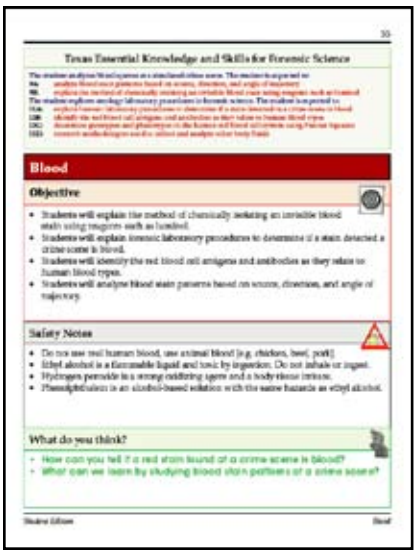
Forensic Science

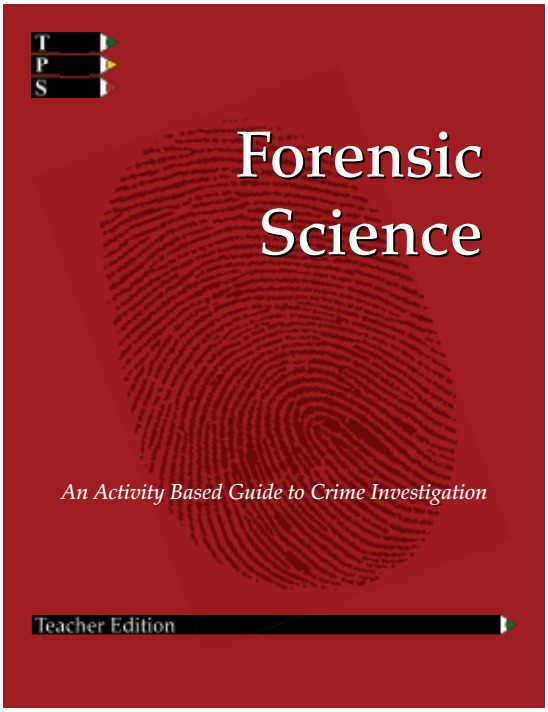
Fully aligned to the Texas Essential Knowledge and Skills for Forensic Science

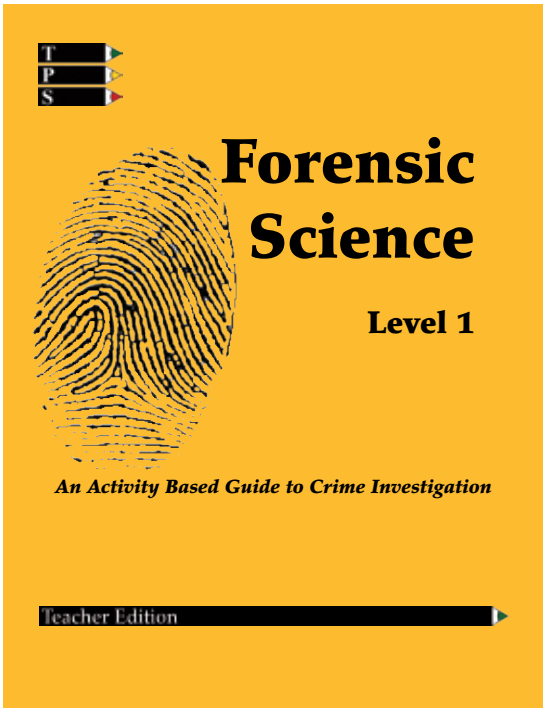
TPS Publishing Inc.

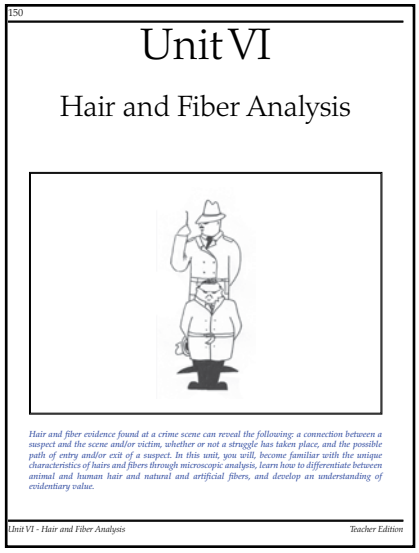
TPS Publishing Inc. has been created and is owned predominantly by experienced teachers, specifically to improve the success of each student.

