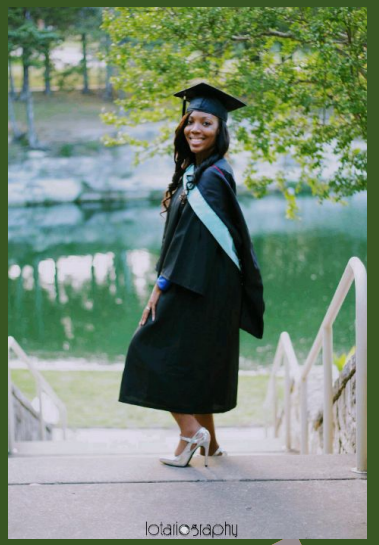
WELCOME!
What's Coming to Science?

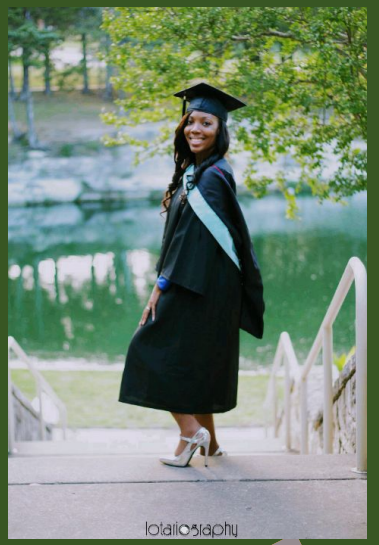
Mrs. Davenport

PD Norms!



- Begin and end on time.
- Be fully present and engaged throughout the session.
- Be solution-oriented
- Respect self & others
- Limit the use of personal technology

About Me!



I am a native of Dallas, Texas. She has served as a middle school science teacher, master teacher,curriculum leader, campus specialist and most currently a District Content Specialist. My educational background includes a Bachelor of Arts degree from The University of North Texas and a Masters Degree in Education from Walden University. My educational philosophy is that ALL students can learn regardless of background and socioeconomic status. I am excited about joining the LAN family as an academic content specialist and contributing my passion, knowledge and skills to enhance the LAN community.

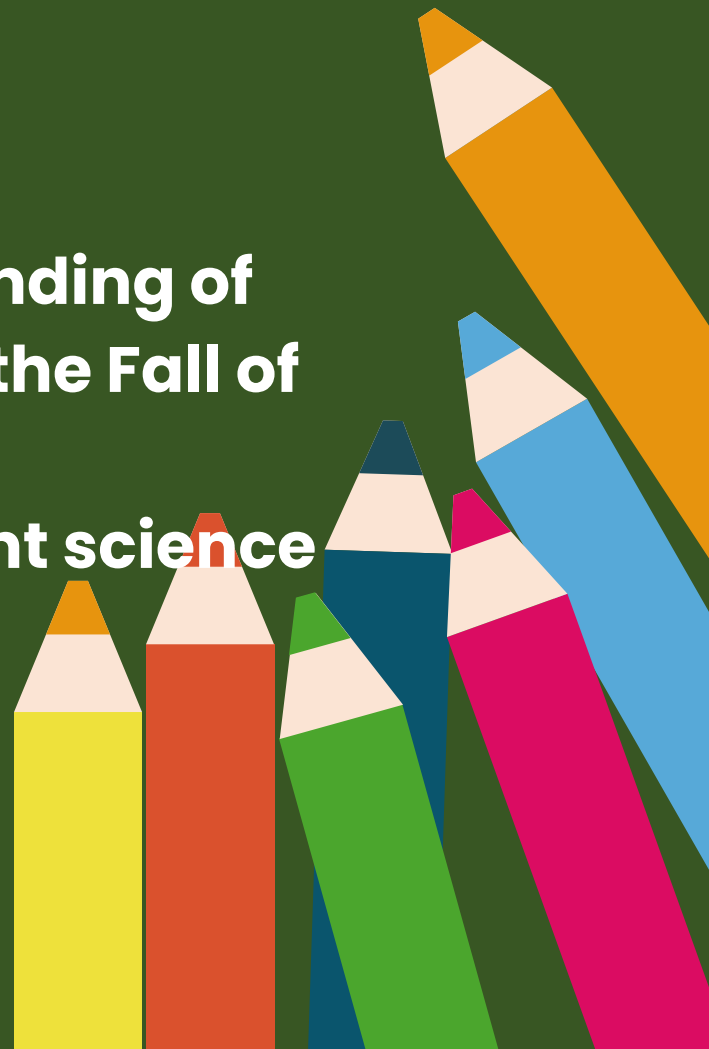
I have been married to my husband, Brian since 2015.Outside of work I enjoy spending time with my family, friends and serving my church.

