compare wings of the parent and offspring butterflies (did they compare stripes, wing lengths, color, etc.).

2. Follow up by asking for justification. Say something like, "Why did you choose to compare the butterflies in that way? Did anyone else do something different?"

Explain

3. Ask groups to share data, and record this information on a class chart titled, "Parent and Offspring Butterfly Investigation: Our Results."

4. Ask students what they might be able to conclude from their observations. Do offspring look like their parents? How are they the same? How are they different?

5. Ask students to define "offspring" in their own words. Then, write a sentence strip with the actual definition and post near the chart.

Elaborate

6. Show students the Inherited Traits slideshow. Have them turn and talk at appropriate times.

7. Follow up by asking the guiding questions again ("Do offspring mostly look like their parents? Why is this so?").

Evaluate

8. As students explain their results and engage in the slideshow, evaluate their level of understanding of the concept of inherited traits.

Expanded Standards

Reading TEKS: 2.6H 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: (H) synthesize information to create new understanding.

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 (F) make connections to own experiences, to ideas in other texts, and to the larger community and discuss textual evidence.

ELPS: Student Expectations for Reading 2-12, 19 TAC 74.4(c)(4) The student is expected to: (K) demonstrate English comprehension and expand reading skills by employing analytical skills such as evaluating written information and performing critical analyses commensurate with content area and grade-level needs.

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;
(B) plan and conduct descriptive investigations such as how organisms grow;
(C) collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools;
(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.