Supporting STAAR® Achievement in Science

Grade 5

region 4®
Educated Solutions

What is *Supporting STAAR® Achievement in Science: Grade 5*?

1 A resource that focuses on the Texas Essential Knowledge and Skills (TEKS) identified as readiness standards while integrating appropriate supporting standards and science processes and skills.

2 A resource that provides opportunities for rigorous science conversations while providing support for students at varying levels of preparedness.

3 A resource that provides support for English language learners and struggling students through Tier I differentiated activities; scaffolds for the activities, such as graphic organizers; and facilitation questions.

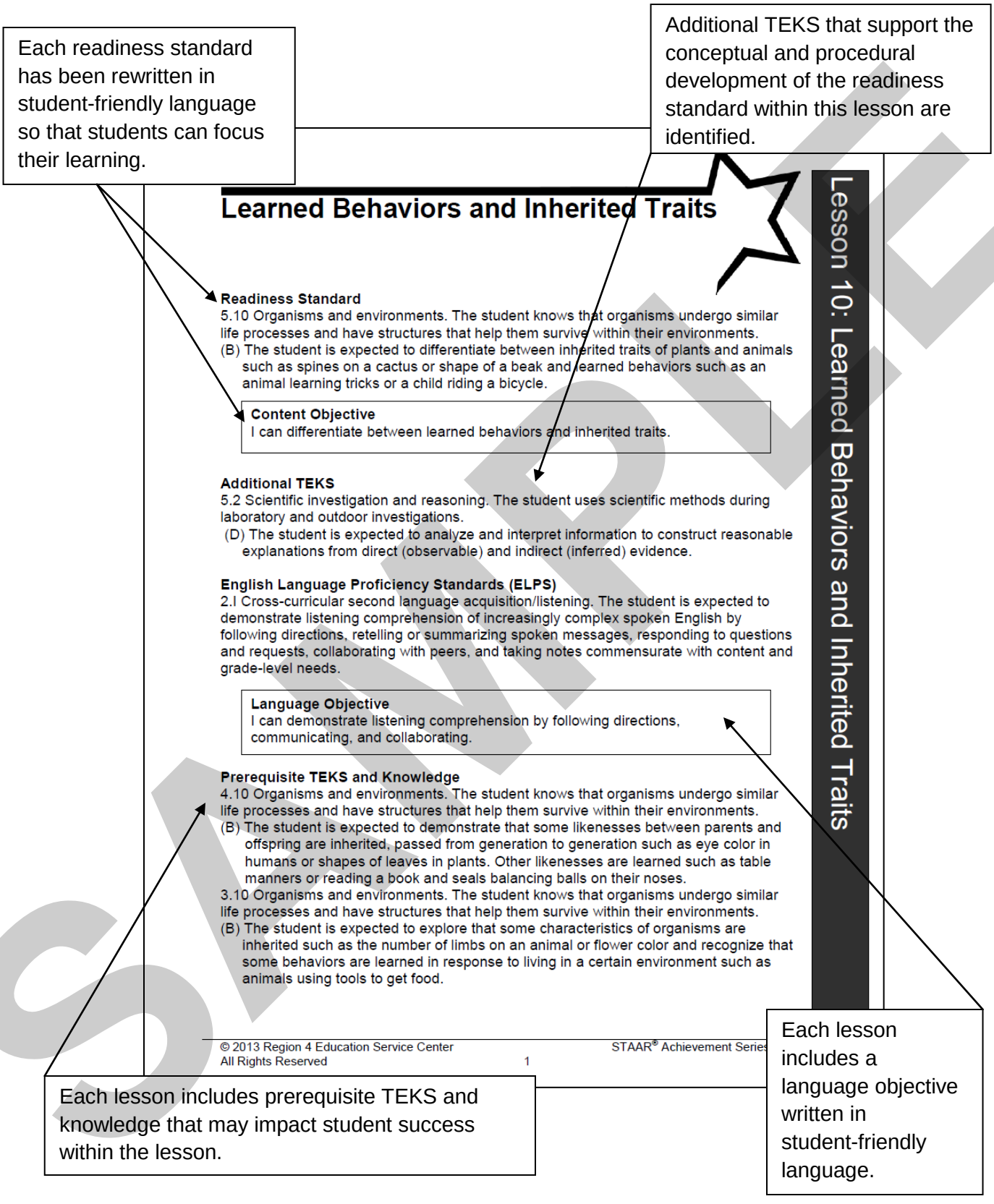
4 A resource that supports teachers through clear procedures and facilitation questions designed to assist students with processing science concepts. This resource also includes teacher notes to aid in clarifying misconceptions learners may have about a concept.