Your turn: Introduce Yourself!

- **Name**
- **Campus**
- **Grade level taught**
- **Something that you want to accomplish this year.**

Learning Objective:

- Attendees will have a better and deeper understanding of the new science TEKS that will be implemented in the Fall of 2024.
- Attendees will be able to practice matching current science TEKS with the updated science TEKS.
- Attendees will learn how to navigate HMH



The New TEKS:

The Revised Science TEKS have been formally adopted and will be implemented in Fall 2024

A Framework for K–12 Science Education **was carefully considered during the adoption of the Revised Science TEKS, allowing for a three-dimensional approach to how we teach science in Texas. This led to the development of the recurring themes and concepts (RTCs), scientific and engineering practices (SEPs), and the content found in the updated TEKS. They were designed to maintain rigor and keep student expectations current with scientific thinking. The SBOE adopted new science standards for K-8 Science and the high school courses, including but not limited to:**

- **Biology**
- **Chemistry**
- **Integrated Physics and Chemistry**
- **Physics, Environmental Systems**
- **Anatomy and Physiology, and**
- **Forensic Science.**

The Biggest Challenges

- **Three Dimensional Curriculum**
- **Vertical Alignment**

The Biggest Challenges

The biggest shift with the future science TEKS is from two dimensional (2D) to three dimensional (3D) curriculum. The current science TEKS function in a 2D sense through process skills and content TEKS .The process skills focused on scientific practice (the "how" of being a scientist), while the content TEKS focused on the content (the "what"). The future TEKS will replace the process skills with Science and Engineering Practices (SEPs) and Recurring Themes and Concepts (RTCs). The three dimensions of the future science TEKS include:

- **Science and Engineering Practices (SEPs): These are the practices that scientists use to ask and answer questions, and the practices that engineers use to define problems and design solutions. Examples include communicating information and designing solutions. (The new teaching method is centered around a phenomenon and students have to investigate and ask questions centered around the phenomenon) Phenomenon:a fact or situation that is observed to exist or happen, especially one whose cause or explanation is in question.**

- **Recurring Themes and Concepts (RTCs): These are big-picture concepts that span the entire field of science, not just one grade level. They are evident across grades K-12 and are relevant to all students, not just students who will major in science in college. In general, if a student who comes through the K-12 school system is able to navigate these concepts, they can truly grasp the core of what science is and how we can use it to impact the world.**

- **Content TEKS: This is the content itself (the what). Nothing has changed in this regard.**

Vertical Alignment

- Vertical alignment was emphasized during the development process. In order to begin with the end in mind, the SBOE work group for high school developed their courses first in order to define what students ultimately need to take from the K-12 science curriculum. From there, the middle school and elementary courses were developed to build students up to that. Based on this format, you will find various spaces throughout K-12 where the content was either moved, added, or removed from the curriculum.

Scientific and Engineering Practices

- **Practices that scientists use to ask and answer questions,**

Scientific and Engineering Practices

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Planning Laboratory and Field Investigations	**K.1.A** Ask scientific questions and define engineering problems based on observations or information from text, phenomena, models, or investigations.	**1.1.A** Ask scientific questions and define engineering problems based on observations or information from text, phenomena, models, or investigations.	**2.1.A** Ask scientific questions and define engineering problems based on observations or information from text, phenomena, models, or investigations.	**3.1.A** Ask scientific questions and define engineering problems based on observations or information from text, phenomena, models, or investigations.	**4.1.A** Ask scientific questions and define engineering problems based on observations or information from text, phenomena, models, or investigations.	**5.1.A** Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.
	K.1.B Use scientific practices to plan and conduct simple descriptive scientific investigations and use engineering practices to design solutions to problems.	**1.1.B** Use scientific practices to plan and conduct simple descriptive scientific investigations and use engineering practices to design solutions to problems.	**2.1.B** Use scientific practices to plan and conduct simple descriptive scientific investigations and use engineering practices to design solutions to problems.	**3.1.B** Use scientific practices to plan and conduct simple descriptive scientific investigations and use engineering practices to design solutions to problems.	**4.1.B** Use scientific practices to plan and conduct simple descriptive scientific investigations and use engineering practices to design solutions to problems.	**5.1.B** Use scientific practices to plan and conduct descriptive and simple experimental investigations and use engineering practices to design solutions to problems.
	K.1.C Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	**1.1.C** Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	**2.1.C** Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	**3.1.C** Demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	**4.1.C** Demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	**5.1.C** Demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.

