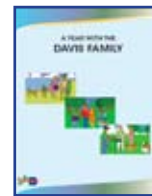
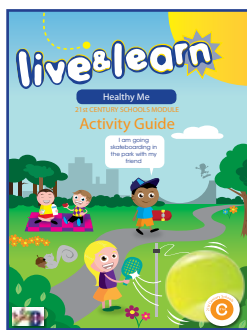
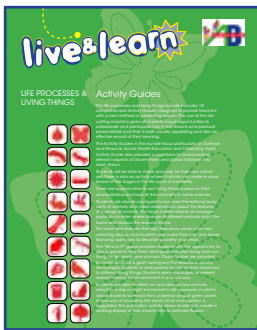
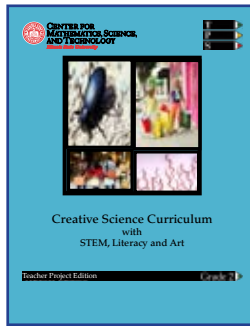
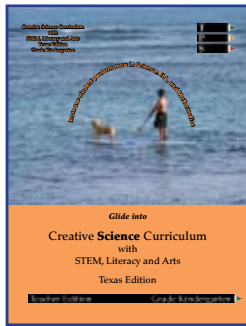


Creative Science Curriculum

with

STEM, Literacy and Arts TEXAS Edition K - 5.



Fully aligned to the
Texas Essential Knowledge and Skills for Science



TPS Publishing Inc. and Partners



TPS Publishing Inc. has been created and is owned predominantly by experienced teachers, specifically to improve the success of each student.

TPS believe that a strong teacher/parent/student relationship is integral to obtaining the best results by helping students to master the content and skills required by the Texas Essential Knowledge and Skills.



AB Curriculum has a vision to provide access to education for all students, for them to really enjoy learning and to become life long learners.

AB Curriculum help students to access learning through their fun, action based, and fully inclusive crafting and reader activity book materials.



The mission of CeMaST is to stimulate, conduct and support integrative science, technology, engineering and mathematics education activities. CeMaST has been building a national reputation for developing and supporting highly successful STEM activities and education.



Invicta Education has a product range, which takes children from familiar themes into new learning opportunities and experiences. Invicta products encourage students to observe and identify, investigate and collect, record, organize and analyze. Most importantly students are encouraged to take action for themselves.



Archway is a phonetic scheme designed to help people of all ages to read, write and spell. Archway uses games, DVDs, books, cards and exercises to help students develop their language skills.

All major components of the program are available in both print and digital format.

TPS Publishing Inc. and Partners



Ellison Educational Equipment is the pioneer and global market leader of die cutting products. Ellison take pride in delivering best of class, high quality products to meet the ever-changing demands of both the educational and arts industry.

Now generations of educators are able to tap into and leverage Ellison's award-winning education products and curriculum for their classroom teaching needs.



Musically Aligned is committed to providing valuable instructional resources that improve academic stimulation and achievement through the use of music.

The creators combined their passion for music and learning to create Musically Aligned, a standards-based educational music production and resource company that aligns original songs and materials to state academic standards.



Digital Frog International are an innovative and enthusiastic software company, dedicated to creating high-quality educational, multimedia programs with an ecological focus. Digital Frog International aim to make a difference to the way people view the natural world. The computer-based learning tools encourage a lifelong interest in, and respect for, the world around us. Providing accurate, detailed information in an interesting and engaging way.



Avimba's fantastic software enables the creation of a secure teacher, parent, student circle in which student work can be stored. Using this software all student work can be uploaded into a secure communal network in which teachers and parents can review the work, make comments and keep track of student progress. Students can also learn using the fun and educational Avimba apps.

Introduction

TPS Publishing Inc. and partners have constructed the 'Creative Science Curriculum with STEM, Literacy and Arts' program with the intent to enhance the Science learning and teaching in schools in your state.

Through adhering to the Texas Essential Knowledge and Skills student expectations and break outs for Science, the program presents Science as a way of thinking and learning, incorporating literacy skills necessary for academic success in acquiring Science as an academic language.

The program has been built through a collaborative effort by several companies, each of which have expertise in Science instructional design. They share a commitment to activity-based instruction. The diversity of writers and perspectives ensures that the material is inclusive.

We provide four key inquiry based component areas;

- **TPS Publishing Inc.** - Science is a Verb inquiry based laboratories written to introduce each science topic so that students and teachers see the science happen before using textbooks. Misconceptions are highlighted so they are not passed onto students.
- **TPS Publishing Inc.** - Traditional activity based lesson plans using manipulatives, provided by Invicta Education, exactly aligned to each TEKS.
- **STEM project based learning cycles** - Illinois State University provides wonderful activities, via learning cycles, especially useful as a visual assessment tool and for advanced learners covering a group of TEKS including Scientific Investigation and Reasoning.
- **Crafting projects** - Aligned to each of the K - 5 TEKS. TPS with Action Based Curriculum provide nasen approved projects which are a by TEKS visual assessment tool, and are inclusive but particularly useful for far below grade students, ELL and special education users.

Each set of lesson plans complement each other; together they cover the full criteria of your state requirements and offer a wonderful activity-based learning program with all writers basing content on grade specific literacy materials. Our team utilize a 'by breakout, by student expectation, by TEKS and or learning cycle structure', which engages students in active interaction with the content. This approach is based on the concept that we all learn best by doing, rather than simply listening or watching.

Our Professional Learning Opportunities also utilize the "learn by doing" philosophy and methodology. Participants understand the "how" and the "why" of the pedagogy by experiencing and engaging in Science.

Science is a Verb

Science is a Verb provide associate short labs, which help teachers to direct a science concept and engage students in hands-on interactive learning. This resource also provides support for teachers who are more comfortable with inquiry based learning.

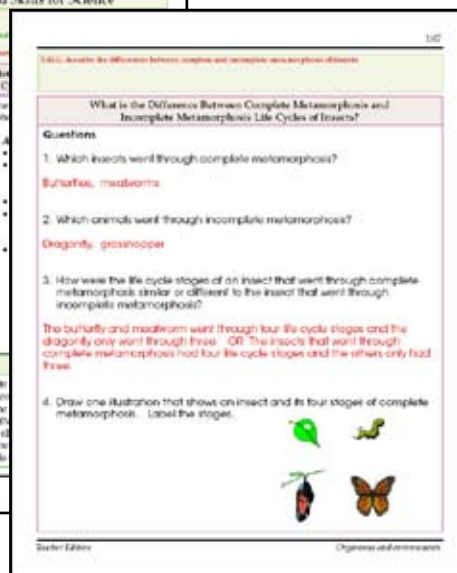
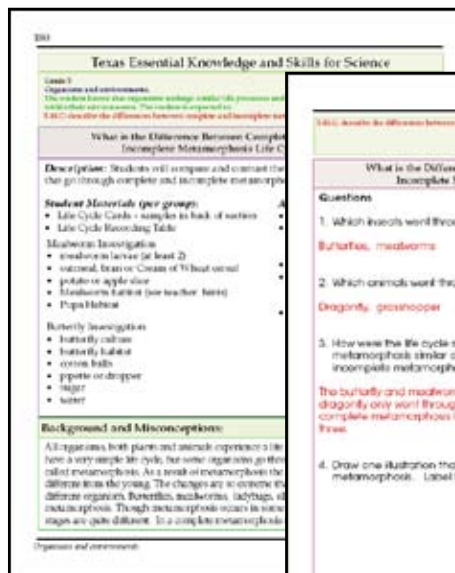
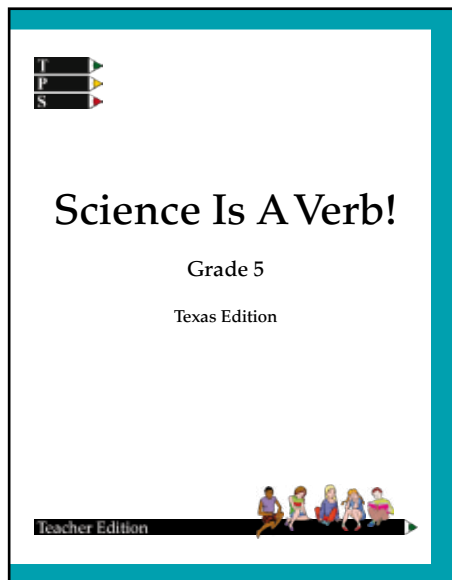
If you are a teacher who is taking their first “dive” into hands-on Science, the background material is designed to provide enough structure to help support the organization of the lab and its materials.