TPS believes 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 State Standards (TEKS).









All major components of the program are available in both

Introduction

TPS Publishing Inc. has constructed the Forensic Science program with the intent to enhance the Forensic Science learning and teaching in schools in your state.

Through adhering to the TEKS break outs for Forensic Science, the program presents the topic as a way of thinking and learning, incorporating literacy skills necessary for academic success in acquiring Science as an academic language.

Television! For over 50 years parents and the public at large have blamed television for the creation of self-indulgent, couch hugging youngsters. They say the youth of today have simultaneously developed shrinking attention spans and expanding ideas of the need for every toy and game seen on TV.

But there is currently another phenomenon attached to television.

In the past several years there seems to be an unquenchable thirst for crime investigation shows, both real-life and drama, prime time and syndication, factual and "enhanced" for the television audience and for those all-important ratings!

Science educators have been watching this phenomenon unfold as well. They have recognized that a perfect marriage of science concepts and skills with the "real world application" of science knowledge can be found in the area of Forensic Science. The students, now intensely interested in the field of using science to solve crimes, as portrayed in the crime scene investigation shows, find that they can carry out simulations of these investigations right in their high school laboratories.

The Pedagogy:
Scientific inquiry is at the heart of Forensic Science. In a Forensic Science course, students, just as the professionals in the field, are expected to develop testable hypotheses and create logical connections between the design of the experiment and the scientific concepts that underlie the situation. They carry out their investigations, collect and analyze data, formulate explanations, revising their hypothesis if necessary, re-work their investigation, and draw conclusions.

- Knowledge — Students will have an opportunity to use the science knowledge they have already collected throughout their school experience, such as concepts in biology, geology, weather, chemistry, and physics as a basis for their continued investigations.
- Skills — Students will use and refine already acquired science process skills such as observing, inferring, analyzing, evaluating, as well as those technical skills specific to forensic investigation in order to solve the crimes.

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- Application — Students will discover that "real-world" science requires a great deal of creativity. They will be expected to take knowledge from all the fields of science, researching where necessary to fill any gaps, in order to make their own meaning about their tasks and come to conclusions about the investigation.

In addition, students will be using mathematics concepts, such as trigonometry as applied to trajectories, as another invaluable tool to aid in the explanation of particular crime scenes.

The premise of this course of study is that students have the knowledge and skills to solve problems. They may not, initially, have the knowledge to determine, for example, the exact location of the perpetrator based on the range of blood spatters. However, they have the knowledge and skills to creatively figure it out. They might have to work to do it, but they have the capacity and, if years of testing these lessons is any indication, they enjoy the challenge.

Forensic courses, both in high school and in college, continue to grow in popularity just as Forensic Science continues to expand as a career. Students are recognizing that all crimes are not solved in a one-hour segment, as on their favorite TV shows. But they are also recognizing, through courses like this one, that Forensic Science offers a wide range of opportunities for chemists, biologists, geologists, physicists, artists, photographers, mathematicians, historians, and others who are interested in bringing arts and sciences together with criminal justice.

This series of books are fully aligned to the Texas Essential Knowlegde and Skills for Forensic Science, and consists of a Teacher Edition and a Student Edition for both Level One and Level Two.

1. Teacher Notes — Detailed "teacher notes" are found at the beginning of each section of the book. Understanding that science teachers have different areas of expertise and that Forensic Science draws from many fields of science, notes have been included to provide background for each area. These notes provide information about the science concepts and the application of the concepts to forensic investigation.

