



Supporting English Learner Success with HQIM

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The ability of the **Instructional Materials** and **Special Populations** teams to effectively collaborate is **CRITICAL** to the work!

Guiding Question: How does Texas support English Learner Success with High Quality Instructional Materials?

Agenda:

- Overview of the [Texas Resource Review](#): Quality reviews of instructional materials to inform local decisions
- Overview of [TEA developed instructional materials](#)
- Open Q&A

Instructional Materials Matter: A growing body of research points to the positive impact high-quality instructional materials have on student learning

For example, high-quality materials:



Allow students to engage deeper and more meaningfully with standards¹



Lead to additional learning for students²



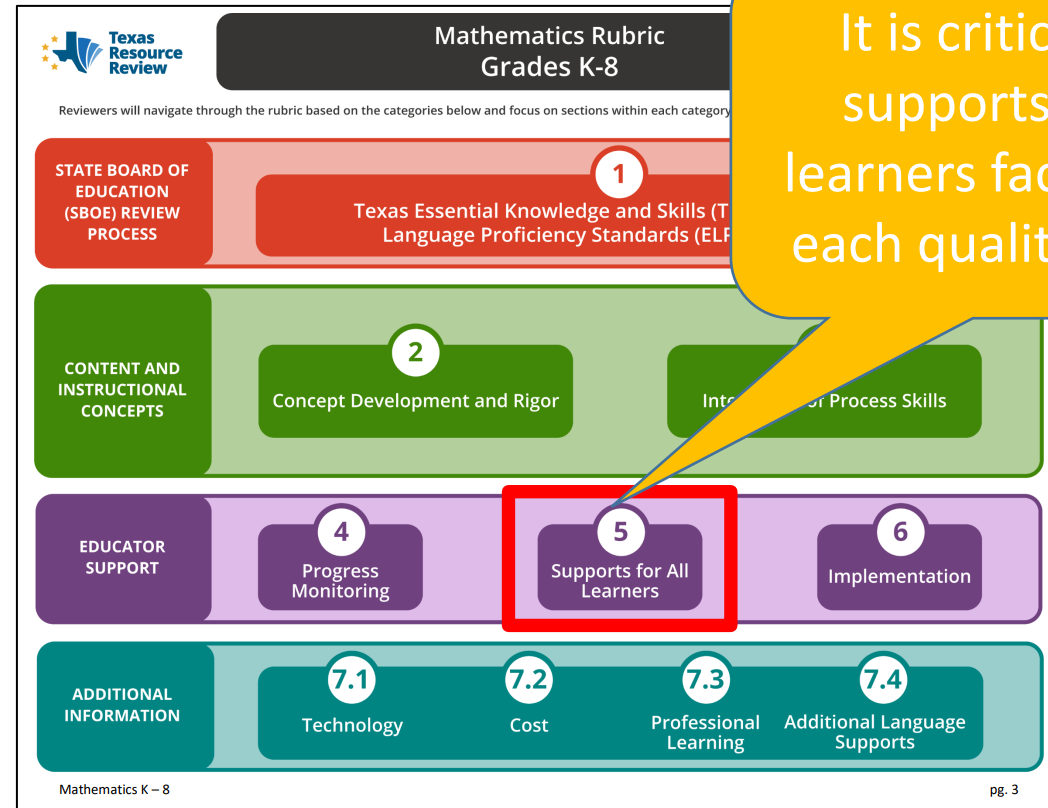
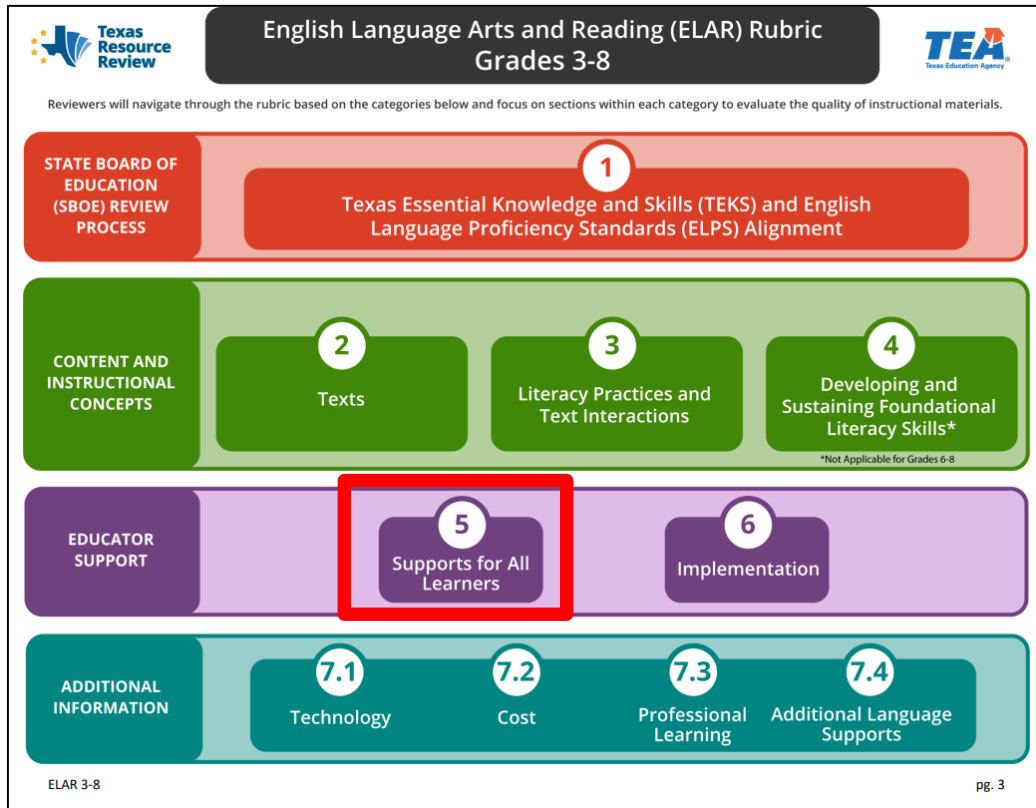
Create larger, more cost-effective impact on academic outcomes than many interventions³