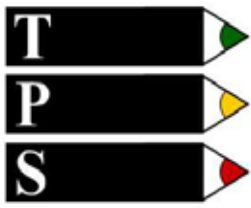
Most of the materials are commonly found in local supermarkets and department stores at a nominal cost.

Students are required to complete these short labs, yet the critical portion of any lab is to have a thorough discussion of the results and student thinking after the experiment is completed. It is suggested that you take as much time as the experiment to have this discussion with students. The real learning occurs not from the hands-on experiment, but from a deep discussion of the experiment, while making connections to the concept they are learning. Even without a strong Science background, get into the habit of asking questions.

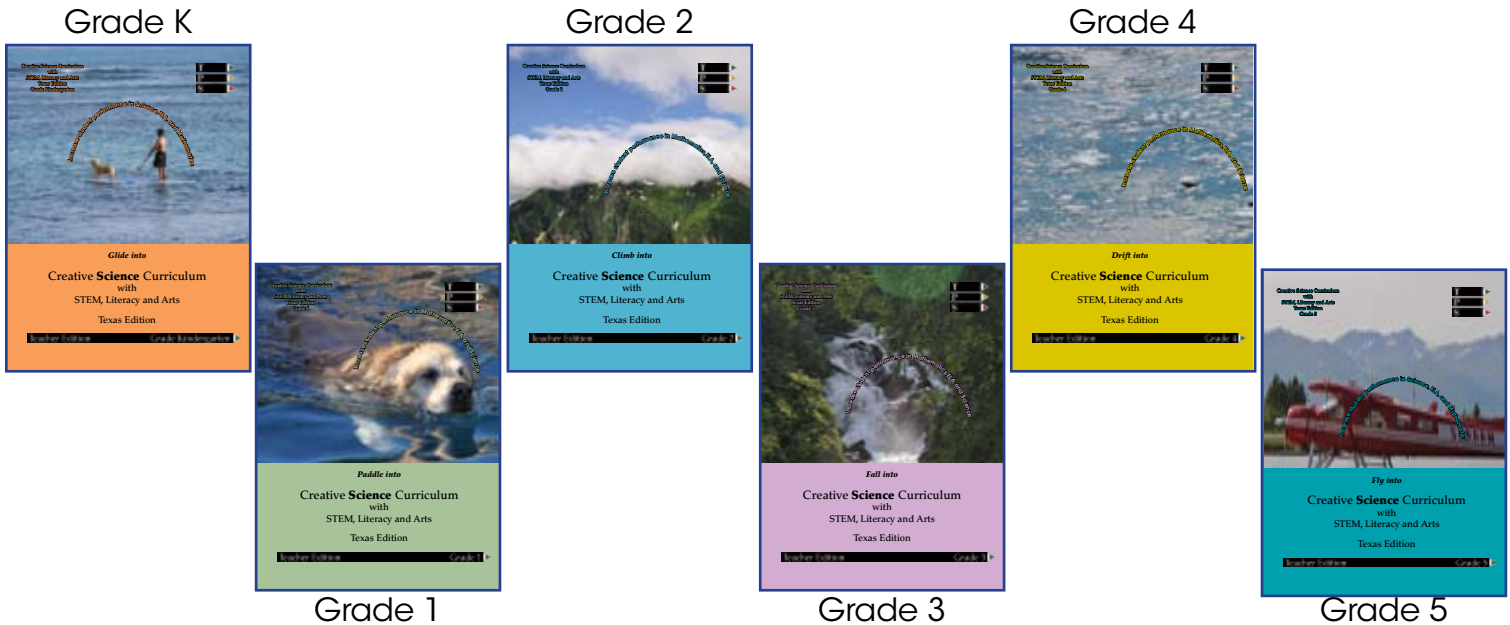
Science is a Verb is recommended as a way to teach basic science concepts. This can then be built on using the traditional lesson plans. Finally, we suggest that the STEM products are used as an assessment or review activity.

Just remember that Science is a VERB!





Teacher Textbook - Traditional Lesson Plans



The traditional textbooks provide the building blocks of our program and we provide a Teacher and Student Edition for each grade.

Arranged by grade and by strand, the textbook is organized specifically to empower teachers by building their knowledge and understanding of Science in a way that is comprehensive but does not sacrifice its integrity.

Features of the textbook are:

- Science language
- Time required to teach lesson
- Vocabulary
- Materials required
- Objective
- What students should know already
- Lesson structure with step by step Introduction, Middle, and Summary.
- Lesson activity
- Extension activity
- Support for SEN and ELL
- Teacher assessment notes - a table to make notes on student attainment
- Student exercises
- Common misconceptions
- In the classroom extensions
- In the home extensions

Texas Essential Knowledge and Skills for Science — Grade 4

Force, motion, and energy

The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:

4b6A: differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal

Energy

Objective

Students will differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal.

Scaffolding Information

This standard builds upon work students have covered on this topic in previous grades. Students should already know:

Grade Kindergarten

- about different forms of energy such as light, heat, and sound.

Grade 1

- that different forms of energy such as light, heat, and sound are important to everyday life.



molecule	the same substance
sound	- form of energy that makes noise
state	- whether something is a solid, liquid or a liquid
thermal energy	- heat
vibrate	- move back and forth rapidly
volume	- loudness of a sound

The TEKS, student expectations and breakouts are printed clearly at the beginning of each section.

The vocabulary required for the TEKS is included in the Science Language section. For teachers with ELL students this is a key component of the program. In the student textbook one full page is used to display the words. The vocabulary pages are included on the Blackline Master CD Rom. We encourage study of the Science vocabulary as homework.

Detailed step-by-step lesson plans are provided for every TEKS, student expectation and each breakout. The TEKS, student expectations and breakouts are printed on every page.

Support is provided for SEN and ELL students within each lesson plan.

Force, motion, and energy

4b6A: differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal

Investigation: Energy in a Car

(40 minutes)

Materials

- Books and encyclopedias with information about cars
- Access to the internet
- Student textbooks

Preparation

- Gather some resources with information about cars for students to use.
- Research a few sites on the internet which may be useful to students.

Activity

- Explain to students that this investigation is a research activity. Show them the outline of the car in their textbooks. Tell them that in a car they will find all the forms of energy that you have been talking about. The challenge is that they will do some research in their groups and pinpoint at least one instance of each form of energy. They will then write some notes around the picture to say what sort of energy is at work and what it is doing.

Force, motion, and energy

4b6A: differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal

Support

Some students will be distracted by the amount of information available to them. Emphasize the time limit and the fact that you want an answer for each form of energy. They can make their notes fuller if they like once they have found each energy form.

ELL:

These students are likely to find the research task challenging. Locate information books with suitable text for them, or allow them to focus on one form of energy. Accept very short answers, such as 'headlights – light'.

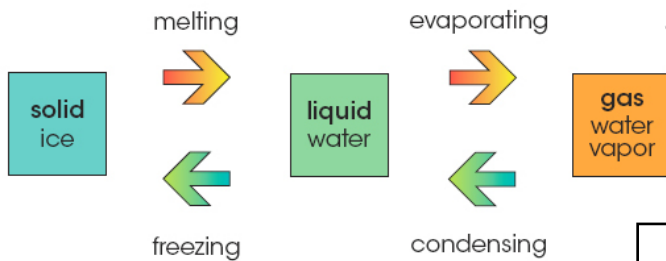
Teacher Textbook - Traditional Lesson Plans

32

Matter and Energy
1b5B: predict and identify changes in materials caused by heating and cooling such as ice melting, water freezing, and water evaporating

carefully. Under the cloud, there is an unseen layer of water vapor. Heating the liquid water makes it turn into the gas, water vapor. When a liquid turns into a gas, we say that it **evaporates**.

But what about that white cloud above the water vapor? If that's not a gas, what is it? That cloud is tiny drops of liquid water. As the water vapor cools, it turns into liquid again. When a gas turns into a liquid, we say that it **condenses**.



Strand 5 — Matter and Energy

Teache

Student exercises are visual and engaging. The teacher tips and answers are removed from the student sections.

Clear diagrams are provided and labeled.

Energy

The Science

Bring two magnets together.



Sometimes they pull together. When they pull, we say that they **attract**.

Sometimes they push away. When they push, we say that they **repel**.

The pull or the push is a **force**. **Magnetism** is a type of force.