Teacher notes sections are organized as follows:

- Note sections that are in the Teacher Edition and NOT in the Student Edition are color coded dark red and are identified by an alphabetical label.
- Investigation sections that are in both the Teacher Edition AND the Student Edition are color coded blue and are identified by a numeric label. They match exactly in both editions and are cross referenced in the contents pages in the Teacher Edition.
- Where there is additional information specifically for the teacher within the investigation sections we have clearly identified these by color coding them green. Since the most effective way for students to learn this information is through hands-

Introduction

on investigations, these background notes are not provided in the student edition. When beginning a new section, it is recommended to have students engage in the introductory investigations first. Once those are completed, there may be a period of time in which the teacher provides elaboration on the concepts explored in the investigation. Background notes may be used to guide that discussion.

- Since some investigations require the students to have specific knowledge before proceeding with the investigation, notes are provided before the activity in the Student Edition.

2. Investigations — Copies of the investigations contained in the Student Edition are duplicated in the Teacher Edition. Included are additional teacher tips on where to find specific materials and supplies, instructions on inexpensive ways to create solutions or provide materials necessary for a particular investigation, safety precautions, and areas which might cause confusion for students.

Contained within each unit are investigations that are designed to either deliver notes for key concepts in a captivating, non-didactic manner or guide the students to develop their own knowledge for key concepts through hands-on, real life applications.

3. Examinations — an exam is provided for each of the units within the level 2 edition and are color coded black.

4. Answer keys — Embedded within the investigations and accompanying the unit exams are answer keys and are color coded light red.

It should be noted that along with knowledge-based questions, for example types of fingerprints, most of the questions students are expected to complete require higher-order thinking skills. For this reason, several acceptable answers may be given in the answer key for a single question. The individual teacher, based on the students' scientific rationale, will be the best judge of the correctness of the statement.

5. Student Handout Material — Throughout the book you will see the word 'Handout' on the bottom of certain pages e.g., exam, exam answer sheets… Please feel free to photocopy these pages as handouts to your students. TPS Publishing Inc. are happy for you to photocopy the Handout pages but please refrain from copying others – Thanks.

Good luck with the course...

The Authors

Level One

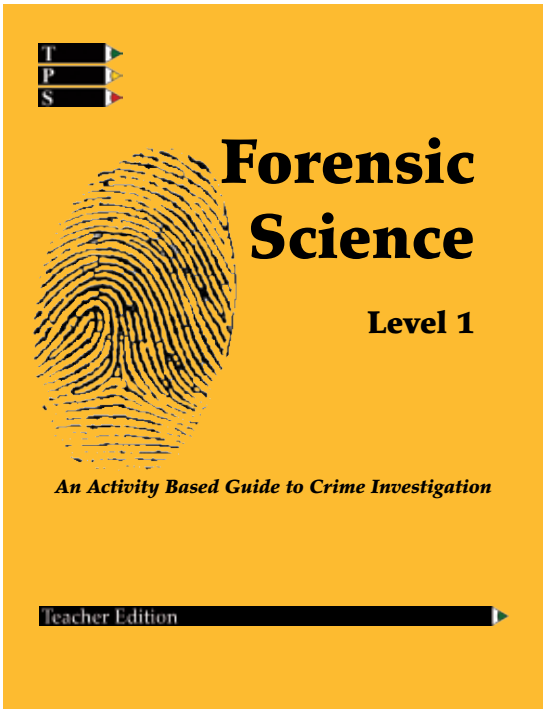
Forensic Science Level One is a comprehensive course, which covers all Texas Essential Knowledge and Skills for Forensic Science.

The approach with this level is to present students with an introductory short course. Students can gain a knowledge of the subject and what it entails, which will then be developed with the use of our Level Two resource.

