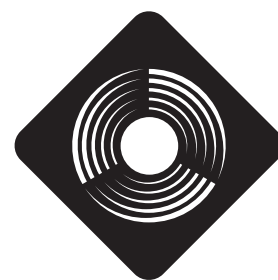


Teacher Resource Guide



RENEWABLE ENERGY
THE INFINITE POWER
OF TEXAS

For Middle School Units of Study

1.0 INTRODUCTION

The Infinite Power of Texas Units of Study were developed by the Texas State Energy Conservation Office (SECO) to provide educational resources for K-12 teachers on renewable energy and energy efficiency. The Units introduce students to concepts such as solar, wind and biomass energy, energy conservation in the home, and alternative vehicle power. The Units were created to address three grade-level groups: grades 4 and 5 (elementary Units), grades 6, 7 and 8 (middle school Units) and grades 9, 10, 11 and 12 (high school Units). This document provides an overview of the Middle School Units of Study. It describes the general structure of the

Units; explains in more detail some instructions provided in the Units; offers safety guidelines; identifies Texas Essential Knowledge and Skills (TEKS) addressed by each Unit; provides resources needed to complete the Units, including recommended Internet and other resources; and presents guidelines for creating rubrics.

1.1 Structure of the Units

The Units of Study are classified in the black bar on the top of every page according to whom the content is geared: the teacher (Teacher Overview or Teacher Answer Key) or the student (Reading Passage or Student Data Sheet). The following table summarizes the content of each section:

TABLE 1. Organization of Units

TEACHER OVERVIEW	
SECTION	DESCRIPTION
Overview	Summarizes the topic of the lesson and the activities involved
Objectives	Refers teacher to Teacher Resource Guide for TEKS objectives
Suggested Timeframe	Provides a daily breakdown of activities involved in the Unit that includes the amount of time each activity requires, the activity title and the content area. Teacher should note that the amounts of time printed are simply guidelines that often reflect the upper limit. Actual times will vary and may be shorter.
Required Materials	Materials needed for the various activities included in the Unit
Summary of Activities	Detailed instructions of each activity involved in the Unit. Typical structure is: <ul style="list-style-type: none"> • Teacher Introduction – includes anticipatory set • Assessment of Current Knowledge • Vocabulary Review and Reading Passage • Homework Assignment • Pre Lab • Lab • Internet Research (not included in all Units) • Post Lab or Group Presentations • Assessment • Additional Activity or Lab Extension
STUDENT DATA SHEETS	
Reading Passage	Grade appropriate 3-page write-up of the Unit's topic
Understanding the Reading Passage	Questions pertaining to information contained in the Reading Passage that students are required to answer to ascertain comprehension
Vocabulary	A list of key vocabulary words either contained in the Reading Passage or relevant to the Lab Activity
Lab Activity	Instructions for students to conduct the Lab Activity for the Unit
Lab Report Form	Format for Lab Activity to be photocopied or for students to copy into their science notebooks and complete as they conduct the activity (includes Data Tables and data summary questions)
Assessment Questions	A list of questions to be photocopied and distributed to each student to assess what the student has learned about the Unit's topic

2.0 GUIDELINES

Although the Units were designed to be stand-alone lessons, teachers are strongly encouraged to complete Unit No. 7 before proceeding to higher Units. Unit No. 7 offers a good introduction to the concepts of renewable energy that will provide the proper framework when studying later Units. Once Unit No. 7 has been completed, the remaining Units can be completed in any order. In general, the teacher should review the entire Unit beforehand. It is highly recommended that the teacher conduct the activity before the class does. Although a materials list is provided, the availability of materials may vary, which would require modifications to the setup and instructions that should be presented to the class.

All of the activities can be modified to be more general or more involved depending on the skill level and grade of the class. The Additional Activity section was included to provide teachers with the opportunity to explore a topic further. Often the additional activities offer alternative teaching methods to convey the Unit's subject and offer the students a chance to be more creative. These activities are listed after the Assessment and are therefore not covered in the Assessment Questions.

Some of the Units involve activities that require advanced preparation for the teacher to complete prior to beginning the Lab Activity. For example, the Lab Activity in Unit No. 10 requires materials that should be prepared by the teacher because the special preparation may not be appropriate for students to complete or may be too time consuming during class.

Most of the Units provide background information for the teacher about the topic taught in the Unit. This information is typically geared to inform the teacher about specific concepts that are discussed either in the Reading Passage or the Lab. The teacher can use this information when introducing the topic to the class.

The following sections address specific elements in the Units of Study.

2.1 Teacher Introduction/Anticipatory Set

The first activity involves introducing the Unit's topic of study to the class. Although the Units follow a simple approach where the teacher explains the subjects that will be covered, a more creative approach can be adopted instead. In order to spark the class' attention about the upcoming subject, an "attention-getter" activity or anticipatory set can be conducted. This anticipatory set should not only make the subject interesting to the class before they begin learning about it, but it should also relate how the subject affects their lives. Since teachers know best what will motivate their students, the anticipatory set is left to the teacher's creativity. Some suggestions include: quick experiment or demonstration of the technology or theories taught in the Unit; toys or gadgets reflecting the technology taught in the Unit such as a model solar car or mini-wind turbine (see Resources section for websites to get such gadgets); expert speaker "show & tell" (request a speaker to bring an interesting demonstration about

the subject being taught that will motivate the class to learn more about the subject; should be very brief and interactive); brief video about the particular concept or technology being taught; or a field trip to a facility that is involved in the technology taught in the Unit. For example, in Unit No. 15 (Biomass), the teacher can bring in a bag of varied trash items. "Wet" items could be placed in plastic bags. The teacher then displays the items on a table and asks the question, "What do all of these items have in common?" After students have correctly said they are waste material, garbage, etc., the teacher can ask, "Is there a way we can put these items to good use?" and see what students know about the subject. Once the class is engaged and ready to learn more, the teacher should summarize the activities involved in the Unit so the class will have an idea what to expect over the next few days.

2.2 Assessment of Current Student Knowledge

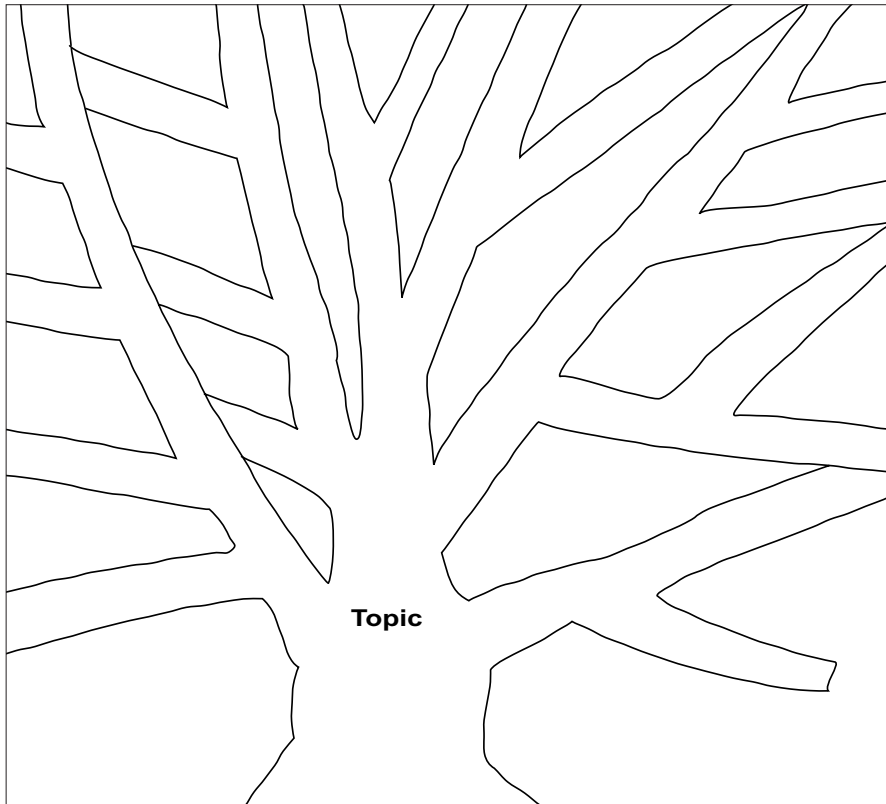
In order to better customize the lesson to the specific students being taught, the Units instruct the teacher to determine what the class already knows about the subject by asking several questions as part of a class discussion. Points of the discussion are then put into a graphic organizer. As an alternative, students could work in groups to answer these questions and create a graphic organizer that could be presented to the class. Students should record the graphic organizer in a notebook or learning journal and refer to it at the end of the Unit, thereby having a visualization of their learning trajectory from seeing what they knew before the Unit and what they know after completing the Unit. The teacher can also rephrase or modify the questions listed in the Unit to make them more investigative. For example in Unit No. 15, before asking how biomass can replace fossil fuels, ask the class to first differentiate between biomass and fossil fuels.

Another approach to the assessment is to begin with a short test that would precede the discussion. The pretest can include 5 brief questions, as simple or detailed as appropriate for the class, based on the suggested discussion questions to determine the students' existing knowledge of the subject.