Teacher Edition

Section 6 — Force, motion, and energy

Teacher Tip

Use two magnets. Ask students to predict what will happen when you bring them together in different ways. Repeat until everyone is confident of the answer in all cases.

Section 6 — Force, motion, and energy

Teacher Edition

Classroom activities can be completed using sharing boards, used throughout the program. This provides instant feedback for the teacher. Sharing boards can be bought or made cheaply.

Teacher tips are provided to help new teachers.


Student Textbook - Traditional Lesson Plans

43

Force, motion, and energy
1b6B: predict and describe how a magnet can be used to push or pull an object.

Investigation Science links
1b2A, 1b2E, 1b4A


Attracting and Repelling
Bring two magnets together like this.



What happens?
Circle one answer.

They attract. They repel.


Bring two magnets together like this.



What happens?
Circle one answer.

They attract.

Bring two magnets together like this.



What happens?
Circle one answer.

They attract.

Student Edition


Student exercises are visual and engaging. The teacher tips and answers are removed from the student sections.

46

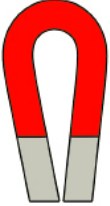
Force, motion, and energy
1b6B: predict and describe how a magnet can be used to push or pull an object.

Math Challenge Math links
1MD1

Circle the longest
Circle the shortest



Circle the widest
Circle the narrowest




Section 6 — Force, motion, and energy

38

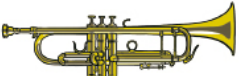
Force, motion, and energy
1b6A: identify and discuss how different forms of energy such as light, heat, and sound are important to everyday life.

Literacy Challenge ELA links
1b6D


Find the opposites.
Join them with a line.




light




quiet




cold



dark



noisy



hot

Section 6 — Force, motion, and energy *Student Edition*

Literacy and mathematics underpin the program. Students focus on key vocabulary in each strand and activities linked to both literacy and mathematics. Students perform better if they recognize and can apply science language and mathematics skills.

Student Textbook - Traditional Lesson Plans

Common Misconceptions

- Students may find the concept of energy puzzling because it cannot be seen. We cannot see energy, but we can see the effects of energy. It is these effects that we are observing.
- Although energy cannot be seen, we do see whether it is darker or lighter. Students may assume that this means that we 'see' light. In fact, we see the effect of the increase or decrease of light.
- Students may assume that the steam they see coming from something hot is heat. Establish that this is not the case because you cannot see heat. The steam is there because the material is hot, but it is not heat.
- Students may find the idea of *potential energy* within mechanical energy difficult to understand because they see energy as something that actively does visible work.

Common misconceptions highlight incorrect conclusions which can be made by students and advises ways to avoid these mistakes. Investigations provide more Science focused activities that can be used throughout the school day.

Force, motion, and energy
4b6A: differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal

Investigation: Energy in a Car
(40 minutes)

Materials

- Books and encyclopedias with information about cars
- Access to the internet
- Student textbooks

Preparation

1. Gather some resources with information about cars for students to use.
2. Research a few sites on the internet which may be useful to students.

Activity

1. Explain to students that this investigation is a research activity. Show them the outline of the car in their textbooks. Tell them that in a car they will find all the forms of energy.

At the end of each strand an At Home page appears. This page is provided so that families can work together to cover content.

At Home

- Talk about energy in different forms, including mechanical, sound, electrical, light, and heat/thermal. Point out some uses of energy to your child and ask them to spot others.

Force, motion, and energy
predict and describe how a magnet can be used to push or pull an object.

Key Words



Literacy underpins the program. Students focus on key vocabulary in each strand.

Students perform better if they recognize and can apply Science language

attract - pull

force - a push or a pull

magnet - a metal object which will attract magnetic objects

magnetism - the force that a magnet has

repel - push

Assessment Database

We encourage benchmark and continual assessment of each student by breakout, by student expectation, by TEKS, by grade. Effective and efficient instruction relies on accurate assessment. The Creative Science Curriculum encourages two types of assessment; visual lesson plan activities and quizzes/ tests. Visual assessment consists of watching students perform activities, such as found in STEM Project Editions or Arts projects. The Assessment Database houses over 2,200 assessment questions categorized by grade, TEKS, student expectation, breakout and ability level.

Open the assessment database. The first screen shows the grades available. Choose the grade to assess.

On the next screen select which TEKS you would like to assess on the left hand side.



In the center of the screen you can choose whether you want to use Below, At or Above grade questions. You can also select grades in this box.

Clicking the preview button shows the questions which you have chosen and the form the test will take including lines for the student to fill in their name and class.

In the right hand box questions are displayed on the standards you have selected. If you would like to remove a question simply uncheck the box.

Support Materials

TPS Publishing Inc. have worked with a number of partner companies to ensure this program is as comprehensive, inclusive and fun as possible!

Throughout the traditional teacher textbook, you will see various symbols. Each of these symbols represents one of our partner companies and shows that at this point, in alignment with that particular TEKS, student expectation and/or break out, there are appropriate support materials.

The Ellison logo is written in a black, cursive script font.

Ellison Educational Equipment is the pioneer and global market leader of die cutting products. Ellison takes pride in delivering best of class, high quality products to meet the ever-changing demands of both the educational and arts industry.

Ellison have created Modeling Science lesson plans and associated videos. These resources provide instruction to create a scientific representation from volcanoes to dioramas. Each lesson plan is aligned to a TEKS for grades K - 5 and also includes an ELPS connection.



Digital Frog International are an innovative, enthusiastic, software company, dedicated to creating high-quality educational, multimedia programs with an ecological focus. Digital Frog International have numerous interactive products including; Cell Matrix, Digital Frog and Rainforest Field Trip. Together we have ensured their products support varied TEKS throughout the grades 6 - 8.



TPS Publishing Inc. have developed short science lesson plans and activities, to support a variety of the grade K - 5 TEKS. These lesson plans use sports people to provide a real-life example of how life processes work, why energy, forces and motion are so important to human life, and how to develop fair tests in a scientific setting.



Musically Aligned is committed to providing valuable instructional resources that improve academic stimulation and achievement through the use of music. Each song helps to reinforce scientific concepts uses within each TEKS.

Modeling Science

Ellison Inc. are a well known provider of die cutting machine equipment and die shapes.

Ellison Inc. have created, from scratch, a series of lesson plans for teachers to review with or reteach students content of each strand K - 5.

A matching video for the teacher will hugely assist teachers who may be concerned with art. The die cutting machine does all the intricate work, and these communications based lesson plans with videos will greatly aid all struggling students.

Often making models will unravel misconceptions for students.

The low text results in all English Language Learners being able to master the science content through art projects. Ellison Inc. also include ELPS links in each lesson plan to ensure continued vocabulary learning.

Ellison®
Student Lesson

3-5 Plains Habitat Diorama

Use the Prairie Dog, Sunflower and Grasshopper to create dioramas of the plains habitat.

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS

- 112.14. Science, Grade 3
 - (9) Organisms and environments. The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to identify the flow of energy in a food chain.
- 112.15. Science, Grade 4
 - (9) Organisms and environments. The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to investigate that most producers need sunlight to make their own food, while consumers are dependent on other organisms for food.
 - (10) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to explore how adaptations enable organisms to survive in their environment.
- 112.16. Science, Grade 5
 - (9) Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain to consumers.

ENGLISH LANGUAGE PROFICIENCY STANDARDS

- 4.F.2. ELP T: K-12, S: 6-12
 - Cross-curricular second language acquisition/reading. The ELL reads a variety of texts for a variety of purposes with an increasing level of comprehension in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in reading. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For kindergarten and first grade, certain of these student expectations apply to text read aloud for students not yet at the stage of decoding written text. The student is expected to use visual and contextual support to enhance and confirm understanding.

OBJECTIVE

- Create dimensional displays to analyze and discuss relationships between organisms living in the plains habitat.

Continued

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Alignment to ELPS standards is referenced within each lesson plan.

More than just frogs & field trips

While we at Digital Frog International are known for frog dissections and digital field trips, our software covers much, much more. From anatomy to the flow of matter and energy. From evolution to geology, our software covers a wide range of topics you teach in your classroom. Use this chart to help you evaluate which product best fits with your curriculum needs.

THE HUMAN ORGANISM

SPECIFIC TOPICS	Digital Frog 2	Wetlands	Rainforest	Desert
BASIC FUNCTIONS				
Circulatory system	////			
Digestive system	////			
Musculoskeletal system	////			
Control system	////			
Immune system	////			
Urogenital system	////			
Endocrine system	////			
Respiratory system	////			
Nervous system	////			
Intercing systems	////			

The Digital Frog 2 looks at each frog system in detail & compares it to humans.