Forensic Science Level One is composed of:

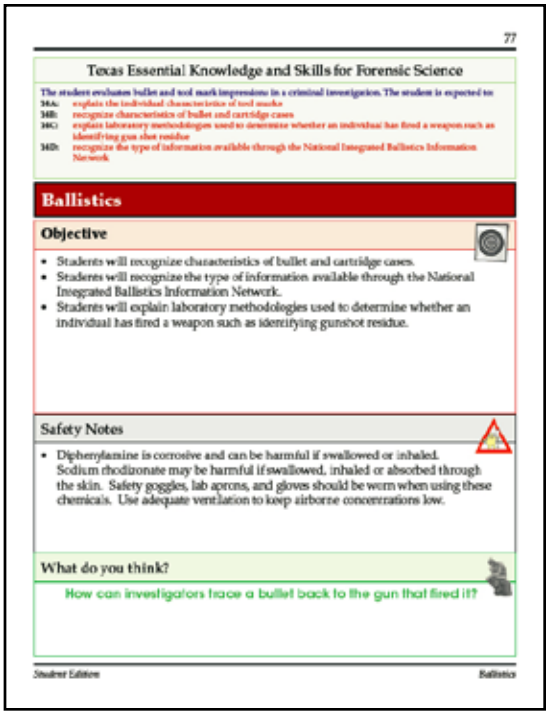
- Teacher Introduction and Information
- 11 units
- Activities for students

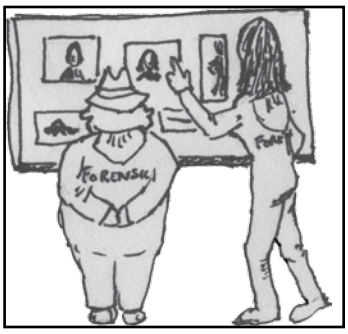
This level is presented in two separate books; teacher edition and student edition.
The teacher edition includes all teacher information, student information and activites with answers. The student edition only includes the material appropriate for the student.



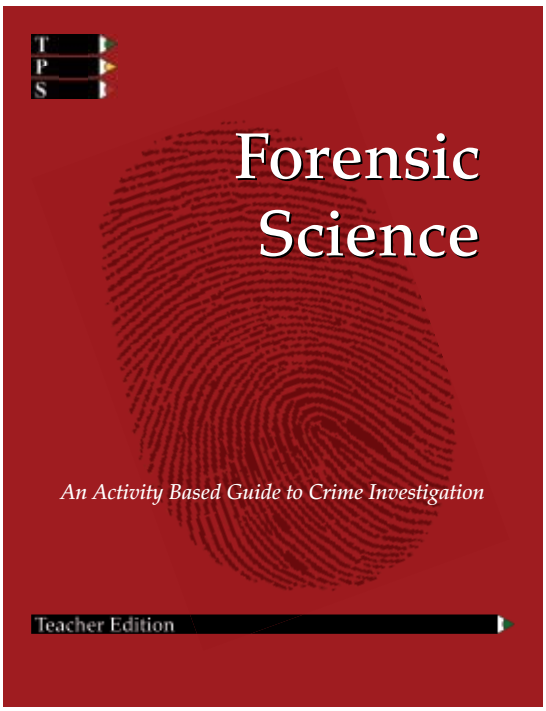
Level One units include:

- Ballistics
- Blood
- Bones
- Bugs
- Crime Scene Processing
- DNA
- Fingerprints
- Glass
- Hair Fibers
- Identifying Unknown White Powders
- Toxicology



