

This resource is a compilation of text, videos, and other elements to create a scaffolded 5E learning experience for students. This is meant for Tier I instruction under the Response to Intervention (RtI) model for grade 3 science TEKS (10)(C).

Be sure to review the entire resource and the related items before assigning it to, or working through it with, your students to check for prerequisite knowledge and skills as well as differentiation needs.

This resource can be used for instruction in a variety of ways.

- Use with a single computer and projector; this can be delivered in a traditional classroom.
- Use with a combination of teacher computer/projector and individual student computers (in either a computer lab or other 1:1 environment).
- Assign to students as work to do outside of the school day as part of a "flipped classroom" to allow for application, practice, and additional support during the school day.
- Use with students as tutorials.
- Share with parents to inform them about what their child is learning in school.
- Use with students who are unable to participate in the traditional classroom environment.

Engage

Students observe a 30-second video and determine what is happening. The purpose of this is to get them thinking about a cycle that is familiar to them.

Classroom Options

- After students make their guesses and reveal what the video is about, have them brainstorm a list of cycles that they see in their daily lives. Ask them, "What things do you see happen in the same order repeatedly?" Have students record these thoughts in their science notebooks.
- Provide students with images of the four seasons, specifically what that looks like in your geographical area, and include temperature readings with the images (this could be done in the form of a digital slide presentation).

Explore I

Students have the opportunity to explore two different types of life cycles—a frog and a tomato plant. The observation sheet provided here is critical because, as scientists, students should be active observers. Whenever possible, students should record data, qualitative or quantitative, while they are observing. Please note students in a second-grade classroom created the video; therefore, the process of fertilizing the frog eggs is depicted as the "mommy and daddy frog falling in love." While this is not scientifically accurate because frogs do not "fall in love," it is more age-appropriate than the alternative discussion.

Classroom Options

- Introduce an aquatic habitat with tadpoles in it. Allow students to make daily observations of the tadpoles and keep a special journal just for recording these observations.
- Create a garden on campus or in pots within the classroom. Plant tomato seeds and have students observe the growth of the plants over time. This could be started well before the beginning of this lesson so students will have had the opportunity to see the seed develop into a mature plant. Again, have students record observations in a special journal dedicated to this investigation. This activity can also cover measurement skills (how tall is the plant) and the basic needs of living things. There is a link in the Related Items section for resources to assist you with this type of experience.

Explain I

This section of the resource provides students with a visual recap of what they discovered in Explore I. The important part of this section is the text that compares the two life cycles because this goes to the heart of the student expectation.

Classroom Options

- Ask students to work in pairs to complete creative Venn diagrams that compare the frog and tomato life cycles. This could be done prior to delving into a classroom discussion about the comparison. This could be done electronically or with markers and paper.
- Pair students together and ask one student to be "A" and one student to be "B." Instruct the "B" students to share with "A" students one similarity or difference between the life cycles. Inform students that they will have 1–2 minutes to share with student "A." At the end of that time, Student "B" will respond, "I agree with you because . . ." or "I disagree with you because . . ." The beauty of this strategy is that it requires that students listen to each other in order to create their response. If students just pair and share, one student tends to not listen to what the other student is saying; instead, he or she spends the time formulating his or her own response.

Explore/Explain II

Students explore two more life cycles—the ladybug and the pumpkin. The pumpkin life cycle is added here because the student expectation uses the phrase "such as," which leaves room for examples beyond the frog, tomato plant, and ladybug. Again, it is important for the student to not only

understand the life cycles presented but also be able to compare them. The video contributor misspelled the word "surround" in the ladybug video during the pupa stage.

Classroom Options

- Allow students to do some additional research about these life cycles and/or choose additional life cycles to investigate. Allow students traditional and electronic options for representing what they learned.
- Put students into groups of 3–4, then ask them to separate and go to different "expert" groups to learn about a specific life cycle. Students have to work together in these secondary groups to become experts on the particular life cycle they are assigned to study. These "experts" go back to their home group and teach the other students about the life cycle. Once each expert has had a chance to share, instruct students to choose two of the life cycles and develop a compare/contrast chart of similarities and differences. If students are advanced, allow them the opportunity to compare more than two life cycles at a time, such as a triple Venn diagram.

Elaborate

Students choose one of the life cycles they studied earlier in the resource and compare it to a portion of the human life cycle. The purpose of this is to make the concept more personal to students.

Evaluate

This animation is available to quickly assess students on the concepts covered in the resource. Students can print their results using the "Print Screen" feature on the computer and then paste that into a document. This document could be e-mailed to the teacher or printed out to hand in. Given that this is not a secure way of assessing student understanding, teachers may choose to include more controlled assessments and/or consider this fact in the weight given to this assessment, if it is used for grading purposes.