Recurring Themes and Concepts

- **These are big-picture concepts that span the entire field of science, not just one grade level.**

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	K.4.B Identify scientists and engineers such as Isaac Newton, Mae Jemison, and Ynes Mexia and explore what different scientists and engineers do.	**1.4.B** Identify scientists and engineers such as Katherine Johnson, Sally Ride, and Ernest Just and explore what different scientists and engineers do.	**2.4.B** Identify scientists and engineers such as Alexander Graham Bell, Marie Daly, Mario Molina, and Jane Goodall and explore what different scientists and engineers do.	**3.4.B** Research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.	**4.4.B** Research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.	**5.4.B** Research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.
Recurring Themes and Concepts	**K.5.A** Identify and use patterns to describe phenomena or design solutions.	**1.5.A** Identify and use patterns to describe phenomena or design solutions.	**2.5.A** Identify and use patterns to describe phenomena or design solutions.	**3.5.A** Identify and use patterns to explain scientific phenomena or to design solutions.	**4.5.A** Identify and use patterns to explain scientific phenomena or to design solutions.	**5.5.A** Identify and use patterns to explain scientific phenomena or to design solutions.
	K.5.B Investigate and predict cause-and-effect relationships in science.	**1.5.B** Investigate and predict cause-and-effect relationships in science.	**2.5.B** Investigate and predict cause-and-effect relationships in science.	**3.5.B** Identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.	**4.5.B** Identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.	**5.5.B** Identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.
	K.5.C Describe the properties of objects in terms of relative size (scale) and relative quantity.	**1.5.C** Describe the properties of objects in terms of relative size (scale) and relative quantity.	**2.5.C** Describe the properties of objects in terms of relative size (scale) and relative quantity.	**3.5.C** Use scale, proportion, and quantity to describe, compare, or model different systems.	**4.5.C** Use scale, proportion, and quantity to describe, compare, or model different systems.	**5.5.C** Use scale, proportion, and quantity to describe, compare, or model different systems.
	K.5.D Examine the parts of a whole to define or model a system.	**1.5.D** Examine the parts of a whole to define or model a system.	**2.5.D** Examine the parts of a whole to define or model a system.	**3.5.D** Examine and model the parts of a system and their interdependence in the function of the system.	**4.5.D** Examine and model the parts of a system and their interdependence in the function of the system.	**5.5.D** Examine and model the parts of a system and their interdependence in the function of the system.

Combined K-12 Example

In Kindergarten, students learn to "identify, describe, and predict the **patterns** of day and night and their observable characteristics" (K.9.A) Their teacher regularly uses the words **pattern** and **changes** during students' investigations to help students internalize these big concepts. In 1st Grade, students "describe and predict the **patterns** of seasons of the year such as order of occurrence and **changes** in nature" (1.9) and in 4th grade, students study "**patterns of change** in the observable appearance of the Moon from Earth" (4.9.B). This lays the foundation for scientific understanding all the way through high school. For example, in HS physics, students study the motion of various objects to look for **patterns** in graphs of position vs. time, velocity vs. time, and acceleration vs. time (Physics.5.A,C). They also look for **patterns** in the characteristics of waves, including velocity, frequency, amplitude, and wavelength (Physics.8.C) and how **changing** one characteristic alters the others. By using the Recurring Themes of **patterns** and **change** over multiple years and topics, students learn that these concepts can be used to understand and describe phenomena from a variety of scientific disciplines.

LET'S TAKE A LOOK.... Category 1

Current TEKS Matter and Energy

5A	Classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy.
5B	Demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand and sand and water.
5C	Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.