5 A resource of classroom-ready 5E lessons. Student-centered Engage bridges students' prior knowledge or encourages interest in deeper exploration of the concepts in the lesson. Explore is an opportunity to "do science," providing a common experience for all students to which they can tie concepts and vocabulary. In Explain, students formalize the scientific ideas from Explore with a focus on academic vocabulary as well as procedures related to the concepts. Elaborate allows students to apply or extend their understanding of the concepts in the lesson. In addition, an intervention strategy is suggested in each Elaborate. Evaluate consists of four selected-response items and one open-ended response question that can be used to assess student understanding.

What is *Supporting STAAR® Achievement in Science: Grade 5*?

Each readiness standard has been rewritten in student-friendly language so that students can focus their learning.

Additional TEKS that support the conceptual and procedural development of the readiness standard within this lesson are identified.



Learned Behaviors and Inherited Traits

Lesson 10: Learned Behaviors and Inherited Traits

Readiness Standard
5.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments.
(B) The student is expected to differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle.

Content Objective
I can differentiate between learned behaviors and inherited traits.

Additional TEKS
5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations.
(D) The student is expected to analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.

English Language Proficiency Standards (ELPS)
2.I Cross-curricular second language acquisition/listening. The student is expected to demonstrate listening comprehension of increasingly complex spoken English by following directions, retelling or summarizing spoken messages, responding to questions and requests, collaborating with peers, and taking notes commensurate with content and grade-level needs.

Language Objective
I can demonstrate listening comprehension by following directions, communicating, and collaborating.

Prerequisite TEKS and Knowledge
4.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments.
(B) The student is expected to demonstrate that some likenesses between parents and offspring are inherited, passed from generation to generation such as eye color in humans or shapes of leaves in plants. Other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses.
3.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments.
(B) The student is expected to explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food.

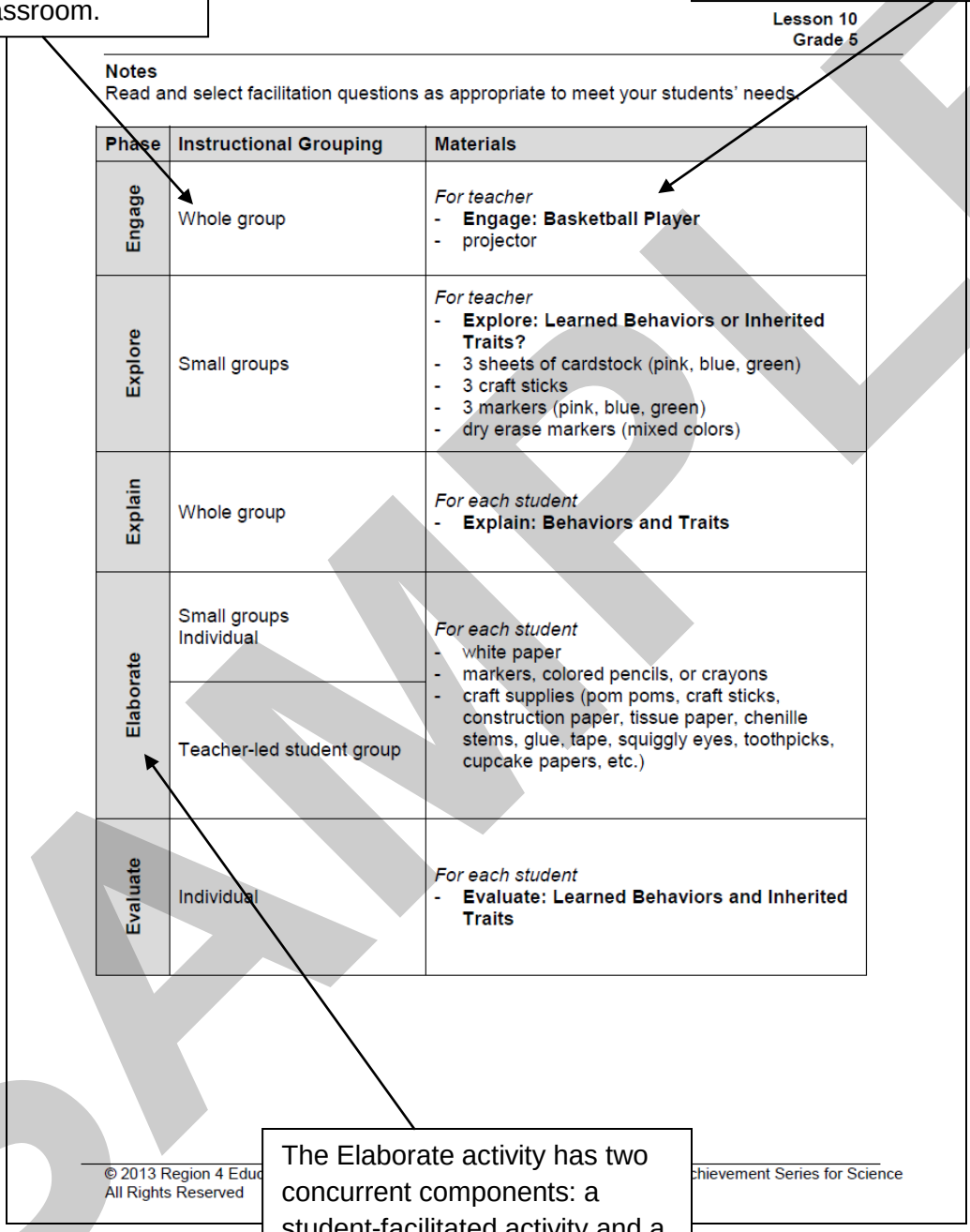
Each lesson includes prerequisite TEKS and knowledge that may impact student success within the lesson.