2.2 Graphic Organizers

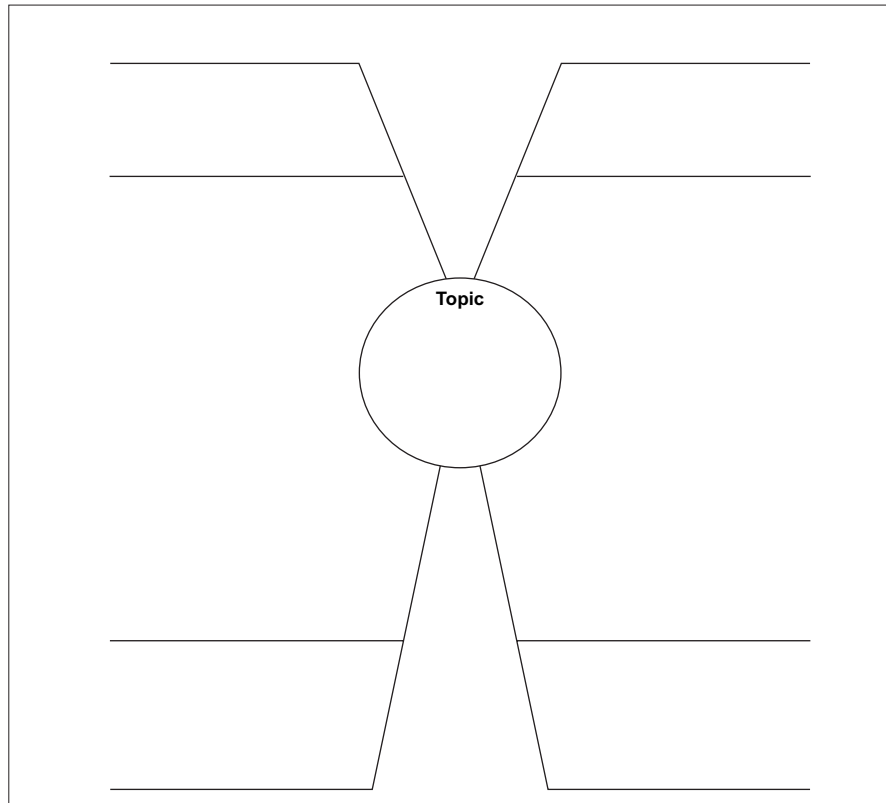
Graphic organizers, such as webs, are good tools to use allowing visual learners the opportunity to make connections to what they already know. Each Unit involves creating a graphic organizer in the Assessment of Current Student Knowledge activity to record what the students already know about a particular subject. The graphic organizer can be added to throughout the lesson or even throughout related Units. Organizers can be any shape or size and can be drawn quickly on the board or on a large sheet of paper. The teacher may want to use large sheets of paper so they can be saved, added to, and kept posted. As an alternative, transparencies may be made of the graphic organizers as well. Information should be added to the class-generated organizers as students make presentations. This is part of the teacher's on-going assessment and gets students focused on the lesson. See Figures 1 - 6 for sample graphic organizers, which can be photocopied and enlarged to create templates.

SAMPLE GRAPHIC ORGANIZERS



COPYRIGHT © HOUGHTON MIFFLIN COMPANY. ALL RIGHTS RESERVED

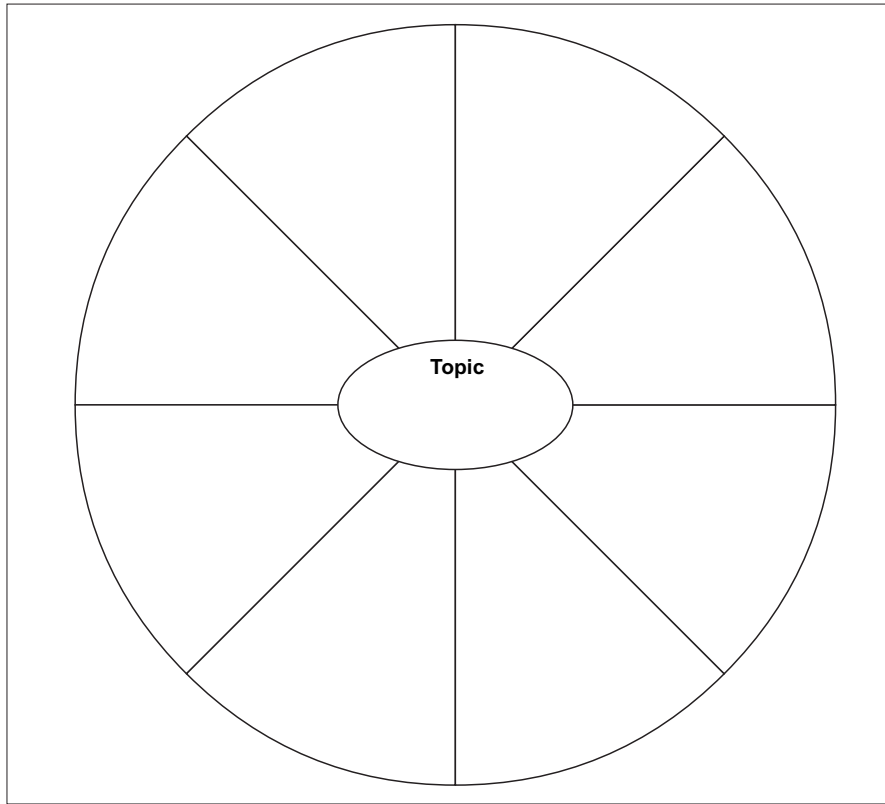
FIGURE 1. Tree Chart Write the details on the branches.



COPYRIGHT © HOUGHTON MIFFLIN COMPANY. ALL RIGHTS RESERVED

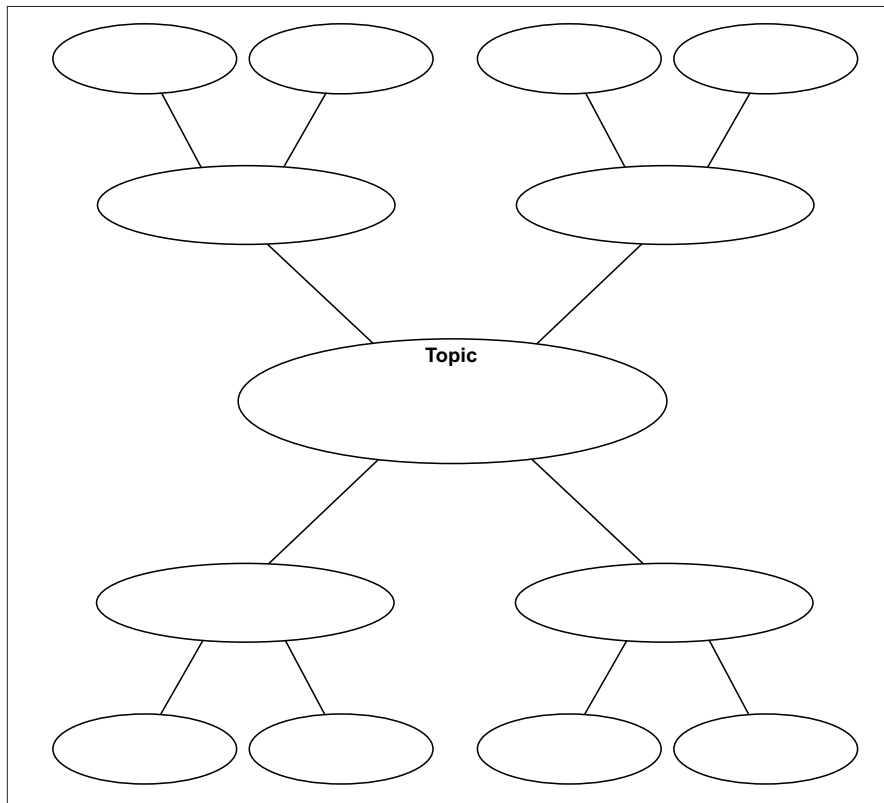
FIGURE 2. Spider Map Write main ideas on the slanted lines that connect to the circle. Write details on the branching lines.

SAMPLE GRAPHIC ORGANIZERS



COPYRIGHT © HOUGHTON MIFFLIN COMPANY. ALL RIGHTS RESERVED

FIGURE 3. Describing Wheel Add describing words about your topic between the spokes.



COPYRIGHT © HOUGHTON MIFFLIN COMPANY. ALL RIGHTS RESERVED

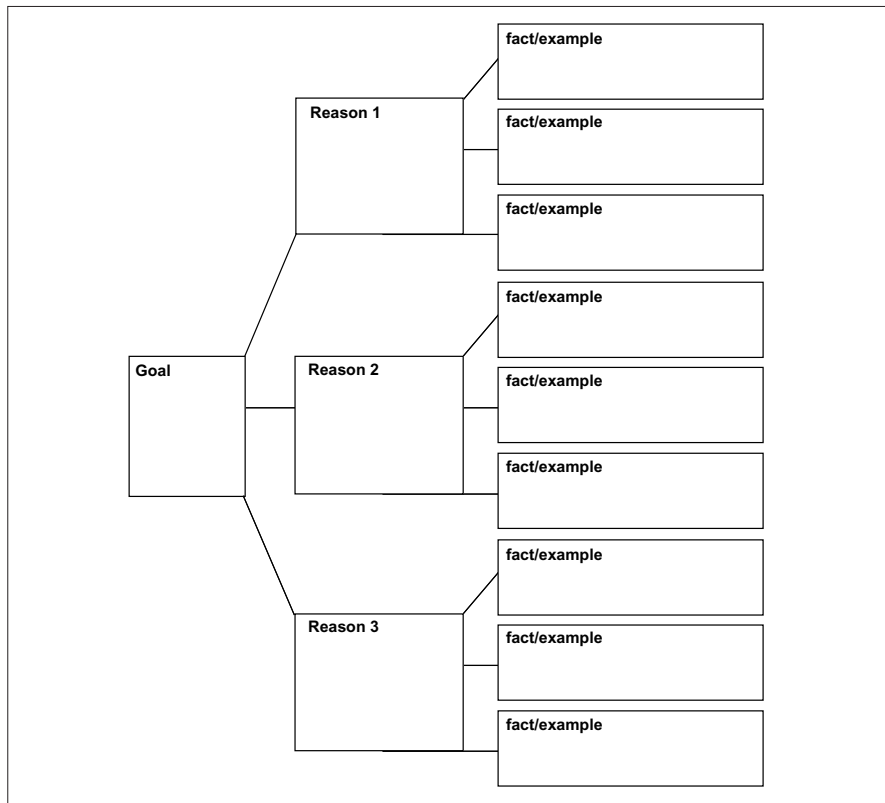
FIGURE 4. Cluster/Word Web 1 Write your topic in the center circle and details in the smaller circles. Add circles as needed.

SAMPLE GRAPHIC ORGANIZERS

Topic _____		
What I Know	What I Want to Know	What I Learned

COPYRIGHT © HOUGHTON MIFFLIN COMPANY. ALL RIGHTS RESERVED

FIGURE 5. KWL Before you begin your research, list details in the first two columns. Fill in the last column after completing your research.



COPYRIGHT © HOUGHTON MIFFLIN COMPANY. ALL RIGHTS RESERVED

FIGURE 6. Persuasion Map Write your goal in the first box. Write three reasons in the next boxes. List facts and examples in the branching boxes.

GENERAL GUIDELINES

2.3 Alternative Vocabulary Work

The traditional approach to learning vocabulary words relevant to the Unit's subject is included in the activity description; and as a homework assignment, students are instructed to create meaningful sentences using the words. However, as an alternative, teachers can instruct students to create sentences during class, and as a homework assignment instruct students to create a paragraph or two incorporating all of the vocabulary words. Remind students that sentences beginning with "Biomass is..." or "Renewable energy is..." are not considered meaningful and will not receive credit. An additional vocabulary alternative is to be more creative about getting students to understand the meaning of the words by instructing them to create a short story, a crossword puzzle, a word game, or a comic strip that incorporates as many words as possible.