2024 TEKS Matter and its Properties

6A	Compare and contrast matter based on measurable, testable, or observable physical properties, including mass, magnetism, relative density (sinking and floating using water as a reference point), physical state (solid, liquid, gas), volume, solubility in water, and the ability to conduct or insulate thermal energy and electric energy.
6B	Demonstrate and explain that some mixtures maintain physical properties of their substances such as iron filings and sand or sand and water.
6C	Compare the properties of substances before and after they are combined into a solution and demonstrate that matter is conserved in solutions.
6D	Illustrate how matter is made up of particles that are too small to be seen such as air in a balloon.

5A	Classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy.	6A	Compare and contrast matter based on measurable, testable, or observable physical properties, including mass, magnetism, relative density (sinking and floating using water as a reference point), physical state (solid, liquid, gas), volume, solubility in water, and the ability to conduct or insulate thermal energy and electric energy.
5B	Demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand and sand and water.	6B	Demonstrate and explain that some mixtures maintain physical properties of their substances such as iron filings and sand or sand and water.
5C	Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.	6C	Compare the properties of substances before and after they are combined into a solution and demonstrate that matter is conserved in solutions.
		6D	Illustrate how matter is made up of particles that are too small to be seen such as air in a balloon. *(NEW)*

NEW!!

Practice

- The blue strip represents the current TEKS
- The green strip represents the 2024 TEKS

With a partner, try to match the current TEKS with the new 2024 TEKS.

Let's Dive Deeper.....Category 2

Current TEKS Force and Motion

6A	Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy.
6B	Demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound.
6C	Demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and is refracted.
6D	Design a simple experimental investigation that tests the effect of force on an object.

2024 TEKS Force and Motion

8A	Investigate and describe the transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy.
8B	Demonstrate that electrical energy in complete circuits can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit.
8C	Demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed.
7B	Design a simple experimental investigation that tests the effect of force on an object in a system such as a car on a ramp or a balloon rocket on a string.

Moved from 6th grade

7A	Investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy.

NEW!!

6A	Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy.	8A	Investigate and describe the transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy. (Modified and moved from 6.9C)
6B	Demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound.	8B	Demonstrate that electrical energy in complete circuits can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit.
6C	Demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and is refracted.	8C	Demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed.
		(7)	*Force, motion, and energy. The student knows the nature of forces and the patterns of their interactions. The student is expected to:*
		7A	Investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy. *(NEW)*
6D	Design a simple experimental investigation that tests the effect of force on an object.	7B	Design a simple experimental investigation that tests the effect of force on an object in a system such as a car on a ramp or a balloon rocket on a string.

Keep Diving.....Category 3

Current TEKS Earth and Space

7A	Explore the processes that led to the formation of sedimentary rocks and fossil fuels.
7B	Recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, or ice.
8A	Differentiate between weather and climate.
8B	Explain how the Sun and the ocean interact in the water cycle.
8C	Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky.
8D	Identify and compare the physical characteristics of the Sun, Earth, and Moon.

2024 TEKS Earth and Space

10B	Model and describe the processes that led to the formation of sedimentary rocks and fossil fuels.
10C	Model and identify how changes to Earth's surface by wind, water, or ice result in the formation of landforms, including deltas, canyons, and sand dunes.

Removed

10A	Explain how the Sun and the ocean interact in the water cycle and affect weather.
9	Demonstrate that Earth rotates on its axis once approximately every 24 hours and explain how that causes the day/night cycle and the appearance of the Sun moving across the sky, resulting in changes in shadow positions and shapes.

Removed

11	Design and explain solutions such as conservation, recycling, or proper disposal to minimize environmental impact of the use of natural resources.

NEW!!

	expected to.		
		11	Design and explain solutions such as conservation, recycling, or proper disposal to minimize environmental impact of the use of natural resources. *(Modified from old 5.1B)*
7A	Explore the processes that led to the formation of sedimentary rocks and fossil fuels.	10B	Model and describe the processes that led to the formation of sedimentary rocks and fossil fuels.

Professional Divers.....Category 4

Current TEKS Organisms and Environments

9A	Observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components.
9B	Describe the flow of energy within a food web, including the roles of the Sun, producers, consumers, and decomposers.
9C	Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.
9D	Identify fossils as evidence of past living organisms and the nature of the environments at the time using models. (Modified and moved to 4.12C)
10A	Compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals.
10B	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.

