

WELCOME!

What's Coming to Science?

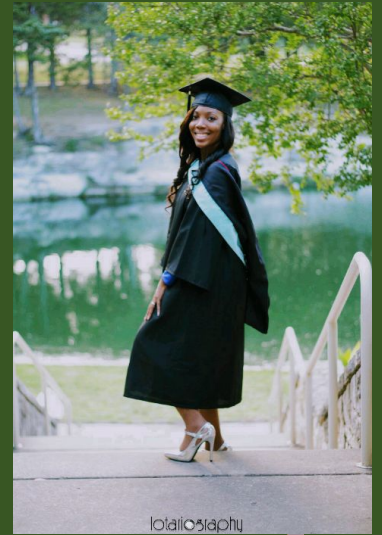
Mrs. Davenport





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**

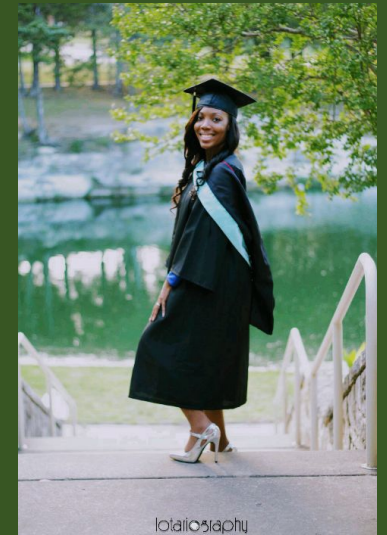




About Me!

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 learn how to navigate HMH**

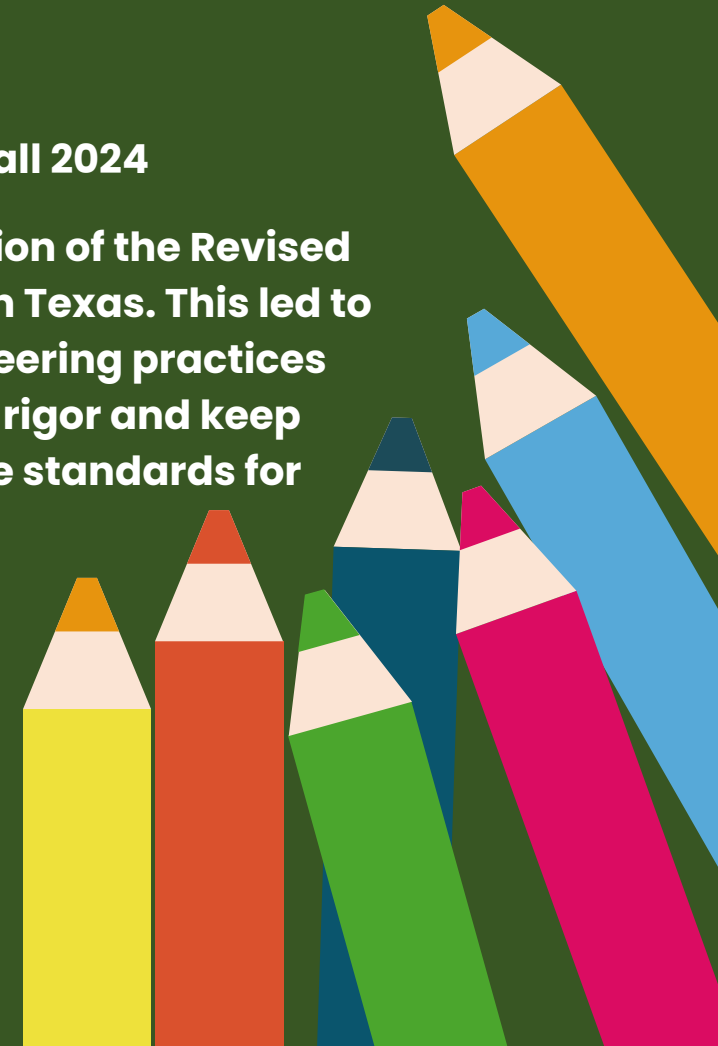


The New TEKS:

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.**



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.

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.



Let's Look!