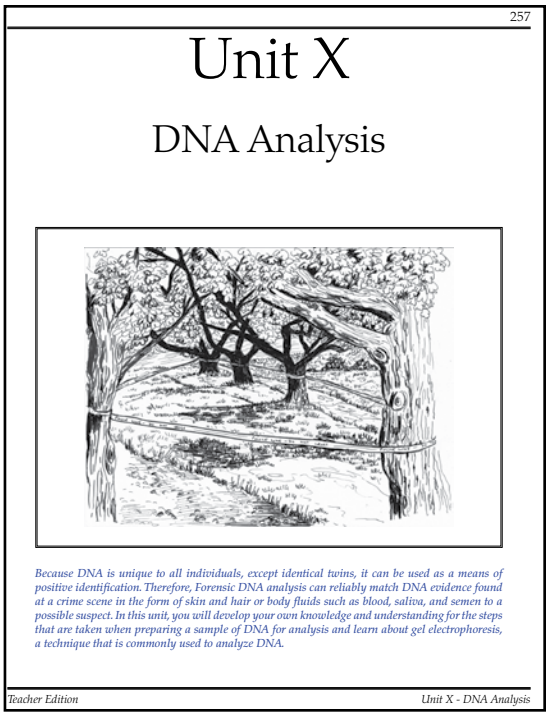


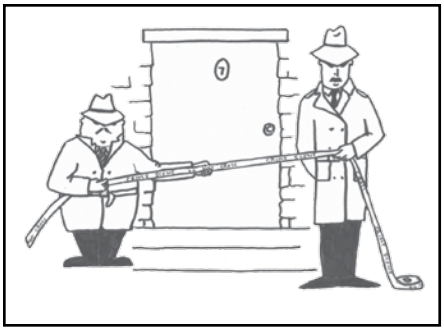
Level Two

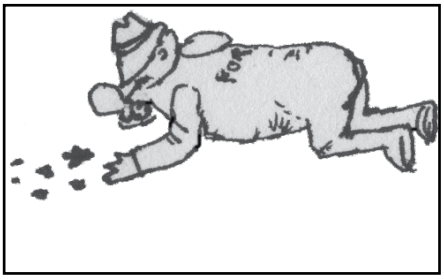


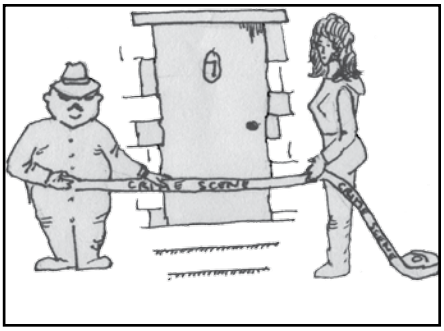
Level Two units include:

- An Introduction and the History of Forensic Science
- Crime Scene Processing
- Finger Print Analysis
- Firearms Analysis
- Drug Analysis
- Hair and Fiber Analysis
- Bloodstain Pattern Analysis
- Document Analysis
- Impression Evidence
- DNA Analysis









Forensic Science Level Two is a comprehensive course, which covers all Texas Essential Knowledge and Skills for Forensic Science.

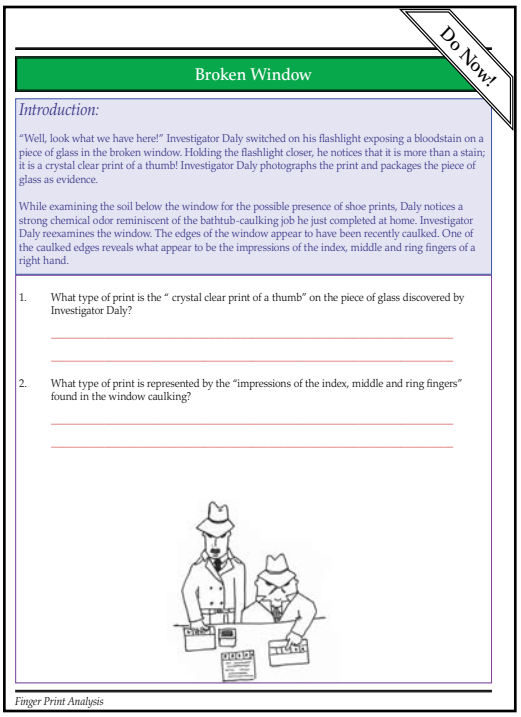
The approach with this level is to present students will a complete long course. Students will build upon the knowledge gained through using Forensic Science Level One.

Forensic Science Level Two is composed of:

- Teacher Introduction and Information
- 14 units
- Activities for students

This level is presented in three separate books; teacher edition, student edition volume one and student edition volume two. The teacher edition includes all teacher information, student information and activites with answers. The student edition only includes the material appropriate for the student.
Alongside these books, you will also have Do Nows and the Forensic Science Club.

Do Nows


Do Now!

Broken Window

Introduction:

"Well, look what we have here!" Investigator Daly switched on his flashlight exposing a bloodstain on a piece of glass in the broken window. Holding the flashlight closer, he notices that it is more than a stain; it is a crystal clear print of a thumb! Investigator Daly photographs the print and packages the piece of glass as evidence.