2024 TEKS Organisms and Environments

12A	Observe and describe how a variety of organisms survive by interacting with biotic and abiotic factors in a healthy ecosystem.
12B	Predict how changes in the ecosystem affect the cycling of matter and flow of energy in a food web.
12C	Describe a healthy ecosystem and how human activities can be beneficial or harmful to an ecosystem.

Moved to 4th Grade

13A	Analyze the structures and functions of different species to identify how organisms survive in the same environment.
13B	Explain how instinctual behavioral traits such as turtle hatchlings returning to the sea and learned behavioral traits such as orcas hunting in packs increase chances of survival.

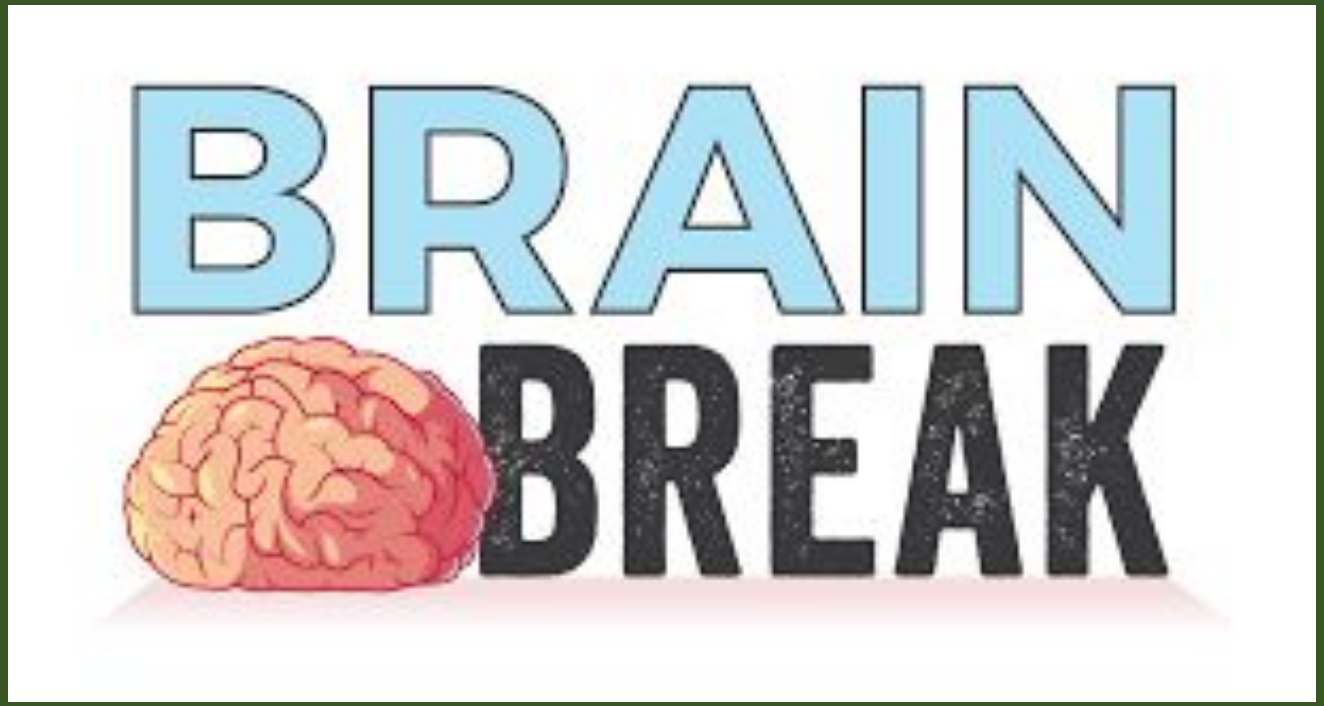
	student is expected to:		*student is expected to:*
9A	Observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components.	12A	Observe and describe how a variety of organisms survive by interacting with biotic and abiotic factors in a healthy ecosystem.
9B	Describe the flow of energy within a food web, including the roles of the Sun, producers, consumers, and decomposers. (Moved to 4.12B)	12B	Predict how changes in the ecosystem affect the cycling of matter and flow of energy in a food web.
9C	Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.	12C	Describe a healthy ecosystem and how human activities can be beneficial or harmful to an ecosystem.