Kindergarten Category 1 and 2

9A	Sort and classify living and nonliving things based upon whether they have basic needs and produce offspring.	12.A	Classify living and nonliving things based upon whether they have basic needs and produce young .
9B	Analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver.	12.B	Describe and record examples of interactions and dependence between living and nonliving components in terrariums or aquariums.
9C	Gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter.	12.C	Identify and illustrate how living organisms depend on each other through food chains.
(10)	<i>Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</i>	(13)	<i>Organisms and environments. The student knows that organisms resemble their parents and have structures and undergo processes that help them interact and survive within their environments. The student is expected to:</i>
10A	Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats.	13.A	Identify the external structures of different animals and compare how those structures help different animals live, move, and meet basic needs for survival .
10B	Identify and compare the parts of plants. <i>(Plants now at grades K and 2)</i>		
10C	Compare ways that young animals resemble their parents.	13.C	Compare ways that young animals resemble their parents.
10D	Observe and record life cycles of animals such as a chicken, frog, or fish.	13.B	Record observations of and describe basic life cycles of animals, including a bird, a mammal, and a fish.

6.B	Explore interactions between magnets and various materials. <i>(Topic used to be at grade levels K, 1 and 2. Now only at K).</i>	7	Describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull.
		(8)	<i>Force, motion, and energy. The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:</i>
6.A	Use the senses to explore different forms of energy, such as light, thermal, and sound.	8.A	Communicate the idea that objects can only be seen when a light source is present and compare the effects of different amounts of light on the appearance of objects. <i>(Moved and modified from old 2.6A)</i>
		8.B	Demonstrate and explain that light travels through some objects and is blocked by other objects, creating shadows. <i>(NEW)</i>
6.C	Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside.		
6.D	Observe and describe the ways that objects can move such as, in a straight line, zigzag, up and down, back and forth, round and round, fast and slow.		

Let's Look!

1st Grade Category 2 and 4

9A	Sort and classify living and nonliving things based upon whether they have basic needs and produce offspring.	12.A	Classify living and nonliving things based upon whether they have basic needs and produce young .
9B	Analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver.	12.B	Describe and record examples of interactions and dependence between living and nonliving components in terrariums or aquariums.
9C	Gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter.	12.C	Identify and illustrate how living organisms depend on each other through food chains.
(10)	<i>Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</i>	(13)	<i>Organisms and environments. The student knows that organisms resemble their parents and have structures and undergo processes that help them interact and survive within their environments. The student is expected to:</i>
10A	Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats.	13.A	Identify the external structures of different animals and compare how those structures help different animals live, move, and meet basic needs for survival .
10B	Identify and compare the parts of plants. <i>(Plants now at grades K and 2)</i>		
10C	Compare ways that young animals resemble their parents.	13.C	Compare ways that young animals resemble their parents.
10D	Observe and record life cycles of animals such as a chicken, frog, or fish.	13.B	Record observations of and describe basic life cycles of animals, including a bird, a mammal, and a fish .

(6)	<i>Force, motion, and energy. The student knows that force, motion, and energy are related and are a part of everyday life. The student is expected to:</i>	(7)	<i>Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to:</i>
6A	Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.		
6B	Predict and describe how a magnet can be used to push or pull an object. <i>Topic used to be at grade levels K, 1 and 2. Now only at K)</i>		
6C	Demonstrate and record the ways that objects can move such as in a straight line, zig zag, up and down, back and forth, round and round, and fast and slow.		
		7A	Explain how pushes and pulls can start, stop, or change the speed or direction of an object's motion. <i>(NEW)</i>
		7B	Plan and conduct a descriptive investigation that predicts how pushes and pulls can start, stop, or change the speed or direction of an object's motion. <i>(NEW)</i>
		(8)	<i>Force, motion, and energy. The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:</i>
		8A	Investigate and describe applications of heat in everyday life such as cooking food or using a clothes dryer. <i>(NEW)</i>
		8B	Describe how some changes caused by heat may be reversed such as melting butter and other changes cannot be reversed such as

Your turn!

- 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 1

5A	Classify objects by observable properties such as larger and smaller, heavier and lighter, shape, color, and texture	6A	Classify objects by observable physical properties, including, shape, color, and texture, and attributes such as larger and smaller and heavier and lighter.
5B	Predict and identify changes in materials caused by heating and cooling	6B	Explain and predict changes in materials caused by heating and cooling. <i>(Topic used to be in grades K, 1, 2 but now only in grade 1)</i>
5C	Classify objects by the materials from which they are made		
		6C	Demonstrate and explain that a whole object is a system made of organized parts such as a toy that can be taken apart and put back together. <i>(NEW - Similar to old 2.5D and new 2.6C)</i>