1) "Curriculum Research: What We Know and Where We Need to Go" (Washington: StandardsWork, 2018); 2) Boser, Ulrich, Chingos, Matthew, & Straus, Chelsea. (2015, October). The Hidden Value of Curriculum Reform: Do States and Districts Receive the Most Bang for Their Curriculum Buck? Center for American Progress. 2) Whitehurst, Grover. (2009, October). Don't Forget Curriculum. Brookings Institute. 2) Polikoff, Morgan, Koedel, Cory, Li, Diyi, Hardaway, Tenice, & Wrabel, Stephani. (2016, September). Mathematics Curriculum Effects on Student Achievement in California. 2) Bjorklund-Young. (2016, April). High-Quality Curricula: A Cost-Effective Way to Increase Student Learning. Johns Hopkins Institute for Education Policy. 3) Kane, T. J., Owens, A. M., Marinell, W. H., Thal, D. R. C., & Staiger, D. O. (2016, February). Teaching Higher. Harvard University Center for Education Policy Research.

The Texas Resource Review (TRR) Provides TX Educators a way to understand the quality of instructional Materials

<https://texasresourcereview.org>

The TRR Website provides users a way to understand the quality of instructional materials by providing information in a digestible format. Below is a high-level snapshot of two different TRR quality review rubrics.



It is critical that supports for all learners factors into each quality review

If we double click on Supports for All Learners, we'd see the following indicators and guidance

<https://texasresourcereview.org>

3-8 Reading Language Arts (RLA)

5 Supports for All Learners

Materials provide guidance and support that help teachers meet the diverse learning needs of all students.

Indicator	Guidance	Scoring
5.1	Materials include supports for students who demonstrate proficiency above grade-level .	0/1/2
5.2	Materials include supports for students who perform below grade-level to ensure they are meeting the grade level literacy standards.	0/1/2
5.3	Materials include supports for English Learners (EL) to meet grade-level learning expectations.	0/1/2
Grades 3 – 5 Total Points Possible:		6
Grades 6 – 8 Total Points Possible:		6

K-8 Mathematics

5 Supports for All Learners

Materials provide guidance and support that help teachers meet the diverse learning needs of all students.

Indicator	Guidance	Scoring
5.1	Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.	0/1/2
5.2	Materials provide a variety of instructional methods that appeal to a variety of learning interests and needs.	0/1/2
5.3	Materials include supports for English Learners (EL) to meet grade-level learning expectations.	0/1/2
Total Points Possible:		6

Each product reviewed receives a Support for Diverse Learners score

<https://texasresourcereview.org>

2 Titles for English Language Arts and Reading, Grade 3



[American Reading Company](#)

[Grade 3](#)

ELAR | 2018

Published by: [American Reading Company](#)

Series includes: [Grade 4](#), [Grade 5](#), [See Full Series](#)

[View Review](#)

At Least 80% Score Recommended						
TEKS & ELPS	Texts	Interaction With & Response to Texts	Foundational Literacy Skills	Supports for Diverse Learners	Ease of Use	Technology, Cost, and Professional Learning
Student TEKS	98%	83%	93%	100%	83%	100%
Student ELPS	83%	93%	100%	83%	100%	✓
N/A						

There are multiple views of this information, allowing viewers to drill down into each section

