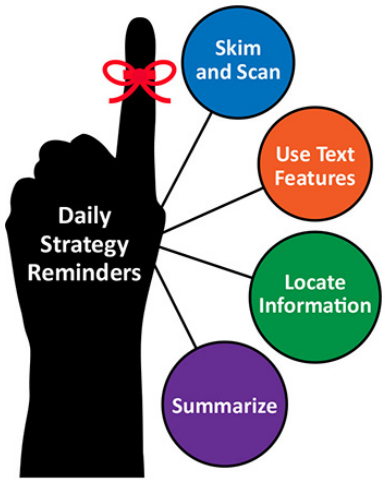
Day 18 Butterfly Offspring — Part 2			
Reading Strategy: Culminating Activity		**Science Concept:** Butterfly Offspring	
Reading TEKS: 2.13 E & G	**Figure 19:** Reading/ Comprehension Skills F	**ELPS:** Speaking K-12, 19 TAC 74.4(c)(4) D	**Science TEKS:** 2.2(A, D); 2.10
Materials for Culminating Activity: Inquiry Circle Group Menu of Choices; materials to support group projects will vary based on choice			
Materials for Science Whole Group Lesson: Student work from the day before; Dominant and Recessive Traits slideshow			
Content Vocabulary: **Dominant —** The version of a gene that is observable and is expressed when a parent passes it down to its offspring. **Genes —** Instructions inside every cell that determine the characteristics of organisms. **Genotype —** The versions of each gene contained in one individual. **Phenotype —** The appearance of one individual based on its genes. **Recessive —** The version of a gene that is not observable unless both parents pass it down to their offspring. **Trait —** A characteristic of an organism.			
Science and Literacy Connection: We finish our projects by creating a product to share what we've learned and apply it to something new.			

For an expanded version of the Standards listed above, see page 4.

Culminating Activity — 30–45 minutes

OVERVIEW

Students have worked in inquiry circle groups to research various organisms. During this time, students have practiced becoming a scientist by speaking, reading, and writing like one. Inquiry circle groups will work together to create a product to share at the scientific symposium.



PROCEDURE

1. Say something like, "Now that everyone has written a synthesis statement about their organism, we will create a product to share what we know in a scientific symposium."

2. Say something like, "Groups will work together to pick one product to create. Remember, your product must show what you know about your organism's physical traits as adults and offspring."

3. Distribute the choice sheet and review the options. For technology-based products, be sure the app is available in your school district and that you are familiar with it**.**

4. Facilitate groups (if needed) to come to a consensus about which product to create.

5. Say something like, “Including today, there are four days scheduled to work on the culminating product.”

6. Have groups present their products on the last day of the unit.

Science Whole Group Lesson — 30 minutes

OVERVIEW
In day two of this two-part activity, students will be able to finish an illustration of what they predict an offspring butterfly will look like based on its parents’ physical characteristics. A slideshow and discussion questions will help them expand on the concept of dominant and recessive traits.

GUIDING QUESTIONS
How are butterflies and their offspring similar? Different? Why do offspring look like their parents?

BACKGROUND INFORMATION
See the accompanying slideshow for background information.

MATERIALS
- Student work from the day before
- Dominant and Recessive Traits PowerPoint® slide set

SETUP
Students will probably need time to finish their offspring illustrations that they started yesterday. Once they have been completed and the slideshow is over, ask students to place their completed illustrations along with their parent pictures on their desks. Ensure there is enough room for students to move around when looking at their peers’ work.

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 with the class what they have learned about dominant and recessive traits.

Explore

2. Tell the class that they will finish the construction of their offspring today and that when everyone is finished, they will display and explain their work to the class.

Explain

3. When students complete their work, ask each group to share what their prediction was about what the offspring would look like.

4. Then have them show the class their offspring and explain its appearance. *Why* does it look the way it does? Accept all responses.

5. When all groups have presented their offspring, ask them why some traits were in uppercase letters. (dominant) Why were some traits in lower case letters? (recessive)

6. Explain again that in order to inherit a recessive trait, you need 2 copies of that recessive gene. If one parent has a dominant trait and the other has a recessive trait, the dominant trait appears.)

7. Ask the groups if their predictions about the appearance of the offspring were correct? Why or why not? Remind them that in science investigations you don't always get the results you expect!

Elaborate

8. Give students time to do a gallery walk around the room to observe their classmates' results. Facilitate by asking questions and encouraging the use of scientific language as students discuss what they observe.

9. When students have finished, come together to discuss their observations. Ask questions like, "What did you notice about each other's offspring?" "How were the offspring similar to or different from their parents?" "Why is this so?"

10. Using what they have learned, can students predict one trait that might be dominant in their own family?

Evaluate

11. In their science notebooks, have students write "Why do offspring look like their parents?" at the top of a clean page. Ask students to write one or two sentences that answer the question. Allow them time for collaboration with classmates to think of their answers. When they are finished, ask students to share and celebrate all they have learned!

12. Do students communicate concept understanding of dominant and recessive traits? Are they able to apply new knowledge to different scenarios? (family?)

Expanded Standards

Reading TEKS: 2.13 E &G Inquiry and research: listening, speaking, reading, writing, and thinking using multiple texts. The student engages in both short-term and sustained recursive inquiry processes for a variety of purposes. The student is expected to: (E) demonstrate understanding of information gathered; (G) use an appropriate mode of delivery, whether written, oral, or multimodal, to present results.

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 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.