Let's Dive Deeper.....Category 3

7A	Observe, compare, describe, and sort components of soil by size, texture, and color.	10.A	Investigate and document the properties of particle size, shape , texture, and color and the components of different types of soils such as topsoil, clay, and sand.
		10.B	Investigate and describe how water can move rock and soil particles from one place to another. (NEW)
7B	Identify and describe a variety of natural sources of water, including streams, lakes, and oceans.	10.C	Compare the properties of puddles, ponds, streams, rivers, lakes, and oceans, including color, clarity, size, shape, and whether it is freshwater or saltwater. (Fresh water v. saltwater moved from old 2.7B)
		(11)	<i>Earth and space. The student knows that earth materials and products made from these materials are important to everyday life. The student is expected to:</i>
7C	Identify how rocks, soil, and water are used to make products.	11.A	Identify and describe how plants, animals, and humans use rocks, soil, and water. <i>(Modified and moved from old K.7C)</i>
		11.B	Explain why water conservation is important. <i>(Topic moved from old 1.1.B)</i>
		11.C	Describe ways to conserve water such as turning off the faucet when brushing teeth and protect natural sources of water such as keeping trash out of bodies of water. <i>(Topic moved and expanded from old 1.1.B)</i>
(8)	<i>Earth and space. The student knows that the natural world includes the air around us and objects in the sky. The student is expected to:</i>		
8A	Record weather information, including relative temperature such as hot or cold, clear or cloudy, calm or windy, and rainy or icy;	10.D	Describe and record observable characteristics of weather , including hot or cold, clear or cloudy, calm or windy, and rainy or icy, and explain the impact of weather on daily choices.
8B	Observe and record changes in the appearance of objects in the sky such as the Moon and stars, including the Sun; <i>(Topic now only at grades K and 2)</i>		

8C	Identify characteristics of the seasons of the year and day and night; and	9	Describe and predict the patterns of seasons of the year such as order of occurrence and changes in nature.
8D	Demonstrate that air is all around us and observe that wind is moving air. <i>(Modified and moved to new K.10C)</i>		

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?



BRAIN

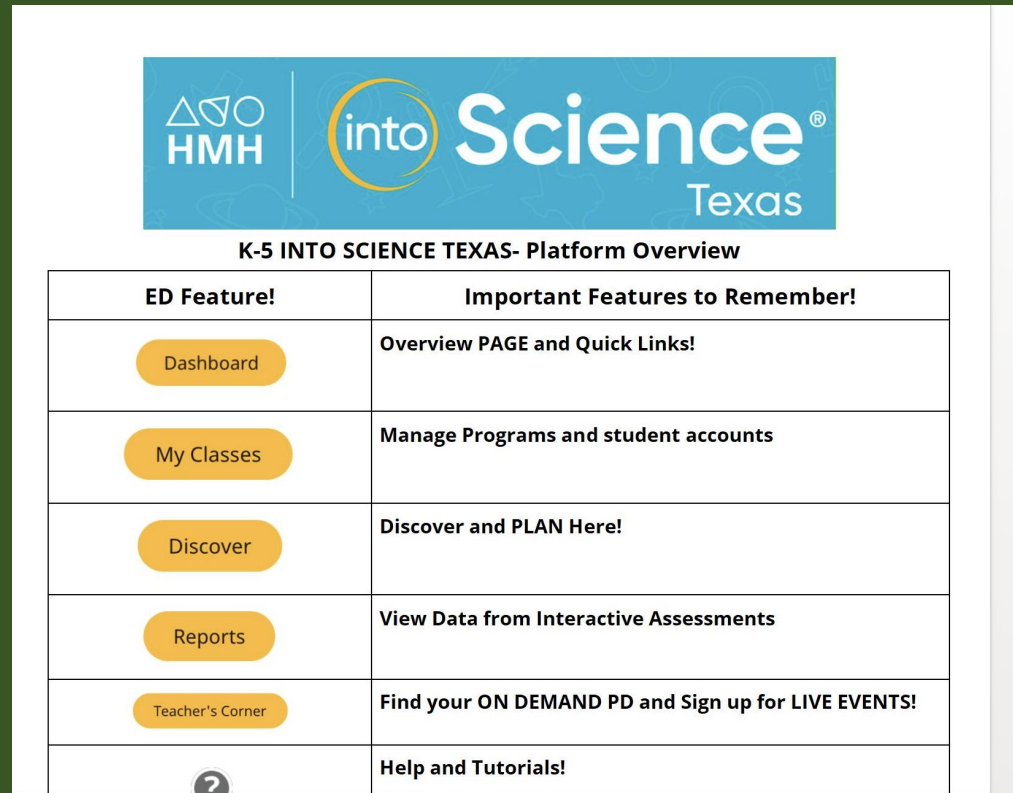


BREAK

10:00

HMH Scavenger Hunt

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



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

Stand tall. Keep your head
high. Smile. Laugh.
Give hugs... Lots of hugs.
You are a teacher.
You are a hero.