While examining the soil below the window for the possible presence of shoe prints, Daly notices a strong chemical odor reminiscent of the bathtub-caulking job he just completed at home. Investigator Daly reexamines the window. The edges of the window appear to have been recently caulked. One of the caulked edges reveals what appear to be the impressions of the index, middle and ring fingers of a right hand.

1. What type of print is the " crystal clear print of a thumb" on the piece of glass discovered by Investigator Daly?

2. What type of print is represented by the "impressions of the index, middle and ring fingers" found in the window caulking?

Finger Print Analysis

Alongside the Forensic Science Level Two, you will receive a full collection of Do Nows.

We have created aligning Do Nows for each unit within the Level Two resource, there are a set of 100 in total.

Each Do Now is photocopiable.

The Do Nows give students the opportunity to engage in scientific inquiry and use their developing knowledge of science content in crime situations.

Each Do Now only requires about 30 minutes, which makes them ideal for homework assignments, assessments and calss introductions.

The collection of Do Nows include:

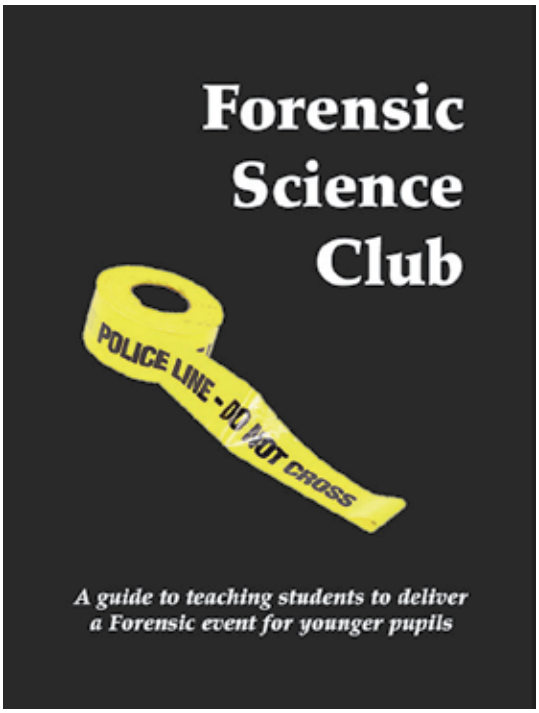
Introduction/History
- Blank Lab Report
- Evidence Chart
- Wife Kills Husband

Finger Print Analysis
- Broken Window
- Types and Patterns

Drug Analysis
- Boom!
- Coffee Beans

Impression Evidence
- Axe Murderer
- It Wasn't Me!
- Tire Tracks

Forensic Science Club



An inspiring booklet designed to engage a group of highschool Forensic Science students to plan and deliver a crime scene science event to a local community or school venue. This is a nine month guide for a weekly one hour Forensic Club that is an exciting project for everyone involved. It covers Forensic Science techniques, organizing skills, team work, presentation skills and can be a valuable part of community service. Using Forensic Science Club, students will be able to confirm their understanding of the topic and to work toward their target of highschool community reach out hours.
The authors are experienced presenters of Forensic Science in schools and teacher workshops. The materials used in this book are inexpensive and shown in simple photographs, at a level for the older students to present to younger students.

- Planning a crime scene
- How to select suitable students
- Club week 1. blood spatter
- Club week 2. prints and impressions
- Club week 3. hair and fibre analysis
- Club week 4. sending an event letter to the school
- Club week 5. the crime scene planning
- Club week 6. the crime scene planning continued
- Club week 7 - 11. preparation for the forensic event
- Club week 12 - 15. final preparations
- Club week 16. packing for the event
- Club week 17. the big day
- Club week 18 - 19. evaluations and packing away
- Club week 20. a celebration event for the club
- Appendix
- An Introduction and the History of Forensic Science
- Fingerprint Analysis
- Impression Evidence
- Hair and Fibre Analysis
- Crime Scene Processing
- Document Analysis
- Bloodstain Pattern Analysis

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 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.