✓ - detailed study

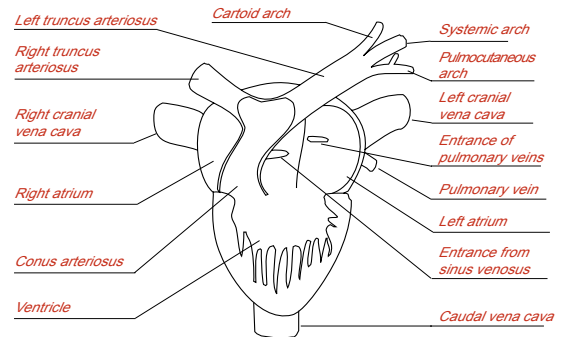
THE PHYSICAL SETTING

SPECIFIC TOPICS	Digital Frog 2	Wetlands	Rainforest	Desert
THE EARTH				
Water cycling & climate		✓	✓	✓
Fresh water sources & protection				✓
Ocean currents - climate				✓
Earth's resources & conservation		✓	✓	✓
Life's adaptations (gravity, atmosphere, sun's radiation)		✓	✓	✓
Weather & climate (winds & ocean currents)				✓
PROCESSES THAT SHAPE THE EARTH				
Rock classification				*
Plants & animals may cause change				✓
Waves, wind & water (erosion & deposition)				✓
Rock, minerals & soil				✓
Changes in earth's surface: slow & fast				*
Sedimentary rock				✓
Metamorphic rock				✓
Rock & its history: minerals, temperatures, forces				✓
Rock layers: folding, breaking, uplifting				✓
Soil composition			✓	✓
Human impact on the environment & ecosystems	✓		✓	✓
Plant's role in atmosphere		*		
Rock cycle				✓

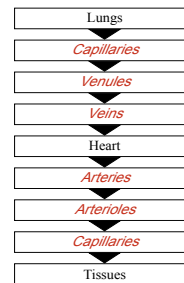
✓ - detailed study * - supporting material

2 • Circulatory System

4 The heart is a complex organ and the "heart" of the circulatory system. (It is interesting to note how the word has come to mean "center" or "most important part".) Review the animated diagram and label the parts of the heart.



5 Specify the order of blood vessels an oxygen molecule entering the lungs would pass through on the way to the tissues:



6 a. Which veins carry oxygenated blood?
Pulmonary veins (from lungs to heart)

b. Which arteries carry deoxygenated blood?
Pulmonary arteries (from heart to lungs)

7 Consider the plumbing in your house. The water enters under pressure and the waste water is drained using gravity and a series of valves to prevent backflow. If you imagine the house is a frog's body, this can be compared to the blood vessels.

The incoming pipes can be compared to the:

Arteries

The drainage system is similar to the:

Veins

The Digital Frog 2

THE DIGITAL FROG 2.5

Dissection, Anatomy and Physiology. Excellent P.C. based supplement or replacement for a wet lab.

Pupils interactively perform a full dissection guided by instructive text, images and full-screen videos. The accompanying anatomy and physiology section teaches the functioning of every major body system, with comparisons to human anatomy.

Key benefits that set DFI software apart

- meets a wide range of curriculum requirements at many grade levels
- makes Science fun and accessible
- engages pupils in a variety of learning activities
- interactive concept maps ensure users never get lost
- includes modifiable workbook materials
- definitions on every word and pronunciations for Scientific words accommodate readers of all levels
- built-in text-to-speech helps blind, ESL and auditory learners

SCIENCE MATRIX: CELL STRUCTURE & FUNCTION

Cells and their components are brought to life for primary and secondary school pupils with enquiry-based learning that both engages and informs. Includes integrated assessment and built-in universal accessibility. Named one of the world's five best e-Science multimedia products at the World Summit Awards.

THE DIGITAL FIELD TRIP SERIES

Each Digital Field Trip encourages pupils to explore and discover the wonders of various ecosystems, with interactive virtual reality, activities and dozens of content screens. Thematic treatments cover a range of curriculum topics.

- The Digital Field Trip to The Wetlands
 - The Digital Field Trip to The Rainforest
 - The Digital Field Trip to The Desert
- Each Digital Field Trip is available separately or bundled.



Musically Aligned



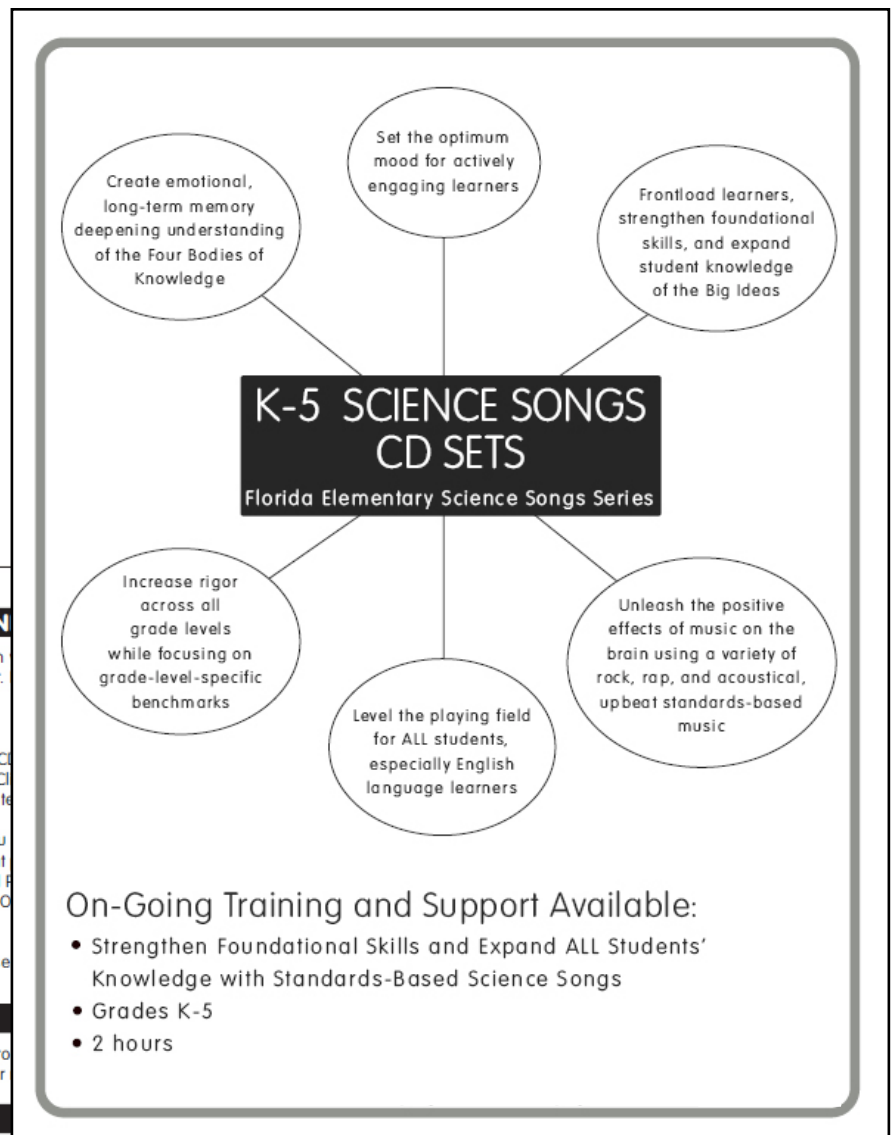
Musically Aligned has developed instructional science songs, which are aligned to the Texas Essential Knowledge and Skills for Grades K - 5.

There are up to 37 instructional science songs available depending upon the grade selected.

Each song can be delivered with the use of reproducible lyric sheets, which will enable all students to access the science content and vocabulary. Each song is also available as an instrumental version, which enables student ownership and/or performance!

Musically Aligned have developed their product using relevant implementation techniques created from research-based, classroom-tested methods.

Help students to have fun while learning science content and language!



VIEWING AND PRINTING FILES FROM YOUR ENHANCED CD

In order to view and print the Track Log and Implementation Pack from CD, you must have Adobe Acrobat Reader installed on your computer. free at: <http://www.adobe.com/downloads>

Instructions:

After you place the enhanced CD (the first CD in the set) into your CD/DVD drive, **Windows users** can right-click on the start menu and select explore. CD drive that shows SS4_FL_CD1. You should now be able to view the contents on the right half of the screen.