<https://texasresourcereview.org>

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Standards Alignment

Rubric Section 1

TEKS and ELPS Alignment

Percent of standards met in materials ⓘ

GRADE	TEKS STUDENT %	TEKS TEACHER %	ELPS STUDENT %	ELPS TEACHER %
Grade 3	98.46%	98.46%	N/A	100%

Criteria for Quality

<p><i>Rubric Section 2</i></p> <p>Texts</p> <p>What students read, see, and hear ⓘ</p>	<p>TOTAL</p> <p>83% (10 out of 12 points)</p> <div style="width: 83%; height: 10px; background-color: green; margin-bottom: 5px;"></div> <p style="text-align: right; font-size: small;">80% Recommended</p>	▼
<p><i>Rubric Section 3</i></p> <p>Literacy Practices and Text Interactions: Reading, Writing, Speaking, Listening, Thinking, Inquiry and Research</p> <p>What students are asked to write, speak and demonstrate. ⓘ</p>	<p>TOTAL</p> <p>93% (43 out of 46 points)</p> <div style="width: 93%; height: 10px; background-color: green; margin-bottom: 5px;"></div> <p style="text-align: right; font-size: small;">80% Recommended</p>	▼
<p><i>Rubric Section 4</i></p> <p>Developing and Sustaining Foundational Literacy Skills</p> <p>Grades 3-5 only ⓘ</p>	<p>TOTAL</p> <p>100% (12 out of 12 points)</p> <div style="width: 100%; height: 10px; background-color: green; margin-bottom: 5px;"></div> <p style="text-align: right; font-size: small;">80% Recommended</p>	▼
<p><i>Rubric Section 5</i></p> <p>Supports for All Learners</p> <p>How well do the materials support teachers in meeting the needs of students with diverse learning needs? ⓘ</p>	<p>TOTAL</p> <p>83% (5 out of 6 points)</p> <div style="width: 83%; height: 10px; background-color: green; margin-bottom: 5px;"></div> <p style="text-align: right; font-size: small;">80% Recommended</p>	▼
<p><i>Rubric Section 6</i></p> <p>Implementation</p> <p>How user-friendly are the materials and how do they support students, teachers and administrators in assuring strong implementation? ⓘ</p>	<p>TOTAL</p> <p>100% (8 out of 8 points)</p> <div style="width: 100%; height: 10px; background-color: green; margin-bottom: 5px;"></div> <p style="text-align: right; font-size: small;">80% Recommended</p>	▼
<p><i>Rubric Section 7</i></p> <p>Additional Information</p> <p>Additional information including technology components; cost worksheet; professional learning opportunities; and additional language supports. ⓘ</p>	<p>✔ Information available.</p>	▼

This includes scores for each indicator that make up that section.

Viewers can double click on any indicator to review the corresponding report.

Rubric Section 5

Supports for All Learners

How well do the materials support teachers in meeting the needs of students with diverse learning needs? ⓘ

TOTAL
83% (5 out of 6 points)

80% Recommended

5.1
Materials include supports for students who demonstrate proficiency above grade-level. ⓘ

2 out of 2 points ⓘ

[See Quality Review Evidence for this Indicator](#)

5.2
Materials include supports for students who perform below grade level to ensure they are meeting the grade-level literacy standards. ⓘ

2 out of 2 points ⓘ

[See Quality Review Evidence for this Indicator](#)

5.3
Materials include supports for English Learners (EL) to meet grade-level learning expectations. ⓘ

1 out of 2 points ⓘ

[See Quality Review Evidence for this Indicator](#)

[Close indicator panel](#)

An evaluation of each indicators providers the viewer with the strengthens and opportunities for that indicator within that product

<https://texasresourcereview.org>

Evaluation for 5.3

Materials include supports for English Learners (EL) to meet grade-level learning expectations.

 1 out of 2 points

The curriculum provides some support for English Learners (EL) to meet grade-level learning expectations. The materials include an overarching framework for how to support EL students in achieving grade-level proficiency. Throughout each unit, the teacher is given insights on how to scaffold and accommodate lessons for their ELs in developing a student's reading, writing, listening, and speaking in English while honoring the student's home language. The materials do not include supports commensurate with the various levels of English language proficiency as defined by the ELPs (beginning, intermediate, advanced, and advanced high); however, accommodations provided could be used at various levels of proficiency. There is no evidence of adapted text, translations, summaries, realia, glossaries, bilingual dictionaries, and thesauri specifically geared toward language learners.

Examples include but are not limited to:

The Introduction section of each unit includes a section titled, "ARC CORE ELL Supports: Toward a Culturally and Linguistically Responsive Pedagogy." This section highlights the resources offered by the program to support ELs including a responsive reading assessment, leveled libraries, responsive instructional delivery, and thematically organized learning. The page titled, "A Literacy Block Model Designed to Effectively Support ALL Learners", shows the embedded structural supports for ELs. The materials also frequently suggest partnering students who can support one another in their own language.

Lesson plans contain Call-outs with Actionable ELL Supports. These are organized around six categories including identity affirmation, learning objectives, frontloading, comprehensible input, oracy and literacy development, and differentiated and formative assessment. Through the use of these predictable routines, ELs are provided practice in all four linguistic domains (speaking, listening, reading, and writing).

Within each unit, sidebars and insertions provide alternate discussions, assignments, and note taking for ELs. One example of a sidebar, from Unit 1, Week 1, Day 1, "Self-Leveling and Comprehensible Input", guides the teacher to support readers new to English with reading pictures.

In Unit 1, the Teacher Guide provides one "Reading Survey", "Levels Check Sheet", and a "Reading Log" in several languages with the goal of supporting students' first languages.

In Unit 2, a "Parents & Guardians" letter is provided in multiple languages.

In Unit 3, a "Home Connection" letter and "Dinner Table Conversation Starters" are provided in multiple languages.

In Unit 1, teachers can use a Multilingual Learners tracking sheet to take note and notice the behaviors of the students in the areas of speaking, listening, reading, and writing. This information is meant to provide initial guidance to the teacher in determining what the student can do. A sidebar within the unit prompts the teacher to ask questions and to frontload learning before the lesson to support ELs. Specifically, the sidebar suggests teachers create a list of question words and then use the text images to discuss the meaning of "when" vs. "where." Additionally, the teacher is encouraged to match beginning ELs with partners who speak the same language or to partner them with others who are also ELs. An additional sidebar addresses how to support ELs in class discussions and oracy development. Suggestions include allowing the student to use their home language as needed to express more complex ideas.