Each lesson includes a language objective written in student-friendly language.

What is *Supporting STAAR® Achievement in Science: Grade 5*?

Grouping strategies for each activity are summarized to assist in the arrangement of the classroom.

Materials for each activity are summarized for ease in preparation.



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Notes
Read and select facilitation questions as appropriate to meet your students' needs.

Phase	Instructional Grouping	Materials
Engage	Whole group	*For teacher* - **Engage: Basketball Player** - projector
Explore	Small groups	*For teacher* - **Explore: Learned Behaviors or Inherited Traits?** - 3 sheets of cardstock (pink, blue, green) - 3 craft sticks - 3 markers (pink, blue, green) - dry erase markers (mixed colors)
Explain	Whole group	*For each student* - **Explain: Behaviors and Traits**
Elaborate	Small groups Individual	*For each student* - white paper - markers, colored pencils, or crayons - craft supplies (pom poms, craft sticks, construction paper, tissue paper, chenille stems, glue, tape, squiggly eyes, toothpicks, cupcake papers, etc.)
	Teacher-led student group	
Evaluate	Individual	*For each student* - **Evaluate: Learned Behaviors and Inherited Traits**

chievement Series for Science

The Elaborate activity has two concurrent components: a student-facilitated activity and a teacher-facilitated activity that focuses on the needs of students who are struggling with the content.

Each activity includes directions for implementing the activity.

Each lesson includes thumbnail images of reproducible masters (RMs), answer keys, and/or activity set ups.

Lesson
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EXPLAIN

Explain provides students with an opportunity to connect the concepts of learned behaviors and inherited traits and how they determine what we know and what we look like. The teacher will use this opportunity to clarify key vocabulary terms and connect student experiences in Explore with relevant concepts.

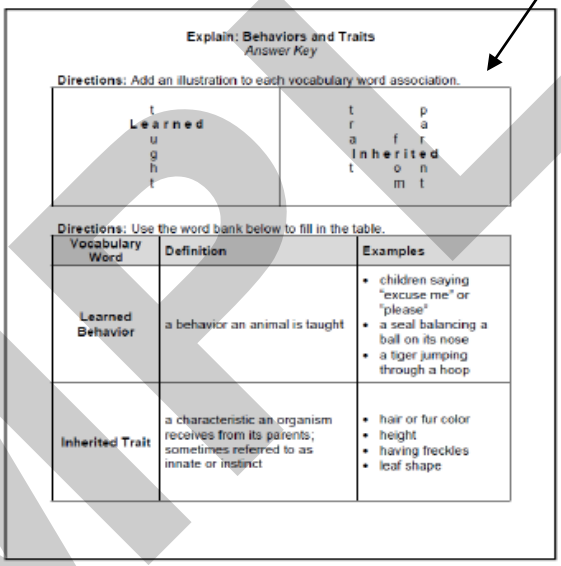
Materials

For each student

- **Explain: Behaviors and Traits**

Teacher Instruction

1. Distribute **Explain: Behaviors and Traits** to each student.
2. Explain that the vocabulary word associations are shortened versions of longer definitions. A word or phrase from the definition has been connected to the main word to make it more memorable.
3. Review with students the information in the Teacher Notes section at the beginning of the lesson.
4. Instruct students to fill in the table on **Explain: Behaviors and Traits** with definitions and examples as you discuss learned behaviors, inherited traits, innate, and instinct.