Beginning conversations about the new vocabulary words should start out with a contextually relevant definition of the main topic of the unit. For instance, in Unit No. 10, "Solar Water Heaters," the students need to make a distinction between active and passive water heating systems. To bring the terms into the students' world, you can point out how they are *passively* listening and watching when they are sitting in front of the television set, as there is not movement or reaction that needs energy between them and the television. Similarly, a passive solar water heating system requires no moving parts and no external energy source, except the presence of the sun itself.

It can also be useful to simply break down new words into their component parts, which can help students discover they already have an understanding of the meaning of the word. For example, when studying biomass in Unit No. 15, "Biomass: Nature's Most Flexible Energy Resource," students should be able to relate to the prefix "bio" (indicating life or living organisms) from having heard of biology, biopsy or biological clock. They should certainly understand "mass" and therefore be able to intuit the meaning of the combined term.

2.4 Pre-Lab, Lab Activity and Post-Lab

During the Pre-Lab activity, the teacher should instruct students to review the entire Lab Activity so they will understand the purpose and the goals. To enhance the class' scientific inquiry in the Units, instruct students to develop statements for the following:

- hypothesis
- predictions
- conclusions
- significance/implications.

Note that the hypothesis and predictions should be made before beginning the Lab Activity. Students can record their hypotheses and predictions in their notebooks, on the board or on overhead transparency with the teacher.

During the Post-Lab, teachers are instructed to review students' results, graphs, data sheets and conclusions. The discussion should continue the scientific inquiry by asking such questions as: How is this science? Why is experimentation important in science? What hypotheses were supported and what ones were refuted? Why? What predictions were supported and what predictions were refuted? Why? Are mistakes a necessary part of science? Did everyone's data set look the same? Why or why not? According to research in the classroom, it is important that students discuss these items in order to understand the nature of science. Generally, these discussions must explicitly bring these points to the students' attention, as they will not tend to make these correlations on their own. Research conclusively tells us that teachers need to have guided discussions about the nature of science. Following are examples of discussion questions relevant to Unit No. 15:

- Does this laboratory exercise resemble what scientists do for research? Why or why not?
- How are measurements an important part of science?
- How is this Lab Activity science?
- How did this Lab Activity require you to think like a scientist?
- Take a look at the numbers from our classroom. What patterns do you see in the numbers? Why are all the kernels not the same size if they are the same corn species? (This could lead to a discussion of variability in plants).

Finally, during the Post-Lab, the teacher may also review implications about the experiment or activity that was conducted. For example, in Unit No. 15 a question addressing implications of the experiment could be, "How could biomass be valuable in larger Texas cities as opposed to rural communities?" The answer should involve air quality due to the reduction of fossil fuel use in cars.

Many of the Labs instruct students to graph their collected data to make conclusions about the experiment they conducted. The individual Units provide examples of graphs that can be created and indicate variables to be graphed on the x- and y-axes as well as suggest graph types. So that students understand how graphs can effectively convey information, have a discussion about the following: potential variables that can be plotted on the graph in order to effectively communicate the results of the lab; which variable is best plotted on the x-axis and which variable is best plotted on the y-axis; the most appropriate type of graph for the results obtained (bar, line, pie, etc.); and how the representation of the results may be changed by either plotting different variables or using a different graph type.

2.5 Library Research and Internet Research

Some Units include library or Internet research as either the main or additional activity. Before assigning students library research, meet with the librarian to determine the location and the type of books that are available regarding energy, the environment and

SAFETY GUIDELINES

sustainability. Additional resources are provided in this Guide; you may decide to order some of these publications for your library.

Before assigning students Internet research, learn about your school's Internet access including any filters that might be installed to prevent access to inappropriate websites. Most Internet research is assigned as group work to allow students to collaborate together and learn cooperative group skills. The teacher can determine the optimal number of students for a group depending on logistics of the computer lab, the number of computers and the class's skills.

The teacher should review with the class basic instructions on using search engines and provide search tips such as the use of quotations around word phrases or specifying the domain (.edu, .gov, etc.). Most search engines have options to perform advanced searches that provide a template for users to input specific information. Teacher can review the advanced options of a search engine with the class to refine their searches.

Suggested search engines:

www.google.com

www.altavista.com

www.yahoo.com and <http://yahooligans.yahoo.com/> ("web guide for kids")

<http://sunsite.berkeley.edu/KidsClick/> ("web search for kids by librarians")

3.0 SAFETY GUIDELINES

Standard science and lab safety guidelines should be followed if the teacher or school already has some in place. To take safety further, the teacher can develop a safety chart and safety contract listing basic expectations that would be signed by students individually.

The following laboratory management techniques are taken from the Texas Safety Standards for K-12 included in the Science TEKS Toolkits developed by the Charles A. Dana Center at the University of Texas.

1. Maintain fair and consistent classroom discipline to prevent unsafe conditions from being created during laboratory investigations.
2. Establish routine procedures for conducting a laboratory investigation that promote an orderly and safe environment. Ask different students in each laboratory group to obtain materials from a supply area, return materials at the completion of a laboratory investigation, and record data, if class data are needed.
3. Explain and post the expectations for orderly conduct in the classroom, laboratory, and field. Teachers should always model appropriate classroom, laboratory, and field procedures.
4. Explain and post safety rules for the classroom, laboratory, and field. Students and parents should complete and return a signed safety contract before students begin investigations.
5. Explain the consequences of unsafe behavior.
6. Before each laboratory investigation, review the safety rules for using laboratory equipment and facilities.
7. Prior to the investigation, arrange for the proper disposal of wastes.
8. Keep up with current information on safety and class procedures, and practice those procedures consistently.
9. Examine laboratory investigations and equipment for appropriateness and safety.
10. Review with the students the procedures for using the laboratory. Discuss safety rules and precautions before the investigation begins.
11. Promote a positive attitude. Students should not fear doing experiments, using reagents, or using equipment, but should have a positive attitude toward safe laboratory procedures.
12. Adjust procedures for students with emotional, physical, or educational problems to capitalize on the contributions they are able to make.
13. When a substitute teacher is in charge, create an alternate lesson plan that does not involve laboratory work.
14. Monitor continuously for maximized learning and safe conditions.
15. Plan post-lab activities for after the laboratory work has been completed.
16. Clean the work areas thoroughly and regularly.
17. Develop procedures to be followed in case of an accident.
18. Establish procedures for asking students to leave the laboratory when they demonstrate unacceptable behavior.

TEKS – GRADE 6

4.0 TEXAS ESSENTIAL KNOWLEDGE AND SKILLS

TABLE 2. Grade 6 TEKS Addressed

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SCIENCE										
6.1	Scientific processes. The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.									
	The student is expected to:									
	(A) demonstrate safe practices during field and laboratory investigations; and		x			x	x	x	x	x
	(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.		x			x	x	x	x	x
6.2	Scientific processes. The student uses scientific inquiry methods during field and laboratory investigations.									
	The student is expected to:									
	(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology;		x	x	x	x	x	x	x	x
	(B) collect data by observing and measuring;		x	x	x	x	x	x	x	x
	(C) analyze and interpret information to construct reasonable explanations from direct and indirect evidence;		x	x	x	x	x	x	x	x
	(D) communicate valid conclusions; and		x	x	x	x	x	x	x	x
	(E) construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.			x	x	x	x	x	x	
6.3	Scientific processes. The student uses critical thinking and scientific problem solving to make informed decisions.									
	The student is expected to:									
	(A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;		x	x	x	x	x	x	x	x
	(D) evaluate the impact of research on scientific thought, society, and the environment; and	x	x	x	x	x	x	x	x	x
6.4	Scientific processes. The student knows how to use a variety of tools and methods to conduct science inquiry.									
	The student is expected to:									
	(A) collect, analyze, and record information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, timing devices, hot plates, test tubes, safety goggles, spring scales, magnets, balances, microscopes, telescopes, thermometers, calculators, field equipment, compasses, computers, and computer probes; and		x		x	x	x	x	x	x
	(B) identify patterns in collected information using percent, average, range, and frequency.		x							x

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SCIENCE										
6.8	Science concepts. The student knows that complex interactions occur between matter and energy.									
	The student is expected to:									
	(A) define matter and energy;	x	x	x	x	x	x	x	x	x
	(B) explain and illustrate the interactions between matter and energy in the water cycle and in the decay of biomass such as in a compost bin; and	x								x
6.9	Science concepts. The student knows that obtaining, transforming, and distributing energy affects the environment.									
	The student is expected to:									
	(A) identify energy transformations occurring during the production of energy for human use such as electrical energy to heat energy or heat energy to electrical energy;	x		x	x	x	x	x	x	x
	(B) compare methods used for transforming energy in devices such as water heaters, cooling systems, or hydroelectric and wind power plants; and	x	x	x	x	x	x	x	x	x
	(C) research and describe energy types from their source to their use and determine if the type is renewable, non-renewable, or inexhaustible.	x	x	x	x	x	x	x	x	x
MATH										
6.2	Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve problems and justify solutions.									
	The student is expected to:									
	(A) model addition and subtraction situations involving fractions with objects, pictures, words, and numbers;		x		x	x	x	x	x	x
	(B) use addition and subtraction to solve problems involving fractions and decimals;		x		x	x	x	x	x	x
6.3	Patterns, relationships, and algebraic thinking. The student solves problems involving proportional relationships.									
	The student is expected to:									
	(A) use ratios to describe proportional situations;						x			x
	(B) represent ratios and percents with concrete models, fractions, and decimals; and						x			x
	(C) use ratios to make predictions in proportional situations.						x			x
(6.4)	Patterns, relationships, and algebraic thinking. The student uses letters as variables in mathematical expressions to describe how one quantity changes when a related quantity changes.									
	The student is expected to:									
	(A) use tables and symbols to represent and describe proportional and other relationships involving conversions, sequences, perimeter, area, etc.; and						x			x