In Unit 2, students create research questions that will serve as a scope and sequence of content inquiry across the unit. The teacher is directed to determine a sequence that builds content knowledge logically and sequentially. A sidebar discusses frontloading materials for students and allowing ELs to use whatever means or language they feel comfortable with to demonstrate their prior knowledge on the research topic. A separate sidebar notes how to support technical vocabulary and comprehensible input to support English language development. The materials suggest that the teacher "choose vocabulary terms for students to learn strategically and create a context for repeating them many times."

In Unit 3, a side note asks teachers to reflect on the scaffolds used to accommodate ELs' current language/literacy competencies while working with a writing rubric. Additionally, the teacher is encouraged in a side note to provide beginner ELs with sentence frames to scaffold their answers to the

Training Districts to use the TRR during the adoption process is critical

<https://texasresourcereview.org>

All of this is in service of supporting districts with the review and adoptions of HQIM from selection to purchase, including:

- Setting up and leading the review and adoption process
- Using quality reviews to select best fit, high-quality materials
- Conducting HQIM pilot before purchase



Guiding Question: How does Texas support English Learner Success with High Quality Instructional Materials?

Agenda:

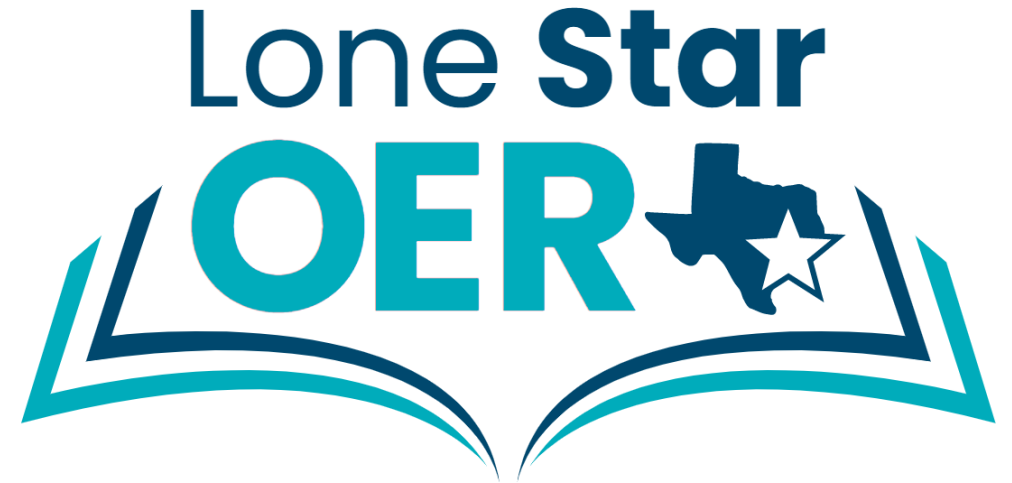
- Overview of the [Texas Resource Review](#): Quality reviews of instructional materials to inform local decisions
- Overview of [TEA developed instructional materials](#)
- Open Q&A



TEA provides direct access to optional high-quality instructional materials (HQIM) designed especially for TX

<https://tea.texas.gov/academics/instructional-materials/tea-available-materials>

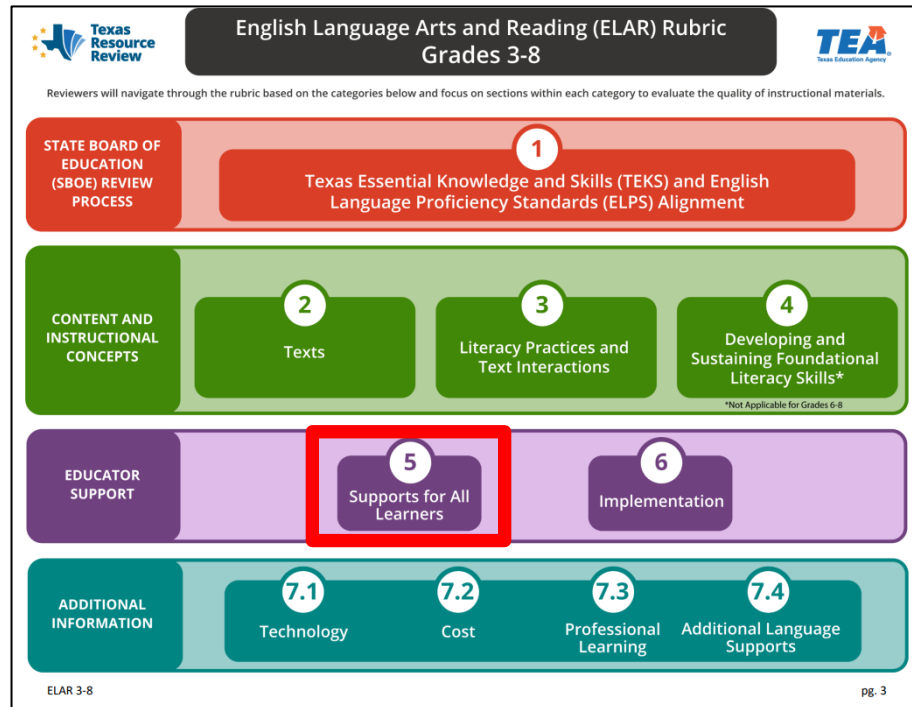
Open education resources (OER) are state-developed digital materials that are freely available forever to Texas school districts and educators.