Mac users can double-click on the desktop icon titled SS4_FL_CD1. You should be able to view the contents of the CD in the default browser window that opens. **Both Windows and Mac:** You will notice 2 main folders: CD PLUS and CD PLUS folder and you should see the sub-folder titled SCIENCE SONGS EDITION. Open this folder and click on the file you wish to view.

* You may disregard the two files named info.cdp & Sub_info.us. These files and the entire PICTURES folder enable the CD to be enhanced.

TIP

DO THIS FIRST: Print a copy of the Track Log to facilitate navigating through the CD and track numbers are clearly listed in the Track Log. Treat this as your

GENERAL INFORMATION

Musically Aligned is committed to providing exceptional instructional resources that improve academic stimulation and achievement through music. Please e-mail questions to info@musicallyaligned.com. Each purchaser is entitled to make ONE BACK-UP copy of the materials included in case of future damage to originals. Additional replications are unauthorized without written consent from Musically Aligned. Permission requests may be sent to info@musicallyaligned.com. For a complete list of titles, inservices, and instructional resources please visit our website: www.musicallyaligned.com

Science with Literacy Activity Reader Book

Amelia Rose Explores

Amelia Rose Explores combines scientific concepts with literacy and art for grades K - 8.

We particularly recommend Amelia Rose Explores to be used with ELL, special education and below grade students within grades K - 5.

For grades K - 5 each TEKS is written to, with student expectations and breakouts also covered for K - 2. Each lesson plan includes a variety of approaches to the topic;

- Story - the students follow Amelia Rose through her own experiences, troubles and successes within her science learning experience.
- Let's Talk About It - discussion is a key part of all of our lesson plans. Students learn more effectively when they are able to speak to one another as well as their teachers.
- Let's Do It - mini activities, which keep the students focused and interested.

We believe that science is best learned when doing something.

- Stop, Look, Think! - students are required to spend time thinking about the topic of the lesson. This helps students to formulate their own thoughts and opinions, which can then be shared and if necessary, corrected.



- Stop, Think, Draw - students are asked to complete a drawing, which is then used in the following crafting section of the lesson.
- Stop, Think, Craft - students create their own craft item; poster, 3D Volcano, mind maps and concertina shapes are just some examples. By the end of the lesson students will have their own personalized craft item to be proud of!

By using this component students will enjoy learning about science by talking, thinking, doing and crafting.

Amelia Rose Explores.

Think and Craft

Have students die cut a concertina of white circles.

Have students die cut a concertina of red circles.

Have students die cut a concertina of blue circles.




On white circles, have students cut out pictures of ingredients that when mixed do not change physical properties.

On red circles, have students cut out pictures of ingredients that when mixed do physical properties.

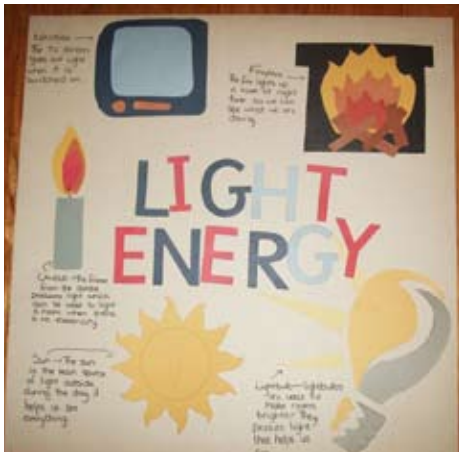
On blue circles, have students write important facts they have learned: Boiling and freezing point, Neutral soil pH level.

What uses do humans make of a lemon and water solution?

Answer:
Will vary, check accuracy. For example: aid for digestive system, facial cleansing.



Science Through Art



Science through art is a component of our program, which addresses each TEKS for grades K - 8. This component is perfect for use with ELL, special education and below grade students within grades K - 5.

Each lesson plan maintains a format, which makes it extremely easy to follow for all teachers, whether used to using art in combination with core subjects, or completely new to this idea.

- Lesson objective - each lesson plan contains a lesson objective, which will help teachers to plan when to use each lesson, as well as help to maintain a focus to each class.
- Preparation - students may need to work individually, in pairs or in groups, which will require different space allowances.
- Materials - most of the materials used can be found in the recycling box or can be bought very cheaply from local stores. Die machines and dies are used throughout these lesson plans, which can be sourced directly from ourselves. Invicta manipulatives have also been included for use within most lesson plans. Invicta produce fantastic, affordable and strong manipulatives perfect for every day use within your classroom.
- Time - some lesson plans may require longer than a usual class session.
- Story - each lesson plan contains a story, which continues from the Amelia Rose Explores resource. This helps students to see scientific concepts being learned in a real-life way, and can help to focus students in their learning.
- Exercises - students will be required to complete a variety of exercises within each lesson. By having students 'doing' the science with art, they can take part in a fully inclusive, hands-on and ultimately fun class. Inspire learning through creativity!
- Summary statement - students will develop their own summary statements about the lesson. This will help teachers to confirm understanding of the topic with each student; any misconceptions can then be addressed. It will also help students to gain a sense of achievement if they can recognize what they have learned.

After each lesson, students will have their own personalized science through art item, which they can take home or even use as a display item.

By using this component students will enjoy learning about science by talking, thinking, doing and crafting.



After School Clubs

It is always difficult in elementary school for teachers to design materials for after school clubs.

We have provided two sets of materials.

Science after school Club

We have chosen to provide two key sets of materials for science after school clubs.

Recycled Science -

The author is a teacher who wants science to be taught using only materials from a recycled bin as a project within which students can really comprehend natural resources and reusability.

Teaching or reteaching scientific concepts using 99% recyclable materials straight from your recycling box!

Critical Thinking in Science -

This is a valuable review resource for all students. It reviews most key topics of K 8 learning in two volumes.

The program is literacy based and is inclusive. The author, an elementary school district science coordinator, wants science and literacy to be taught to ensure that students learn science language.

Use these exercises to have students practise their science vocabulary. Each exercise can be used as a homework assignment, review or in preparation for exams. Students will write their answers to common exam questions, and then read an ideal answer. Students will be able to identify where they can improve their writing and general understanding before exam time.

Personal, social and Health after school Club -

Wonderful resources are provided for arts cross curricular projects by Action Based Curriculum.

The topics are all science related for example; humans and other animals, wild animals, life processes, down on the farm. All topics include a wide range of personal, social and health education discussion points or activities. Students will learn that these social elements are an extremely important part of their education.

Reteach Library

TPS Publishing has compiled a library of resources, which include a wide variety of components all approaching science from a different angle. The resources within this library have been designed to provide teachers with materials, which will help to reteach or reinforce already learned scientific concepts. Over the course of a school year teachers are expected to cover a lot of information, therefore students are expected to learn a lot of different concepts. The resources within this library enable teachers to cover already learned concepts with short and interesting activities or exercises, later in the year, to remind students of what they have already learned.

Within this library TPS Publishing are including such resources as:

- SMILE - lesson plans, which promote the combined learning of Science, Math and Literacy.
- Sharks - a mini interest project.

These are just a few examples from among many others.

Invicta Manipulatives

Invicta has been providing high quality innovative educational products for over 50 years.

Their award winning manipulatives are fun to use, very robust and affordable.

Invicta Education has a product range, which takes children from familiar themes into new learning opportunities and experiences.

Invicta products encourage students to observe and identify, investigate and collect, record, organize and analyze.

Most importantly students are encouraged to take action for themselves.