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
MATH										
(6.5)	Patterns, relationships, and algebraic thinking. The student uses letters to represent an unknown in an equation.		x				x			
(6.8)	Measurement. The student solves application problems involving estimation and measurement of length, area, time, temperature, capacity, weight, and angles.									
	The student is expected to:									
	(A) estimate measurements and evaluate reasonableness of results;		x		x	x	x	x	x	x
	(B) select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter and circumference), area, time, temperature, capacity, and weight;		x		x	x	x	x	x	x
(6.10)	Probability and statistics. The student uses statistical representations to analyze data.									
	The student is expected to:									
	(A) draw and compare different graphical representations of the same data;				x	x	x	x	x	
	(D) solve problems by collecting, organizing, displaying, and interpreting data.		x	x	x	x	x	x	x	x
(6.11)	Underlying processes and mathematical tools. The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school.									
	The student is expected to:									
	(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and		x		x	x	x	x	x	x
	(B) evaluate the effectiveness of different representations to communicate ideas.		x		x	x	x	x	x	x
(6.13)	Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions.									
	The student is expected to:									
	(A) make conjectures from patterns or sets of examples and nonexamples; and			x						
	(B) validate his/her conclusions using mathematical properties and relationships.		x	x	x	x	x	x	x	x

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SOCIAL STUDIES										
(6.3)	Geography. The student uses maps, globes, graphs, charts, models, and databases to answer geographic questions.									
The student is expected to:										
	(A) create thematic maps, graphs, charts, models, and databases depicting various aspects of world regions and countries such as population, disease, and economic activities;			x						
	(B) pose and answer questions about geographic distributions and patterns for selected world regions and countries shown on maps, graphs, charts, models, and databases; and	x	x	x						x
	(C) compare selected world regions and countries using data from maps, graphs, charts, databases, and models.	x								
(6.4)	Geography. The student understands the characteristics and relative locations of major historical and contemporary societies.									
The student is expected to:										
	(D) identify and explain the geographic factors responsible for the location of economic activities in places and regions.	x								
(6.6)	Geography. The student understands the impact of physical processes on patterns in the environment.									
The student is expected to:										
	(B) describe and explain the physical processes that produce renewable and nonrenewable natural resources such as fossil fuels, fertile soils, and timber; and	x	x	x	x	x	x	x	x	x
	(C) analyze the effects of physical processes and the physical environment on humans.	x	x	x	x	x	x	x	x	x
(6.7)	Geography. The student understands the impact of interactions between people and the physical environment on the development of places and regions.									
The student is expected to:										
	(A) identify and analyze ways people have adapted to the physical environment in selected places and regions;	x	x	x						x
	(B) identify and analyze ways people have modified the physical environment; and	x								
	(C) describe ways in which technology influences human capacity to modify the physical environment.	x								

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SOCIAL STUDIES										
(6.20)	Science, technology, and society. The student understands the relationships among science and technology and political, economic, and social issues and events.									
The student is expected to:										
	(A) give examples of scientific discoveries and technological innovations, including the roles of scientists and inventors, that have transcended the boundaries of societies and have shaped the world;	x	x	x	x	x	x	x	x	x
	(B) explain how resources, belief systems, economic factors, and political decisions have affected the use of technology from place to place, culture to culture, and society to society; and	x	x	x	x	x	x	x	x	x
	(C) make predictions about future social, economic, and environmental consequences that may result from future scientific discoveries and technological innovations.	x	x	x	x	x	x	x	x	x
(6.21)	Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology.									
The student is expected to:										
	(A) differentiate between, locate, and use primary and secondary sources such as computer software; interviews; biographies; oral, print, and visual material; and artifacts to acquire information about selected world cultures;	x								
	(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;	x								
	(C) organize and interpret information from outlines, reports, databases, and visuals including graphs, charts, timelines, and maps;	x	x	x						x
	(D) identify different points of view about an issue or topic;	x								
	(F) use appropriate mathematical skills to interpret social studies information such as maps and graphs.	x	x	x						x
(6.23)	Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings.									
The student is expected to:										
	(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and	x	x	x	x	x	x	x	x	x
	(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.	x	x	x	x	x	x	x	x	x

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
	English Language Arts									
6.1	(6.1) Listening/speaking/purposes. The student listens actively and purposefully in a variety of settings.									
	The student is expected to:									
	(A) determine the purposes for listening such as to gain information, to solve problems, or to enjoy and appreciate (4-8);	x	x	x	x	x	x	x	x	x
	(C) understand the major ideas and supporting evidence in spoken messages (4-8); and	x	x	x	x	x	x	x	x	x
	(D) listen to learn by taking notes, organizing, and summarizing spoken ideas (6-8).	x	x	x	x	x	x	x	x	x
6.5	(6.5) Listening/speaking/audiences. The student speaks clearly and appropriately to different audiences for different purposes and occasions.									
	The student is expected to:									
	(A) adapt spoken language such as word choice, diction, and usage to the audience, purpose, and occasion (4-8);	x								
	(B) demonstrate effective communication skills that reflect such demands as interviewing, reporting, requesting, and providing information (4-8);	x								
	(D) generate criteria to evaluate his/her own oral presentations and the presentations of others (6-8);	x								
	(E) use effective rate, volume, pitch, and tone for the audience and setting (4-8); and	x								
	(F) clarify and support spoken ideas with evidence, elaborations, and examples (4-8).	x								
6.6	(6.6) Reading/word identification. The student uses a variety of word recognition strategies.									
	The student is expected to:									
	(A) apply knowledge of letter-sound correspondences, language structure, and context to recognize words (4-8);	x	x	x	x	x	x	x	x	x
	(C) locate the meanings, pronunciations, and derivations of unfamiliar words using dictionaries, glossaries, and other sources (4-8).	x	x	x	x	x	x	x	x	x
6.7	(6.7) Reading/fluency. The student reads with fluency and understanding in texts at appropriate difficulty levels.									
	The student is expected to:									
	(A) read regularly in independent-level materials (texts in which no more than approximately 1 in 20 words is difficult for the reader) (6);	x	x	x	x	x	x	x	x	x
	(B) read regularly in instructional-level materials that are challenging but manageable (texts in which no more than approximately 1 in 10 words is difficult for the reader) (6);	x	x	x	x	x	x	x	x	x

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
	(D) adjust reading rate based on purposes for reading (4-8);	x	x	x	x	x	x	x	x	x
	(F) read silently with increasing ease for longer periods (4-8).	x	x	x	x	x	x	x	x	x
6.8	(6.8) Reading/variety of texts. The student reads widely for different purposes in varied sources.									
The student is expected to:										
	(B) select varied sources such as plays, anthologies, novels, textbooks, poetry, newspapers, manuals, and electronic texts when reading for information or pleasure (6-8);	x	x	x	x	x	x	x	x	x
	(C) read for varied purposes such as to be informed, to be entertained, to appreciate the writer’s craft, and to discover models for his/her own writing (4-8); and	x	x	x	x	x	x	x	x	x
	(D) read to take action such as to complete forms, make informed recommendations, and write a response (6-8).	x	x	x	x	x	x	x	x	x
6.9	(6.9) Reading/vocabulary development. The student acquires an extensive vocabulary through reading and systematic word study.									
The student is expected to:										
	(C) use multiple reference aids, including a thesaurus, a synonym finder, a dictionary, and software, to clarify meanings and usage (4-8);	x	x	x	x	x	x	x	x	x
6.10	(6.10) Reading/comprehension. The student comprehends selections using a variety of strategies.									
The student is expected to:										
	(A) use his/her own knowledge and experience to comprehend (4-8);	x	x	x	x	x	x	x	x	x
	(B) establish and adjust purposes for reading such as reading to find out, to understand, to interpret, to enjoy, and to solve problems (4-8);	x	x	x	x	x	x	x	x	x
	(F) determine a text’s main (or major ideas) and how those ideas are supported with details (4-8);	x	x	x	x	x	x	x	x	x
	(G) paraphrase and summarize text to recall, inform, or organize ideas (4-8);	x	x	x	x	x	x	x	x	x
	(H) draw inferences such as conclusions or generalizations and support them with text evidence and experience (4-8);	x	x	x	x	x	x	x	x	x
	(K) answer different types and levels of questions such as open-ended, literal, and interpretative as well as test-like questions such as multiple choice, true-false, and short answer (4-8);	x	x	x	x	x	x	x	x	x
	(L) represent text information in different ways such as in outline, timeline, or graphic organizer (4-8); and	x	x	x	x	x	x	x	x	x
	(M) use study strategies to learn and recall important ideas from texts such as preview, question, reread, and record (6-8).	x	x	x	x	x	x	x	x	x

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
6.11	(6.11) Reading/literary response. The student expresses and supports responses to various types of texts.									
	The student is expected to:									
	(A) offer observations, make connections, react, speculate, interpret, and raise questions in response to texts (4-8);	x	x	x	x	x	x	x	x	x
	(B) interpret text ideas through such varied means as journal writing, discussion, enactment, and media (4-8);	x	x	x	x	x	x	x	x	x
6.13	(6.13) Reading/inquiry/research. The student inquires and conducts research using a variety of sources.									
	The student is expected to:									
	(A) form and revise questions for investigations, including questions arising from readings, assignments, and units of study (6-8);	x	x	x	x	x	x	x	x	x
	(B) use text organizers, including headings, graphic features, and tables of contents, to locate and organize information (4-8);	x	x	x	x	x	x	x	x	x
	(C) use multiple sources, including electronic texts, experts, and print resources, to locate information relevant to research questions (4-8);	x	x	x	x	x	x	x	x	x
	(D) interpret and use graphic sources of information such as maps, graphs, timelines, or tables to address research questions (4-8);	x	x	x	x	x	x	x	x	x
	(E) summarize and organize information from multiple sources by taking notes, outlining ideas, and making charts (4-8);	x	x	x	x	x	x	x	x	x
	(G) draw conclusions from information gathered from multiple sources (4-8);	x	x	x	x	x	x	x	x	x
	(I) present organized statements, reports, and speeches using visuals or media to support meaning, as appropriate (6-8),	x	x	x	x	x	x	x	x	x
6.15	(6.15) Writing/purposes. The student writes for a variety of audiences and purposes and in a variety of forms.									
	The student is expected to:									
	(A) write to express, discover, record, develop, reflect on ideas, and to problem solve (4-8);	x	x	x	x	x	x	x	x	x
	(C) write to inform such as to explain, describe, report, and narrate (4-8);	x	x	x	x	x	x	x	x	x