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

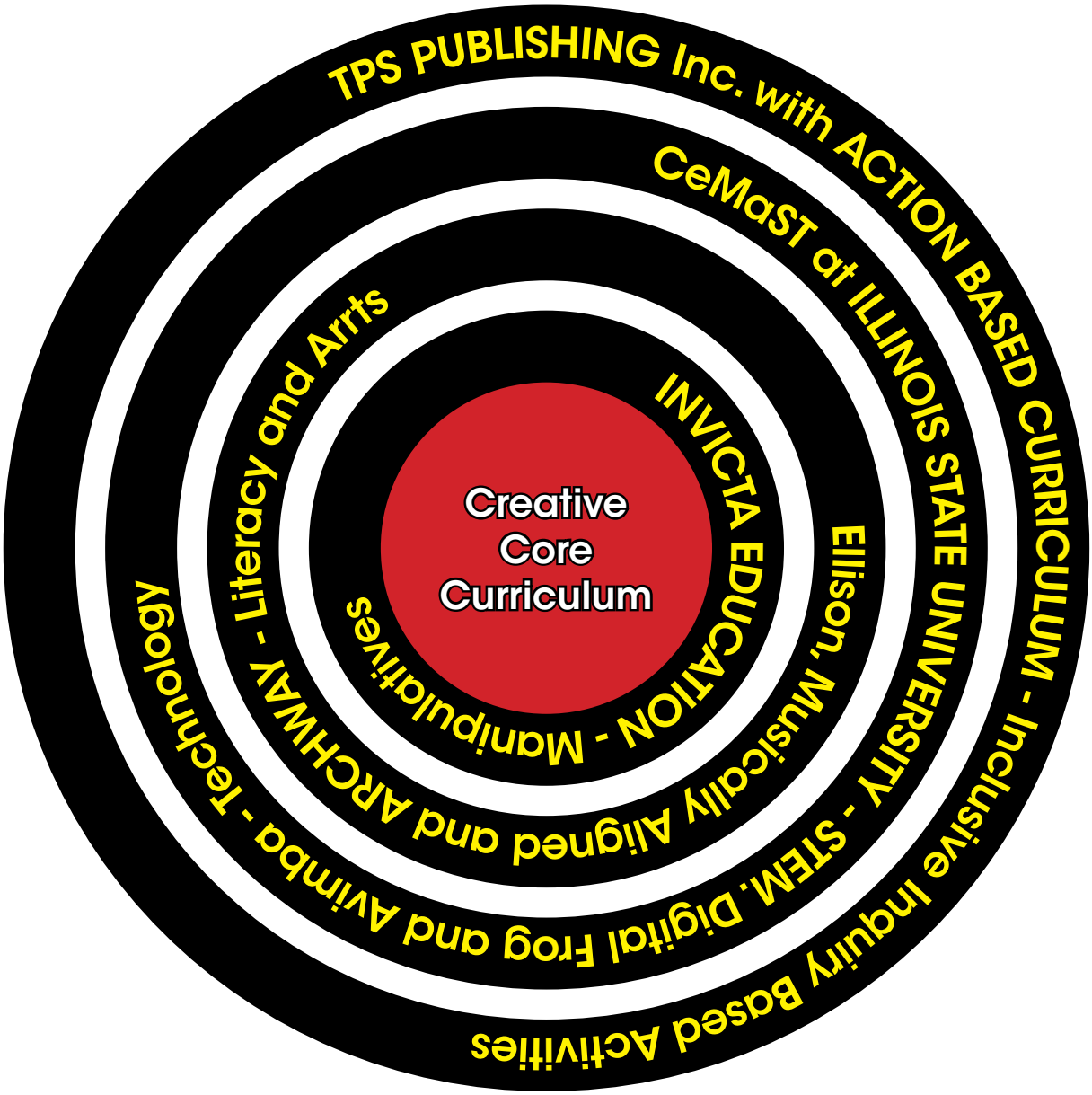
By Mail TPS Publishing Inc.
24307 Magic Mtn Pkwy #62,
Valencia, CA, 91355

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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