Beginning

Determine student's initial understanding of TEKS
such as STEM or Arts or i

Determine best possible strategy to address need

Direct instruction with practice

Know but do not understand

Need creative approach

Science is a Verb lab and
TPS Publishing
traditional
textbook lessons

STEM
Projects

Arts and crafts,
which may
include activity
guides and
reader books

Assess student understanding of TEKS by using TPS assess

From data and observations, determine if students are ready

All instruction supported by Parent/Teacher Conference
Professiono

Next
TEKS

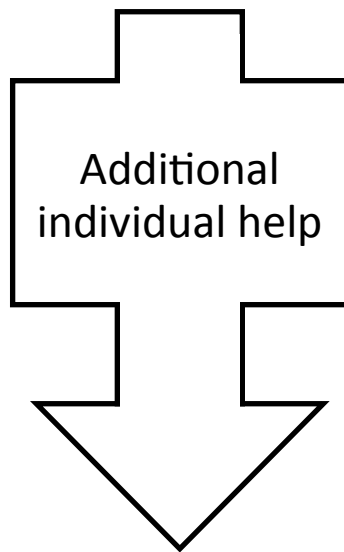
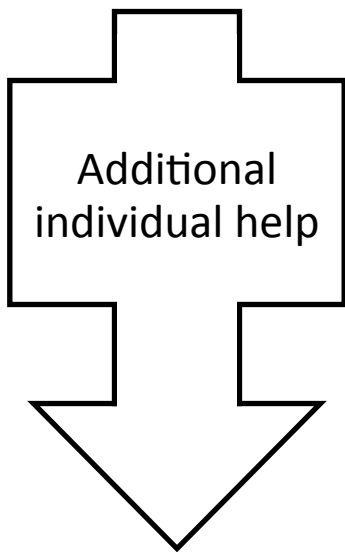
of a strand

Using TPS assessment database, visual assessments
and informal assessment strategies.

Needs, individually and/or collectively

Language difficulties

Archway
Literacy, Ellison
lessons and
videos, AVIMBA



Focus
Tutorials,
AVIMBA

Universal
Access
Alternative
lessons

Assessment

Decision

Instruction

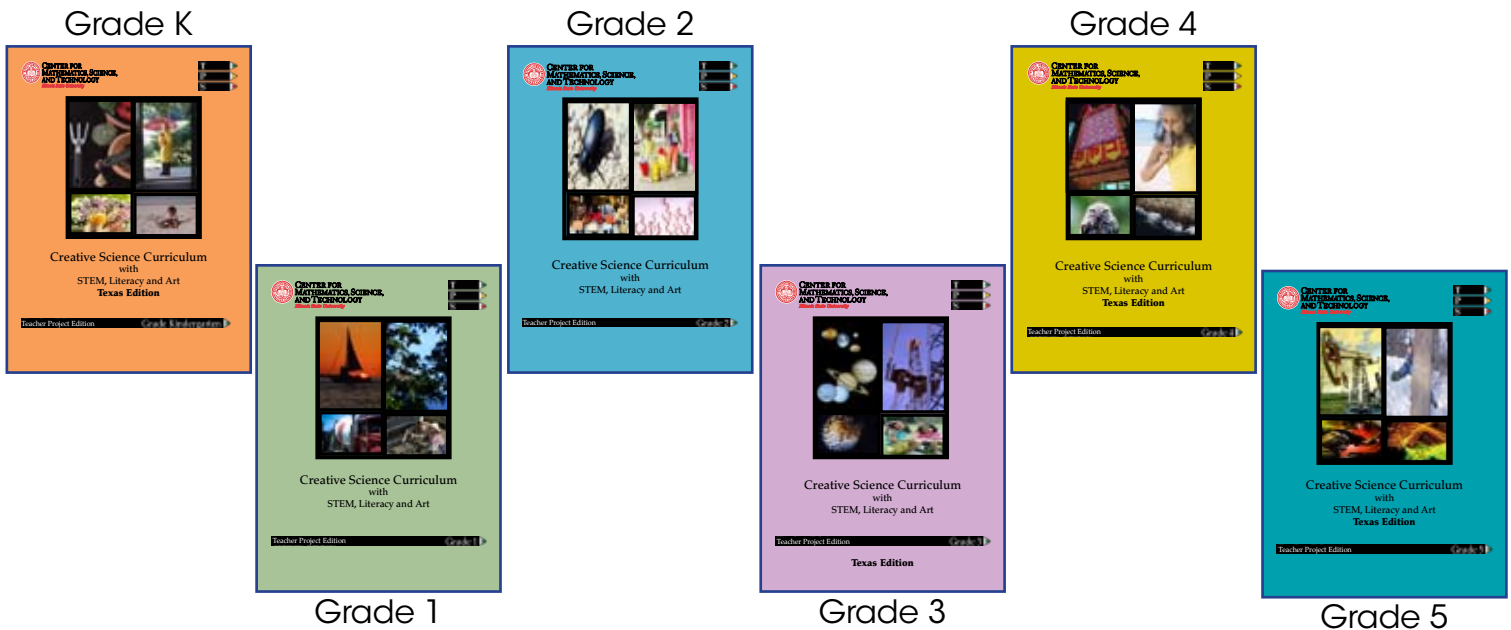
Assessment database and/or visual assessments such as STEM or Crafting

to move on to the next TEKS or if more instructional time is needed.

Instructional Guide, Craft Packs and Kits, Invicta Manipulatives, and
Personal Development

STEM Project Editions

The STEM Project Edition, for grades K through 5, takes science instruction to a whole new level. Students learn TEKS content by using science in fun projects. They design and build a variety of devices and use science to explore, describe, and predict their operation. STEM projects work well as a visual assessment at the beginning or end of a unit of instruction. They also can be used to tie unrelated concepts together. Scientific Investigation and Reasoning are clearly addressed and utilized in every project.

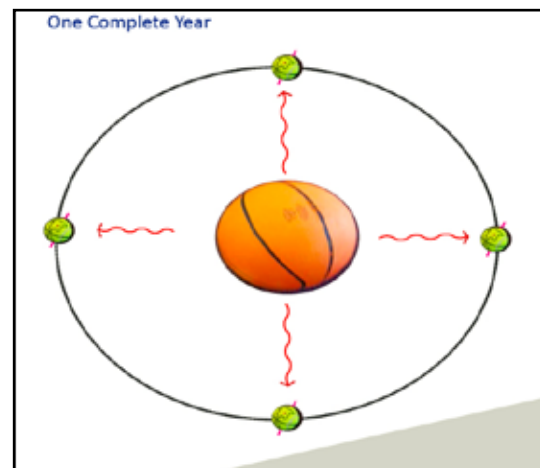


All activities are written in a three-part learning Cycle format that allows students to learn by experiencing the concept, not just hearing about it.

Explore

Describe

Use It



(6) Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:
 (A) measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key;
 (B) describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and
 (C) collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time.

Explore It 2

1. There is a storm on the horizon that is threatening your island.



2. Set up some weather data collection devices on your island.

Weather instruments could be as simple as a jar to measure rainfall and a flag that will blow in the wind. Encourage students to be as precise and comprehensive given the limitations of size. In the Student Edition there are hints of ideas, but no explicit examples. Encourage your students to be creative.



3. What devices do you need? You probably will want to measure rainfall and wind. What about wave height or storm surge?



4. Design, build, and set up your weather instruments.



Teacher Project Edition
 © 2013 TFS Publishing Inc, Illinois State University, Action Based Curriculum, Invicta Education

Have No Fear!

“STEM” is a buzz word. However the University writers have been creating STEM lesson plans for two decades.

The instructions are clear and concise.

Teachers can receive excellent professional development at their school or at the University.

Have no fear, we are here to help you deliver STEM activities.



Students learn how structures and functions of plants and animals allow them to survive in a particular environment.

Use a PB & J sandwich to understand a tectonic plate and to see how they work.



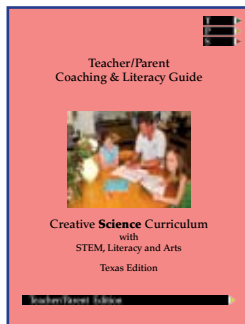
Students learn how cranes and other equipment use energy to apply force to do work.

Teacher/Parent Guide

We all know the importance of good cooperation and support from home. TPS represents “Teachers, Parents, Students”.

The program’s Parent Guide provides information and ideas for how parents can work with the teachers to enhance the education of their child.

The guide has three key sections; Our philosophy for teaching science, the Texas Essential Knowledge and Skills, Literacy and Coaching by TEKS, by grade. The coaching guide is a great tool to unravel misconceptions and or to make available for substitute teachers.



The literacy worksheets mentioned in the Parent Guide are provided on the teacher blackline master. Parents can be confident that by completing the worksheets they are assisting their children master the science content in each year. At Home activities are also provided in each Student Textbook. The data can all be stored in AVIMBA.



3

Turn on, turn off

Which things use electricity?
Cut out the pictures. Stick them to the right part of the table.

The image contains several illustrations arranged in a grid-like fashion. From top-left to bottom-right, they are: a grey printer, a purple and blue exercise machine, a blue funnel with orange and yellow flames, a yellow stopwatch, a silver video camera, a red rotary telephone, a green and yellow bicycle, and a person in a blue hat and green shirt rowing a red canoe on blue water. At the bottom center is a blue and green cot.