TEA's state-developed materials leverage a unit and lesson-level review rubric that is built from the TRR

<https://tea.texas.gov/academics/instructional-materials/tea-available-materials>

TRR 3-8 Reading Language Arts (RLA) Rubric




OER HQIM Review Rubric

OER Review Rubric--Section 5: Supports for All Learners

5.1	Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.	<ul style="list-style-type: none"> Materials provide recommended targeted instruction and activities for students who struggle to master content. Materials provide recommended targeted instruction and activities for students who have mastered content. Materials provide additional enrichment activities for all levels of learners.
5.2	Materials provide a variety of instructional methods that appeal to a variety of learning interests and needs.	<ul style="list-style-type: none"> Materials include a variety of instructional approaches to engage students in mastery of the content. Materials support developmentally appropriate instructional strategies. Materials support flexible grouping (e.g., whole, small, individual). Materials support multiple types of practices (e.g., guided, independent, collaborative) and provide guidance and structures to achieve effective implementation.
5.3	Materials include supports for English Learners (EL) to meet grade-level learning expectations.	<ul style="list-style-type: none"> Materials must include accommodations for linguistics (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency. Materials provide scaffolds for English Learners. Materials encourage strategic use of students' first language as a means to develop linguistic, affective, cognitive, and academic skills in English (e.g., to enhance vocabulary development). Materials provide recommendations for making content culturally relevant (e.g., connections to diverse cultural experiences and traditions).

As a result, our HQIM includes supports for all learners at the unit and lesson level

<https://tea.texas.gov/academics/instructional-materials/tea-available-materials>



ENGLISH LANGUAGE LEARNERS

TEKS 3.2.A.vi; TEKS 3.2.B.i; TEKS 3.2.B.iv; TEKS 3.3.C

SPELLING (20 MIN.)

- Tell students that they will review all the spellings of /ee/.
- As you introduce each of the spelling words, write it on the board, pronouncing each word as you write it.
- Go back through the list of words, having students read the words and tell you which letters to circle for the sound of /ee/.

1. succeeded	12. degree
2. money	13. athlete
3. enemy	14. chief
4. centipede	15. grease
5. experience	16. scenic
6. believe	17. chariot
7. secret	18. stadium
8. increase	Challenge Word: <i>almost</i>
9. chimney	Challenge Word: <i>really</i>
10. tedious	Content Word: <i>electricity</i>
11. fancy	

ENGLISH LANGUAGE LEARNERS

Reading
Viewing Closely

Beginning
Read each paragraph aloud while students follow along. Ask yes/no questions about key words (e.g., "Is the word *wavelengths* important in this paragraph?").

Intermediate
Model for students how to find key words in the text and record them in the graphic organizer.

Advanced/Advanced High
Encourage students to discuss why they chose a specific key word to put in their graphic organizer.

ELPS 4.D; ELPS 4.I

Example of review indicator 5.3: Materials include supports for English Learners (ELs) to meet grade-level learning expectations.

Approximately 70% of all Amplify ELP lessons include similar guidance, often with additional embedded supports.

Additional examples of materials including supports for English Learners (ELs) to meet grade-level learning expectations

(review indicator 5.3) | <https://tea.texas.gov/academics/instructional-materials/tea-available-materials>



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

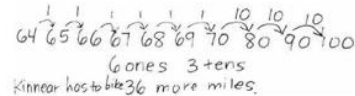
Even the simplest illustration brings a story to life, especially for English language learners. Draw a bicycle and a road. Add a sign post. Replace an unfamiliar name like Kinnear with a name from the class. Allow students to use a set of bundles if they choose. Then, have them return to their seats and draw.

As often as possible, invite students to show their work while talking about it. Have them point to the places they are referring to in their counting sequence. This visual input is perfect for English language learners and students performing below grade level because it keeps them focused on sense-making.

Application Problem (10 minutes)

Kinnear decided that he would bike 100 miles this year. If he has biked 64 miles so far, how much farther does he have to bike?

- T: Let's read the problem.
 T: Talk with your partner: Do we know the parts, or do we know the whole and one part?
 S: We know the whole and one part.
 T: Which means we're looking for...?
 S: The missing part!
 T: Tell your partner the subtraction problem that goes with this story. Raise your hand when you know the answer.
 S: $100 - 64 = \text{blank}$.
 T: Talk with your partner: What is a related addition fact?
 S: $64 + \text{blank} = 100$.
 T: Draw a picture to show how you can use units of one and ten to find the answer. You have two minutes.
 S: 70 was my benchmark number. I drew 6 ones to get to 70. Then I drew 3 tens to make 1 hundred.
 T: Let's count using Jorge's model.
 S: 65, 66, 67, 68, 69, 70, 80, 90, 100.
 T: Did anyone use a different counting strategy?
 S: I counted by tens from 64 to 94 and that was 3 tens; then I added 6 ones to make 100.




NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Even the simplest illustration brings a story to life, especially for English language learners. Draw a bicycle and a road. Add a sign post. Replace an unfamiliar name like Kinnear with a name from the class. Allow students to use a set of bundles if they choose. Then, have them return to their seats and draw.

As often as possible, invite students to show their work while talking about it. Have them point to the places they are referring to in their counting sequence. This visual input is perfect for English language learners and students performing below grade level because it keeps them focused on sense-making.

In this example from 2nd grade Eureka Math TEKS Edition, teachers are given guidance on ways to increase visual inputs and context to support English Learners.