Explain: Behaviors and Traits
Answer Key

Directions: Add an illustration to each vocabulary word association.

t **Learned** u g h t	t p r a a f r **Inherited** t o n m t

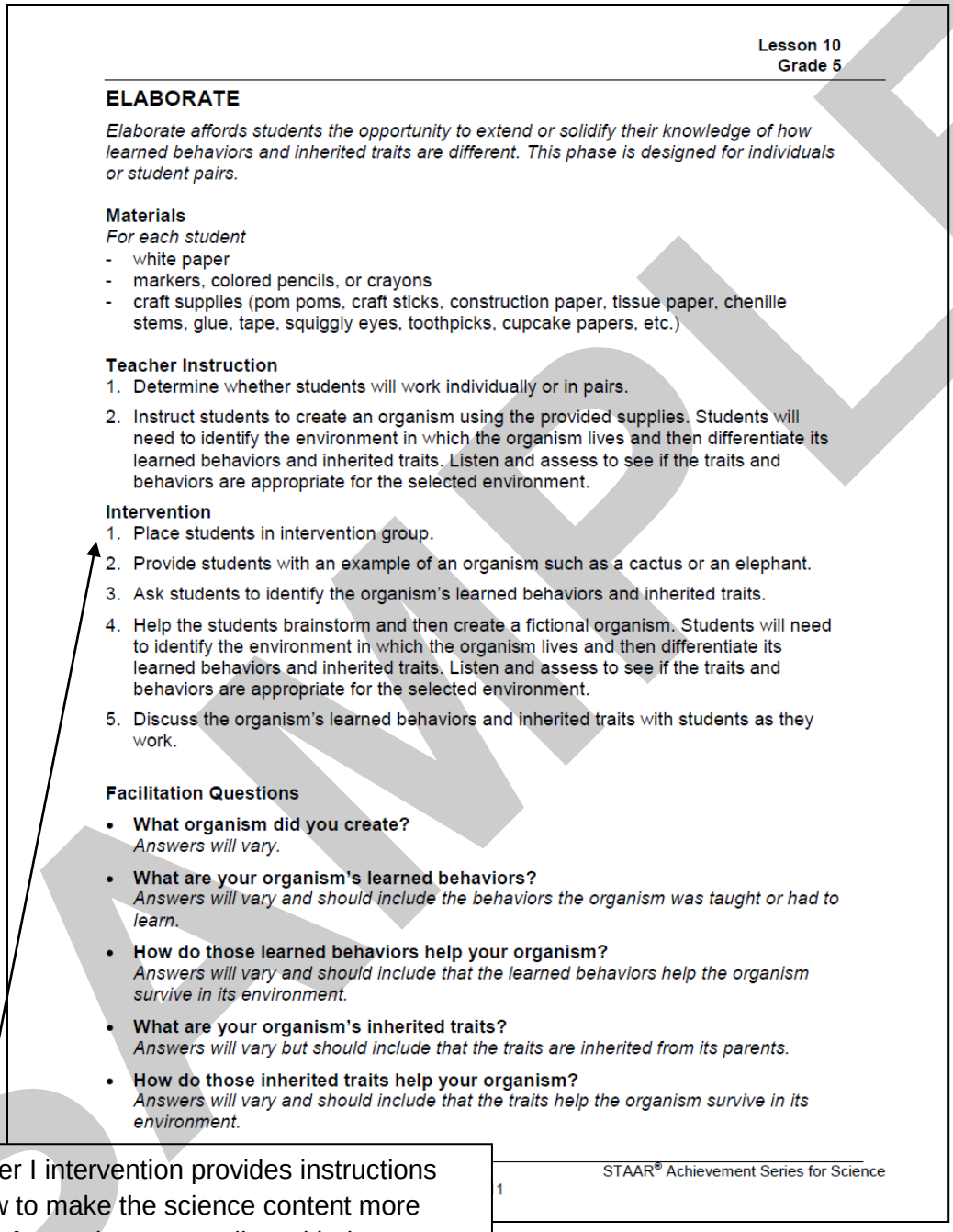
Directions: Use the word bank below to fill in the table.