Blackline Master

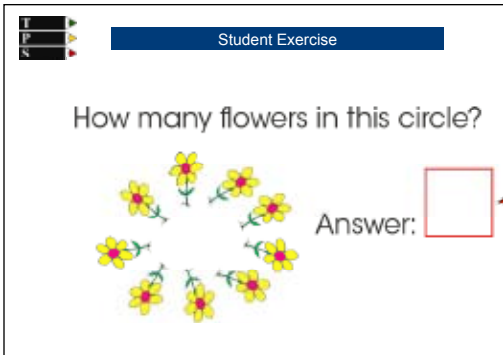
The usual master sheets are included for your use.

In addition we provide the Student Textbook vocabulary and At Home pages together with the literacy worksheets, which are by TEKS and provide useful homework or further class assessment materials.

Focus Tutorial and K - 5 Workbooks



The focused tutorial is a HTML presentation, which can be run from the web, local server or personnel device, covering Science content in each grade. It is recommended for use for students who really struggle with traditional textbook learning, either due to low English Language skills or other special educational needs. It can also be useful to students with gaps in learning who are At Grade.



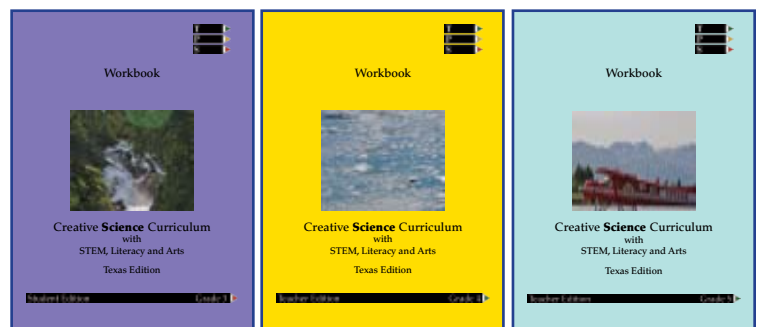
We provide digital format workbooks K - 5.

Review exercises by TEKS provide wonderful resources to use before examinations in conjunction with the Assessment Database questions.

The workbook can be used in the classroom and/or at home. The product can be purchased

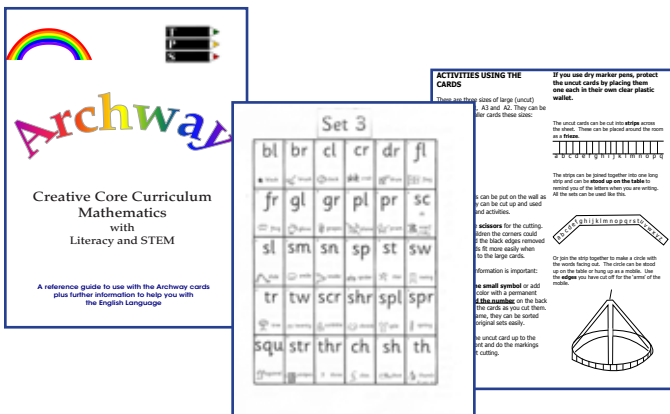


Grade K Grade 1 Grade 2



Grade 3 Grade 4 Grade 5

Archway



One of our teacher/writers, Lynda Lunn, has made it her mission to help students to be able to read and to write. We provide this mini program to assist all of the ELL students in your classes. By using the focus tutorial, Ellison video content, art projects and Archway; ELL students progress more quickly.

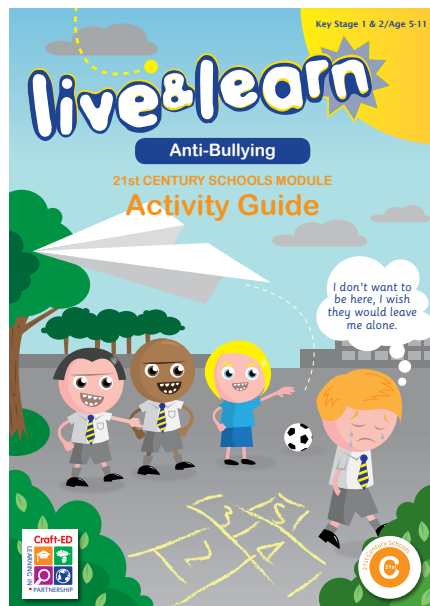
AB Curriculum

Activity Guides and Craft Packs

Students really enjoy craft activities, especially when using a die cutting machine. If they are tied directly to required science concepts and reading, even better. Our Activity Guides and Educational Paper Craft Packs provide exciting projects for both teachers and students. Imagine on the first day of a new school year starting with "All about me". In about two hours all students will be communicating and working as a team.

Activity Guide Topics are: I Love My Life, Family, Healthy Me, Baby Science parts 1-4, Community, Enterprise, Magic Math, Word Play, Antibullying, Humans and Other Animals, Life Processes, Going Green, Safety on the Internet, I Love my Pet, Olympic Games, My Family, Transitions Pre school to Elementary, Transitions Elementary to Middle, Stay Safe, Going for Goals, Emotions, Handling Data, Food, Nature, Wild Animals, Transport, Understanding Shape, Farm Animals.

Educational Paper Craft Packs are: All About Me, Family Tree, Ancient Egypt, Back to School, Careers, Communication, Down on the Farm, Ecosystems, Knight in Shining Armor, Music, My Home, My Journey, My Planet, Pretty as a Princess, School Days, Solar System, Sports, Transportation, Wheels in Motion, Birthday, Friends, I love my Pet, My Vacation, Sleepover.



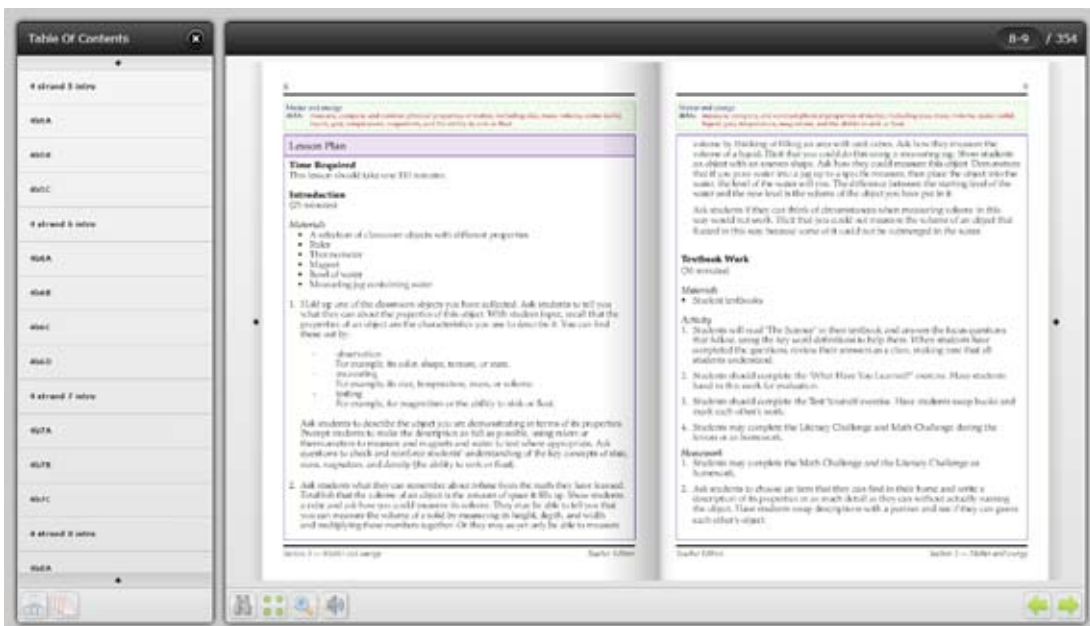
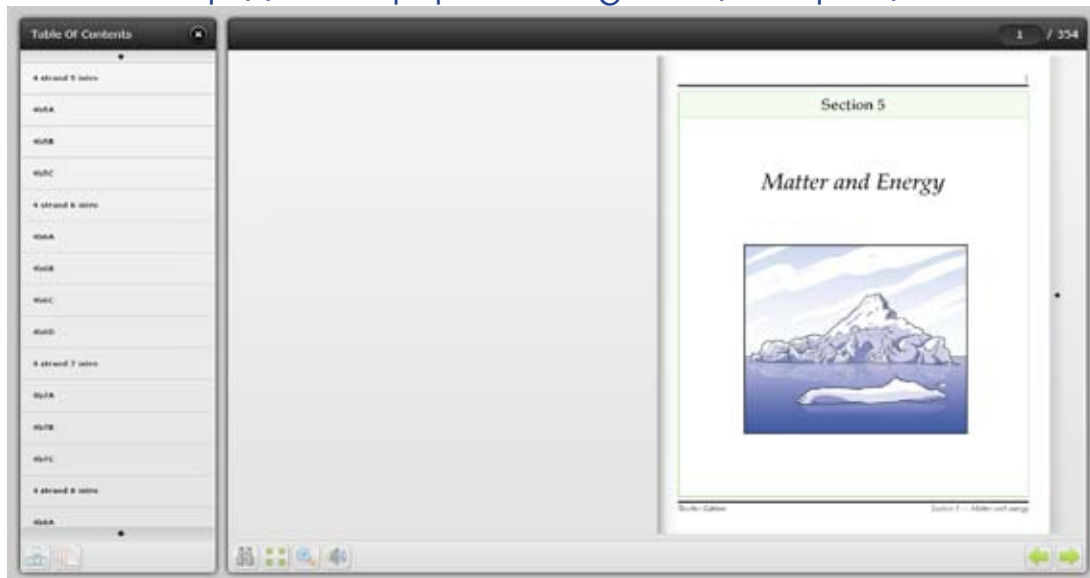
Digital Content