In addition to these supports, we have materials in English and Spanish for K-5 Math and RLA, as well as additional language supports in 7th -12th

<https://tea.texas.gov/academics/instructional-materials/tea-available-materials>

In the process of being updated!

Section 12.A: Bilingual Program Model Considerations		
12.A.1	K-6 SLAR Only: Materials support teachers in understanding the connection between content presented in each language and provide guidance on how to help students understand this connection.	<ul style="list-style-type: none"> • Materials highlight opportunities for students to make cross-linguistic connections. • Materials allow for equitable instruction in both languages, in terms of quality and quantity of materials. • Materials support teacher and student understanding and application of the connection between the languages, (i.e., cognates).
12.A.2	K-6 SLAR Only: Materials in Spanish are authentic and culturally relevant.	<ul style="list-style-type: none"> • Both teacher and student materials are presented in authentic and academic Spanish or are quality transadaptations or translations, as appropriate for the purpose and context of the activity. • Materials support the development of socio-cultural competence. • Materials represent the cultural and linguistic diversity of the Spanish language and Hispanic culture.
Section 12.B: Student Materials in Spanish (Grades 7-12)		
12.B.1	7-12 Only: Unit provides Spanish version for all student-facing materials that are quality translations or transadaptations.	Translated or transadapted materials are accurate and match the intent and content of the English versions.
12.B.2	7-12 Only: Unit provides Spanish version for all student-facing materials that are accurate and error free.	Spanish version of student-facing materials have been checked for accuracy (e.g. correct terminology) and free of errors.

In K-5 RLA, Math, and Science, all materials that are available in English...

Materials

English Español

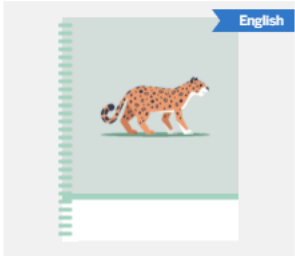



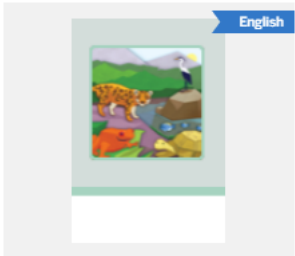

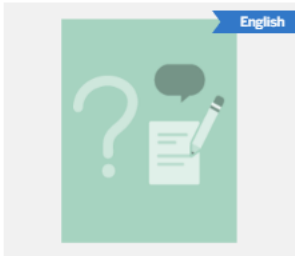

Unit 2

Materials

Additional Materials

Vocabulary

Poetry

			
Teacher Guide PDF Download	Activity Book PDF Download	Editable PDF Activity Book (for students to fill out) PDF Download	Word Doc Activity Book (for educators to edit directions) Download
			
Reader PDF Download	Digital Flip Book PDF Download	Essential Questions and Prompts PDF Download	Digital Projections PDF Download

... are also available in Spanish.

Materiales

English **Español**









Unidad 2 ▾

Materiales

Materiales suplementarios

Vocabulario

Poesía

 <p>Español</p>	 <p>Español</p>	 <p>Español</p>	 <p>Español</p>
Guía del maestro PDF Download	Cuaderno de actividades PDF Download	Cuaderno de actividades editable en PDF (para que los estudiantes lo completen) PDF Download	Cuaderno de actividades en Word (para que los educadores modifiquen las instrucciones) Download
 <p>Español</p>	 <p>Español</p>	 <p>Español</p>	 <p>Español</p>
Libro de lectura PDF Download	Rotafolio de imágenes digitales PDF Download	Preguntas esenciales y sugerencias PDF Download	Proyecciones digitales PDF Download

At the secondary level, our instructional materials offer a host of resource and/or scaffolds to support ELs

Each student facing Unit Overview is available in Spanish and English.



7C: Brain Science

Texts

Phineas Gage: A Gruesome but True Story About Brain Science by John Fleischman
Inventing Ourselves: The Secret Life of the Teenage Brain by Sarah-Jayne Blakemore
The Man Who Mistook His Wife for a Hat by Oliver Sacks

Introduction to the Texts

In *Phineas Gage: A Gruesome but True Story About Brain Science*, John Fleischman describes a terrible accident that happened in Vermont in 1848. An explosion caused a long piece of metal to go through the head of a man named Phineas Gage. Amazingly, he survived. Unfortunately, his brain did not work as well as it did before the accident. His behavior changed. Phineas's case changed the way doctors think about the brain.

Many people believe that adolescents are a problem. But in her book *Inventing Ourselves: The Secret Life of the Teenage Brain*, Sarah-Jayne Blakemore says we need to reimagine how we think about young people. Blakemore describes the science of the brain, the important stages of development that we all experience, and what makes teenagers so...different.

In the excerpt from *The Man Who Mistook His Wife for a Hat*, Oliver Sacks discusses people alive today who have brain damage similar to Phineas Gage's.

Background and Context

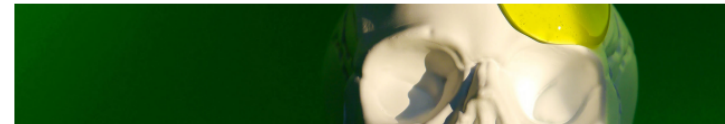
Phineas Gage

Phineas Gage was injured when an explosion caused a metal rod to go through his skull. The rod, called a tamping iron, was made by a blacksmith. A blacksmith is a worker who shapes metal into objects, such as tools.