9D	Identify fossils as evidence of past living organisms and the nature of the environments at the time using models. *(Modified and moved to 4.12C)*		
(10)	*Organisms and environments. The student knows that organisms have structures and behaviors that help them survive within their environments. The student is expected to:*	*(13)*	*Organisms and environments. The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environments. The student is expected to:*
10A	Compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals.	13A	Analyze the structures and functions of different species to identify how organisms survive in the same environment.
10B	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.	13B	Explain how instinctual behavioral traits such as turtle hatchlings returning to the sea and learned behavioral traits such as orcas hunting in packs increase chances of survival.

Let's look some more.....

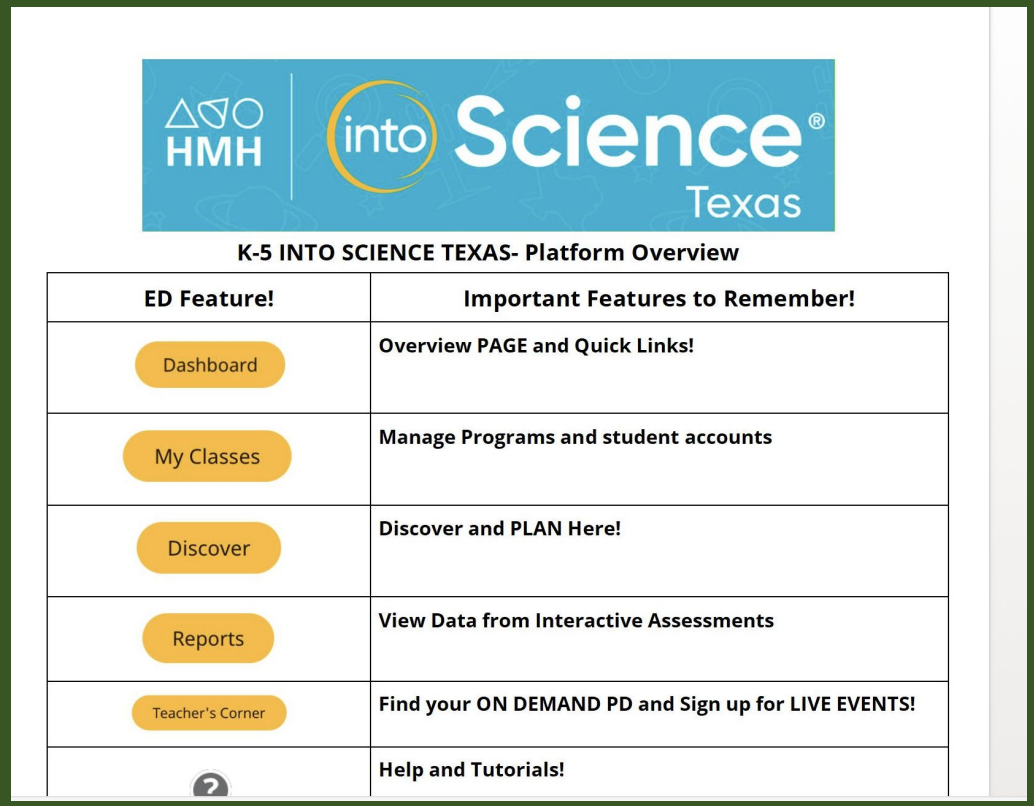
Use the QR code below to access your grade level side by side documents.
As you are looking through them.

1.) What biggest challenge do you see?
2.) What did you notice about the verb changes?
3.) How will vertical alignment look now that the TEKS have changed?



HMH Scavenger Hunt

Complete the scavenger hunt while we go through the HMH platform.



HMH into Science Texas

K-5 INTO SCIENCE TEXAS- Platform Overview

ED Feature!	Important Features to Remember!
Dashboard	Overview PAGE and Quick Links!
My Classes	Manage Programs and student accounts
Discover	Discover and PLAN Here!
Reports	View Data from Interactive Assessments
Teacher's Corner	Find your ON DEMAND PD and Sign up for LIVE EVENTS!
?	Help and Tutorials!

The Future.....

Don’t let the future TEKS catch you by surprise!!

THANK

Contact info:

email: twanique.davenport@fwisd.org
cell: (214)200-6957