TEKS – GRADE 6

TEKS Grade 6	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
6.18	(6.18) Writing/writing process. The student selects and uses writing processes for self-initiated and assigned writing.									
The student is expected to:										
	(A) generate ideas and plans for writing by using prewriting strategies such as brainstorming, graphic organizers, notes, and logs (4-8);	x								
	(F) use available technology to support aspects of creating, revising, editing, and publishing texts (4-8);	x								
	(H) proofread his/her own writing and that of others (4-8); and	x								
	(I) select and use reference materials and resources as needed for writing, revising, and editing final drafts (4-8).	x								
6.20	(6.20) Writing/inquiry/research. The student uses writing as a tool for learning and research.									
The student is expected to:										
	(A) frame questions to direct research (4-8);	x								
	(B) organize prior knowledge about a topic in a variety of ways such as by producing a graphic organizer (4-8);	x								
	(C) take notes from relevant and authoritative sources such as guest speakers, periodicals, and on-line searches (4-8);	x								
	(D) summarize and organize ideas gained from multiple sources in useful ways such as outlines, conceptual maps, learning logs, and timelines (4-8);	x								
	(E) present information in various forms using available technology (4-8);	x								
	(F) evaluate his/her own research and raise new questions for further investigation (4-8); and	x								
	(G) follow accepted formats for writing research, including documenting sources (6-8).	x								
6.22	(6.22) Viewing/representing/interpretation. The student understands and interprets visual images, messages, and meanings.									
The student is expected to:										
	(B) interpret important events and ideas gathered from maps, charts, graphics, video segments, or technology presentations (4-8); and	x	x	x	x	x	x	x	x	x
6.24	(6.24) Viewing/representing/production. The student produces visual images, messages, and meanings that communicate with others.									
The student is expected to:										
	(A) select, organize, or produce visuals to complement and extend meanings (4-8);	x	x	x	x	x	x	x	x	x

TEKS – GRADE 7

TABLE 3. Grade 7 TEKS Addressed

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SCIENCE										
7.1	Scientific processes. The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.									
	(A) demonstrate safe practices during field and laboratory investigations; and		x		x	x	x	x	x	x
	(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.		x		x	x	x	x	x	x
7.2	Scientific processes. The student uses scientific inquiry methods during field and laboratory investigations.									
	(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology;		x	x	x	x	x	x	x	x
	(B) collect data by observing and measuring;		x		x	x	x	x	x	x
	(C) organize, analyze, make inferences, and predict trends from direct and indirect evidence;		x	x	x	x	x	x	x	x
	(D) communicate valid conclusions; and		x	x	x	x	x	x	x	x
	(E) construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.		x	x	x	x	x	x	x	x
7.3	Scientific processes. The student uses critical thinking and scientific problem solving to make informed decisions.									
	(A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	x	x	x	x	x	x	x	x	x
	(D) evaluate the impact of research on scientific thought, society, and the environment; and	x	x	x	x	x	x	x	x	x
7.4	Scientific processes. The student knows how to use tools and methods to conduct science inquiry.									
	(A) collect, analyze, and record information to explain a phenomenon using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, timing devices, magnets, and compasses; and		x		x	x	x	x	x	x
	(B) collect and analyze information to recognize patterns such as rates of change.		x	x	x	x	x	x	x	x
7.8	Science concepts. The student knows that complex interactions occur between matter and energy.									
	(A) illustrate examples of potential and kinetic energy in everyday life such as objects at rest, movement of geologic faults, and falling water; and		x							

TEKS – GRADE 7

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
MATH										
(7.1)	Number, operation, and quantitative reasoning. The student represents and uses numbers in a variety of equivalent forms.									
	(A) compare and order integers and positive rational numbers;		x	x	x	x	x	x	x	x
	(B) convert between fractions, decimals, whole numbers, and percents mentally, on paper, or with a calculator; and						x			x
(7.2)	Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, or divides to solve problems and justify solutions.									
	(A) represent multiplication and division situations involving fractions and decimals with concrete models, pictures, words, and numbers;		x				x			x
	(B) use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals;		x			x	x	x	x	x
	(D) use division to find unit rates and ratios in proportional relationships such as speed, density, price, recipes, and student-teacher ratio;		x				x			x
(7.3)	Patterns, relationships, and algebraic thinking. The student solves problems involving proportional relationships.									
	(A) estimate and find solutions to application problems involving percent; and		x							
	(B) estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units.		x				x			
(7.4)	Patterns, relationships, and algebraic thinking. The student represents a relationship in numerical, geometric, verbal, and symbolic form.									
	(A) generate formulas involving conversions, perimeter, area, circumference, volume, and scaling;						x			
	(B) graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling; and				x	x	x	x	x	x
	(C) describe the relationship between the terms in a sequence and their positions in the sequence.			x			x			x
(7.9)	Measurement. The student solves application problems involving estimation and measurement.									
	The student is expected to estimate measurements and solve application problems involving length (including perimeter and circumference), area, and volume.		x							
(7.11)	Probability and statistics. The student understands that the way a set of data is displayed influences its interpretation.									
	(A) select and use an appropriate representation for presenting collected data and justify the selection; and				x	x	x	x	x	
	(B) make inferences and convincing arguments based on an analysis of given or collected data.		x	x	x	x	x	x	x	x

TEKS – GRADE 7

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
MATH										
(7.12)	Probability and statistics. The student uses measures of central tendency and range to describe a set of data.									
	(A) describe a set of data using mean, median, mode, and range; and								x	x
(7.13)	Underlying processes and mathematical tools. The student applies Grade 7 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school.									
	(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and		x	x	x	x	x	x	x	x
	(B) evaluate the effectiveness of different representations to communicate ideas.		x	x	x	x	x	x	x	x
(7.15)	Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions.									
	(A) make conjectures from patterns or sets of examples and nonexamples; and			x			x		x	x
	(B) validate his/her conclusions using mathematical properties and relationships.			x			x		x	x
SOCIAL STUDIES										
(7.9)	Geography. The student understands the location and characteristics of places and regions of Texas.									
	(B) compare places and regions of Texas in terms of physical and human characteristics; and	x	x	x	x	x	x	x	x	x
	(C) analyze the effects of physical and human factors such as climate, weather, landforms, irrigation, transportation, and communication on major events in Texas.	x	x	x	x	x	x	x	x	x
(7.10)	Geography. The student understands the effects of the interaction between humans and the environment in Texas during the 19th and 20th centuries.									
	(A) identify ways in which Texans have adapted to and modified the environment and analyze the consequences of the modifications; and	x	x	x	x	x	x	x	x	x
	(B) explain ways in which geographic factors have affected the political, economic, and social development of Texas.	x	x							
(7.20)	Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on the political, economic, and social development of Texas.									
	(A) compare types and uses of technology, past and present;	x	x	x	x	x	x	x	x	x
	(C) analyze the effects of scientific discoveries and technological innovations, such as barbed wire, the windmill, and oil, gas, and aerospace industries, on the developments of Texas;	x	x	x	x	x	x	x	x	x

TEKS – GRADE 7

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SOCIAL STUDIES										
	(D) evaluate the effects of scientific discoveries and technological innovations on the use of resources such as fossil fuels, water, and land;	x	x	x	x	x	x	x	x	x
	(F) make predictions about economic, social, and environmental consequences that may result from future scientific discoveries and technological innovations.	x	x	x	x	x	x	x	x	x
(7.21)	Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology.									
	(A) differentiate between, locate, and use primary and secondary sources such as computer software, databases, media and news services, biographies, interviews, and artifacts to acquire information about Texas;	x								
	(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;	x								
	(C) organize and interpret information from outlines, reports, databases, and visuals including graphs, charts, timelines, and maps;	x	x	x						x
	(H) use appropriate mathematical skills to interpret social studies information such as maps and graphs.	x	x	x						x
(7.23)	Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings.									
	(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and	x	x	x	x	x	x	x	x	x
	(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.	x	x	x	x	x	x	x	x	x
LANGUAGE ARTS										
7.1	Listening/speaking/purposes. The student listens actively and purposefully in a variety of settings.									
	(A) determine the purposes for listening such as to gain information, to solve problems, or to enjoy and appreciate (4-8);	x	x	x	x	x	x	x	x	x
	(C) understand the major ideas and supporting evidence in spoken messages (4-8); and	x	x	x	x	x	x	x	x	x
	(D) listen to learn by taking notes, organizing, and summarizing spoken ideas (6-8).	x	x	x	x	x	x	x	x	x
	(E)									

TEKS – GRADE 7

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
7.5	Listening/speaking/audiences. The student speaks clearly and appropriately to different audiences for different purposes and occasions.									
	(A) adapt spoken language such as word choice, diction, and usage to the audience, purpose, and occasion (4-8);	x								
	(B) demonstrate effective communications skills that reflect such demands as interviewing, reporting, requesting, and providing information (4-8);	x								
	(C) present dramatic interpretations of experiences, stories, poems, or plays to communicate (4-8);	x								
	(D) generate criteria to evaluate his/her own oral presentations and the presentations of others (6-8);	x								
	(E) use effective rate, volume, pitch, and tone for the audience and setting (4-8); and	x								
	(F) clarify and support spoken ideas with evidence, elaborations, and examples (4-8).	x								
7.6	Reading/word identification. The student uses a variety of word recognition strategies.									
	(A) apply knowledge of letter-sound correspondences, language structure, and context to recognize words (4-8);	x	x	x	x	x	x	x	x	x
	(B) use structural analysis to identify words, including knowledge of Greek and Latin roots and prefixes/suffixes (7-8); and	x	x	x	x	x	x	x	x	x
	(C) locate the meanings, pronunciations, and derivations of unfamiliar words using dictionaries, glossaries, and other sources (4-8).	x	x	x	x	x	x	x	x	x
7.7	Reading/fluency. The student reads with fluency and understanding in texts at appropriate difficulty levels.									
	(A) read regularly in independent-level materials (texts in which no more than approximately 1 in 20 words is difficult for the reader) (7);	x	x	x	x	x	x	x	x	x
	(B) read regularly in instructional-level materials that are challenging but manageable (texts in which no more than approximately 1 in 10 words is difficult for the reader) (7);	x	x	x	x	x	x	x	x	x
	(C) adjust reading rate based on purposes for reading (4-8);	x	x	x	x	x	x	x	x	x
	(E) read silently with increasing ease for longer periods (4-8).	x	x	x	x	x	x	x	x	x
7.8	Reading/variety of texts. The student reads widely for different purposes in varied sources.									
	(B) select varied sources such as plays, anthologies, novels, textbooks, poetry, newspapers, manuals, and electronic texts when reading for information or pleasure (6-8);	x	x	x	x	x	x	x	x	x
	(C) read for varied purposes such as to be informed, to be entertained, to appreciate the writer's craft, and to discover models for his/her own writing (4-8); and	x	x	x	x	x	x	x	x	x