Vocabulary Word	Definition	Examples
Learned Behavior	a behavior an animal is taught	• children saying "excuse me" or "please" • a seal balancing a ball on its nose • a tiger jumping through a hoop
Inherited Trait	a characteristic an organism receives from its parents; sometimes referred to as innate or instinct	• hair or fur color • height • having freckles • leaf shape

Facilitation Questions

- **Why is the word *taught* connected to the word *learned*?**
  A learned behavior is taught.
- **What might the illustration look like for a learned behavior?**
  The illustration of a learned behavior could be a parent teaching his/her child to swim, a bear teaching its cub to catch fish, or a bird teaching its young to fly.
- **Why are the words *trait from parent* connected to the word *inherited*?**
  An inherited trait is passed from the parent to the offspring.
- **What might the illustration look like for an inherited trait?**
  The illustration for an inherited trait could be a rabbit's fur color, a fish's scales, or the number of petals on a flower.
- **How are the words *inherited*, *innate*, and *instinct* similar?**
  Inherited traits, innate behaviors and traits, and instinctual behaviors are all present in an organism at birth. All of the words start with the letter i.

Each activity includes facilitation questions designed to assist teachers in guiding student discussion.



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ELABORATE

Elaborate affords students the opportunity to extend or solidify their knowledge of how learned behaviors and inherited traits are different. This phase is designed for individuals or student pairs.

Materials
For each student
- white paper
- markers, colored pencils, or crayons
- craft supplies (pom poms, craft sticks, construction paper, tissue paper, chenille stems, glue, tape, squiggly eyes, toothpicks, cupcake papers, etc.)

Teacher Instruction
1. Determine whether students will work individually or in pairs.
2. Instruct students to create an organism using the provided supplies. Students will need to identify the environment in which the organism lives and then differentiate its learned behaviors and inherited traits. Listen and assess to see if the traits and behaviors are appropriate for the selected environment.

Intervention
1. Place students in intervention group.
2. Provide students with an example of an organism such as a cactus or an elephant.
3. Ask students to identify the organism's learned behaviors and inherited traits.
4. Help the students brainstorm and then create a fictional organism. Students will need to identify the environment in which the organism lives and then differentiate its learned behaviors and inherited traits. Listen and assess to see if the traits and behaviors are appropriate for the selected environment.
5. Discuss the organism's learned behaviors and inherited traits with students as they work.

Facilitation Questions
- **What organism did you create?**
  Answers will vary.
- **What are your organism's learned behaviors?**
  Answers will vary and should include the behaviors the organism was taught or had to learn.
- **How do those learned behaviors help your organism?**
  Answers will vary and should include that the learned behaviors help the organism survive in its environment.
- **What are your organism's inherited traits?**
  Answers will vary but should include that the traits are inherited from its parents.
- **How do those inherited traits help your organism?**
  Answers will vary and should include that the traits help the organism survive in its environment.

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The Tier I intervention provides instructions on how to make the science content more explicit for students struggling with the concepts addressed within the lesson. The intervention activity is at the same rigor as the activity being completed by the students in a self-directed environment.

What is *Supporting STAAR® Achievement in Science: Grade 5*?

Each item assesses a STAAR® readiness standard. Select items are dual-coded with scientific investigation and reasoning TEKS.

The titles of activity masters and student pages are printed in bold for ease of reference.

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EVALUATE

During Evaluate, the teacher will assess student learning about the concepts and procedures that the class investigated and developed during the lesson.

Materials
For each student
- **Evaluate: Learned Behaviors and Inherited Traits**

Directions
1. Distribute **Evaluate: Learned Behaviors and Inherited Traits** to each student.
2. Prompt students to complete **Evaluate: Learned Behaviors and Inherited Traits**.
3. Upon completion of **Evaluate: Learned Behaviors and Inherited Traits**, the teacher should use the error analysis provided below to assess student understanding of the concepts and procedures the class addressed in the lesson.

Answers and Error Analysis for Evaluate: Learned Behaviors and Inherited Traits

Question	Correct Answer	TEKS Assessed (Primary Alignment)	TEKS Assessed (Secondary Alignment)	Depth of Knowledge
1	D	5.10B		2
2	A	5.10B		1
3	B	5.10B	5.2D	1
4	D	5.10B		1
5	See below	5.10B	5.10A	2
	Inherited traits for the Ickysticky would include being small, brown, and having sticky feet and webbing between its toes and legs. These are all characteristics it received from its parents. Learned behaviors for the Ickysticky would include flattening itself and being still when hiding from a predator. It learned this behavior from its parents. Climbing walls and trees and gliding through the air could be argued either way by the students, depending on whether they believe those are learned behaviors or instinctual/inherited behaviors.			

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Depth of Knowledge (DOK) indicates the complexity of the knowledge the standards and assessments require of students.

Level 1 is the recall of information, such as a fact, definition, term, or performance of a simple process or procedure.

Level 2 is the application of skills and concepts requiring processing beyond recalling or reproducing a conceptual knowledge response.

Level 3 is strategic thinking requiring a deep understanding and cognitive reasoning. These standards and assessments may be complex and abstract.