At the time of Phineas's accident, there were many things that doctors did not know about medicine. They did not know that bacteria causes infections. When doctors did surgery, they did not always clean their hands or tools. Many people died from bacterial

infections because their immune systems were already weak from surgery. Your immune system is what helps your body fight infection, or heal after illness or injury.

At the time of Phineas's accident, doctors were starting to use anesthesia during surgery. Anesthesia is a medicine that puts people to sleep so that they do not feel pain during surgery.



7C: Ciencia cerebral

Textos

Phineas Gage: una historia horripilante pero cierta sobre ciencia cerebral de John Fleischman
La invención de uno mismo: La vida secreta del cerebro adolescente de Sarah-Jayne Blakemore
El hombre que confundió a su esposa con un sombrero de Oliver Sacks

Introducción a los textos

En *Phineas Gage: una historia horripilante pero cierta sobre ciencia cerebral*, John Fleischman describe un terrible accidente que ocurrió en Vermont en 1848. Una explosión causó que una pieza larga de metal atravesara la cabeza de un hombre llamado Phineas Gage. Asombrosamente, Phineas sobrevivió. Desafortunadamente, su cerebro no funcionaba tan bien como antes del accidente. Su comportamiento cambió. El caso de Phineas transformó la manera de pensar de los médicos acerca del cerebro.

Muchas personas creen que los adolescentes son problemáticos. Sin embargo, en su libro *La invención de uno mismo: La vida secreta del cerebro adolescente*, Sarah-Jayne Blakemore afirma que tenemos que replantearnos nuestra forma de pensar respecto a los jóvenes. Blakemore describe la ciencia del cerebro, las etapas de desarrollo importantes que todos nosotros experimentamos y qué es lo que hace que los adolescentes sean tan... diferentes.

En el fragmento de *El hombre que confundió a su esposa con un sombrero*, Oliver Sacks habla acerca de personas actualmente vivas que tienen un daño cerebral similar al de Phineas Gage.

Antecedentes y contexto

Phineas Gage

Phineas Gage sufrió una herida cuando una explosión causó que una barra de metal atravesara su cráneo. La barra, llamada barra para apisonar, había sido fabricada por un herrero. Un herrero es un trabajador que transforma el metal en objetos, tales como herramientas.

En la época en que ocurrió el accidente de Phineas, había muchas cosas que los doctores ignoraban sobre la medicina. No sabían que las bacterias causan infecciones. Cuando los doctores practicaban cirugías, no siempre lavaban sus manos o las herramientas.

Muchas personas morían de infecciones bacterianas porque sus sistemas inmunitarios ya estaban debilitados por la cirugía. Nuestro sistema inmunitario es lo que ayuda a nuestro cuerpo a combatir la infección, o a curarse después de una enfermedad o lesión.

En la época en que ocurrió el accidente de Phineas, los doctores comenzaban a usar anestesia en las cirugías. La anestesia es una medicina que hace dormir a la gente para que no sienta dolor durante la cirugía.

At the secondary level, our instructional materials offer a host of resources and/or scaffolds to support ELs

Unit-level caregiver letter



¡Bienvenidos!

7C: Brain Science
(7C: La ciencia del cerebro)

En esta unidad, los estudiantes exploran una serie de textos narrativos de no ficción e informativos que exponen el funcionamiento del cerebro, les piden que reflexionen sobre lo que significa ser humano y les permiten considerar cómo el desarrollo de sus propios cerebros durante la adolescencia puede impactar sus experiencias y pensamiento. Esta unidad apoya a los estudiantes mientras desarrollan la conciencia de sus fortalezas y retos cognitivos individuales, y las muchas maneras en que ejercen control sobre su propio aprendizaje.

Phineas Gage: A Gruesome but True Story About Brain Science, documenta la fascinante historia de Phineas Gage, cuyo dramático accidente, lesión y recuperación lo convirtió en un estudio de caso famoso en el campo de la neurociencia. Los estudiantes siguen el impacto de la extraordinaria lesión del cerebro de Phineas, los esfuerzos por parte de médicos y científicos para aprender de su supervivencia, y la comprensión temprana de la estructura y función del cerebro que resultó de ese conocimiento. Luego, los estudiantes siguen con lecturas de *Inventing Ourselves: The Secret Life of the Teenage Brain*, donde agregan información a su modelo de trabajo del cerebro y consideran si la conducta de los adolescentes es formada o no por sus cerebros en desarrollo. Con fragmentos del libro de Oliver Sacks, *The Man Who Mistook His Wife for a Hat*, los estudiantes aplican su creciente comprensión de cómo funciona el cerebro a casos modernos de lesiones cerebrales. Finalmente, la Quest: *Perception Academy* permite a los estudiantes aplicar su conocimiento adquirido recientemente a un caso ficticio de lesión cerebral para diagnosticar la región del cerebro que fue lesionada, basándose en los síntomas y comportamientos del paciente.