TEKS – GRADE 7

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
	(D) read to take action such as to complete forms, make informed recommendations, and write a response (6-8).	x	x	x	x	x	x	x	x	x
7.9	Reading/vocabulary development. The student acquires an extensive vocabulary through reading and systematic word study.									
	(C) use multiple reference aids, including a thesaurus, a synonym finder, a dictionary, and software, to clarify meaning and usage (4-8);	x	x	x	x	x	x	x	x	x
7.10	Reading/comprehension. The student uses a variety of strategies to comprehend a wide range of texts of increasing levels of difficulty.									
	(A) use his/her own knowledge and experience to comprehend (4-8);	x	x	x	x	x	x	x	x	x
	(B) establish and adjust purposes for reading such as reading to find out, to understand, to interpret, to enjoy, and to solve problems (4-8);	x	x	x	x	x	x	x	x	x
	(F) determine a text's main (or major) ideas and how those ideas are supported with details (4-8);	x	x	x	x	x	x	x	x	x
	(G) paraphrase and summarize text to recall, inform, or organize ideas (4-8);	x	x	x	x	x	x	x	x	x
	(H) draw inferences such as conclusions or generalizations and support them with text evidence and experience (4-8);	x	x	x	x	x	x	x	x	x
	(K) answer different types and levels of questions such as open-ended, literal, and interpretative as well as test-like questions such as multiple choice, true-false, and short answer (4-8);	x	x	x	x	x	x	x	x	x
	(L) represent text information in different ways such as in outline, timeline, or graphic organizer (4-8); and	x	x	x	x	x	x	x	x	x
	(M) use study strategies to learn and recall important ideas from texts such as preview, question, reread, and record (6-8).	x	x	x	x	x	x	x	x	x
7.11	Reading/literary response. The student expresses and supports responses to various types of texts.									
	(A) offer observations, make connections, react, speculate, interpret, and raise questions in response to texts (4-8);	x	x	x	x	x	x	x	x	x
	(B) interpret text ideas through such varied means journal writing, discussion, enactment, and media (4-8);	x	x	x	x	x	x	x	x	x
	(C) support responses by referring to relevant aspects of text and his/her own experiences (4-8); and	x	x	x	x	x	x	x	x	x
	(D) connect, compare, and contrast ideas, themes, and issues across text (4-8).	x	x	x	x	x	x	x	x	x
7.13	Reading/inquiry/research. The student inquires and conducts research using a variety of sources.									
	(A) form and revise questions for investigations, including questions arising from readings, assignments, and units of study (6-8);	x	x	x	x	x	x	x	x	x

TEKS – GRADE 7

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
	(B) use text organizers, including headings, graphic features, and tables of contents, to locate and organize information (4-8);	x	x	x	x	x	x	x	x	x
	(C) use multiple sources, including electronic texts, experts, and print resources, to locate information relevant to research questions (4-8);	x	x	x	x	x	x	x	x	x
	(D) interpret and use graphic sources of information such as maps, graphs, timelines or tables to address research questions (4-8);	x	x	x	x	x	x	x	x	x
	(E) summarize and organize information from multiple sources by taking notes, outlining ideas, and making charts (4-8);	x	x	x	x	x	x	x	x	x
	(F) produce research projects and reports in effective formats for various audiences (6-8);	x	x	x	x	x	x	x	x	x
	(G) draw conclusions from information gathered from multiple sources (4-8);	x	x	x	x	x	x	x	x	x
	(H) use compiled information and knowledge to raise additional, unanswered questions (3-8); and	x	x	x	x	x	x	x	x	x
	(I) present organized statements, reports, and speeches using visuals or media to support meaning (6-8).	x	x	x	x	x	x	x	x	x
7.18	Writing/writing processes. The student selects and uses writing processes for self-initiated and assigned writing.									
	(A) generate ideas and plans for writing by using prewriting strategies such as brainstorming, graphic organizers, notes, and logs (4-8);	x								
	(F) use available technology to support aspects of creating, revising, editing, and publishing texts (4-8);	x								
	(H) proofread his/her own writing and that of others (4-8); and	x								
	(I) select and use reference materials and resources as needed for writing, revising, and editing final drafts (4-8).	x								
7.20	Writing/inquiry/research. The student uses writing as a tool for learning and research.									
	(A) frame questions to direct research (4-8);	x								
	(B) organize prior knowledge about a topic in a variety of ways such as by producing a graphic organizer (4-8);	x								
	(C) take notes from relevant and authoritative sources such as guest speakers, periodicals, and on-line searches (4-8);	x								
	(D) summarize and organize ideas gained from multiple sources in useful ways such as outlines, conceptual maps, learning logs, and timelines (4-8);	x								
	(E) present information in various forms using available technology (4-8);	x								
	(F) evaluate his/her own research and frame new questions for further investigation (4-8); and	x								

TEKS – GRADE 7

TEKS Grade 7	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
7.22	Viewing/representing/interpretation. The student understands and interprets visual images, messages, and meanings.									
	(B) interpret important events and ideas gathered from maps, charts, graphics, video segments, or technology presentations (4-8); and	x	x	x	x	x	x	x	x	x
7.24	Viewing/representing/production. The student produces visual images, messages, and meanings that communicate with others.									
	(A) select, organize, or produce visuals to complement and extend meanings (4-8);	x								
	(B) produce communications using technology or appropriate media such as developing a class newspaper, multimedia reports, or video reports (4-8); and	x								

TEKS – GRADE 8

TABLE 4. Grade 8 TEKS Addressed

TEKS Grade 8	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SCIENCE										
8.1	Scientific processes. The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.									
	(A) demonstrate safe practices during field and laboratory investigations; and		x		x	x	x	x	x	x
	(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.		x		x	x	x	x	x	x
8.2	Scientific processes. The student uses scientific inquiry methods during field and laboratory investigations.									
	(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology;		x	x	x	x	x	x	x	x
	(B) collect data by observing and measuring;		x		x	x	x	x	x	x
	(C) organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence;		x	x	x	x	x	x	x	x
	(D) communicate valid conclusions; and		x	x	x	x	x	x	x	x
	(E) construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.		x	x	x	x	x	x	x	x
8.3	Scientific processes. The student uses critical thinking and scientific problem solving to make informed decisions.									
	(A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	x	x	x	x	x	x	x	x	x
	(D) evaluate the impact of research on scientific thought, society, and the environment; and	x	x	x	x	x	x	x	x	x
8.4	Scientific processes. The student knows how to use a variety of tools and methods to conduct science inquiry.									
	(A) collect, record, and analyze information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, water test kits, and timing devices; and		x		x	x	x	x	x	x
	(B) extrapolate from collected information to make predictions.		x	x	x	x	x	x	x	x
(8.10)	Science concepts. The student knows that complex interactions occur between matter and energy.									
	(B) describe interactions among solar, weather, and ocean systems; and	x	x	x	x	x	x	x	x	x

TEKS – GRADE 8

TEKS Grade 8	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
MATH										
(8.1)	Number, operation, and quantitative reasoning. The student understands that different forms of numbers are appropriate for different situations.									
	(A) compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals;			x						x
	(B) select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships;						x			x
(8.2)	Number, operation, and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions.									
	(B) add, subtract, multiply, and divide rational numbers in problem situations;		x	x		x	x	x	x	x
	(D) use multiplication by a constant factor (unit rate) to represent proportional relationships; for example, the arm span of a gibbon is about 1.4 times its height, $a = 1.4h$.		x				x			
(8.3)	Patterns, relationships, and algebraic thinking. The student identifies proportional relationships in problem situations and solves problems.									
	(A) compare and contrast proportional and non-proportional relationships; and		x				x			
	(B) estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates.		x				x			
(8.4)	Patterns, relationships, and algebraic thinking. The student makes connections among various representations of a numerical relationship.				x	x	x	x	x	
	The student is expected to generate a different representation given one representation of data such as a table, graph, equation, or verbal description.									
(8.5)	Patterns, relationships, and algebraic thinking. The student uses graphs, tables, and algebraic representations to make predictions and solve problems.									
	(A) estimate, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations; and		x							
(8.12)	Probability and statistics. The student uses statistical procedures to describe data.									
	(C) construct circle graphs, bar graphs, and histograms, with and without technology.				x	x	x	x	x	
(8.16)	Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions.									
	(A) make conjectures from patterns or sets of examples and nonexamples; and			x						x
	(B) validate his/her conclusions using mathematical properties and relationships.		x	x	x	x	x	x	x	x

TEKS – GRADE 8

TEKS Grade 8	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SOCIAL STUDIES										
(8.10)	Geography. The student uses geographic tools to collect, analyze, and interpret data.									
	(A) create thematic maps, graphs, charts, models, and databases representing various aspects of the United States; and			x						
	(B) pose and answer questions about geographic distributions and patterns shown on maps, graphs, charts, models, and databases.	x		x						
(8.11)	Geography. The student understands the location and characteristics of places and regions of the United States, past and present.									
	(B) compare places and regions of the United States in terms of physical and human characteristics; and	x	x	x						x
(8.12)	Geography. The student understands the physical characteristics of the United States during the 18th and 19th centuries and how humans adapted to and modified the environment.									
	(B) describe the consequences of human modification of the physical environment of the United States; and	x								
(8.29)	Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on daily life in the United States.									
	(A) compare the effects of scientific discoveries and technological innovations that have influenced daily life in different periods in U.S. history;	x	x							
	(B) describe how scientific ideas influenced technological developments during different periods in U.S. history; and	x	x							
(8.30)	Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology.									
	(A) differentiate between, locate, and use primary and secondary sources such as computer software, databases, media and news services, biographies, interviews, and artifacts to acquire information about the United States;	x								
	(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;	x								
	(C) organize and interpret information from outlines, reports, databases, and visuals including graphs, charts, timelines, and maps;	x	x	x						x
	(H) use appropriate mathematical skills to interpret social studies information such as maps and graphs.	x	x	x						x

