What is Supporting STAAR™ Achievement in Science: Grade 8?

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.
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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.

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.
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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.

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.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Instructional Grouping</th>
<th>Materials</th>
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</table>
| Engage | Small groups           | Flashlight  
Opaque ball such as a tennis ball or baseball  
Paper  
Ruler (optional) |
| Explore| Small groups           | 8 plastic table tennis or plastic golf balls  
Hoop toy or other round frame  
8 hook and loop adhesive circles  
Black permanent marker or paint  
Hot glue or super glue (optional)  
Resealable plastic bag |
| Explain| Small groups           | Materials from Explore activity  
Explain: Modeling Moon Phases  
Explain: Moon Phase Spinner  
Brass paper fastener  
Scissors |
| Elaborate| Small groups           | 3 different sized spheres to represent the Sun, Earth, and Moon  
Elaborate: Lunar Phase Dice  
Elaborate: Lunar Phase Game, laminated  
Elaborate: Lunar Phase Game Student Page  
Scissors  
Tape or glue |
| Teacher-led small group | Elaborate: Lunar Phase Game Student Page* |
| Evaluate | Individual             | Evaluate: It’s Just a Phase |

*For targeted students only

Materials that are provided to support students in need of additional help are labeled with an asterisk.
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Each activity includes directions for implementing the activity.

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

ENGAGE

The Engage activity is designed to access students’ prior knowledge of light and shadow. This activity is designed for small-group instruction.

Materials
For each group of 2–4 students
- flashlight
- white paper
- opaque ball such as a tennis ball or baseball
- ruler (optional)

Teacher Instruction
1. Instruct each group to draw a large clock on a sheet of white paper. Students should label the three, six, nine, and twelve o’clock positions on the clock.
2. Instruct each group to place the ball at the center of the clock.
3. Instruct each group to place the flashlight at the three o’clock position approximately 60 cm (two feet) away from the ball.
4. Instruct each group to turn on the flashlight. Turn off or dim the lights in the classroom.
5. Prompt students to observe how the light shines on the ball. Encourage students to view from different directions and angles.
6. Instruct students to describe and sketch their observations in their science notebooks.
7. Instruct students to move the flashlight to the six, nine, and twelve o’clock positions and record their observations at each position.
8. Use the facilitation questions to guide discussion.

Facilitation Questions
- What did you observe when the flashlight was lined up at the three o’clock position?
  Possible answer: The side of the ball facing the flashlight was lit up or illuminated, and the other side of the ball was dark.
- Approximately how much of the ball is illuminated or lit up when the flashlight is at the three o’clock position? The six o’clock position? The nine o’clock position? The twelve o’clock position?
  About half of the ball is illuminated when the flashlight shines on the ball from any position.

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

The titles of activity masters and student pages are printed in bold for ease of reference.
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Each item assesses a STAAR™ readiness standard. Select items are dual-coded with scientific investigation and reasoning TEKS.

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.