Textos esenciales que su estudiante leerá:

- *Phineas Gage: A Gruesome but True Story About Brain Science*, por John Fleischman
- Fragmentos de *Inventing Ourselves: The Secret Life of the Teenage Brain*, por Sarah-Jayne Blakemore
- Fragmento de "Demystifying the Adolescent Brain", por Laurence Steinberg
- Fragmentos de *The Man Who Mistook His Wife for a Hat*, por Oliver Sacks
- Fragmentos de las opiniones mayoritarias y las disensiones en *Roper vs. Simmons*

Lo que su estudiante hará/aprenderá:

- Los estudiantes leerán y discutirán el traumático accidente y la lesión cerebral de Phineas Gage, enfocándose en lo que se podría aprender sobre la estructura y el funcionamiento del cerebro mediante los efectos físicos y psicológicos de la lesión de Phineas.
- Los estudiantes explorarán la biología del desarrollo cerebral adolescente y considerarán los debates sobre las maneras en que el desarrollo del cerebro afecta las conductas adolescentes, incluyendo la organización y la toma de riesgos. Discutirán lo

Amplify ELAR Texas: 6-8 es un plan de estudios de lenguaje en el marco de los TEKS, cuyo fin es apoyar a los estudiantes de Texas en el salón de clase, en la casa, o donde sea que ocurra el aprendizaje. Diseñado específicamente para el estudiante de ciclo medio (middle school), el programa involucra a los estudiantes mediante rica literatura, medios y herramientas interactivas, a la vez que desarrolla el conocimiento y las habilidades que necesitan para prosperar durante los años del ciclo medio y en el futuro.

Unit-related knowledge building articles



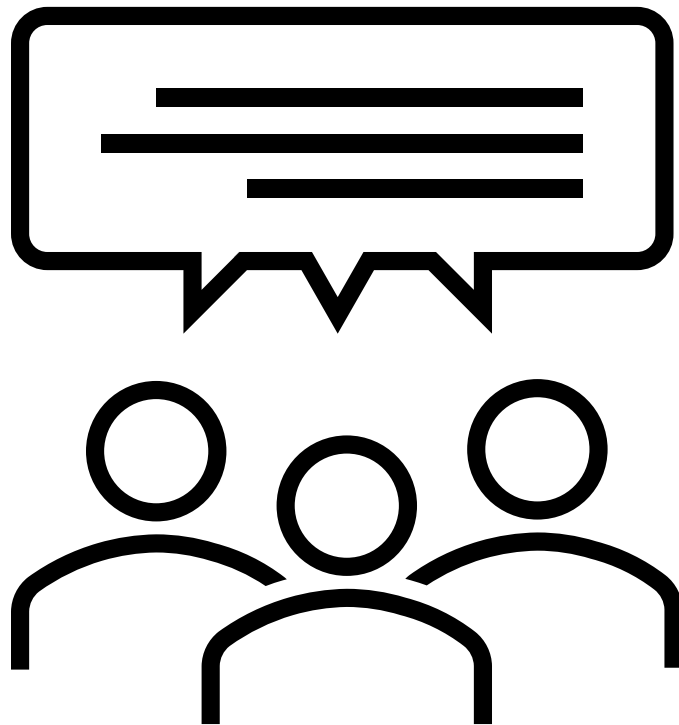
7C: La ciencia del cerebro

Neuroplasticidad, la capacidad del cerebro para cambiar

Las primeras investigaciones científicas sobre el cerebro arrojaron como resultado la siguiente afirmación: el cerebro era una maravillosa máquina para procesar la información del medioambiente, pero incapaz de regenerarse o de cambiar después de la infancia. Esa creencia subsistió hasta la década de 1960, cuando las investigaciones empezaron a fijarse en que algunos pacientes con daño cerebral recuperaban funciones como el lenguaje o el movimiento. La ciencia hoy ha demostrado que el cerebro está en constante cambio y es una efectiva herramienta para adaptarnos a nuevas experiencias, incorporar nueva información y crear nuevas memorias.

El cerebro está compuesto de neuronas, las que se conectan entre sí gracias a los dendritos, aquellas partes de las neuronas que parecen ramas de árbol creando pasajes neuronales para responder a diversos estímulos. Este proceso crea un verdadero mapa entre distintas zonas cerebrales, cuyos caminos se recorren una y otra vez. Esto quiere decir, entre otras cosas, que la memoria no se aloja en una sola neurona sino en la interacción de ellas. Al igual que los caminos en los bosques y campos, las neuronas que se usan frecuentemente desarrollan fuertes conexiones, engrosando el pasaje entre ellas y facilitando la interacción futura. Asimismo, las neuronas que no se utilizan o se utilizan poco, eventualmente mueren. Hoy los neurobiólogos nos revelan no solo que el cerebro tiene la maravillosa capacidad de reorganizar y multiplicar los pasajes entre neuronas, modificando así lo aprendido, sino también que, frente a ciertos estímulos, el cerebro puede fomentar la neurogénesis, o creación de nuevas neuronas.

La plasticidad cerebral o neuroplasticidad se refiere a la capacidad del cerebro para cambiar su estructura y funcionamiento con el objetivo de adaptarse a la diversidad del entorno. En general, los cambios regenerativos en el cerebro pueden ser de dos tipos: funcional y estructural. La neuroplasticidad funcional se refiere a la capacidad del cerebro de mover funciones desde un área dañada a otra área sana, por ejemplo, cuando alguien recupera el lenguaje después de una apoplejía. La plasticidad estructural se refiere a la capacidad del cerebro de cambiar su estructura física como resultado del aprendizaje y de



Please feel welcome to reach out with additional questions or for further collaboration



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Thank you!