TEKS – GRADE 8

TEKS Grade 8	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SOCIAL STUDIES										
(8.32)	Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings.									
	(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and	x	x	x	x	x	x	x	x	x
	(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.	x	x	x	x	x	x	x	x	x
LANGUAGE ARTS										
-8.1	Listening/speaking/purposes. The student listens actively and purposefully in a variety of settings.									
	(A) determine the purposes for listening such as to gain information, to solve problems, or to enjoy and appreciate (4-8);	x	x	x	x	x	x	x	x	x
	(C) understand the major ideas and supporting evidence in spoken messages (4-8); and	x	x	x	x	x	x	x	x	x
	(D) listen to learn by taking notes, organizing, and summarizing spoken ideas (6-8).	x	x	x	x	x	x	x	x	x
-8.5	Listening/speaking/audiences. The student speaks clearly and appropriately to different audiences for different purposes and occasions.									
	(A) adapt spoken language such as word choice, diction, and usage to the audience, purpose, and occasion (4-8);	x								
	(B) demonstrate effective communications skills that reflect such demands as interviewing, reporting, requesting, and providing information (4-8);	x								
	(E) use effective rate, volume, pitch, and tone for the audience and setting (4-8); and	x								
	(F) clarify and support spoken ideas with evidence, elaborations, and examples (4-8).	x								
-8.6	Reading/word identification. The student uses a variety of word recognition strategies.									
	(A) apply knowledge of letter-sound correspondences, language structure, and context to recognize words (4-8);	x	x	x	x	x	x	x	x	x
	(C) locate the meanings, pronunciations, and derivations of unfamiliar words using dictionaries, glossaries, and other sources (4-8).	x	x	x	x	x	x	x	x	x
-8.7	Reading/fluency. The student reads with fluency and understanding in texts at appropriate difficulty levels.									
	(A) read regularly in independent-level materials (texts in which approximately no more than 1 in 20 words is difficult for the reader) (8);	x	x	x	x	x	x	x	x	x

TEKS – GRADE 8

TEKS Grade 8	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
	(B) read regularly in instructional-level materials that are challenging but manageable (texts in which no more than approximately 1 in 10 words is difficult for the reader) (8);	x	x	x	x	x	x	x	x	x
	(C) adjust reading rate based on purposes for reading (4-8);	x	x	x	x	x	x	x	x	x
	(E) read silently with increasing ease for longer periods (4-8).	x	x	x	x	x	x	x	x	x
-8.8	Reading/variety of texts. The student reads widely for different purposes in varied sources.									
	(B) select varied sources such as plays, anthologies, novels, textbooks, poetry, newspapers, manuals, and electronic texts when reading for information or pleasure (6-8);	x	x	x	x	x	x	x	x	x
	(C) read for varied purposes such as to be informed, to be entertained, to appreciate the writer's craft, and to discover models for his/her own writing (4-8); and	x	x	x	x	x	x	x	x	x
	(D) read to take action such as to complete forms, to make informed recommendations, and write a response (6-8).	x	x	x	x	x	x	x	x	x
-8.9	Reading/vocabulary development. The student acquires an extensive vocabulary through reading and systematic word study.									
	(C) use multiple reference aids, including a thesaurus, a synonym finder, a dictionary, and software, to clarify meanings and usage (4-8);	x	x	x	x	x	x	x	x	x
-8.10	Reading/comprehension. The student comprehends selections using a variety of strategies.									
	(A) use his/her own knowledge and experience to comprehend (4-8);	x	x	x	x	x	x	x	x	x
	(B) establish and adjust purposes for reading such as reading to find out, to understand, to interpret, to enjoy, and to solve problems (4-8);	x	x	x	x	x	x	x	x	x
	(F) determine a text's main (or major) ideas and how those ideas are supported with details (4-8);	x	x	x	x	x	x	x	x	x
	(G) paraphrase and summarize text to recall, inform, or organize ideas (4-8);	x	x	x	x	x	x	x	x	x
	(H) draw inferences such as conclusions or generalizations and support them with text evidence and experience (4-8);	x	x	x	x	x	x	x	x	x
	(K) answer different types and levels of questions such as open-ended, literal, and interpretative as well as test-like questions such as multiple choice, true-false, and short answer (4-8);	x	x	x	x	x	x	x	x	x
	(L) represent text information in different ways such as in outline, timeline, or graphic organizer (4-8); and	x	x	x	x	x	x	x	x	x
	(M) use study strategies to learn and recall important ideas from texts such as preview, question, reread, and record (6-8).	x	x	x	x	x	x	x	x	x

TEKS – GRADE 8

TEKS Grade 8	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
-8.11	Reading/literary response. The student expresses and supports responses to various types of texts.									
	(A) offer observations, make connections, react, speculate, interpret, and raise questions in response to texts (4-8);	x	x	x	x	x	x	x	x	x
	(B) interpret text ideas through such varied means as journal writing, discussion, enactment, and media (4-8);	x	x	x	x	x	x	x	x	x
-8.13	Reading/inquiry/research. The student inquires and conducts research using a variety of sources.									
	(A) form and revise questions for investigations, including questions arising from readings, assignments, and units of study (6-8);	x	x	x	x	x	x	x	x	x
	(B) use text organizers, including headings, graphic features, and tables of contents, to locate and organize information (4-8);	x	x	x	x	x	x	x	x	x
	(C) use multiple sources, including electronic texts, experts, and print resources, to locate information relevant to research questions (4-8);	x	x	x	x	x	x	x	x	x
	(D) interpret and use graphic sources of information such as maps, graphs, timelines, or tables to address research questions (4-8);	x	x	x	x	x	x	x	x	x
	(E) summarize record and organize information from multiple sources by taking notes, outlining ideas, and making charts (4-8);	x	x	x	x	x	x	x	x	x
	(F) produce research projects and reports in effective formats for various audiences (6-8);	x	x	x	x	x	x	x	x	x
	(G) draw conclusions from information gathered from multiple sources (4-8);	x	x	x	x	x	x	x	x	x
	(H) use compiled information and knowledge to raise additional, unanswered questions (3-8); and	x	x	x	x	x	x	x	x	x
	(I) present organized statements, reports, and speeches using visuals or media to support meaning (6-8).	x	x	x	x	x	x	x	x	x
8.15	Writing/purposes. The student writes for a variety of audiences and purposes and in a variety of forms.									
	(A) write to express, discover, record, develop, reflect on ideas, and to problem solve (4-8);	x	x	x	x	x	x	x	x	x
	(C) write to inform such as to explain, describe, report, and narrate (4-8);	x	x	x	x	x	x	x	x	x
8.18	Writing/processes. The student selects and uses writing processes for self-initiated and assigned writing.									
	(A) generate ideas and plans for writing by using prewriting strategies such as brainstorming, graphic organizers, notes, and logs (4-8);	x								
	(F) use available technology to support aspects of creating, revising, editing, and publishing texts (4-8);	x								

TEKS – GRADE 8 AND RESOURCES

TEKS Grade 8	Description	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
LANGUAGE ARTS										
	(H) proofread his/her own writing and that of others (4-8); and	x								
	(I) select and use reference materials and resources as needed for writing, revising, and editing final drafts (4-8).	x								
8.20	Writing/inquiry/research. The student uses writing as a tool for learning and research.									
	(A) frame questions to direct research (4-8);	x								
	(B) organize prior knowledge about a topic in a variety of ways such as by producing a graphic organizer (4-8);	x	x	x	x	x	x	x	x	x
	(C) take notes from relevant and authoritative sources such as guest speakers, periodicals, and on-line searches (4-8);	x								
	(D) summarize and organize ideas gained from multiple sources in useful ways such as outlines, conceptual maps, learning logs, and timelines (4-8);	x								
	(E) present information in various forms using available technology (4-8);	x								
8.22	Viewing/representing/interpretation. The student understands and interprets visual images, messages, and meanings.									
	(B) interpret important events and ideas gathered from maps, charts, graphics, video segments, or technology presentations (4-8); and	x	x	x	x	x	x	x	x	x

5.0 RESOURCES

5.1 Recommended Reading

Art of Natural Building: Design, Construction, Resources, Joseph F. Kennedy et al, New Society, 2002

Energy for Keeps: Electricity from Renewable Energy, written and published by Educators for the Environment, 2003

Exploring Energy: Energy from the Sun, Jan Burgess, Schoolhouse Press, 1988

Exploring Energy: Wind and Water Power, Philip Sauvain, Schoolhouse Press, 1988

From Space to Earth: The Story of Solar Electricity, John Perlin, Aatec Publications

Green by Design: Creating a Home for Sustainable Living, Angela Dean, Gibbs Smith, 2003

Heaven's Flame: A Guide to Solar Cookers, Joseph Radabaugh, Home Power Publishing, 1998

Real Goods Solar Living Source Book 12th Edition, John Schaeffer, Executive Editor, Real Goods, 2004

Solar Water Heating Systems, Active and Passive, US Department of Energy (available by calling 900-523-2929)

The Fuel Savers: A Kit of Solar Ideas for Your Home, Bruce Anderson, Real Goods, 2002

The New Natural House Book, David Pearson, Simon & Schuster, 1998

The Return of the Solar Cat Book, Jim Augustyn and Hildy Paige Burns, Patty Paw Press, 2003

The Solar Electric House : Energy for the Environmentally Responsive, Energy-Independent Home, Steven J. Strong and William G Scheller, Sustainability Press, 1994

The Solar House: Passive Heating and Cooling, Daniel D. Chiras, Ph.D., Chelsea Green, 2002

The Wind at Work : An Activity Guide to Windmills, Gretchen Woelfle, Chicago Review Press, 1997

Wind Energy Basics, Paul Gipe, Chelsea Green Publishing, 1999

INTERNET RESOURCES

5.2 Internet Resources

TABLE 5. Suggested Websites

Organization	Website	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
SECO Infinite Power of TX	http://www.InfinitePower.org	x	x	x	x	x	x	x	x	x
TX Solar Energy Society	http://www.txses.org	x	x	x	x	x	x	x	x	x
U.S. DOE - Energy Efficiency and Renewable Energy (EERE) for Educators	http://www.eere.energy.gov/education/	x	x	x	x	x	x	x	x	x
U.S. DOE - Energy Efficiency and Renewable Energy for Students*	http://www.eere.energy.gov/kids/	x	x	x	x	x	x	x	x	x
TERI - The Energy Resource Institute - Edugreen Program*	http://www.edugreen.teri.res.in/explore/n_renew/energy.htm	x	x	x	x	x	x	x	x	x
US DOE Energy Information Agency - Energy Kids Page*	http://www.eia.doe.gov/kids/energyfacts/index.html	x	x	x	x	x	x	x	x	x
Union of Concerned Scientists	www.ucsusa.org	x	x	x	x	x	x	x	x	x
Rocky Mountain Institute - Home Page	www.rmi.org	x	x	x	x	x		x	x	
Rocky Mountain Institute - Kids Page*	www.rmi.org/sitepages/pid468.php	x	x	x	x	x		x	x	
US DOE EERE - State Energy Information	http://www.eere.energy.gov/state_energy/mystate.cfm?state=tx	x	x	x	x	x		x	x	x
Alternative Energy Institute - Windenergy.org	http://www.windenergy.org/	x	x							
American Wind Energy Association - TX Projects Page	http://www.awea.org/projects/texas.html	x	x							
American Wind Energy Association	http://www.awea.org	x	x							
National Renewable Energy Labs - Wind Energy	http://www.nrel.gov/clean_energy/wind.html	x	x							
US DOE EERE - Wind Energy	http://www.eere.energy.gov/RE/wind.html	x	x							
Florida Solar Energy Center	www.fsec.ucf.edu	x		x	x	x	x	x	x	
American Solar Energy Society - general information	http://www.ases.org	x		x	x	x	x	x		
US DOE EERE - Photovoltaics	http://www.eere.energy.gov/RE/solar_photovoltaics.html	x		x						
National Renewable Energy Labs - Photovoltaics	http://www.nrel.gov/clean_energy/photovoltaic.html	x		x						
US EPA - Air Pollutants (Particulate Matter)	http://www.epa.gov/ebtpages/airairpollutantsparticulatematterpm.html			x						
U.S. DOE - Energy Efficiency and Renewable Energy - Solar Water Heaters	http://www.eere.energy.gov/RE/solar_hotwater.html	x			x	x				
Alliance to Save Energy - Educators Page	http://www.ase.org/section/_audience/educators/	x							x	