Digital content of all products is accessed from the TPS website.

A license can be purchased by school and or by district and logon details provided for each.

All content can be downloaded, stored and accessed on digital and hand held devices as required.

To see sample of all digital content within the program go to:
<http://www.tpspublishing.com/samples/>



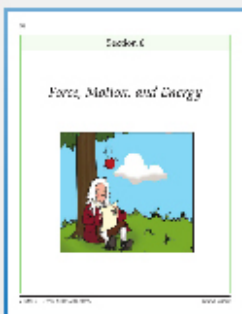
Thumbnails



52



53



54



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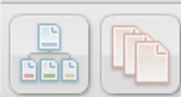
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58



59



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Section 6

Force, Motion, and Energy



Section 6 — Force, motion, and energy



Teachers' Checklist

This strand deals with force, motion, and energy. By the end of this section, the student is expected to know that energy exists in many forms and can be observed in cycles, patterns, and systems.

Lesson title	Energy					
Standard 4b6A	The student is expected to differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal.					
Math links	4MD2	ELA links	4b11A, 4b11D, 4b16B	Science links	4a4A, 4b3A	
Notes						

Lesson title	Conductors and Insulators					
Standard 4b6B	The student is expected to differentiate between conductors and insulators.					
Math links	4NF7	ELA links	4b11A, 4b11D, 4b24B, 4b24C	Science links	4a4A, 4b1A, 4b2A, 4b2B, 4b2C, 4b2D, 4b2F, 4b3A, 4b4A	
Notes						



Professional Development

On line information, videos, webinars, and courses

On Campus workshops of various lengths and courses

On Site half day, one-three-five-ten day workshops

All Creative Science Curriculum materials are supported by extensive Professional Development opportunities. The educational professionals at the Center for Mathematics, Science, and Technology at Illinois State University have designed and provide all services.

On-line opportunities include information about the products, sample lessons, short videos, webinars, and courses. Workshops can be conducted on site or on campus in Normal, IL. They vary from a half-day to 10 days in length. The shorter workshops provide an overview, the longer sessions allow extensive experience with teaching lessons and assessing student progress. All training consists of actually doing the lessons and projects.

You will be actively involved.

Parent/Tutor Development courses available for parent/tutor to enable full understanding and usage of the program to assist in student science learning.



A final note to teachers.

To assist you throughout the year we have created a symbol to make you aware that, within certain lesson plans, there is particularly useful correlation to certain components.

Below is a key to help you use the correct components.



Digital Frog

The wonderful interactive software will help all students to learn content.

Ellison[®]

The **Ellison** videos help teachers with diverse student population to use arts to teach mathematics.



We all want to spend as much time outside in our wonderful world as possible.

This symbol shows that the lesson content works particularly well in an outside space.

How to contact us

Our teacher/writers are happy to discuss your rquestions and quirements:

By Telephone **866-417-9384**

By E-mail info@tpspublishing.com

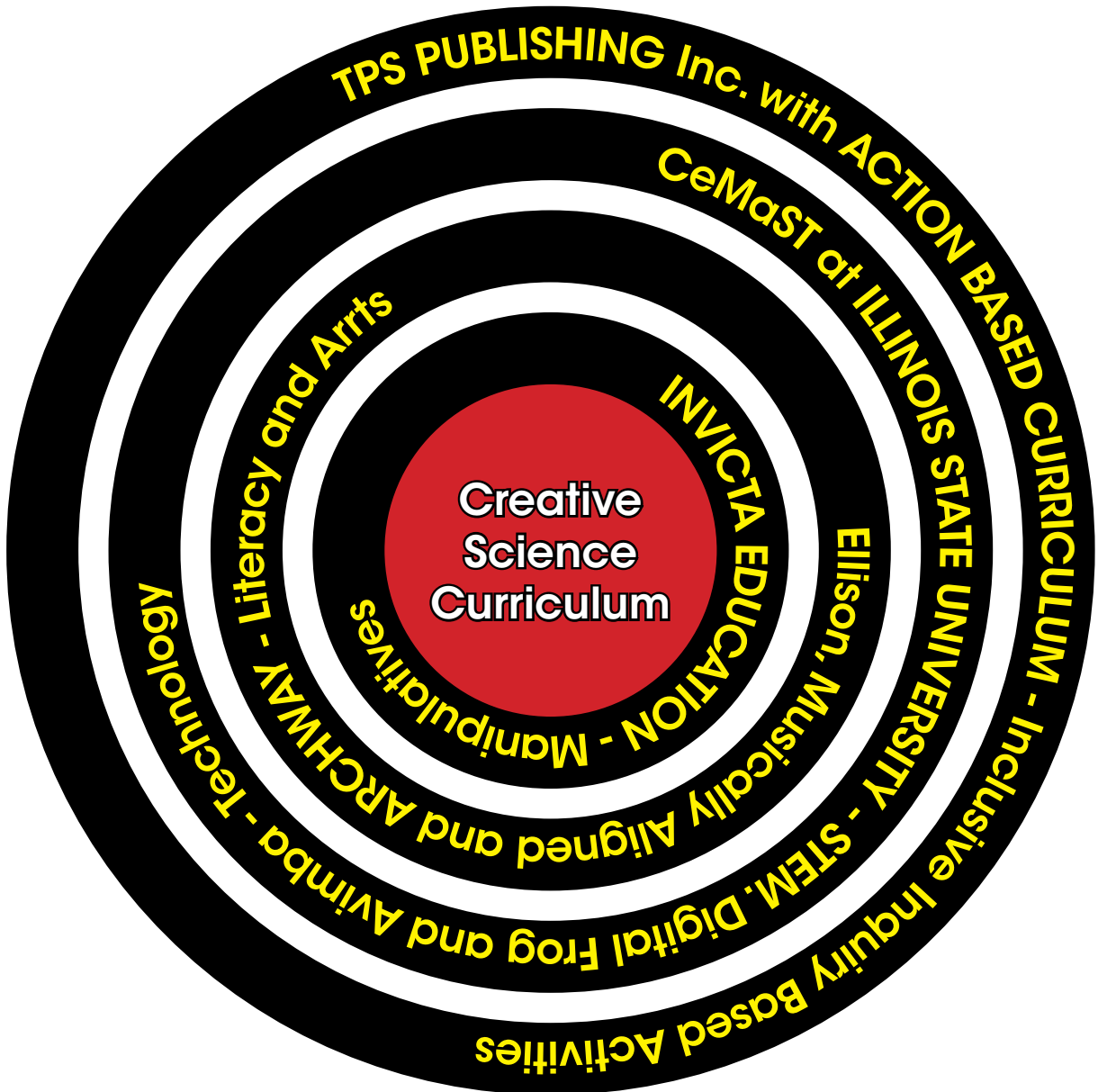
By Mail TPS Publishing Inc.
24307 Magic Mtn Pkwy #62,
Valencia, CA, 91355

By Fax **800-578-5191**

See more at www.tpspublishing.com

To review our program please follow this link.

www.tpspublishing.com/math-adoption/texas



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