INTERNET RESOURCES

Organization	Website	Unit No. 7	Unit No. 8	Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No. 14	Unit No. 15
Alliance to Save Energy - Kids Page*	http://www.ase.org/section/_audience/consumers/kids/	x							x	
Watt Watchers of Texas - Saving Energy in Schools	www.wattwatchers.org	x							x	
US Geological Survey - Energy Resources Program	http://energy.usgs.gov/	x								
National Renewable Energy Labs - Passive Solar for Educators	http://www.nrel.gov/clean_energy/teach_passive.html	x						x		
National Renewable Energy Labs - Biomass Energy	http://www.nrel.gov/clean_energy/bioenergy.html	x								x
US DOE EERE - Bioenergy	http://www.eere.energy.gov/RE/bioenergy.html	x								x
US DOE EERE - Hydropower	http://www.eere.energy.gov/RE/hydropower.html	x								
National Renewable Energy Labs - Hydroelectric Power	http://www.nrel.gov/clean_energy/hydroelectric_power.html	x								
US DOE EERE - Geothermal Energy	http://www.eere.energy.gov/geothermal/	x								
National Renewable Energy Labs - Geothermal Energy	http://www.nrel.gov/clean_energy/geothermal.html	x								
US DOE EERE - Tidal/Ocean Energy	http://www.eere.energy.gov/RE/ocean_tidal.html	x								
United Kingdom - Department of Trade & Industry - Tidal Energy	http://www.dti.gov.uk/renewable/tidal.html	x								
California Energy Commission - Ocean Energy	http://www.energy.ca.gov/development/oceanenergy/	x								
U.S. Green Buildings Council	http://www.usgbc.org/							x	x	
Solar Cookers International	http://solarcookers.org/						x			
SunGravity Online - by Sunstove Organization	http://www.sungravity.com/solar_cooking_overview.html						x			
* Website geared specifically for students										

5.3 Additional Resources

There are many resources for additional information and materials on renewable energy and energy-efficiency from organizations, public agencies and supply companies some of which are free and some of which can be purchased. Below are a few suggestions:

- Pitsco (educational tools and kits for renewable energy and energy education including solar cells, model wind turbines, etc.) www.pitsco.com (items to be purchased)
- Edmunds Scientific www.scientificsonline.com
- Texas State Energy Conservation Office, www.seco.cpa.state.tx.us
- U.S. Environmental Protection Agency, www.epa.gov/teachers
- U.S. Department of Education, www.eere.energy.gov/education
- Watt Watchers, a free, state sponsored program designed to help school districts save energy dollars by enlisting students to look for energy waste in their schools by patrolling the hallways looking for empty classrooms with the lights on. <http://wattwatchers.org>

RUBRICS

6.0 RUBRICS

In order for the teacher and students to have the same understanding of how students' performance will be assessed or how grades will be assigned in each Unit, the class can develop rubrics. Specific expectations can be identified for each Unit. Table 6 provides a generic template that can be modified as a class for each Unit.

TABLE 6. Template Rubric

Activity	5 points– Exceptional (Advanced)	3 points – Satisfactory (Acceptable and Developing)	1 point – Unsatisfactory (Beginning)
<p>1. Vocabulary:</p> <p>a. In-class: Did the student complete the vocabulary assignment?</p> <p>b. Homework: Did the student complete the vocabulary homework assignment (paragraph, creative writing, etc.)</p>	<p>a. Yes, student defined all the vocabulary words correctly.</p> <p>b. Yes, student completed the homework assignment displaying an understanding of the words.</p>	<p>a. Yes, student attempted to define all the vocabulary words but some of the definitions were vague.</p> <p>b. Yes, student used most of the words in the writing assignment, but some words were not used correctly or did not show a depth of understanding.</p>	<p>a. No, student did not define all the vocabulary words.</p> <p>b. No, student did not complete the assignment, used few words in the writing assignment, or showed a lack of understanding of the words.</p>
<p>2. Reading Passage and Questions:</p> <p>Did the student accurately complete the assignment?</p>	<ul style="list-style-type: none"> Yes, student completed the assignment: reading the required passage and answering questions. Questions were answered in complete sentences where called for and accurately addressed all of the major points including more. 	<ul style="list-style-type: none"> Yes, student completed the assignment: reading the required passage and answering questions. Most of the questions were answered in complete sentences where called for and accurately addressed most of the major points. 	<ul style="list-style-type: none"> No, student did not complete the assignment. Student either did not read the required passage or did not answer all of the required questions. Questions were not answered in complete sentences where called for and did not accurately address the required points.
<p>3. Lab Activity:</p> <p>a. Individual – did the student understand, complete the assignment, and contribute effectively to the group?</p> <p>b. Group – did the group work well together to complete the assignment?</p>	<p>a. Yes, student participated enthusiastically in the activity and following instructions; data/information gathered was appropriate; the data was accurately recorded and organized with tables, graphs, or drawings (if required); the results were summarized correctly in sentence form.</p> <p>b. Yes, all students enthusiastically participated; responsibility for task was shared evenly; group members performed roles (if assigned) effectively.</p>	<p>a. Yes, student had minimal participation in the activity and followed most instructions correctly; data/information was gathered but with some errors; the data was recorded and organized with tables, graphs, or drawings (if required) but with some errors; the results were summarized.</p> <p>b. Yes, all or most students participated; responsibility for task was shared by most group members; some ability to interact; group members did not consistently adhere to roles (if assigned).</p>	<p>a. No, student had little or no participation in the activity or did not follow the instructions correctly; data/information was not gathered; little or no data was recorded and organized with tables, graphs, or drawings (if required); the results were not summarized.</p> <p>b. No, less than half of the students participated; exclusive reliance on one or few team members; little interaction, brief conversations; some students were disinterested or distracted; no effort was made to adhere to roles (if assigned).</p>

RUBRICS

Activity	5 points– Exceptional (Advanced)	3 points – Satisfactory (Acceptable and Developing)	1 point – Unsatisfactory (Beginning)
<p>4. Internet Research Activity (if included):</p> <p>a. Individual – did the student understand, complete the assignment, and contribute effectively to the group?</p> <p>b. Group – did the group work well together to complete the assignment?</p>	<p>a. Yes, student participated enthusiastically in the activity and following instructions; information gathered was appropriate; information was organized and presented according to the instructions in a clear and concise manner.</p> <p>b. Yes, all students enthusiastically participated; responsibility for task was shared evenly.</p>	<p>a. Yes, student had minimal participation in the activity and followed most instructions correctly; some information was gathered but may not have been the most relevant; information was organized and presented according to the instructions but could have been clearer and more concise.</p> <p>b. Yes, all or most students participated; responsibility for task was shared by most group members; some ability to interact; group members did not consistently adhere to roles (if assigned).</p>	<p>a. No, student had little or no participation in the activity or did not follow the instructions correctly; little or no information was gathered; information was not organized and presented according to instructions.</p> <p>b. No, less than half of the students participated; exclusive reliance on one or few team members; little interaction, brief conversations; some students were disinterested or distracted; no effort was made to adhere to roles (if assigned).</p>
<p>5. Assessment:</p> <p>a. Short Answer Point assignment (2 points possible per question): 0 – student did not provide any answer for question; 1 – student attempted to answer question, but either not thoroughly or accurately; 2 – student answered the question thoroughly and correctly</p> <p>b. Multiple Choice Point assignment (1 point per question): 0 – student did not answer question correctly; 1 – student answered question correctly</p>	<p>a. 80% - 100% of total points possible (ex. 5 short answer questions, 10 points possible: 8 to 10 points were awarded to student).</p> <p>b. 80% - 100% of total points possible (ex. 10 short answer questions, 10 points possible: 8 to 10 questions were answered correctly).</p>	<p>a. 60% - 79% of total points possible (ex. 5 short answer questions, 10 points possible: 6 to 7 points were awarded to student).</p> <p>b. 60% - 79% of total points possible (ex. 10 short answer questions, 10 points possible: 6 to 7 questions were answered correctly).</p>	<p>a. Less than 60% of total points possible (ex. 5 short answer questions, 10 points possible: Less than 6 points were awarded to student).</p> <p>b. Less than 60% of total points possible (ex. 10 short answer questions, 10 points possible: less than 6 questions were answered correctly).</p>
<p>Total Scores:</p> <p>1. Vocabulary _____</p> <p>2. Reading Passage and Questions _____</p> <p>3. Lab Activity</p> <p>a. Individual _____</p> <p>b. Group _____</p> <p>4. Internet Research Activity</p> <p>a. Individual _____</p> <p>b. Group _____</p> <p>5. Assessment</p> <p>a. Short Answer _____</p> <p>b. Multiple Choice _____</p>			

InfinitePower.org

Financial Acknowledgement This publication was developed as part of the Renewable Energy Demonstration Program and was funded 100% with oil overcharge funds from the Exxon settlement as provided by the Texas State Energy Conservation Office and the U.S. Department of Energy. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.



RENEWABLE ENERGY
THE INFINITE POWER
OF TEXAS

State Energy Conservation Office

111 East 17th Street, Room 1114

Austin, Texas 78774

Ph. 800.531.5441 ext 31796

www.InfinitePower.org

Texas Comptroller of Public Accounts

Publication #96-1124 (03/05)